

# JET3<sup>UP</sup>



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## Operating Manual V1.09

Please keep for future reference!



## 1 General Information

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## 1.2 Group directory

The group directory serves as a guide through the device manual at hand to be able to find specific subject areas quickly.

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### 1.3 Publisher

For questions regarding the operation and running of the LEIBINGER JET3upup as well as in service case please contact the listed dealer address.

### Dealer address

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We reserve the right to make alterations to the scope of delivery at any time in the form of technology, hardware, software as well as the corresponding materials (and manual extracts) as a result of innovative further development of our devices.

Texts, illustrations and technical drawings have been compiled with the greatest of care. Nevertheless errors cannot be excluded. Consequently no warranty can be assumed for the correctness of the content of this manual and no claims can be asserted against Paul Leibinger GmbH & Co. KG.

We shall be grateful for information regarding possible printing errors as well as for suggestions for the further optimisation of the device manual.

Authoritative for the scope of delivery is not the manual but rather the written order confirmation.

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#### 1.4 Symbolism of the manual

The following symbols and pictograms are used in this manual in order to point out possible dangers and necessary user information.

	Risk due to electricity		Risk due to flammable materials
	Risk due to pressure		Risk due to electrostatic discharges
	Risk due to potentially explosive atmospheres		Risk due to irritation of the respiratory organs
	Risk due to materials hazardous to health		Risk of explosion
	Risk of hand injuries		Smoking ban
	Comply with the operating instructions		Wear protective gloves
	Wear safety glasses		Important user information
	Service tasks		Usage tips

## 1.5 Introduction

We are pleased that you have decided in favour of a LEIBINGER JET3up device and welcome you as one of our customers.

You now own a LEIBINGER JET3up device that has been developed and constructed on the basis of many years of experience and using the latest Leibinger technology. This results in a high degree of quality and the renowned Leibinger reliability.

This manual shows you the fundamental advantages of the Leibinger Jet system manufactured by us, such as for example the fully automatic working, low maintenance etc..

### IMPORTANT



The manual must be read thoroughly prior to first start up in order to ensure that no damage to the device and/or endangering of the operating personnel results from a defective electrical connection and/or from incorrect operation.

### INFORMATION



Please pay particular attention to the safety instructions of the groups **Safety instructions** and **accident prevention** when handling consumables (ink and solvent).

Our devices are subjected to a quality control in our plant prior to delivery. If despite this the device or parts of it should be damaged or their function disturbed please advise us of this as fast as possible.

It is only through the use of inks and solvents from Paul Leibinger GmbH & Co. KG that optimum operating characteristics can be achieved. **Should other inks and solvents be used all warranty claims will expire.**

### PRODUCT LIABILITY



No alterations whatsoever must be carried out on the entire LEIBINGER JET3up device. No liability will be accepted for damage or dangers resulting from inadmissible alterations.



### WARNING

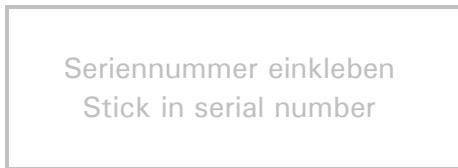


#### Danger of explosion!

- The device should be only operated outside of explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!

## 1.6 Document information

The instruction Release R1.09 of 10<sup>th</sup>.September.2017 is valid for LEIBINGER JET3up machine with the given below serial number.



## 1.7 Warranty

The warranty conditions for the LEIBINGER JET3up can be seen from the order confirmation. The warranty presupposes that the device or the installation is operated correctly in accordance with the available warranty conditions and any possible additional manuals and descriptions prepared by us.

At this point we wish to make explicit reference to the fact that it is only when using solvent and ink from Paul Leibinger GmbH & Co. KG that the optimum operating characteristics can be achieved. **In the event of use of other inks and solvents all warranty entitlements shall cease to apply.**

## 2 Safety

### 2.1 Scope of risks

The high performance industrial printer LEIBINGER JET3up has been built in accordance with state-of-the-art standards and recognized safety requirements and has been equipped with protective devices.

The InkJet-printer works with flammable liquids which are ink and solvent.

At incorrect usage or misuse may result in danger of health of the operator or further people, as well as property damages.

All persons, which are entrusted with the initial operation, commissioning, operating, service and maintenance must be specifically trained and qualified about the handling with ink and solvent.

Before the first usage of the printer in particular the operating manual as well as the safety data sheets of the ink and solvent have to be read and noted.

Operational and safety checks of the installation were carried out before it left the factory. In case of improper handling or misuse, however, there are dangers for

- the health of the operating staff
- the high performance printer JET3up and other real assets of the plant operator
- the efficient operation of the high performance printer

All persons entrusted with the putting into service, the operation, the maintenance and the overhauling of the high performance printer must

- have the necessary qualification and
- strictly comply with this operating manual.

**YOUR** safety matters!

## 2.2 Structure of safety instructions



### DANGER

In conjunction with the signal word, "Danger", the respective symbols represent an immediate threat to the life and health of persons. Non-compliance with these instructions will lead to a severe impact on health or even life-threatening injuries.



### WARNING

In conjunction with the signal word, "Warning", the respective symbols represent a possible threat to the life and health of persons. Non-compliance with these instructions may lead to a severe impact on health or even life-threatening injuries.



### CAUTION

In conjunction with the signal word "Caution", the respective symbol represents a potentially dangerous situation. Non-compliance with these instructions may lead to light injuries or material damages.



### ATTENTION

Relating to the signal word "Attention", the respective symbols mean a possibly dangerous situation. Ignoring the advice can result in minor injuries or damage to property.



### ATTENTION

In conjunction with the signal word "Attention", this symbol represents important instructions for the proper use of the machine. Non-compliance with these instructions may lead to machine faults, faults in the surrounding areas or other consequences.

## 2.3 Intended use

The high performance industrial printer JET3up serves exclusively the contact-free marking, inscribing and coding of surfaces using the continuous ink jet process.

The high performance printer can be used on the most varying materials (e.g. metal, synthetic material, glass, paper, wood, pressed materials, rubber etc.) with both, smooth as well as uneven, rough and stepped surfaces.



### IMPORTANT

The intended use of this device also includes the observance of all instructions in this manual.

**Using the installation for other purposes is considered contrary to its intended use!**

For safety reasons conversions and alterations are only admissible following consultation with the manufacturer. Repairs to the device must only be carried out with original replacement parts.

The manufacturer shall not be liable for damage resulting from use for other than the intended purpose or misuse.



### WARNING

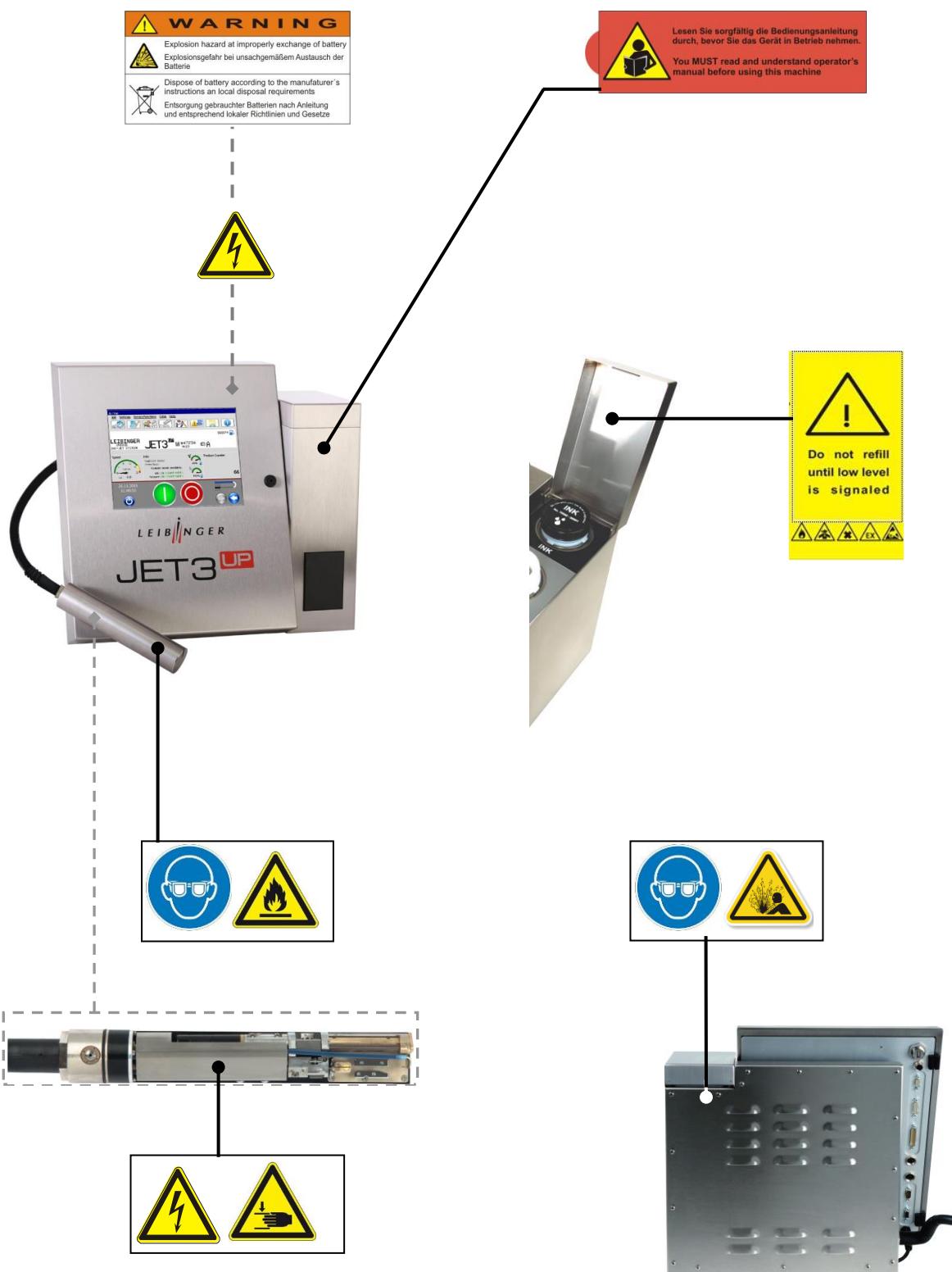
#### Danger of explosion!

- The device should be only operated outside of explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!
- Precautions regarding electrostatics have to be carried out!

## 2.4 Safety sticker

**Figure 1      Safety sticker**

Safety sticker



## 2.5 Operating staff

Only trained personnel must operate the device. The personnel must have the corresponding mechanical and electrical training to operate the inkjet printer professionally. The operator is responsible for third parties in the working area of the inkjet printer.

The owner-operator must make this operating manual accessible to the printer operator and has to ensure that the operator has read and understood it.

Personnel in training can work on or with the inkjet printer only when supervised by an experienced operator.

## 2.6 Dangers due to electric energy



### ELECTRICAL WORK

The electrical and electronic components of the high performance printer are under voltage. The device must only be opened by trained personnel or by Leibinger service technicians.

Prior to the opening of the device the device must be switched off and the mains plug removed.

## 2.7 Personal protective equipment



### **WARNING**

The inkjet printer processes materials that cause irritation and are under pressure. To prevent injuries and damage, the personnel must wear the following suitable personal protective equipment when carrying out certain tasks:

- Working clothes
- Safety glasses
- Safety gloves

The personal protective equipment must be provided by the owner-operator. Please consult the corresponding chapters of the operating manual as well as in the safety data sheets of the consumables for more information.

## 2.8 Protective devices and safety concept

In an emergency the device is placed idle by removal of the mains plug.

The device is equipped with the following safety concept to provide explosion protection:

- |   |   |
|---|---|
| ■ Bottom tub as collecting tray   | ■ Jet monitoring in the gutter circuit                          |
| ■ Ventilation in the hydraulic cabinet  | ■ HV-cutoff at creepage current                                 |
| ■ Plastic containers are arranged in the field of metal surfaces (PE-potential) | ■ HV- and ink cutoff as well as nozzle sealing at HV-flashovers |

## 2.9 Safety measures at the place of installation

A place of setting up must be selected with sufficient load bearing capacity and stability. When setting up it must be observed that sufficient movement space is available for the operating and service personnel. Solvents are processed in the device, sufficient room ventilation must be ensured!

Prior to assembly the place of setting up must be cleaned of dirt and contamination (residue of lubricants etc.). The working place surroundings should be kept clean at all times in order to ensure unrestricted access to the LEIBINGER JET3up device.



### **WARNING**

#### **Basics – Installation of the device and mains connection!**

- The device must be installed in a well ventilated room only and must be kept away from any source of heat, flame or sparks, e.g. radiant heater, etc.!
- The device has no mains switch and must only be connected to a easy accessible plug socket in the direct vicinity of the place of setting up!



### WARNING

#### Danger of explosion!

- The device must not be operated in potentially explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!
- Precautions regarding electrostatics have to be carried out!
- The device has to be integrated in the lightning protection concept of the operator!



### WARNING

The inkjet printer does not have a power switch. For maintenance the printer must be disconnected from the mains.

Always connect the inkjet printer to an easily accessible outlet in close proximity to the installation site!

The printer has to be assimilated to the check list about the regular examinations according to the employers' liability insurance association-guideline.

Operate the inkjet printer only outside of explosive atmospheres in a well-ventilated area! Inside the printer solvents are processed; ensure sufficient ventilation! The operator has to ensure that the MAK-values noted on the safety data sheets won't exceed.

The printer ventilation must not be impaired; do not cover or close the ventilation gills on the back panel of the printer.

Place the printer with enough distance to any wall (recommended minimum distance 0,3 m).

Ensure about sufficient space of the installation location of the printer and enough space to ensure a safely handling of ink and solvent.

Keep the inkjet printer away from any sources of heat, flame, or sparks (e.g. space heater).

The inkjet printer must be integrated into the lightning protection system of the owner-operator!

Protect the inkjet printer from electrostatic charges!

Keep suitably extinguishing medium available.

## 2.10 Dangers through consumables

Inks are colored liquids on a solvent basis. The safety instructions on the containers of the consumables as well as the instructions in the group **Accident prevention** must be especially adhered to in order to exclude dangers for persons and the surroundings. Further instructions can be found in the Safety Data Sheets.



### ATTENTION

When handling consumables (inks/solvents) the danger instructions and safety advice on the containers (transport, storage, distribution and correct disposal) must be observed!



### INFORMATION

In addition we recommend **observance of the safety information leaflets** of the inks and solvents used.



### CAUTION – FIRE HAZARD

Ink and solvent are highly flammable materials!

Inks are colored printing liquids on basis of solvents. The safety instructions on the bottles of the consumables as well as the operating manual and also the safety data sheets must be noted to avoid any danger for people and environment.

For handling this consumables (ink and solvent) the safety instructions and safety advices must be noted (e.g. for transport, storage and disposal)!



### WARNING

Keep the inkjet printer away from any sources of heat, flame, or sparks (e.g. space heater).

Open containers must be closed properly at all times and stored upright to prevent leakage.

Smoking and open flames are strictly prohibited in areas where ink and solvent are stored.

Do not smoke, eat, or consume beverages in the storage and work areas.

**WARNING**

Always ground yourself and the printer to the same potential before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment or you must stand on a grounded surface wearing ESD shoes during filling!

Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!

Read the safety data sheets and the personal protective equipment rules and regulations!

**Safe handling**

These products may be used only in places that are completely free from open flames and other ignition sources. Use only spark-free tools. Electrical equipment and tools used must comply with the ATEX Directive.

Keep product containers tightly closed during operation. Avoid vapor concentrations that exceed the limit values specified by the employers' liability insurance association.

Do not use pressure to empty the product container - the container is not a pressure vessel.

The product may become statically charged. Use a grounded line to transfer from one container to another.

An uncluttered, clean working environment and regular, safe disposal of waste materials minimize the risk of spontaneous ignition and other fire hazards.

If the printer is ever operated in a way that allows it to print into a beaker, the beaker must be made of conducting material and be securely connected to earth (ground), as the electrostatic charges on the ink drops used for printing could built up an electrostatic charge and may cause a fire hazard.

Employees must wear antistatic footwear and clothing, and the floors must be conductive.

Avoid skin or eye contact. Do not inhale vapors and spray mists.

**WARNING****Absolutely observe!**

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!
- Highly flammable! Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!
- Always statically discharge the printer and yourself before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment and stand on a grounded surface wearing ESD shoes during filling!

An uncluttered, clean working environment and regular, safe disposal of waste materials minimize the risk of spontaneous ignition and other fire hazards.

**Many inks used in ink jet printing contain “nitro-cellulose” as the binder and remain highly flammable even when they are dry.**

**Therefore keep the printer clean and also the working free of ink accumulations. Avoid the accumulation of dried ink and clean the working area regular.**

#### **Special hints about inks based on „nitro-cellulose“:**

- **This inks remain highly flammable even when they are dry.**
- **If there has been an accumulation of dried ink, do not use ferrous metal (iron or steel) scrapers to remove it, as they can produce sparks.**
- **If dry “nitro-cellulose” based ink ignites, it will generate its own oxygen and can only be extinguished by lowering the temperature with water.**

In the following you will find examples for the marking of inks and solvents.

**Figure 2 Ink and solvent lables**

**Examples:** Labels for the marking of inks and solvents.



## 2.11 Conformity



### EC-Declaration of CE-Conformity

CE

The manufacturer: Fa. Paul Leibinger GmbH & Co. KG  
Daimlerstraße 14  
D –78532 Tuttlingen (Germany)

herewith declares that the systems of the following listed printer series:

Product designation: industrial high-speed Ink-Jet printer  
Type designation: Leibinger-JET3up, JET3up PRO, JET3up PI, JET3up MI, JET3up RAPID,  
JET3upEP

complies with the provisions of the following mentioned directives –including the valid changes at the time of the declaration.

#### Low-voltage directive (2014/35/EU)

- |                                      |  |
|--------------------------------------|--|
| Proven with the harmonized standard: | <ul style="list-style-type: none"> <li>• EN 60950-1: 2006/A11:2009/A1:2010/A12:2011/A2:2013</li> </ul> |
|--------------------------------------|--|

#### EMV- directive (2014/30/EU)

- |                                      |   |
|--------------------------------------|---|
| Proven with the harmonized standard: | <ul style="list-style-type: none"> <li>• EN 55011:2009 + A1:2010</li> <li>• EN 61000-6-2: 2005/AC:2005</li> <li>• EN 61000-6-3: 2007/A1:2011/AC:2012</li> </ul> |
|--------------------------------------|---|

#### RoHS- directive (2011/65/EU)

- |                                      |  |
|--------------------------------------|--|
| Proven with the harmonized standard: | <ul style="list-style-type: none"> <li>• EN 50581: 2012</li> </ul> |
|--------------------------------------|--|

**Year of affixing CE marking: 2017**

Name and address of the person authorized to collect the technical documents:

Ralf Stich  
Authorized Documentation Officer  
Paul Leibinger GmbH & Co. KG  
D-78532 Tuttlingen

Tuttlingen, September 01st 2017

Klaus Specker  
Manager R&D

Axel Stehle  
Technical CEO

### 3 Accident prevention

The following presentation shows the measures in the event of an accident with **ink** and **solvent** with the **danger marking**,



Previous warning labels



highly  
flammable



irritant

#### 3.1 Storage and handling

<b>GENERAL</b>	<p>These products must only be used at points that are free from open flames and other ignition sources. Do not use pressure for emptying – the container is not a pressure vessel. Good household practice and regular, safe removal of the waste materials restrict the danger of self-ignition and other risks of fire to a minimum. The product can charge statically. When pouring from one container to another use a mass lead. The workers must wear anti-static shoes and clothing and the floors must be conductive.</p>
<b>STORAGE</b>	<p>Observe the marking information. Store at 5 to 25°C in a well ventilated location at a safe distance from heat and ignition sources and direct sunlight.</p> <p><b>Do not smoke!</b> Do not grant access to unauthorised persons. Open containers must be properly closed and stored upright in order to avoid leakage.</p> <p>Smoking, eating and drinking must be forbidden in the storage and working areas. Always keep in containers from the same material as the delivery containers.</p>
<b>HANDLING</b>	<p>The development of combustible or explosive vapour concentrations must be prevented and vapour concentrations avoided that are above the threshold values of the employers liability insurance association. Keep containers closed tightly.</p> <p>Keep sources of heat and sparks as well as open flames well away. Use only spark-free tools. Electrical devices must be protected in accordance with the corresponding standard.</p> <p>Avoid contact with the skin and eyes. Do not inhale vapours and spray mist.</p>

### 3.2 First aid measures

#### 3.2.1 General first aid

The generally valid procedures apply.

- **Initiate emergency measures**
- **Comply with the rescue chain**

##### Rescue chain (Immediate and correct assistance)



Immediate measures    Emergency call    First aid    Emergency services    Hospital

##### Conduct after accidents (initiate emergency measures)

- Stay calm!
- Report the accident!

- **WHO** is reporting?
- **WHAT** happened?
- **WHERE** did it happen?
- **HOW MANY** persons are injured?
- Are **additional** persons in danger?

##### ■ First aid!

- Secure the accident site.
- Tend to the injured person(s).
- Comply with instructions!
- Do not leave injured person(s) alone!

##### ■ Additional measures

- Instruct the fire department or ambulance personnel.
- Turn away curious onlookers.

#### 3.2.2 First aid in case of contact with consumables

<b>EYES</b>	Contact lenses must be removed. Rinse thoroughly with pure, fresh water for at least 10 minutes, keep eyelids spread and call a doctor.
<b>SKIN</b>	Remove contaminated clothes. Wash skin thoroughly with soap and water or with a branded skin cleansing agent. <b>DO NOT</b> use solvents or thinners.
<b>INHALING</b>	Take patient into the fresh air and keep warm and calm. In the event of irregular breathing or of breath being missed resuscitate artificially. Do not give anything orally, place unconscious patients on their side and call a doctor.
<b>MISCELLANEOUS</b>	In case of doubt or with persistent symptoms call a doctor. Never give anything orally to unconscious patients.

### 3.3 Fire fighting measures

#### 3.3.1 Procedure in case of fire

The following procedure is merely a recommendation and must be adapted to the respective operating situation.

- Stay calm!
- Report the fire!



Enter tel. no.

- **WHO** is reporting?
- **WHAT** happened?
- **WHERE** did it happen?
-  ➤ **HOW MANY** persons are affected or injured?
- **Wait** for potential questions?
- Activate the fire alarm

- Safety!



- Bring endangered persons to safety.
- Close doors.
- Follow marked escape routes.
- Do not use the elevator!
- Comply with instructions!

- Additional measures



- Attempt to extinguish the fire
- Instruct the fire department personnel.
- Turn away curious onlookers.

### 3.3.2 Fire fighting of ink and solvents

<b>EXTINGUISHING AGENTS</b>	<b><u>Recommended:</u></b>
	Alcohol-resistant foam, spray water/mist, CO <sub>2</sub> or powder
<b>RISK OF FIRE AND EXPLOSION</b>	<b>DO NOT</b> use water jets. Cool closed containers exposed to the fire with spray water.
<b>PROTECTIVE MEASURES</b>	As the product contains combustible organic constituents, a thick, black smoke develops in the event of fire that contains dangerous combustion products. Decomposition products can constitute a danger to health. Extinguishing waste water must not enter the waste water channels or waters. If necessary suitable, independent breathing apparatus is required.

### 3.4 Measures in the event of accidental release (spillage)

<b>GENERAL</b>	Spilled ink and solvent should be removed immediately. Used wiping material could pose a potential fire hazard and have to be disposed in accordance with the regulations.
<b>PRECAUTIONARY MEASURES</b>	Switch off sources of ignition and ventilate room. Keep personnel that is not absolutely necessary away. Do not inhale any vapour. Observe the protective measures listed.
<b>ENVIRONMENTAL PROTECTION MEASURES</b>	<b>DO NOT</b> allow to enter waste water channels or waters. Should the product enter waste water channels or the drainage system the local water supply authority must be informed immediately. In the event of contamination of streams, rivers or lakes inform the national water authorities. Vapour is heavier than air and can spread out on the ground. In combination with air it can form an explosive mixture.
<b>RESTORATION</b>	Restrict and suck up spilled substances with a non-combustible absorbent material (e.g. sand, earth, vermiculite, infusorial earth) and collect in a suitable container for removal. Preferably clean areas with spilled substances with a detergent. Avoid solvents.

## 4 Technical data

### 4.1 Dimensions, weights, connections

Cabinet : Stainless steel

Width 486 mm, depth 286 mm, height 446 mm

Weight: 20,5 kg

Print head: Stainless steel cabinet

Print head SK6: Length (total) 212 mm, diameter 43 mm,

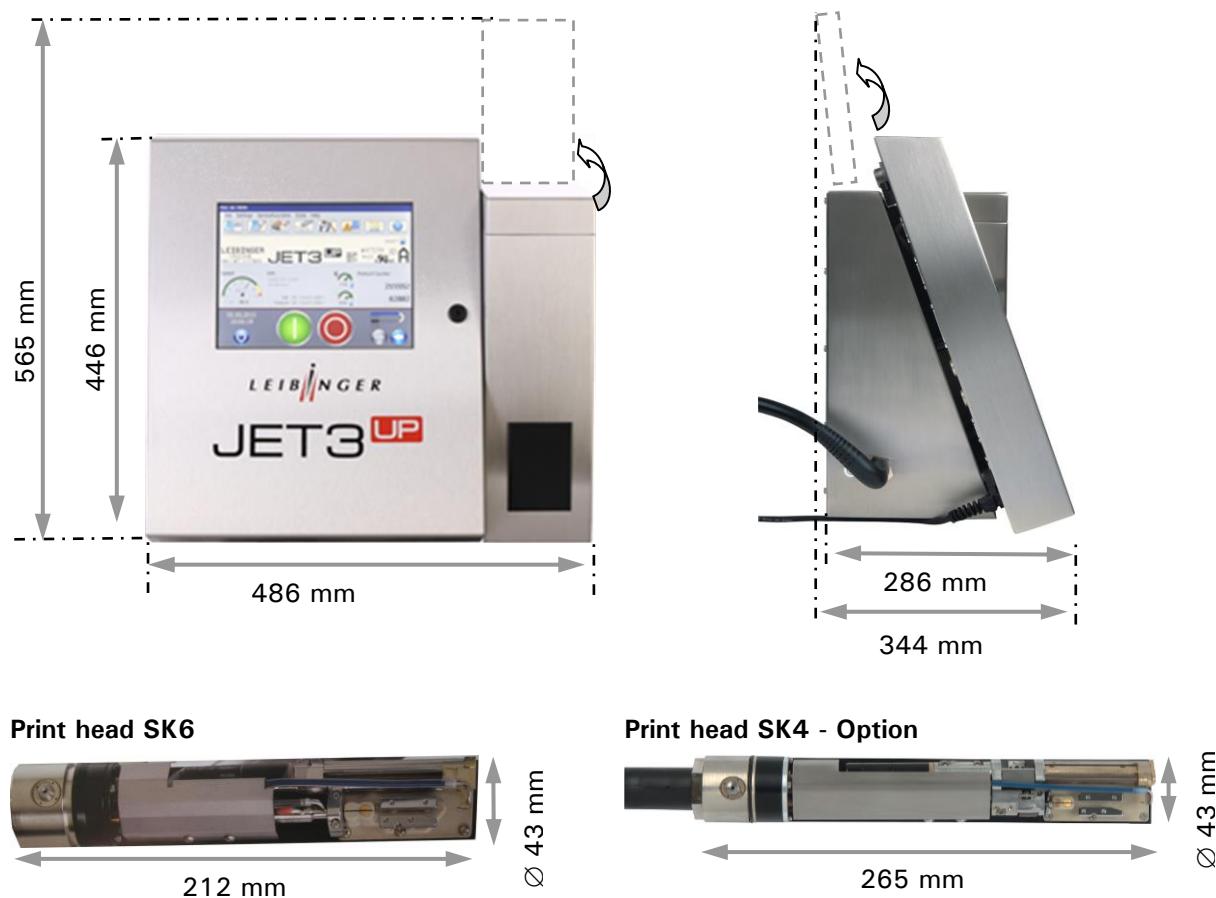
Option Print head SK4 : Length (total) 265 mm, diameter 43 mm,

Length of the print head lead 3 m, as option 6 and 10 m available

Weight: 1,5 kg

Any fitting position, also for overhead conveyor applications

**Figure 3** Dimensions



Protection class:

IP 54 (as option: IP 65)

#### 4.2 Electrical connection values

Input voltage (voltage range): 100 - 240 V AC, 50-60 Hz

Current consumption: max. 0,56 A (peak) at 100 V AC  
max. 0,25 A (peak) at 240 V AC

Power consumption: typ. 20 W at 100 V AC  
typ. 20 W at 240 V AC

#### 4.3 Ambient conditions

Temperature range: + 5° C to + 45° C (no rapid change of temperature)

Relative humidity: max. 90 % relative humidity (non-condensating)

#### 4.4 Interfaces, Inputs, Outputs

Product sensor input: NPN/PNP 24V

Incremental encoder input: TTL 5V, HTL 24V, RS422 5V

Inputs: 6 digitals, free selectable  
10 inputs for ext. job selection

Outputs: 8 digitals, e.g. for alarm, re-filling, etc.

Interfaces: Ethernet (Industry standard M12D)  
Serial Interface (V24/RS232) up to 115.200 Baud  
USB

#### 4.5 Performance parameter

Printing capacity: Character height: approx.

- min.: 0,8 mm
- max.:16 mm

Depending on font, distance of head, nozzle diameter,  
ink, product surface and type of print head

Up to 3200 characters/sec.

Printing speed: Up to 6,6 m/sec (10 cpi)

#### 4.6 Fonts

All fonts can be combined arbitrarily  
Printing of 1-5 lines  
Tower print  
Capitals and lower case letters, umlaut, special characters  
Fonts 5x5 up to 32x24  
Multistage contrast- and bold text  
All common Barcodes (Barcode 39, Code 128C, Postnet etc.) and Data-Matrix-Codes (ECC 200), GS1-Data-Matrix (EAN/ECC)

#### 4.7 Types of writing

Double distance  
Texts backwards  
Symbols mirror-inverted  
Symbols mirror-inverted and upside down  
Symbols mirror-inverted, upside down and text backwards  
Alternating readable font, reverse, bold text, inverse

#### 4.8 Font combinations

All fonts can be presented in one writing in the requested matrix.

#### 4.9 Function

Full automatic function by:

- The automatic nozzle seal guarantees that the print head is ready to print immediately after starting.
- Automatic, electronic drop control for compensation of changing ambient- and operating temperatures
- Automatic viscosity control
- Splash-free re-filling of ink and solvent during the printing operation

#### 4.10 Software

Functions:

- Selectable print delay or print repetition
- Any combination of constant and variable texts within a printing line
- 32 individually programmable counters
- Current date- and time printing, original date
- Free programmable graphics/logos, creatable in the integrated editor
- Jobeditor allows the saving and calling of texts and all printing relevant parameters
- Programmable batch processing of jobs and bonding of several jobs
- „External-Text“ function
- Variable text (Data base processing)
- Replacements: all date-, time- and counter functions are codable by replacements
- Shift operation

## 5 Transport/Start up

### 5.1 Transport, storage, shipping

In order to avoid damage during transport the following instructions must be observed.

The LEIBINGER JET3up must only be transported in a standing position. It is packed in a cardboard box with special polystyrene inserts for safe dispatch during delivery. Transport of the device must only be made in this packing in order to avoid damage.



#### ATTENTION

**The printer should be only transported in an empty condition!** A special draining routine ("ServiceFunctions ► Hydraulic ► Special Functions/ Tools ► Drain Routine") is available for the draining of the device.

**Note!** Storage temperatures below +5°C and above +50°C as well as storage at outside are not admissible and can lead to damage!

### 5.2 Mounting



#### WARNING

##### Danger of explosion!

- The device must not be operated in potentially explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!
- Precautions regarding electrostatics have to be carried out!

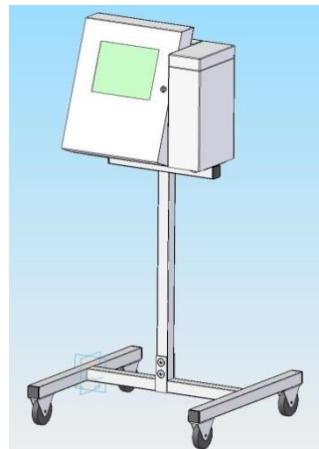


#### WARNING – INSTALLATION OF THE DEVICE

The device must be installed in a well ventilated room only and must be kept away from any source of heat, flame or sparks, e.g. radiant heater, etc.!

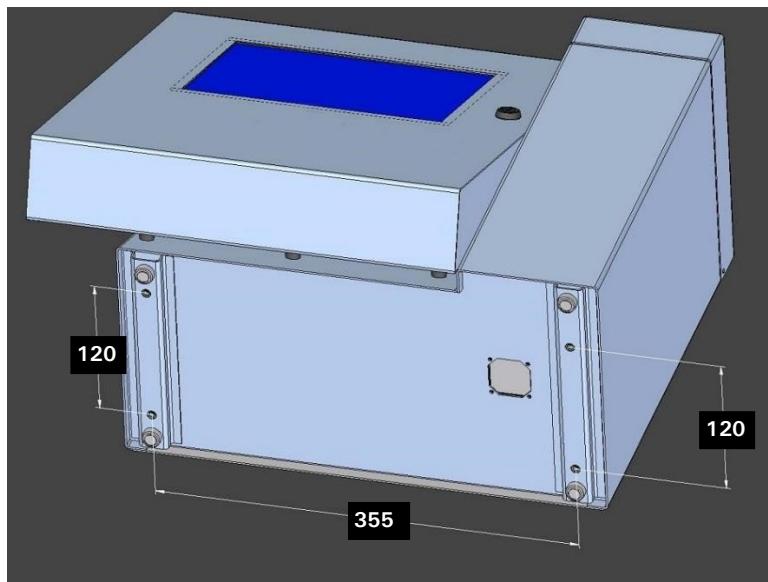
Check device for damage! When determining a suitable place of setting up, the necessary additional space requirement for the movement room of the operating and service personnel must be taken into consideration. Solvents are processed in the device, adequate room ventilation must be ensured!

**Figure 4 Movable base frame for JET3up**



For this it is expedient to place the device on a device support.  
The device has four fastening possibilities for secure setting up and should be screw connected at the place of setting up.

**Figure 5 Fastening possibilities**



**ATTENTION**



A place of setting up with sufficient load bearing capacity and stability must be chosen. Prior to assembly the place of setting up must be cleaned of dirt and contamination (residue of lubricants etc.).

## 5.3 Installation

For adaption to the production line several works have to be carried out and operating parameters have to be set before start of operation.

### 5.3.1 Mains supply



#### WARNING – MAINS SUPPLY

The device does not have a mains switch and should be only connected to an easy accessible socket close to the installation location!

The LEIBINGER JET3up should be connected to AC voltage 100 - 240 V AC, 50 – 60 Hz with an appropriate plug. **The socket should be provided with a clear designation (e.g.: JET3up).**

After connecting to the mains power supply the initialization of the device will be carried out automatically. After this process the JET3up is ready for operation.



#### INFORMATION

You will find further information regarding the initialization in the chapter **6.5.2 First initialization of the device**

### 5.3.2 Grounding - Potential equalization



#### WARNING

##### Grounding (Potential equalization)!

- In case of a non existing grounding or that the grounding of the printer is not carried out properly, this could cause serious injury or death and it can also cause malfunctions or damages at the printer!
- These dangers or demolitions can happen for example because of electrostatic discharge (ESD) or potential difference!

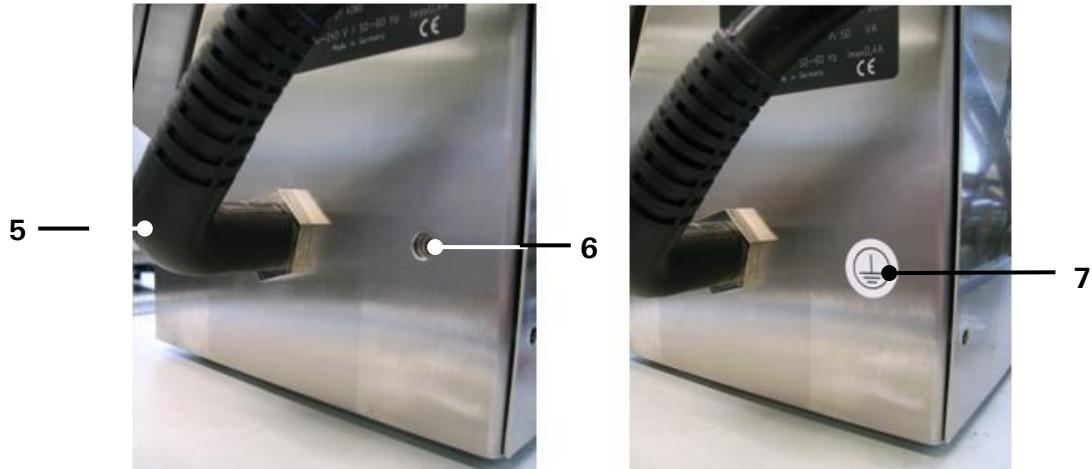
Especially for countries without existing protected earth connection, there is a special grounding point located at the side of the printer.

This threaded socket must be connected to ground if there is no ground pin in the mains socket/plug. The threaded case is sealed inwards and thus IP 65 conform. With a screw and a ring terminal (cable lug) the grounding can be fixed easily.

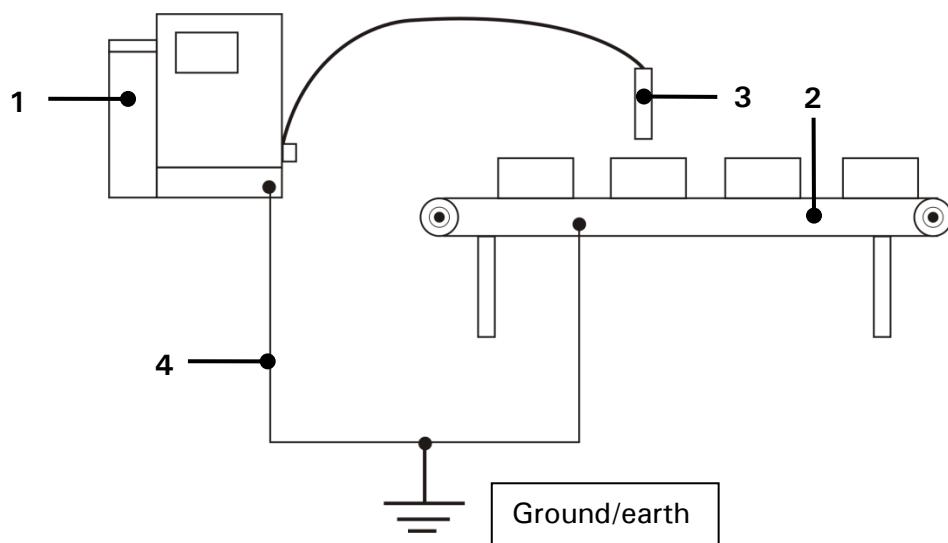
**INFORMATION**

Please note, that the grounding point (6) is hidden behind the round grounding-symbol-label (7) on the lower left hand side of the cabinet of the printer.

**Figure 6** Grounding schematic and grounding point



**Grounding schematic**



1 – Printer cabinet  
2 – Installation  
3 – Print head

4 – Grounding line  
5 – Umbilical  
6 – Grounding point (M6)

7 – Grounding symbol-label

### Grounding instructions

- A separate grounding line (min. cable cross-section 2,00 mm<sup>2</sup>) to the printer cabinet must be installed **before** the print head is mounted in the installation and **before** the printer is plugged to the power supply.
  - The connection must be carried with a solid bonding that corresponds with existing guidelines.
- Annotation:** A suitable grounding cable is available optionally (accessories).
- The installation (machine) and the printer must have the same potential/ground.



#### ATTENTION

The printer must be always be switched off and the mains plug must be always unplugged if you plug and/or unplug any connectors!

### 5.3.3 Explosion protection

The device has to be integrated in the lightning protection concept of the operator! Further more protection measures regarding electrostatics have to be made!

### 5.3.4 Print head



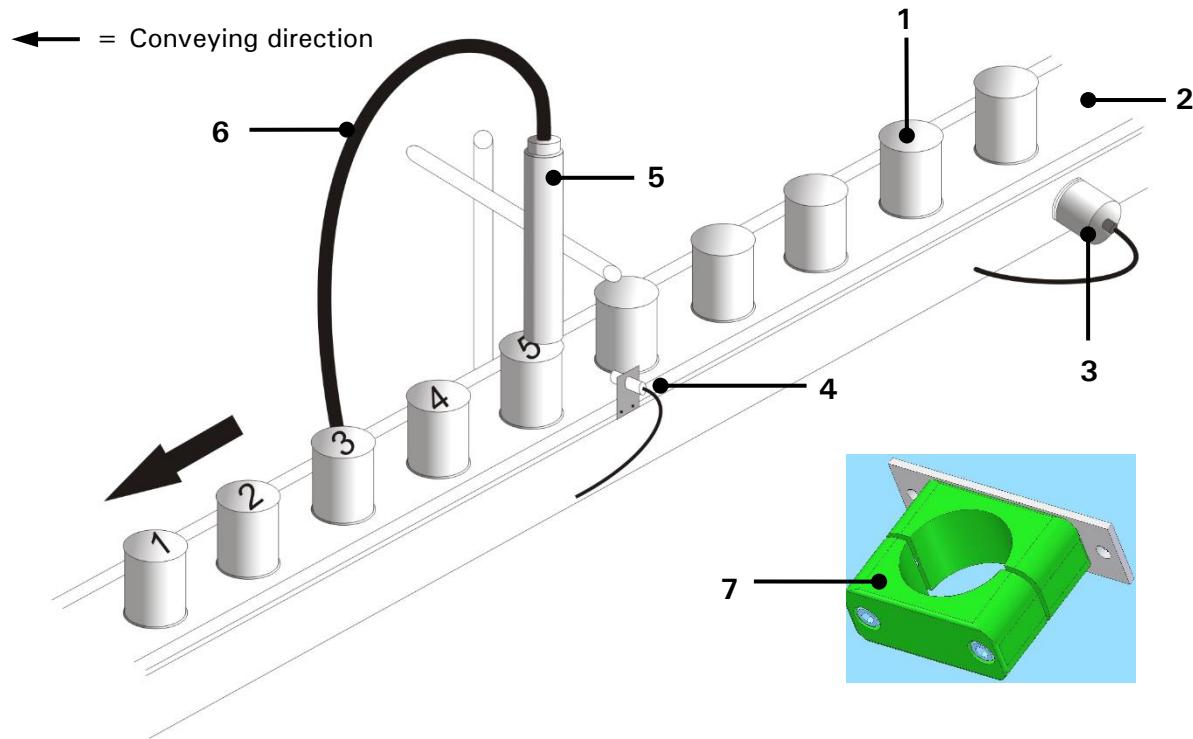
#### WARNING

##### Risk of fire and injury!

- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

The print head should be mounted to the printed product that the notch in the head cover is placed vertical to the moving direction of the product. It can be installed horizontal, vertical, from the top or from the bottom.

For installation from the bottom it has to be prevented that dirt can enter in the print head. For this a headventilation is required which can be purchased optionally. The print head mounting should be carried out that a fast separation of the print head from the device for cleaning purposes is possible.

**Figure 7 Print head installation (Example)**

1 – Product

2 – Conveyor belt

3 – Encoder

4 – Sensor

5 – Print head

6 – Umbilical (Hose connection)

7 – Print head adapter  
(accessories)**ATTENTION**

The print head should be attached vibration-free. The hose connection of the print head should not be smaller as a radius of  $R = 100$  mm statistically (loop: 200 mm) and dynamically not below  $R = 150$  mm (loop: 300 mm)!

**Torsional shear stress must be avoided!**

The distance of the print head to the product depends on the required character height. As smaller the required character height, as smaller the distance of the print head to the product (smaller distances produce better type quality)

**Note:**

**In general a distance of round about 8-10mm is recommended.**

For applications with extreme small or large character heights a micro- and macro print head are available optionally.

**CAUTION – INSTALLATION OF PRINT HEAD**

During an installation of a device in a production line, the operating staff should be not endangered. Due to moving products under the print head danger of bruising and shearing can be caused. The regulations of the machinery directive 2006/42/EG should be observed!

**5.3.5 External print head ventilation (optional equipment)**

The "external head ventilation" unit is only delivered pre-assembled.

**INFORMATION**

Further information and installation instructions can be found in the separate instructions as well as in the accompanying assembly instructions „**Installation of the external print head ventilation**“.

The unit's pressure regulator must be connected to the compressed air supply with a suitable hose and quick connector.

**5.3.6 Grounding regulation for print head works**

For technical reasons the ink of a continuous ink jet printer is charged with high voltage during the printing process. In case of inappropriate handling the static charged ink may be an ignition source. In combination with flammable ink and solvent this could pose a fire or explosion hazard. Therefore for some works a ground cable is required.

Basically there are two situations where the use of a ground cable is mandatory:

- The printer is operated in test mode and the ink is just discharged into a service tray (e.g. a Leibinger cleaning station). Without any safety measures the ink in the service tray may be charged up. In order to avoid this critical situation the print head and the service tray have to be connected with a ground cable. In case of using a service tray made of plastic material it would be possible to place a metal foil in the service tray and connect the ground cable to that foil.
- During cleaning operations the service tray has to be connected with the print head by a ground cable.



Fire hazard



Explosion hazard



Electrostatic-sensitive device

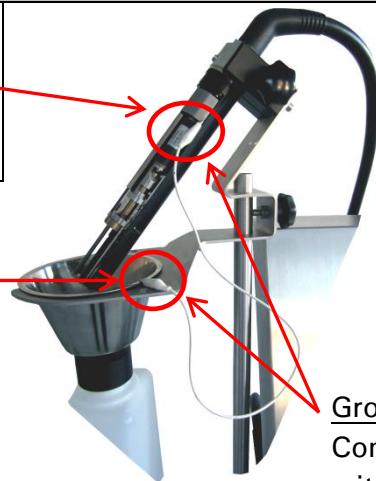
**Discharging the ink into a service tray**

Print head

Service tray

Leibinger

Cleaning station

**CAUTION**PREVENT STATIC  
SPARK DISCHARGE  
USE GROUNDING DEVICES

Ground cable  
Connect print head  
with service tray



Fire hazard



Explosion hazard



Electrostatic-sensitive device

**Cleaning the print head****CAUTION**PREVENT STATIC  
SPARK DISCHARGE  
USE GROUNDING DEVICES

Ground cable  
Connect print head  
with service tray

## 5.4 Start-up Commissioning

For a safe transport some hydraulic components are supplied with transportation protection (cable ties) and the reservoir tanks are evacuated. The following steps have to be carried out before the initial operation

- Remove the transportation protection (cable ties) (Step 1)
- Fill the reservoir tank (Step 2)
- Carry out the function <Filling Routine> (Step 3)

### 5.4.1 Remove transportation safety devices - Step 1

The pumps and valves of the hydraulic system are secured with cable ties. These have to be absolutely removed.

**Proceeding:**

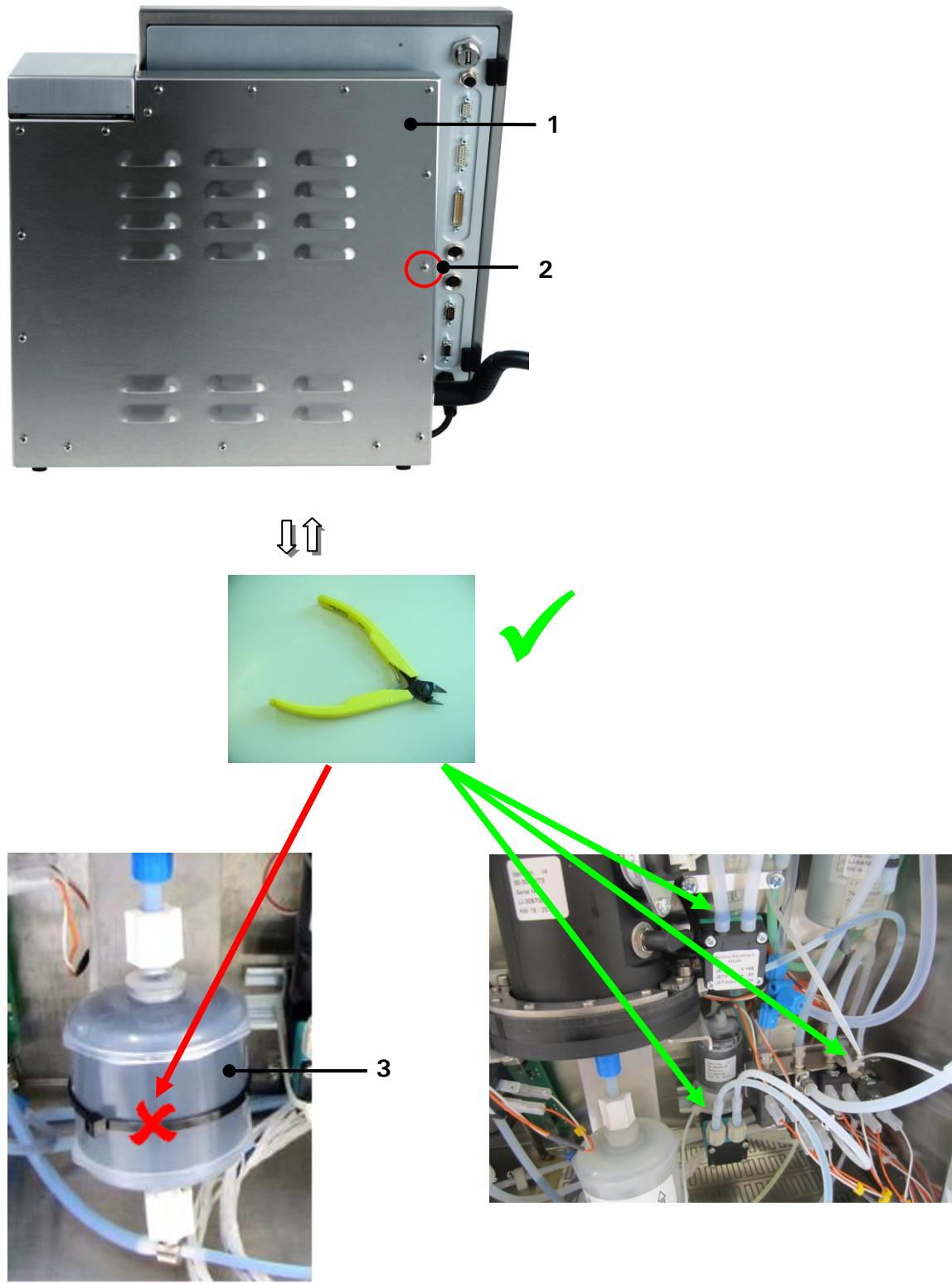
- Dismantle the backplane of the hydraulic cabinet (1) by loosing the fixing screws (2).



#### ATTENTION

The cable tie at the main filter (3) should not be removed!

- Remove the transportation protection (cable ties).
- Now attach the backplane of the hydraulic cabinet again with the according fixing screws.

**Figure 8 Remove transportation safety devices**

### 5.4.2 Fill reservoir tank - Step 2

To avoid damages of the device during the transportation the reservoir tanks should be evacuated and have to be filled before the initial operation.



**WARNING**

**Danger of explosion!**

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!

**The operator can carry out a discharge either by the direct touching of the JET3UP-cabinet or by standing with the appropriate ESD-shoes on an grounded surface!**



**WARNING**

**Dangerous material in the machine!**

- Danger of serious damage through burns, skin irritation and poisoning!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

The reservoir tanks for ink and solvent are installed beneath the cover flap of the refill unit. The two reservoir tanks are monitored by level sensors. They are always unpressurized and can be opened in every device condition.

The reservoir tanks and the sealing cap are color-coded and labelled to avoid any mistakes in filling. Additionally the sealing caps are marked with the ink-no. or solvent-no. which are admissible for the device. For correct handling the LEIBINGER re-filling system allows an odor- and splash free refilling of the consumables.



**Attention**

**Use only genuine LEIBINGER solvent and ink that comes with a TAG on the refill bottle!**

The JET3up printer is supplied with a TAG Reader. For refills of solvent or ink make sure that only genuine LEIBINGER ink and solvent is used. Only then the refill bottles will have TAG. The TAG has to be registered by the TAG reader of the JET3up **before** filling up the reservoir tanks!

Please see chapter **10.1.2 TAG-reader** for details about the TAG reader!

**Proceeding (Example: Filling of solvent)****WARNING****Risk of fire and injury! Absolutely observe!**

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!
- Highly flammable! Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!
- Always statically discharge the printer and yourself before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment and stand on a grounded surface wearing ESD shoes during filling!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

**ATTENTION**

The sealing of the refill bottle **must not be opened!**

- Open the lid (2) of the reservoir tank unit (1).
- Open the screw cap of the solvent tank (4) and of the refill bottle (5).
- Put the refill bottle on the solvent tank. The seal of the bottle will be breached and the closing valve of the tank will open automatically and the reservoir tank is filled up.
- Wait until the refill bottle is completely empty.
- Take out the empty refill bottle. The closing valve of the reservoir tank will be closed automatically.
- Finally close the reservoir tank and empty refill bottle carefully with the screw caps.

**ATTENTION**

The reservoir tanks as well as the empty refill bottles have to be closed carefully after filling.

**Figure 9 Reservoir tank and re-filling process**

- 1 – Reservoir tank unit  
2 – Hinged cover lid  
3 – Reservoir tank „Ink“

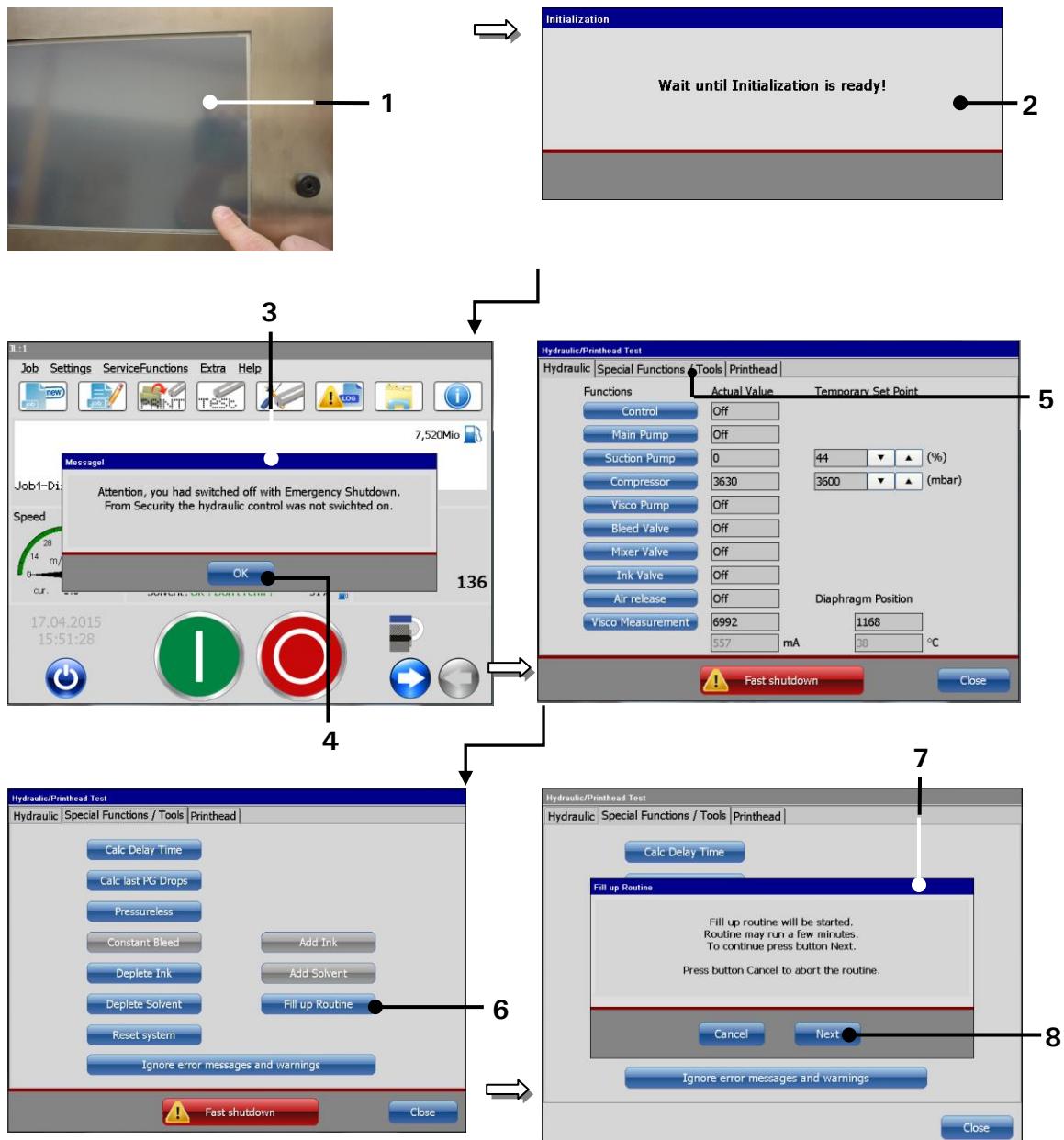
- 4 – Reservoir tank „Solvent“  
5 – Refill bottle „Solvent“  
6 – Refill bottle seal

### 5.4.3 Carry out filling routine – Step 3

After filling the consumables you have to carry out the filling routine.

**Proceeding:**

**Figure 10 Filling routine (Step 1)**



1 – TFT-Touch-Display

2 – Message <Initialization>

3 – Message <Emergency Shutdown>

4 – <OK> Button

5 – Tab <Spec. func. /Tools>

6 – Button <Fill up Routine>

7 – Message <Fill up Routine>

8 – <next> Button

- Turn on the printer. For this touch the dark **touch-display** (1) at any position for approx. 2 sec.
- The device turns on and the main window with the message <**Initialization**> (2) is displayed. Wait until the initialization is finished. After this process the message <**Emergency Shutdown**> (3) is displayed.
- Press the button <**OK**> (4).
- Change to tab <**Special functions /Tools**> (5).
- Now press the button <**Fill up Routine**> (6). The message <**Fill up Routine**> (7) is faded-in.
- Press the button <**Next**> (8) to start the filling routine.

**Note:**

This process takes approx. 10 minutes.

- After finishing the process an according message (9) is displayed. Press the button <**OK**> (10) to finish the routine.
- Press the button <**Close**> (11) to leave the menu <**Special functions /Tools**> .
- The message <**Hydraulic control**> (12) is faded-in.

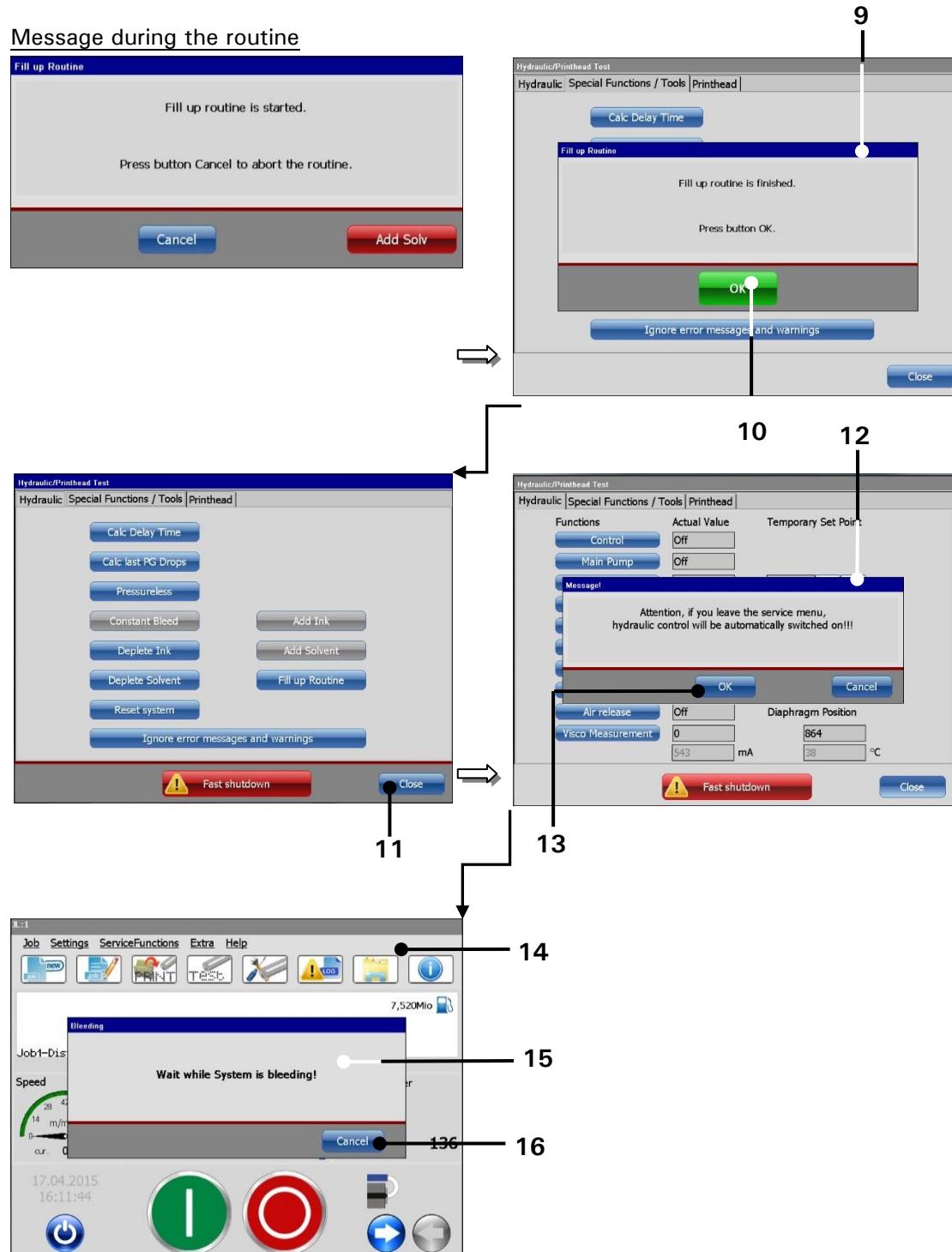
**Note:**

For leaving the service menu the hydraulic control will be turned on again automatically.

- Press the button <**OK**> (13) to close the service menu.
- The main window (14) is now displayed. If required the device starts automatically with the bleeding of the system.

During the process the message <**Bleeding**> (4) is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button <**Cancel**> (5).

- Now the printer is ready to operate.

**Figure 11 Filling routine (Step 2)**

#### 5.4.4 Setting of the external print head ventilation -optional equipment

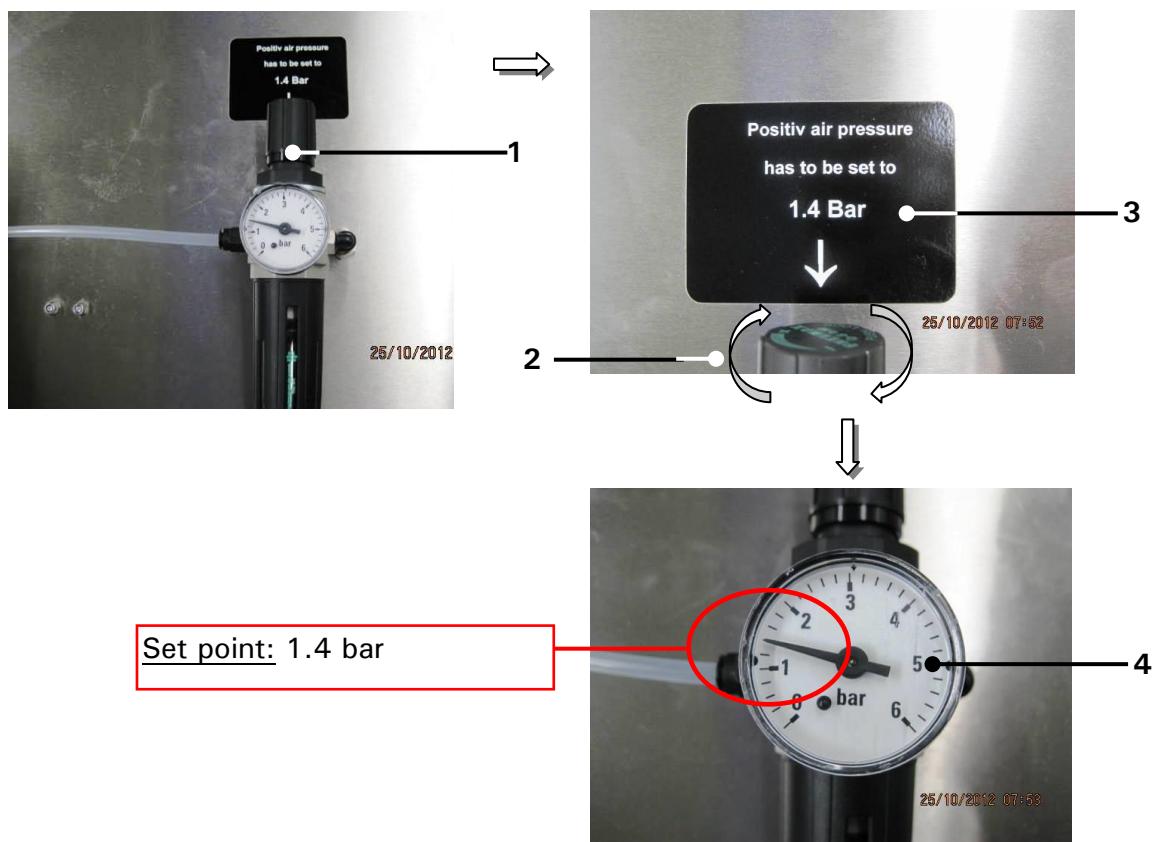
If the high performance printer is equipped with a printhead ventilation system (option) the setting of the pressure has to be adjusted before commissioning the printer.

##### Proceeding

Turn the adjusting knob (2) of the pressure regulator valve (1), until the necessary pressure of 1.4 bar is reached.

**Figure 12** Setting the pressure regulator

Setting the pressure regulator (external head ventilation)



1 – Pressure regulator valve  
2 – Adjusting knob

3 – Indicating label  
4 – Manometer



##### INFORMATION

Supplementary information for the assembly and function can be found in the chapter

**6.7.1 External head print ventilation - assembly and function**

**ATTENTION**

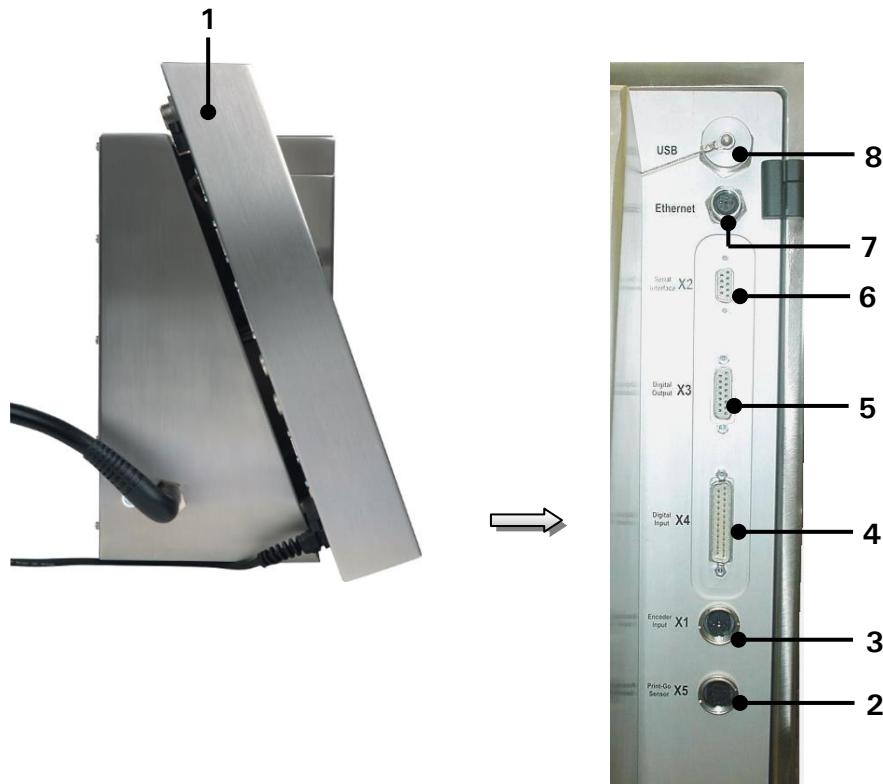
- Make sure that there is a permanent compressed air supply!
- The printer doesn't monitor the permanent compressed air supply!
- There will be no warning in case the permanent compressed air supply fails!
- Operation is only permissible with dry, oil-free and filtered compressed air (Filtering 8 µm) The use of otherwise prepared compressed air can lead to damage and malfunctions!

## 5.5 Interfaces

The following interfaces are available on the rear side of the electronics cabinet.

**Figure 13** Interfaces

### Interfaces



- 1 – Electronic cabinet
- 2 – Interface X5 – PrintGo
- 3 – Interface X1 – Encoder
- 4 – Interface X4 – digital inputs

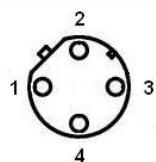
- 5 – Interface X3 – digital outputs
- 6 – Interface X2 – Serial Interface
- 7 – Ethernet-connection
- 8 – USB connection

### 5.5.1 Ethernet-connection

The Ethernet-connection is implemented with a sturdy M12D coded socket and is designed for high transfer rates and long cable lengths. It provides the networking of several devices in multi-head applications. The data exchange happens via the „LEIBINGER JET3up-interface protocol“.

Plug assignment:

M12-D Ethernet Connector



Pin connection:

Pin No	Designation	Pin No.	Designation
1	Tx +	3	Tx -
2	Rx +	4	Rx -

### 5.5.2 Interface X5 - PrintGo

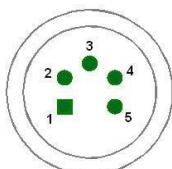
The interface X5 provides the connection of an external PrintGo-signal. All common product detectors (e.g. light barrier, product sensor ect.), 24V NPN- as well as 24V PNP-switching can be connected. **The PrintGoGate input requires a PNP sensor!**

Regarding the software you can select additionally if the positive edge or the negative edge should be used for the release of the printout.

**Note:**

To inform the JET3up when a print text should be printed, you require a so-called Print-Go signal.

Plug assignment: Pin connection:



Pin	Designation	Pin	Designation
1	+ 24 V <sup>(1)</sup>	4	PrintGo
2	/PrintGo	5	PrintGo_Gate
3	GND		

Basic data/Recommended working conditions:

Signal	Parameter	Value
PrintGo For PNP-sensors	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Minimum pulse duration	100µS
	Input resistance	6,8 kOhm
/PrintGo For NPN-sensors	Input level High	20 up to 28V (or high resistance)
	Input level Low	-6V up to 9V
	Minimum pulse duration	100µS
	Input resistance	6,8kOhm
PrintGo Gate For PNP-sensors	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Minimum pulse duration	100µS
	Input resistance	6,8 kOhm

**INFORMATION**

You will find a circuit diagram of the interface in the appendix of this manual!

(1) All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700 mA.

### 5.5.3 Interface X1 - Encoder

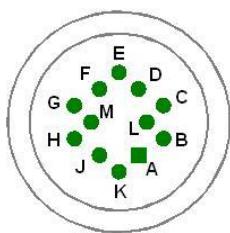
#### 5.5.3.1 Description and configuration

The interface X1 provides the connection of a shaft encoder.

Due to the input for which you can set the software individually, the encoders can be connected according to different norms without an additional converter.

**Note:** For variable product speed you have to use a shaft encoder to synchronize the printing speed or to control the constant font width.

Plug assignment:      Pin connection:



Pin	Designation	Pin	Designation
A	+ 5 V (max. 400 mA)	G	Encoder port /B RS422
B	GND	H	Encoder port A TTL (5V)
C	+ 24 V <sup>(1)</sup>	J	Encoder port B TTL (5V)
D	Encoder_port A RS422	K	Encoder port A HTL (24V)
E	Encoder port /A RS422	L	Encoder port B HTL (24V)
F	Encoder port B RS422	M	PowerOn Option

Basic data /Recommended working conditions:

Signal type	Parameter	Value
RS422	Input level	Difference input $\geq$ +/-200mV Input voltage range: -0,3 bis 5,5V
	Max. frequency	10 MHz
	Terminating resistor	100 Ohm
TTL	Input level High	2,4V up to 5,5V
	Input level Low	-0,5V up to 0,7V
	Max. frequency	500 kHz
	Input resistance	1 MOhm
HTL	Input level High	12 up to 28V
	Input level Low	-0,5 up to 3,5V
	Max. frequency	500 kHz
	Input resistance	4 kOhm

#### INFORMATION



The signal type which should be used as encoder source has to be set in the software of the JET3up under **Settings ▶ Basic Settings ▶ Encoder Interface.**  
You will find a circuit diagram of the interface in the manual appendix!

<sup>(1)</sup> All 24V power supply outputs on X1, X3, X4 and X5 are distributed over a common resettable fuse with 700mA max. current.

Please ensure that the sum of current are not exceed 700 mA.

### 5.5.3.2 Mechanical installation



#### ATTENTION

For the mechanical installation of the shaft encoder you have to pay attention in any case that the encoder is protected against axial and radial strain during the mounting and the continuous operation. For this a rubber gaiter or a plastic coupling is used.

If the conditions allow it, the shaft encoder can be also adapted to a production line with a friction wheel.



#### ATTENTION

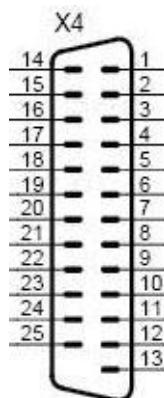
##### Risk of injury!

The shaft encoder has to be installed or mounted that no risks of injury can occur!

### 5.5.4 Interface X4 - Digital inputs

19 inputs for special functions are available whereof the connections of 6 inputs can be freely selected.

Plug assignment: Pin connection:



Pin	Designation	Pin	Designation
1	+ Reset Counter	14	+ 24V <sup>(1)</sup>
2	+ Increment Counter	15	GND Reset Counter / Increment Counter
3	+ Jobselect 0	16	+ Jobselect 1
4	+ Jobselect 2	17	+ Jobselect 3
5	+ Jobselect 4	18	+ Jobselect 5
6	+ Jobselect 6	19	+ Jobselect 7
7	+ Jobselect 8	20	+ Jobselect 9
8	GND Jobselect 0-9	21	GND Input 0-5
9	+ Input 0	22	+ Input 1
10	+ Input 2	23	+ Input 3
11	+ Input 4	24	+ Input 5
12	+ Power ON	25	GND Power On
13	GND 24V		

Basic data /Recommended working conditions:

Signal	Parameter	Value
All signals	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Input resistance	6,8kOhm
Increment Counter/ Reset Counter	Minimum pulse width	2 ms
Power ON	Minium pulse width	2,5 s
Jobselect 0-9	Maximum duration of bounce	10 ms <sup>(2)</sup>
Input 0-5	Minimum pulse widths	Depending on assigned function (see following table)

In the following table you will find the minimum pulse widths which are required to release the assigned function at the X4 plug.

Function	Minium pulse width
Open nozzle	300ms
Close nozzle	300ms
Print start	500ms
Print stop	500ms
Turn off printer	750ms
Mirrored horizontally	200ms
Gauger synchronization signal	200ms

**INFORMATION**

The function allocations of the inputs 0 up to 5 happens by the software of the JET3up in the menu

**Settings ► I/O-Settings ► Inputs.**

You will find a circuit diagram of the interface in the manual appendix!

<sup>(1)</sup> all 24V power supply outputs on X1, X3, X4 and X5 are distributed over a common resettable fuse with 700mA max. current.

Please ensure that the sum of current are not exceed 700 mA.

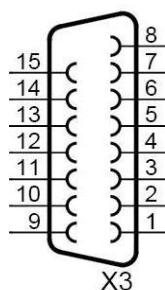
<sup>(2)</sup> If one or more of the jobselect inputs were changed the changes must be completed (= all signals are stable) within this time.

### 5.5.5 Interface X3 - Digital outputs

8 outputs which can be freely selected are available for special functions. The outputs 1-3 are predefined as a standard and should not be changed.

- Output 1 = Print stop error
- Output 3 = Ready to print
- Output 2 = Refill warning

Plug assignment: Pin connection:



Pin	Designation	Pin	Designation
1	Output 1	9	Output 5
2	Output 2	10	Output 6
3	Output 3	11	Output 7
4	Output 4	12	Output 8
5	+ 24V <sup>(1)</sup>	13	IP65 fail
6	Mirror (JETMotion)	14	Reserved
7	Reserved	15	GND
8	GND		

Reserved = Do not connect

Specifications Output 1-8:

Parameter	Value
Driver type	24V high side driver ON = + 24V OFF = high resistance
Output current	max. 700mA/output max. 700 mA totally <sup>(1)</sup>
Max. switching frequency	2 kHz <sup>(2)</sup>
Max. delay time	100µs
Turn on resistance	max. 0,28 Ohm
Features	■ Short-circuit-proof ■ Overcurrent- and excess temperature –proof



#### INFORMATION

The function allocations of the outputs is carried out with the software of the JET3up in the menu **Settings ► I/O-Settings ► Outputs.**  
You will find a circuit diagram of the interface in the manual appendix!

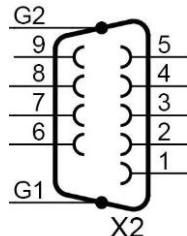
<sup>(1)</sup> All 24V outputs which are designated with (1) are protected by a self-reset fuse with 700mA, that means the sum of all output currents which are supplied of this 24V should not exceed 700mA.

<sup>(2)</sup> Depending on the set function.

### 5.5.6 Interface X2 - Serial interface

The interface "X2" is a serial data interface with a transfer rate up to 115200 Baud. The access is suitable for a connection to the printer to application-specific software for the data management and for the remote control of the printer.

Plug assignment:    Pin connection:



Pin	Designation	Pin	Designation
1	NC	6	Connected with 4
2	RxD	7	RTS
3	TxD	8	CTS
4	Connected with 6	9	NC
5	GND		

NC = not connected



#### INFORMATION

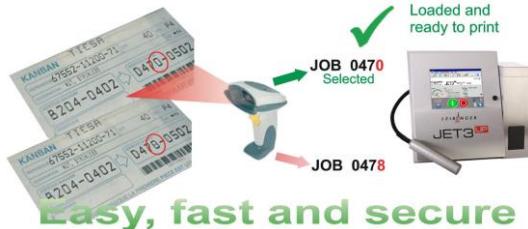
The function allocations of the outputs is carried out with the software of the JET3up in the menu  
**Settings ► I/O-Settings ► Outputs.**  
You will find a circuit diagram of the interface in the manual appendix!

### 5.5.7 USB-Connection

The USB-connection can be used for all common USB-devices as e.g. mouses, keyboards or USB-sticks. All data can be exchanged comfortable and simply by the USB-connection. Software updates, exchange of variable printing data or memory expansions can be carried out simply with the USB-stick.

#### Shoot & print option

With an optional bar code scanner connected to the USB port it is possible to emulate keyboard inputs with barcodes in order to avoid typing errors.



Commands read from bar codes to load and execute pre-installed print jobs.

If the bar code scanner is connected to the USB port it is used to emulate keyboard inputs.

With a bar code scanner connected to the RS 232 interface of the JET3up there are further options available.

Please see the following chapters for details:

#### 8.7.5 Extern Text

#### Plug assignment:



#### Pin connection:

Pin	Designation	Pin	Designation
1	+V (+ 5V)	3	Data +
2	Data -	4	GND

## 6 Operation

### 6.1 Construction/Structure of the device

The high-performance LEIBINGER JET3up is manufactured of a solid two parts stainless steel cabinet. Due to the two parts construction you will get a thermal separation between the hydraulic- and electronic section. The device consists of the following main components.

**Figure 14 Equipment configuration (General view)**



1 – Electronic cabinet

2 – TFT – Touch Display

3 – Hydraulic cabinet

4 – Refilling unit

5 – Print head with umbilical

In the closed **electronic cabinet** you will find the essential electronic components as power supply, the TFT-Touch Display as well as the controller board.

The large central arranged **TFT-Touch Display** describes the interactive interface for the operator. This central entry medium with its extensive 10,4" color display with backlight allows a clear, self-explaining operator guidance without additional keys and switches.

In the **hydraulic cabinet** you find all components which are required for the transportation and preparation of ink.

The **refilling unit** provides a supply of consumables. It contains two separate reservoir tanks for ink and solvent. The unpressurized tanks can be refilled without interrupt procedure, odorless and splash-free during the operation.

The **print head** contains all mechanical, electronical and hydraulic components which are required for the creation of printout. It is connected with the hydraulic cabinet by a flexible umbilical.

## 6.2 Functional principle

### 6.2.1 Method of working

The JET3up works in accordance with the continuous ink jet process. In this a constant ink jet is emitted from a jet nozzle which is broken down into a series of equal size drops under the influence of mechanical oscillations.

If required these drops are individually charged up electrostatically and deflected into a constant electrical field depending on the charge. As a result not just one point but rather a line of points can be applied contact-free with one jet. If the product used is moved vertically to the drop deflection two-dimensional patterns (characters) can be created.

The drops that are not required for a programmed inscription are not charged and flow uninfluenced through the electrical deflection field into a gutter. In the gutter the drops are sucked up by a suction pump and fed back into the ink tank.

Depending on the application alphanumeric data and graphics can be entered with the TFT touch display.



#### INFORMATION

Data for font and texts are stored in the device even in the event of power failure. If required it can be called up, altered or deleted quickly and easily.

Further more, all jobs, fonts and graphics can be saved as a back-up e.g. on a USB-stick or on a network storage device.

### 6.2.2 Drop creation

During the drop creation the ink is pressed through a jet nozzle under pressure and at the same time modulated in such a way by highly frequent sinus oscillations that are imposed on the drop that it attaches itself to the nodal points of the oscillations and breaks down into individual drops at a specific distance  $\lambda$  (please see the following figure "Creation of a character") from the jet. The oscillations are created with an oscillatory system that is excited by a Piezo oscillator.

### 6.2.3 Drop charging

In order to be able to charge the drops it is necessary for the ink to have electrical conductivity. This is possible through the use of specific salts that dissociate in the solvent used. The drop brake-off point of the modulated jet is automatically set in such a manner that this happens inside the charging electrode.

The drops can now be charged up by creation of voltage between jet and charging electrode, because they are given a negative charge through the charge shift resulting in the charge electrode gap. A specific charge voltage is clearly allocated for each drop charge.

### 6.2.4 Drop deflection

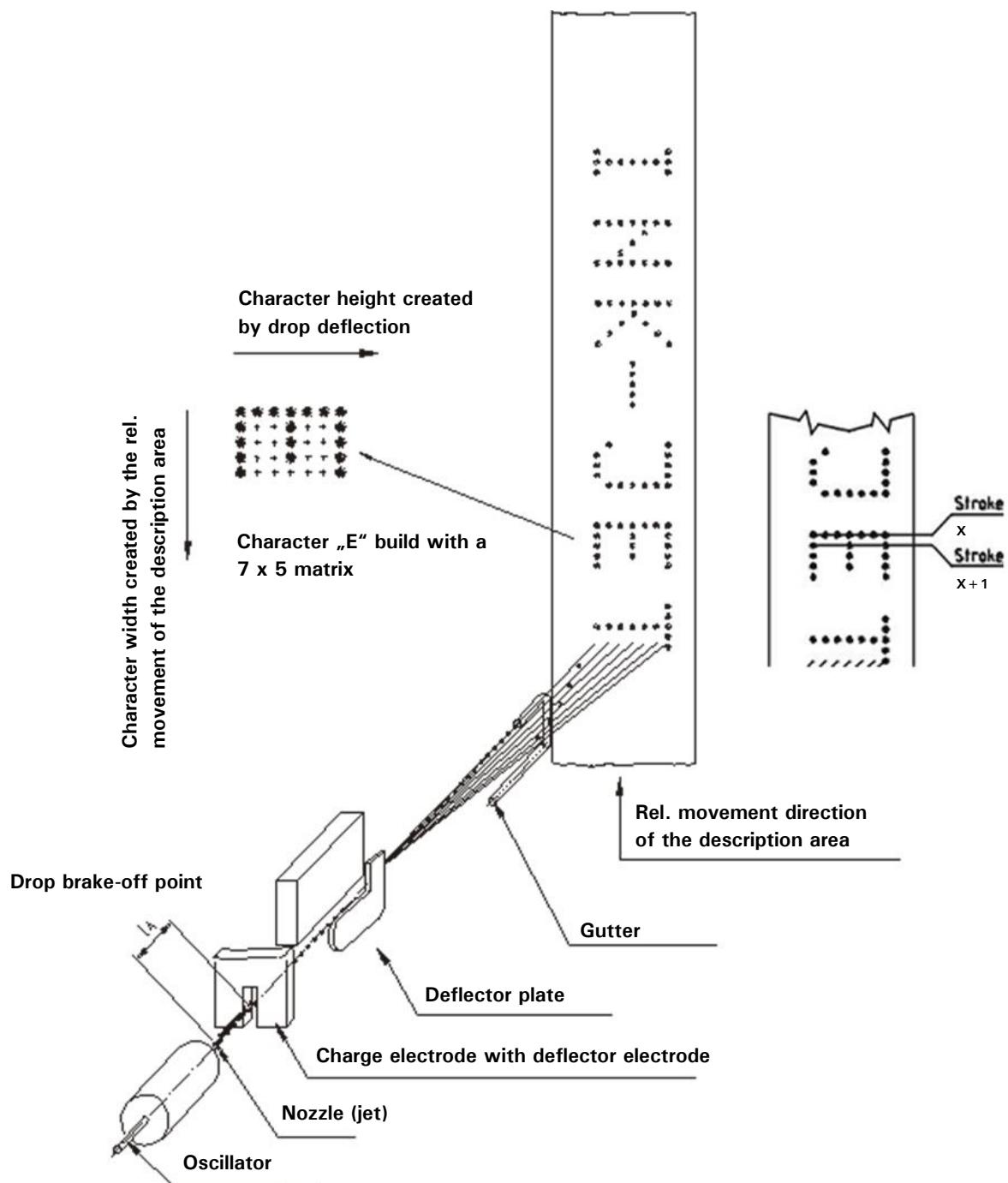
After the drops have left the charging electrode they fly through an electrical field. Here, those droplets that were previously charged in the charging electrode are deflected. The drops that have not been charged fly straight ahead into the gutter. Here they are sucked up and fed back to the circular flow of ink. The charged drops are only deflected in one direction, the other direction is performed by the product to be inscribed.

### 6.2.5 Creation of a character

Each character is defined by a two-dimensional matrix, e.g. 7 x 5. An ink drop can be assigned to every point of intersection. The character is formed by deflecting the ink drops in a vertical direction and by moving the product to be imprinted horizontally. The ink drops not to be positioned on the product will not be charged by the charging electrode and pass through the electric field without being deflected directly into the gutter tube. The controller (CPU) of the printer calculates the values which are required for the generation of charging voltages of the single characters.

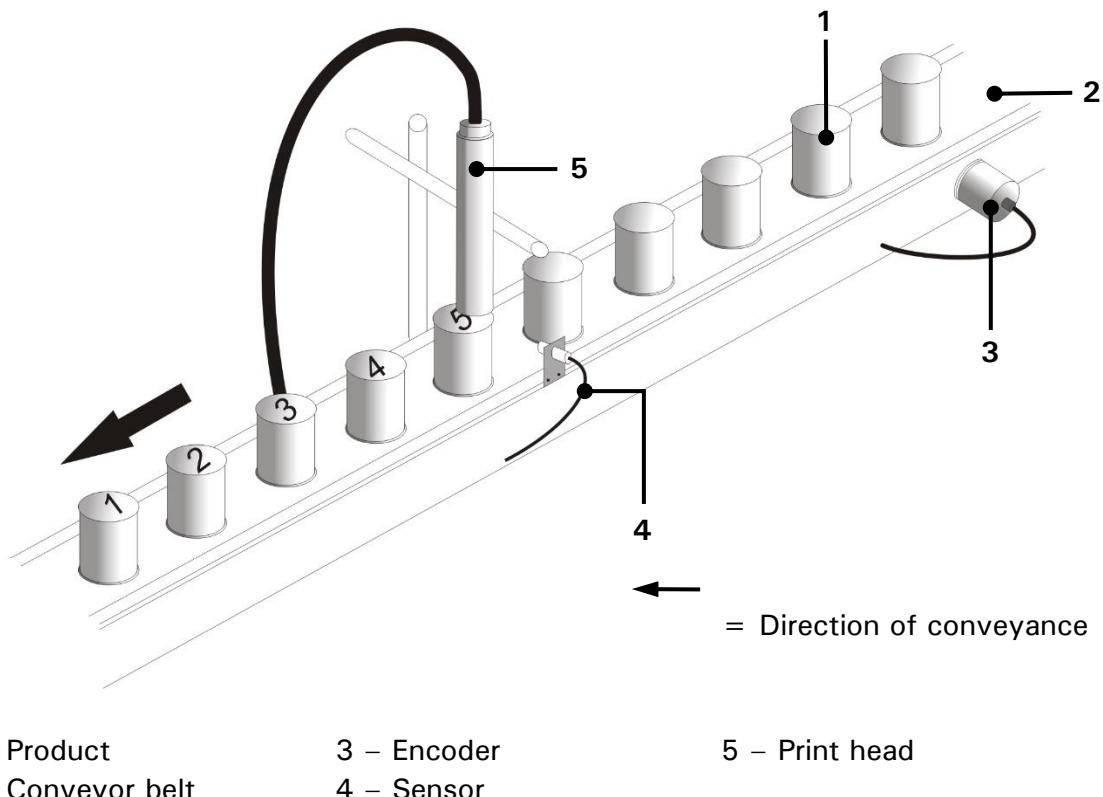
### 6.2.6 Summary of the individual proceduresFigure

Figure 15 Character creation process



### 6.2.7 Example of use

Figure 16 Example of use



### 6.3 Safety instructions



#### **WARNING**

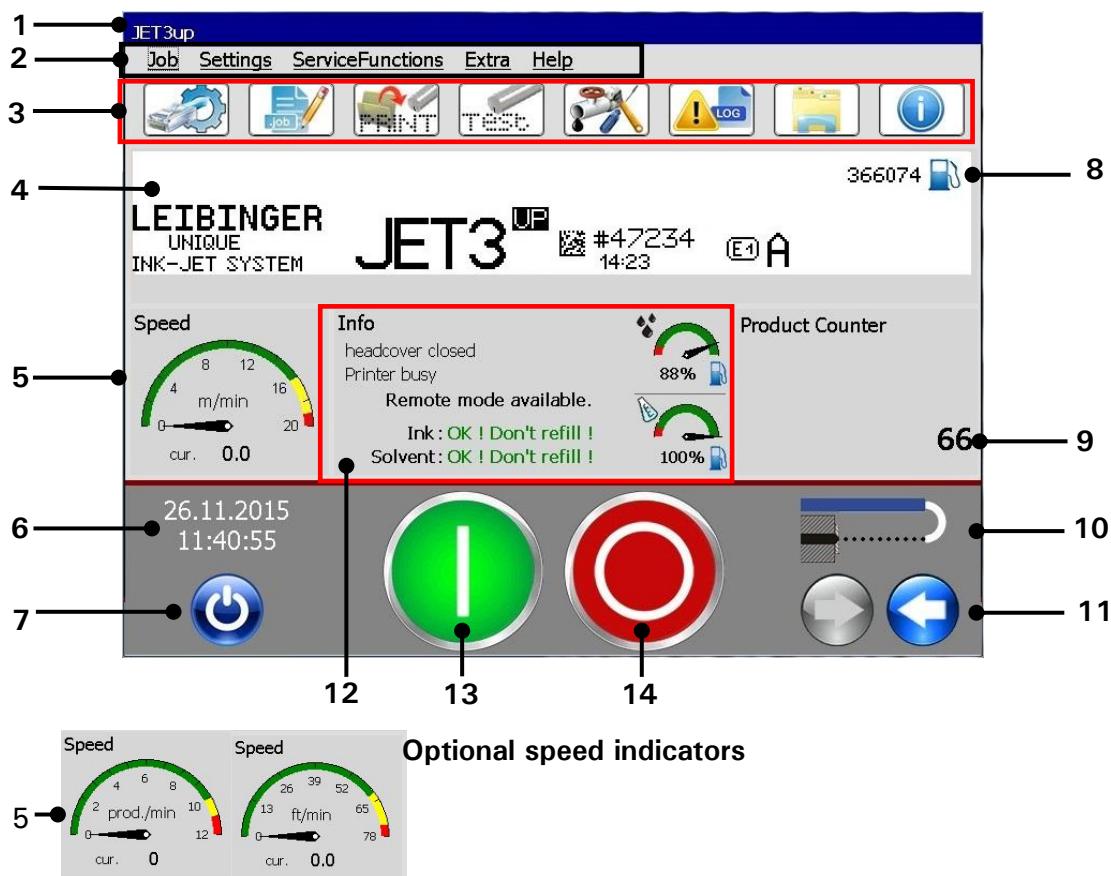
##### **Risk of fire and injury!**

- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

## 6.4 User interface and printer operation

This chapter describes the essential operating- and indicating elements of the LEIBINGER JET3up main window.

**Figure 17 Design of the main window**



- 1 – Title bar
- 2 – Main window menu bar
- 3 – Menu shortcuts (Direct buttons)
- 4 – WYSIWYG display – Print preview
- 5 – Printing speed <m/min> / <Products/minutes> indicator
- 6 – <Date/Time> indicator
- 7 – <Off/Shut down> button

- 8 – <Remaining prints> indicator
- 9 – <Product counter> indicator
- 10 – <Nozzle> status indicator
- 11 – <Open / Close Nozzle> buttons
- 12 – Indicator for general status information
- 13 – <Printstart> button
- 14 – <Printstop> button

- **Title bar (1):** The title bar of the main window shows the name of the active print job and indicates the currently logged-in user. The logged-in user is only displayed when the <**Password active**> option is selected. Please see chapter **7.3.5 Password settings and user permissions** for details.
- **Menu bar (2):** Most functions of the JET3up can be accessed through the menu bar. Each menu entry provides a drop-down list with respective options. The following menu entries are available:

- |            |                     |        |
|------------|---------------------|--------|
| ■ Job      | ■ Service functions | ■ Help |
| ■ Settings | ■ Extra             |        |

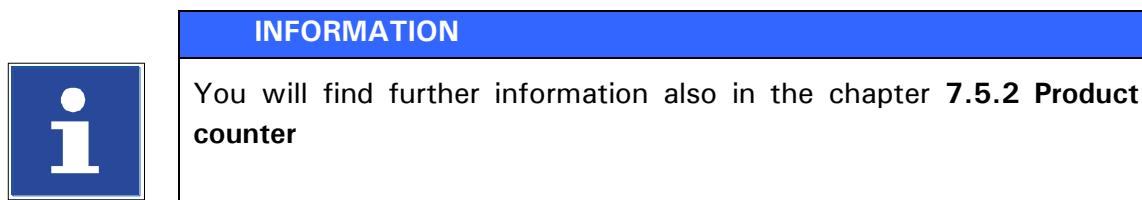
- **Direct buttons (3):** Several menus or submenus of the JET3up can be accessed with these shortcuts. The following list show the default direct buttons:

Pos.	Button	Function-/menu designation	Comment
1.		Create new job	Starts job editor with a new print job
2.		Edit current job	Starts job editor with the current print job.
4.		Open job to print	<Open file> dialog box pops up
5.		Test-print function	Loads the <Test print> job. See chapter 6.4 User interface and printer operation for details
6.		Hydraulic/Printhead test and maintenance menu	The <Hydraulic/Printhead> dialog box pops up.
7.		Data Logging	The <Data logging> dialog box pops up.
9.		Explorer	The <Explorer> dialog box pops up.
10.		Info	System information menu pops up.

There are several more <Direct buttons> (shortcuts) available. Please see chapter 7.3.4 Menu Shortcuts for details about the configuration of these shortcuts.

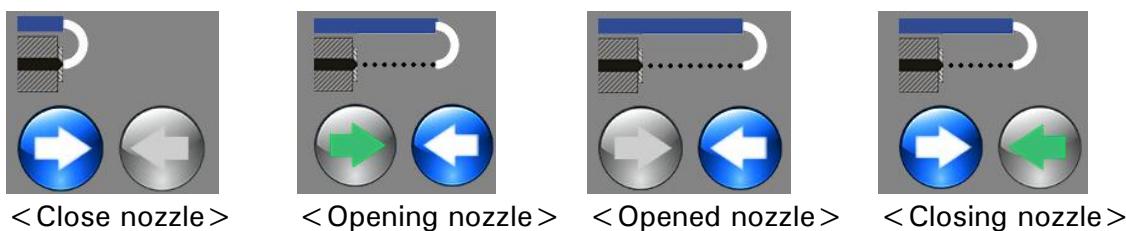
- **WYSIWYG display and print preview (4):** The preview shows the currently loaded print job in "What you see is what you get" mode.
- **<Printing speed> indicator or <Products per minute> indicator(5):** this indicator shows either the current printing speed or how many products are currently printed per minute. Depending on the selected adjustments in the basic settings the speed is displayed as. m/min or inch/min. The products per minutes are calculated on the basis of 2-second measuring intervals during which the PrintGo signals are counted. The displayed speed is an average value of all values calculated within the last 60 seconds. Therefore it may take up to 1 minute until a stable value is reached. The calculation is restarted with each Print Start command. **The dimensions of the measurement are changed by a click on the icon.** The standard display has the dimensions meter/min or ft per minute depending on the <Basic Settings> for dimensions. This setting can be changed in the <Settings> - <Basic Settings> - <Factory settings>
- **<Time/Date> indicator (6):** Shows the current time and date. The <Time/Date> is set in the dialog box <Settings> - <Basic settings> - <Date/Time>
- **<Off/Shut down> button (7):** A click on this button will shut down the printer. Please see chapter 6.5.4 Switch off device

- <Remaining printouts> indicator (8): This indicator shows the remaining print outs calculated on the basis of the current ink volume and the currently loaded print job. The value displayed is only a rough estimate.
- <Product counter> indicator (9): The indicator displays the current value of the product counter(s). Additionally a predefined print stop will be indicated by a red frame. The indicator works also as button. A click on the indicator will open the <Counter settings> dialog box. Whether there are displayed 1 or 2 product counters depend on the product counter settings.

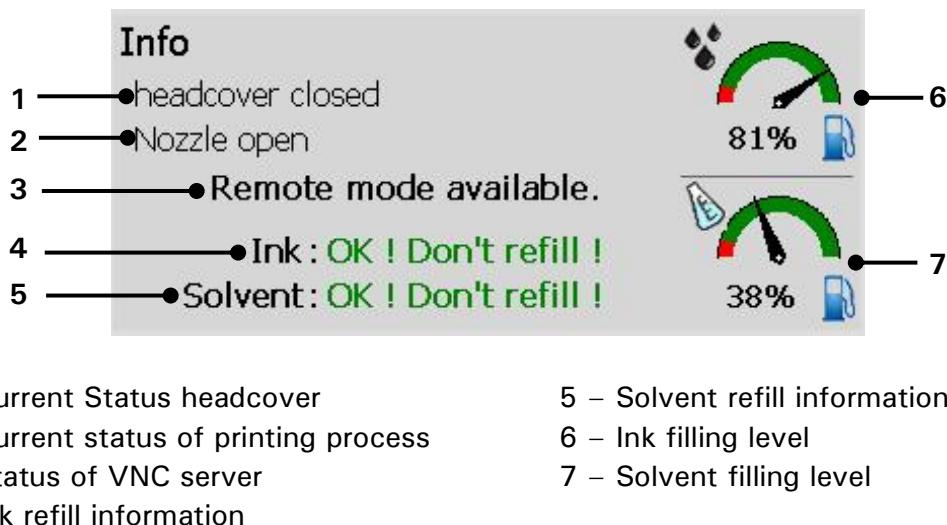


- <Nozzle> indicator (10): This indicator shows the current status (position) of the nozzle. There are 4 possible states:
  - Opening nozzle
  - Nozzle open
  - Closing nozzle
  - Nozzle closed
- <Open/Close Nozzle> buttons (11): With these buttons the nozzle can be opened and closed. The active button changes its color.

Figure 18 Status field <Nozzle>



- Indicator for general status information (12): This indicator provides general information about the current status of the printer.

**Figure 19 Indicator for general status information**

1 – Current Status headcover

5 – Solvent refill information

2 – Current status of printing process

6 – Ink filling level

3 – Status of VNC server

7 – Solvent filling level

4 – Ink refill information

**Status headcover:**

The headcover can have two states: open or closed.

With an open headcover printing is not possible.

**Current status of printing process:**

The current status relevant for the printing process is displayed.

E.g.: **ink on**, **Nozzle closed**, **Nozzle open**, **Print stop**, **Print start**, **Print busy** etc.

**Status of VNC server:**

There are two possible states: either the VNC server is running and <**Remote mode available**> is displayed or the VNC serve has stopped and **nothing** is displayed.

**Ink refill information:**

Refills are not allowed until the printer shows an according message!

**Solvent refill information:**

Refills are not allowed until the printer shows an according message!

**Ink filling level:**

The indicator shows the current ink filling level.

**Solvent filling level:**

The indicator shows the current solvent filling level.

- **Button <PrintStart> (13):** With this button the print job will be released for processing. If a print job is activated, the button is displayed backlit. It will be printed as soon as a PrintGo signal occurs.



Print start inactive. Print job is not released for processing.



Print start active. Printer is in active print mode.

- **Button <PrintStop> (14):** The released print job is stopped with this button. If a print stop is activated, the button is displayed backlit.



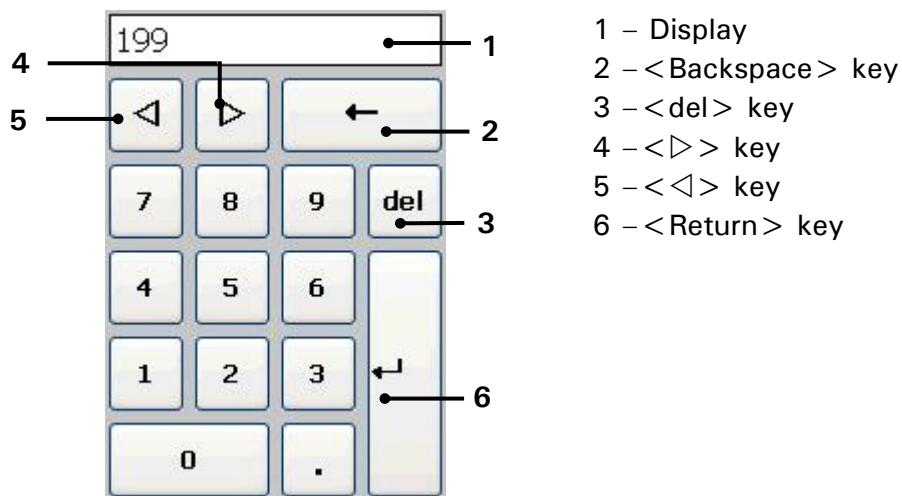
Print stop inactive



Print stop active. Current print job was stopped or no print job is released for processing.

#### 6.4.1 Numeric keypad

Figure 20    Numeric keypad design



Numbers are entered with the numeric keypad.

The entered value is shown in the **Display (1)**.

The **< Backspace <-> key (2)** deletes the character in front of (to the left of) the current cursor position.

The **<del> key (3)** enables the deletion of the characters behind (to the right of) the current cursor position.

With the **<> key (4)** you can shift the current cursor position by one digit to the right.

With the **<<L>> key (5)** you can shift the current cursor position by one digit to the left.

With the **<Return <-> key (6)** you can take over the input and the Numeric keypad closes.

### 6.4.2 Keyboard

**Figure 21**    **Keyboard design**

Standard characters



Special characters expanded font



Caps Lock/Standard characters



Caps Lock/ Special characters - expanded font



1 –Button <Return>

3 – Button <Caps Lock>

2 –Button <Special characters>

The characters are entered with the keyboard. The structure of the keyboard corresponds to the common computer keyboards.

**Note:**

Depending on the installed language package (e.g. Cyrillic) the structure can vary from the shown display.

With the button <**Return ↵**> (1) the input is taken over and the Numeric keypad will be closed.

With the button <**Special characters**> (2) you can change between the standard characters and the special characters.

## 6.5 Basic operating procedures

This paragraph describes the basic operating procedures of the LEIBINGER JET3up.

### 6.5.1 General

The complete control of the JET3up can be carried out with a connected PC-mouse or directly with the TFT-Touch-Display.

For the operation with the Touch-Display the control of the device happens by a slight touch on the buttons (touch-fields) with the finger or with the touch pin (included in the delivery). Here the targeted precision is decisive and not the pressure.

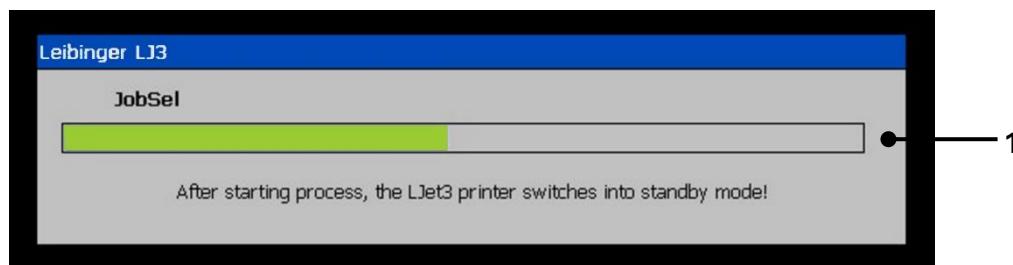
The operation with the touch-display is described subsequently.



### 6.5.2 First initialization of the device

After connection to the mains power or after a power interruption, the initialization of the device will be carried out automatically. The progress of the initialization is shown by a bar. After finishing the process the device is switched to the standby-mode (monitor is dark) and the JET3up is now ready to switch on by pressing the touch screen.

**Figure 22 Initialization process**



1 – Progress bar

### 6.5.3 Switch on device

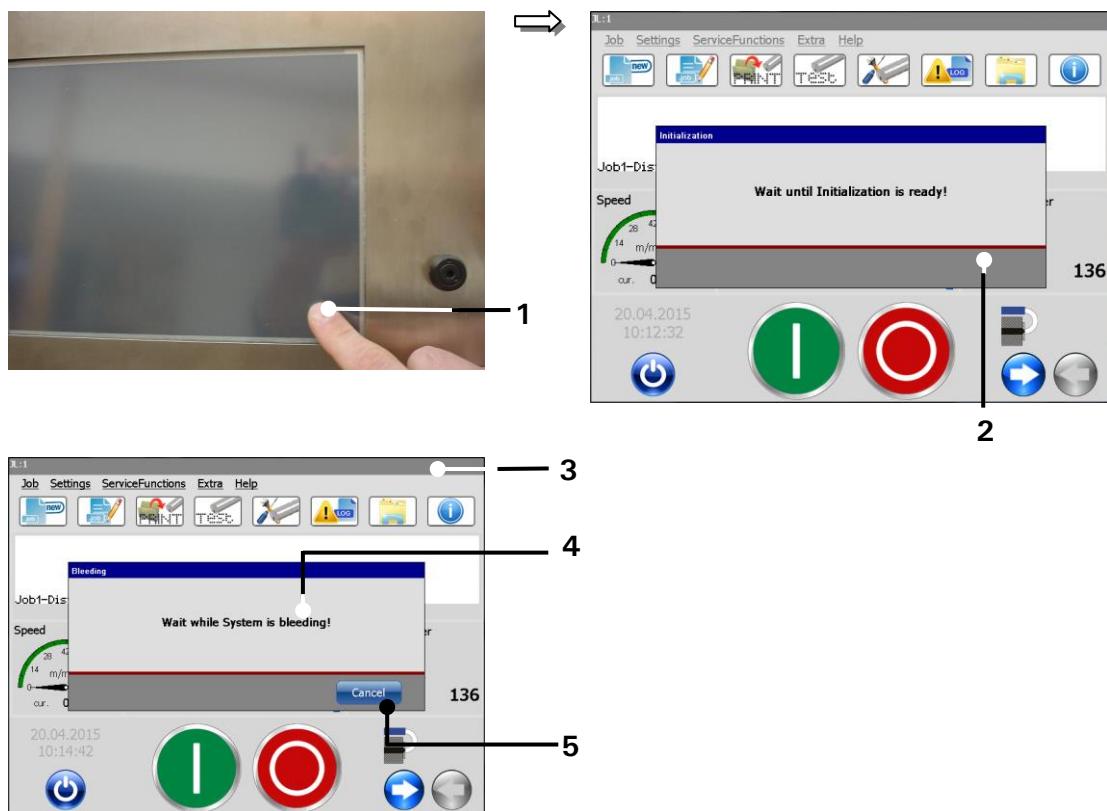
#### 6.5.3.1 Switching on without password protection

**Proceeding:**

- Touch the dark **Touch-Display (1)** for at least 2 seconds.
- The device is turned on and the main window **(2)** is displayed with the message **<Initialization> (3)**.
- After the initialization the device starts with the bleeding of the system automatically.
- During the process the message **<Bleeding> (4)** is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button **<Cancel> (5)**.

**Note:**

For starting the device the job which has been used at last will be loaded automatically.

**Figure 23** Switch-on procedure without password protection

1 – TFT-Touch-Display  
2 – Message <Initialization >  
3 – Main window

4 – Message <Bleeding>  
5 – Button <Cancel>

### 6.5.3.2 Switching on with password protection

#### Proceeding:

- Touch the dark **Touch-Display (1)** for at least 2 seconds.
- The device turns on and the main window **(3)** is displayed with the message **<Initialization> (2)**.
- After the initialization the device starts with the bleeding of the system automatically.
- During the process the message **<Bleeding> (4)** is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button **<Cancel> (5)**.

#### Note:

The start of the device happens in the logged-out status (no operator will be logged on) but the job which has been used at last will be loaded automatically.

- The dialog field **<Current login> (6)** and a keyboard field **(8)** pops up.

#### INFORMATION



You will find further information regarding the operation with keyboard in the chapter **6.4.2 Keyboard**

- Enter your password with the keyboard field.
- Press the button **<Enter> (9)** of the keyboard field to finish the input.
- Now press the button **<Login> (10)** to finish the login.
- Now the user is logged-in and the active password level is displayed on top right of the title bar **(11)**.

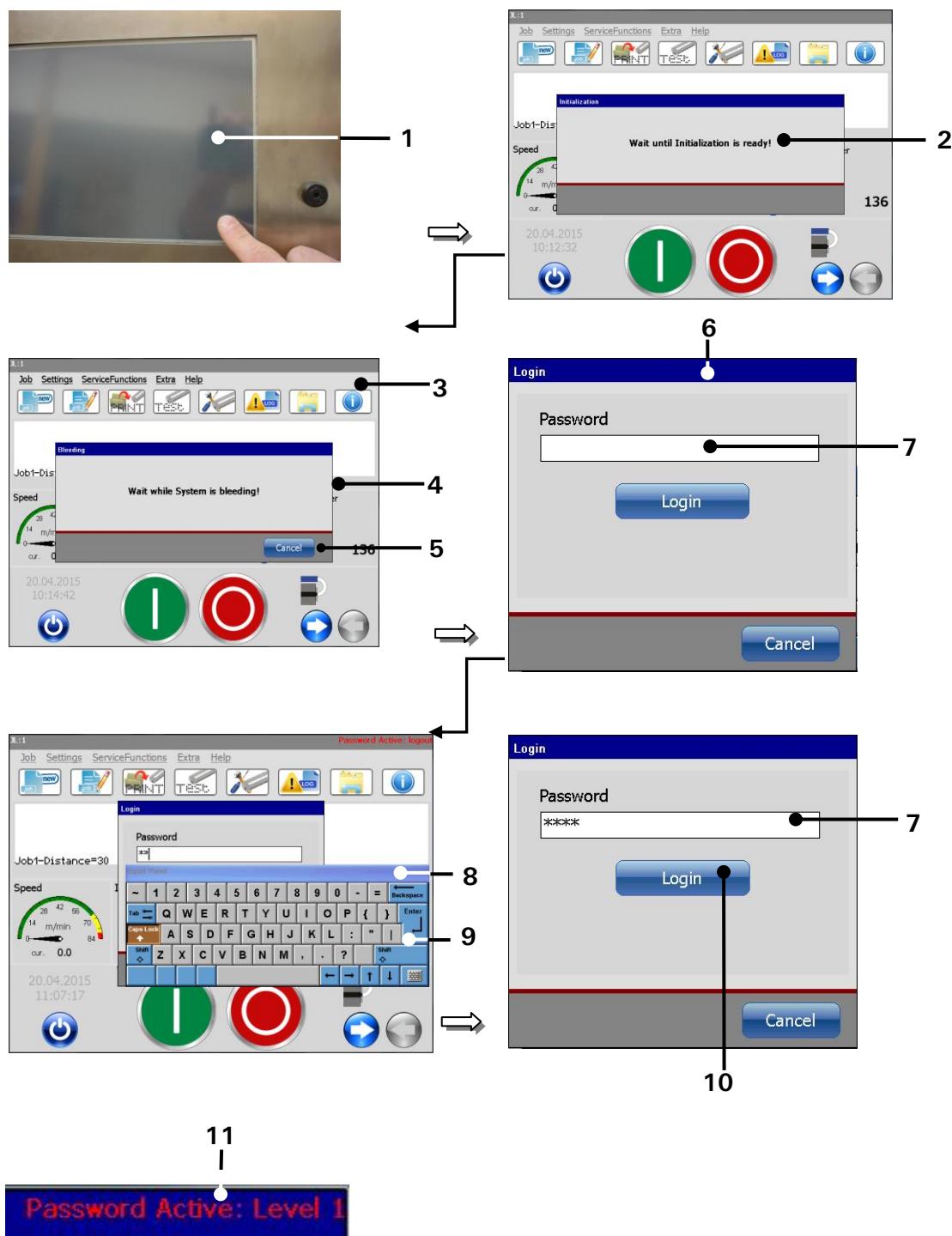
#### ATTENTION



The login can be also carried out without a password. In this case only several basic functions of the device are available for the user.

You will find further information in the chapter **7.3.5 Password settings and user permissions**

**Figure 24** Switch-on procedure with password protection

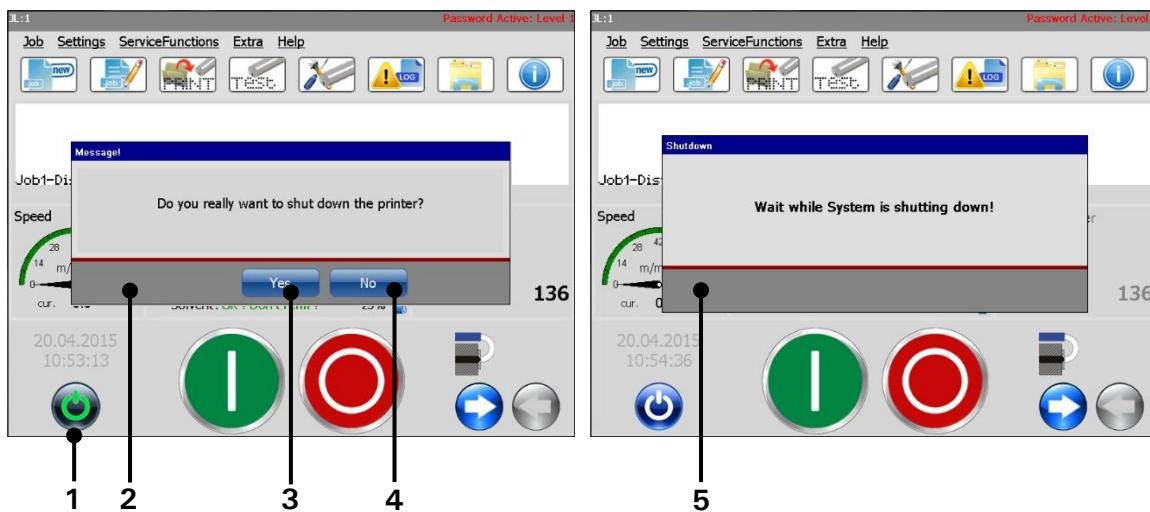


- 1 – TFT-Touch-Display
- 2 – Message box <Initialization>
- 3 – Main Window
- 4 – Message box <Bleeding>
- 5 – <Cancel> Button
- 6 – Dialog box <Log-in>

- 7 – Input field <Password>
- 8 – Software keyboard
- 9 – <Enter> key
- 10 – <Login> Button
- 11 – Indicator for currently logged-in user

### 6.5.4 Switch off device

**Figure 25**      **Switch-off procedure**



- 1 – <Off> Button
- 2 – Confirmation prompt
- 3 – <Yes> Button

- 4 – <No> Button
- 5 – <Shutdown> message box

**Proceeding:**

- Press the button <Off> (1).
- A **confirmation prompt** (2), pops up.
- Confirm the shut down of the device by pressing the button <Yes> (3) or cancel the process with the button <No> (4) ab.
- Now the device is turned off. During the shut down the message <Shutdown> (5) is displayed.

**Comment:**

If the nozzle is still open during the turn-off procedure, it will be closed automatically.



**INFORMATION**

Turning off the device is only possible after a print stop.

After turning off you have to wait approx. 5 sec. until the device can be turned on again.

## 6.6 Windows and menu elements

### Menu bar

A menu bar displays several drop-down menus.

### Drop-down menu

A drop-down menu is opened by clicking on the respective menu item in the menu bar. It shows a list of options or commands.

### Submenu

A drop-down menu may have menu items which open submenus.

### Dialog box

A dialog box may contain controls, status indicators, text entry boxes or buttons which start additional functions.

### Title bar

The title bar is the topmost bar of a dialog box or window and shows the function of the dialog box or the file that is currently open in the window.

### Tabs

Complex dialog boxes may contain several tabs to arrange functions logically. One can change between tabs by clicking on their captions.

### Controls

There are several controls to set parameters or enter data:

---

- |                 |   |
|-----------------|---|
| Arrow key:      | Arrow keys are used to move objects or to set parameters in a spin box.                                       |
| Drop-down list: | A list that holds several options from which only one can be selected.  |
| Check box:      | A check box allows the choice between two options. A check box may be selected (for true) or not (for false). |
| Display field:  | Field for text or figures inputs.   |

### Command inputs

There are two possibilities for command inputs:

---

- |                |   |
|----------------|---|
| Button:        | The command is carried out by clicking on a button.   |
| Menu item:     | The command is carried out by clicking on a menu item.  |
| Direct button: | Special button (shortcut) that works as a shortcut to open a dialog box directly instead of using the menu structure. |

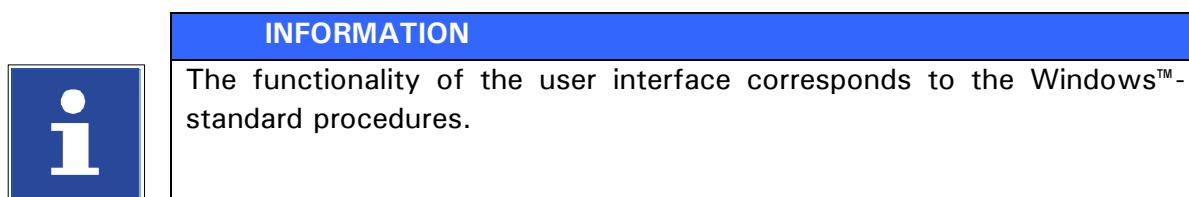
Some buttons may indicate their current status:

Button caption greyed out: The button is disabled at the moment. The reason for this may be a functional one (the command is not enabled during operation) or it be caused by an interfering parameter setting.

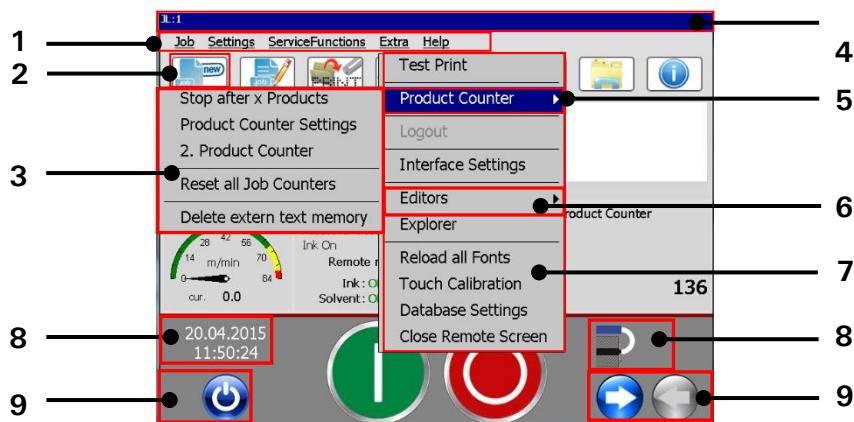
Button is displayed blue-grey: The button is activated and the command is carried out at the moment.

### Status indicators or display fields

A status indicator shows a status or a position. That may be the position of a print object (e.g. x-y indicator) or the current status of a printer component (e.g. the diaphragm position in the pressure tank). An indicator that is combined with arrow keys is also referred to as "display field". A display field may not only show the current value but also can be used for inputs.



**Figure 26** Menu layout 1



1 – Menu bar

2 – Direct button (shortcut)

3 – Submenu

4 – Title bar

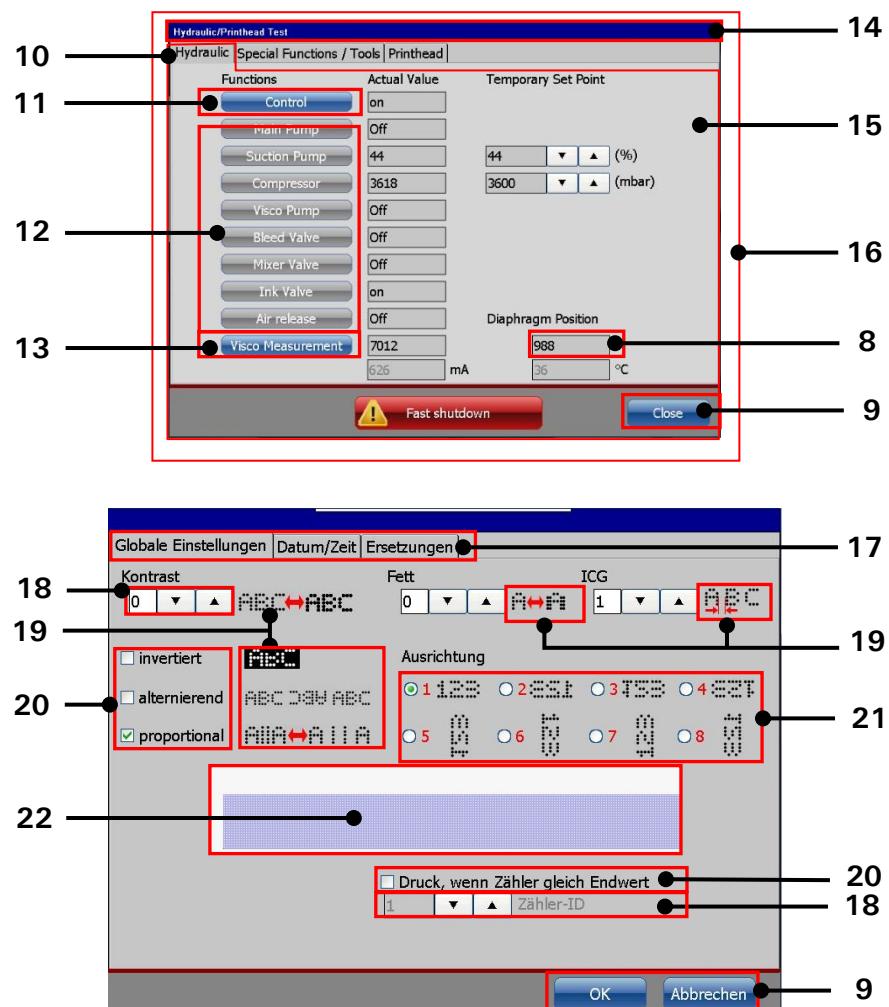
5 – Command in drop-down menu

6 – Option in drop-down menu

7 – Drop-down menu

8 – Status indicators

9 – Buttons

**Figure 27** Menu layout 2

- 10 – Tab caption
- 11 – Enabled button
- 12 – Disabled button
- 13 – Activated button
- 14 – Title bar dialog box
- 15 – Tab
- 16 – Dialog box

- 17 – Tab bar
- 18 – Input /display field with arrow keys
- 19 – Preview illustration
- 20 – Check boxes
- 21 – Radio buttons with preview illustrations
- 22 – Preview

## 6.7 Optional equipment

### 6.7.1 External head print ventilation - assembly and function

#### Function:

External head ventilation is predominantly used for devices in safety class IP65 and for print jobs in which the retractive suction of particles (e.g. paper lint in the printing industry) in printer circulations should be avoided.

For this purpose, the unit is provided with a **head ventilation** and a **housing ventilation**:

- **Head ventilation:** The printer's print head is impinged on with a constant air flow of 30l/h and thus the retractive suction of particles is prevented.
- **Housing ventilation:** With devices of protection class IP65, a great deal of heat is generated due to the tight design of the housing. Due to this heat generation in conjunction with the evaporation of the operating materials, an explosion danger zone (Ex zone) can arise.

To prevent this, the interior space of the hydraulic housing is impinged on with a constant air flow of 70l/h and vented via a concealed drilled hole.

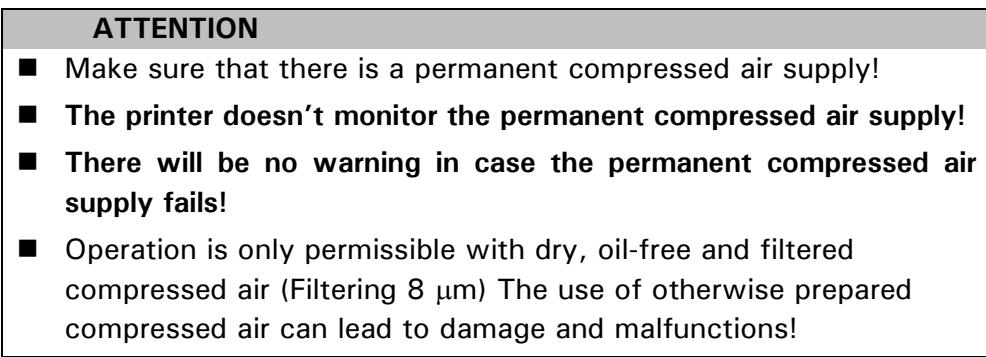
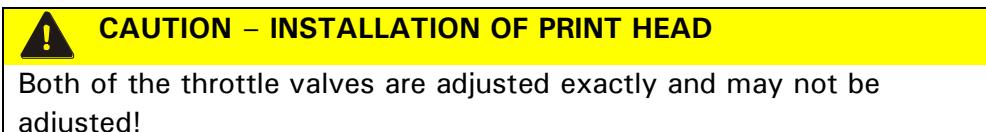
#### Assembly:

##### 1. Outside of the rear panel of the housing:

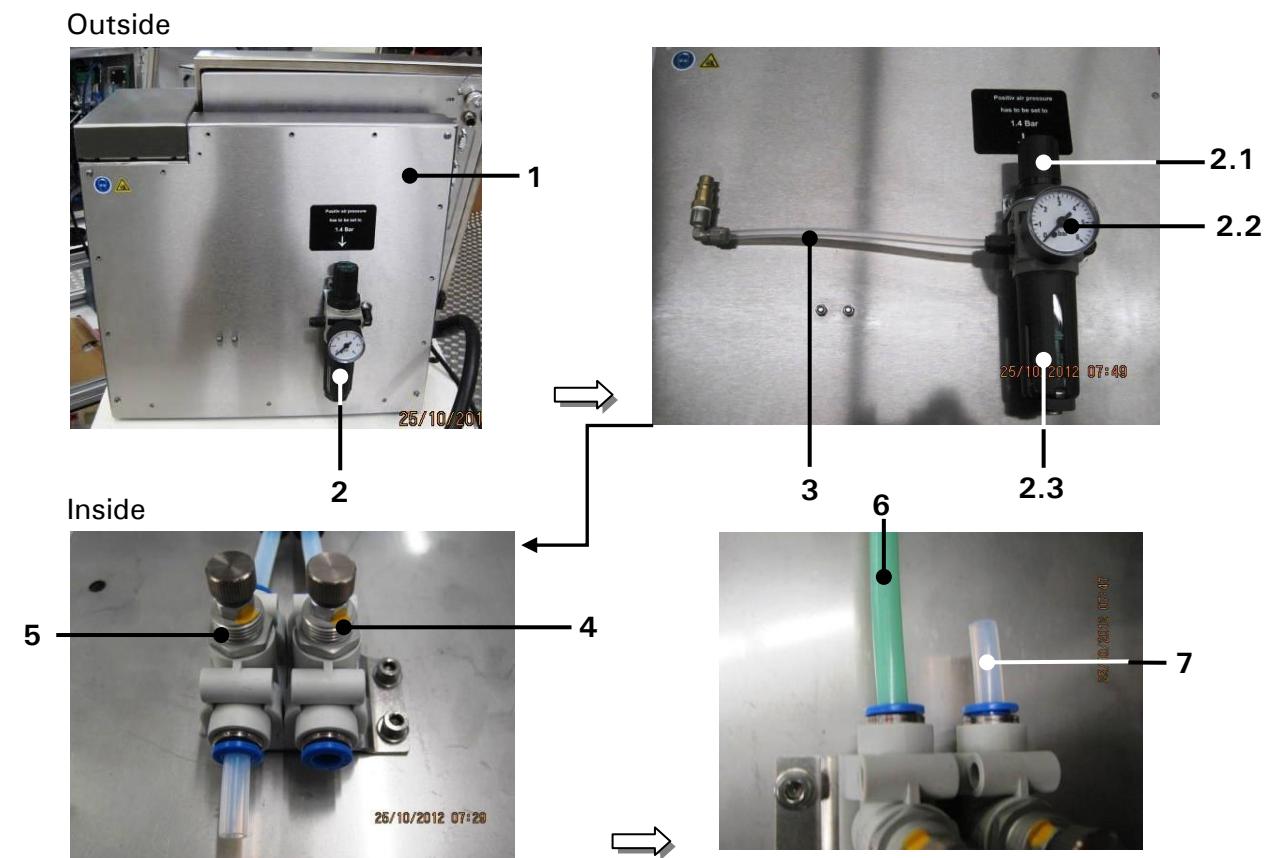
The unit's pressure regulator valve is attached to the outside.

##### 2. Inside of the rear wall of the housing:

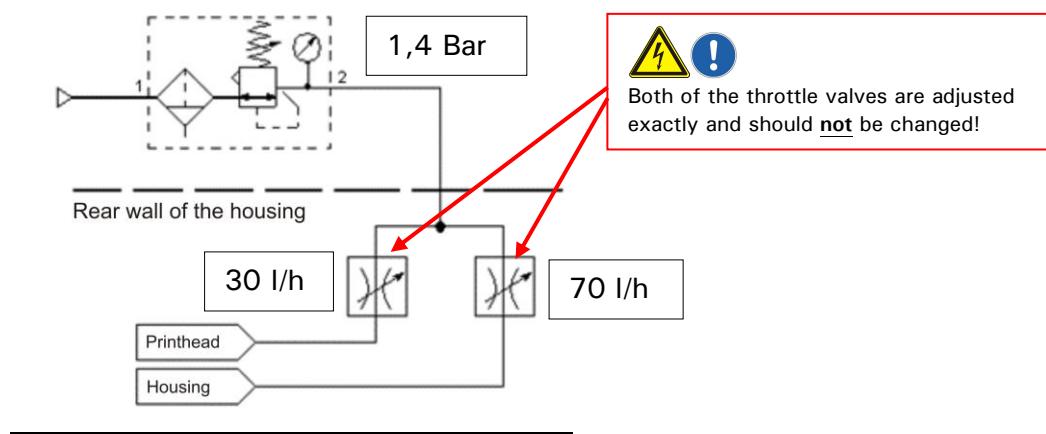
Both of the throttle valves for the writing head ventilation and the housing ventilation are attached to the inside. These valves are adjusted exactly as well as sealed and may not be adjusted!



**Figure 28 Assembly of the external print head ventilation**



Connection diagram:



- |  |   |
|--|---|
| 1 – rear panel of the housing          | 3 – Supply air hose                         |
| 2 – pressure regulator valve           | 4 – Throttle valve for the head ventilation |
| 2.1 – adjusting knob                   | 5 – Throttle valve for the housing ventil.  |
| 2.2 – manometer                        | 6 – Hose for the print head ventilation     |
| 2.3 – Condensate container (cartridge) | 7 – Hose for the housing ventilation        |

## 7 Data entry/Programming

### 7.1 General

Data which should be printed by the LEIBINGER JET3up can be entered, called, changed and saved with several input devices, e.g. TFT-Touch display, mouse etc.. The printer can also be programmed and controlled with the (RS232/Ethernet) per external software (according to the Leibinger interface protocol for the JET3UP). Further more the LEIBINGER JET3up can also carry out several functions (e.g. job selection) by the control with digital signals (e.g. out of a SPS) and can be therefore also controlled locally.

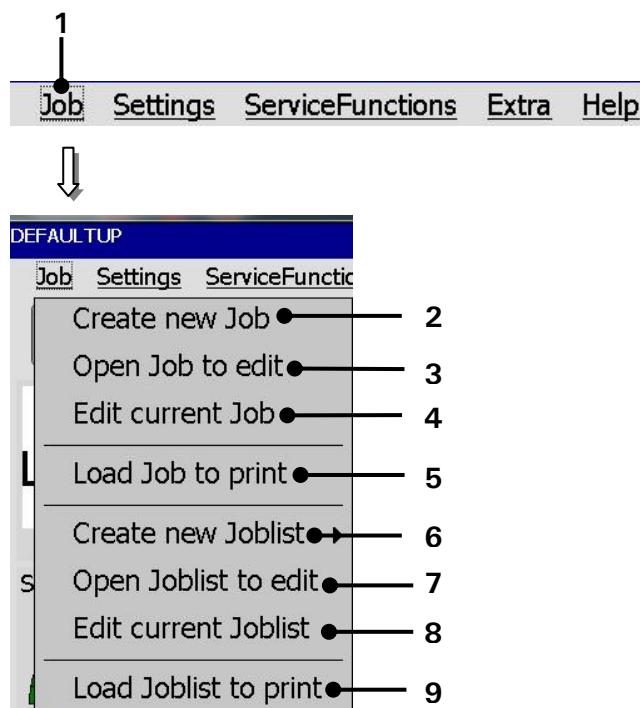
In the following the operation and programming with the TFT-Touch display are described.

## 7.2 Job administration

With the button <Job> in the main window bar the submenu „Job“ is displayed.  
The following options are available:

- Create new Job
- Load Job to print
- Edit current Joblist
- Edit current Job
- Open Job to edit
- Create new Joblist
- Load Joblist to print
- Open Joblist to edit

**Figure 29** Job menu



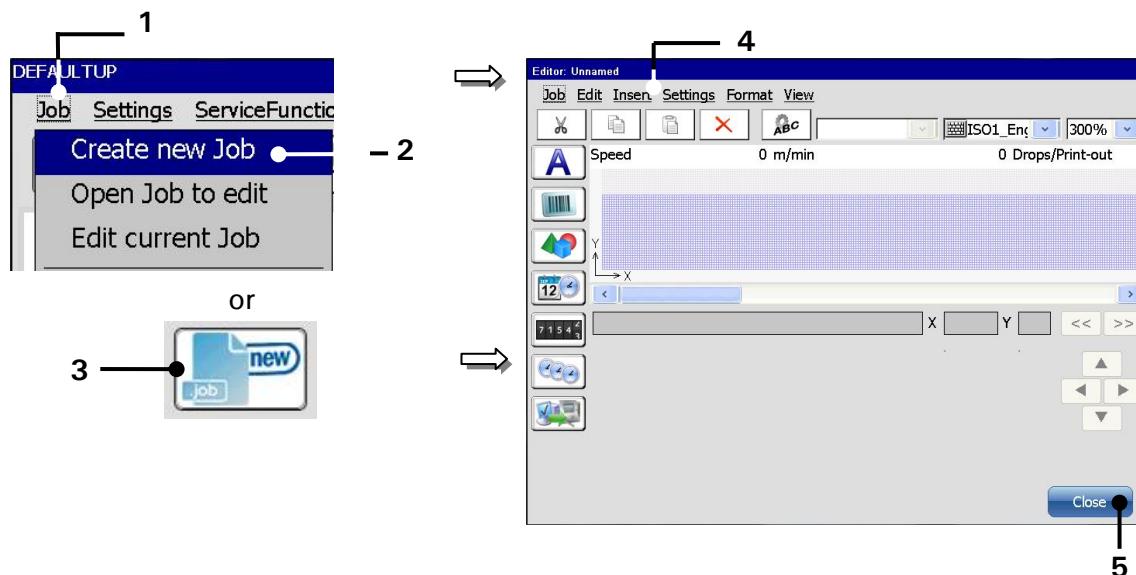
- 1 – Drop-down menu <Job>
- 2 – Option <Create new Job>
- 3 – Option <Open Job to edit>
- 4 – Option <Edit current Job>
- 5 – Option <Load Job to print>

- 6 – Option <Create new Joblist>
- 7 – Option <Open Joblist to edit>
- 8 – Option <Edit current Joblist>
- 9 – Option <Load Joblist to print>

### 7.2.1 Create a new job

With the option <Create a new Job> or by pressing on the accordant direct button (shortcut) you can create a new job. For creation the job editor opens where you can create the printing data and save it as a job. A variety of Windows® similar tools make the operation easier.

**Figure 30** Create a new job



- 1 – Menu item <Job>
- 2 – Option <Create new Job>
- 3 – Direct button (shortcut)

- 4 – Menu <Jobeditor>
- 5 – Button <Close>

#### Proceeding:

- Press the button <Job> (1) and the option <Create new Job> (2) or press the accordant direct button [icon] (3).
- The menu <Jobeditor> (4) opens.
- Create a new print job.
- Save the print job.



#### INFORMATION

- Please see chapter 8.3.1 **Save job/Save job as** for further information about saving a print job.
- Please see chapter 8 **Job editor** for details about the job editor.

### 7.2.2 Open job to edit

With the option <Open Job to edit> or by pressing on the accordant direct button (shortcut) you can open an existing job for editing. For selection of a job the window „Job edit“ is faded in.

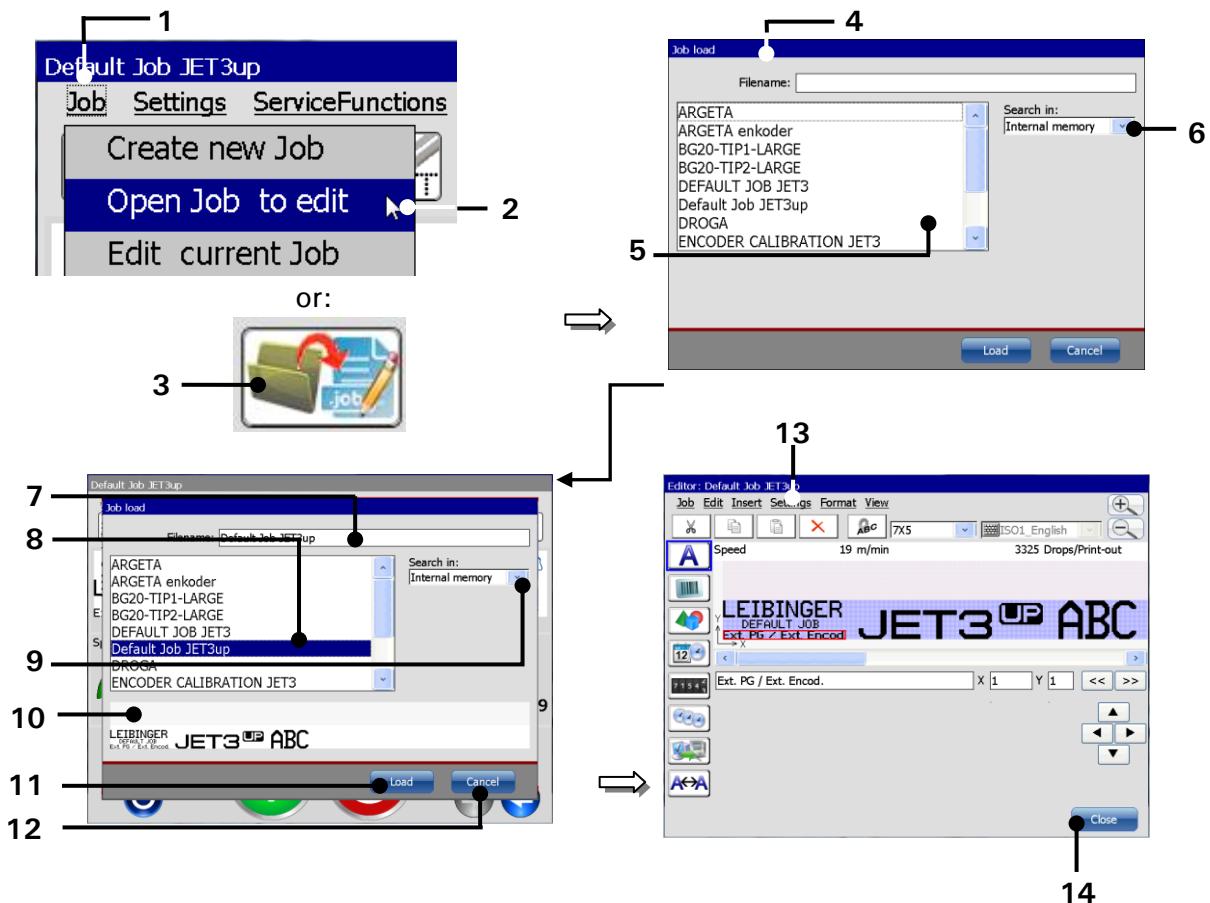
#### Proceeding

- Select the drop-down menu <Job> (1) and the option <Open Job to edit> (2) or press the accordant direct button [Shortcut] (3).
- The <Open file> dialog box (4) pops up.
- Select the requested job from the pick list <Print job files> (5). With the drop-down list <Search in> (6) you can select the various memory locations.
- The name of the selected jobs is now shown on the display <Filename> (7). Additionally a preview of the printing job is faded in on the display <Job preview> (10).
- Press the button <Edit> (11) to take over the selected job or press the button <Cancel> (12) to cancel the process.
- The <Jobeditor> window (13) pops up. The name of the opened job is displayed in the title bar of the editor.
- Carry out the requested changes and save it.



#### INFORMATION

- Please see chapter 8.3.1 Save job/Save job as for further information about saving a print job.
- Please see chapter 8 Job editor for details about the job editor.

**Figure 31** Open job to edit

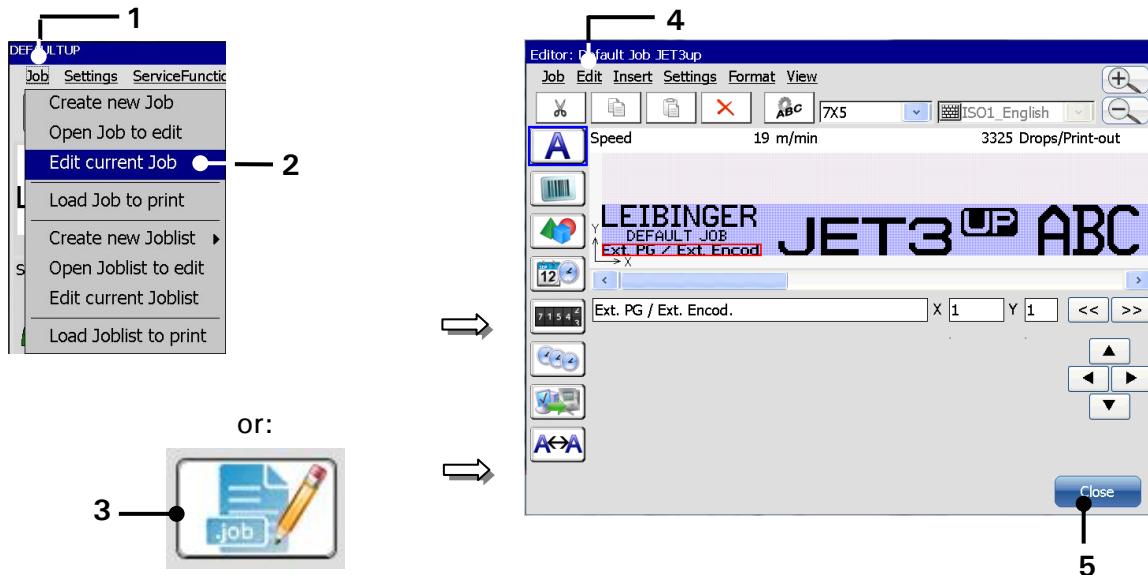
- 1 – Drop-down menu <Job>
- 2 – Option <Open Job to edit>
- 3 – Direct button (Shortcut)
- 4 – <Open file> dialog box
- 5 – Pick list <Print job files>
- 6 – Drop-down list <Search in>
- 7 – <Filename> of selected print job

- 8 – Selected print job
- 9 – Selected storage media
- 10 – Display <Job preview>
- 11 – <Edit> Button
- 12 – <Cancel> Button
- 13 – Menu <Job editor>
- 14 – <Close> Button

### 7.2.3 Edit current job

With the option <Edit current Job> or by pressing on the accordant direct button (shortcut) you can edit the current job.

**Figure 32** Edit current job



- 1 – Drop-down-menu <Job>
- 2 – Option <Edit current Job>
- 3 – Direct button (Shortcut) <Edit current Job>

- 4 – <Jobeditor> Window
- 5 – <Close> Button

#### Proceeding:

- Press the button <Job> (1) and the option <Edit current Job> (2) or press the accordant direct button [Shortcut] (3).
- The <Jobeditor> (4) opens in order to edit the print job. The name of the opened job is displayed in the title bar of the editor.
- Carry out the requested changes and save it.



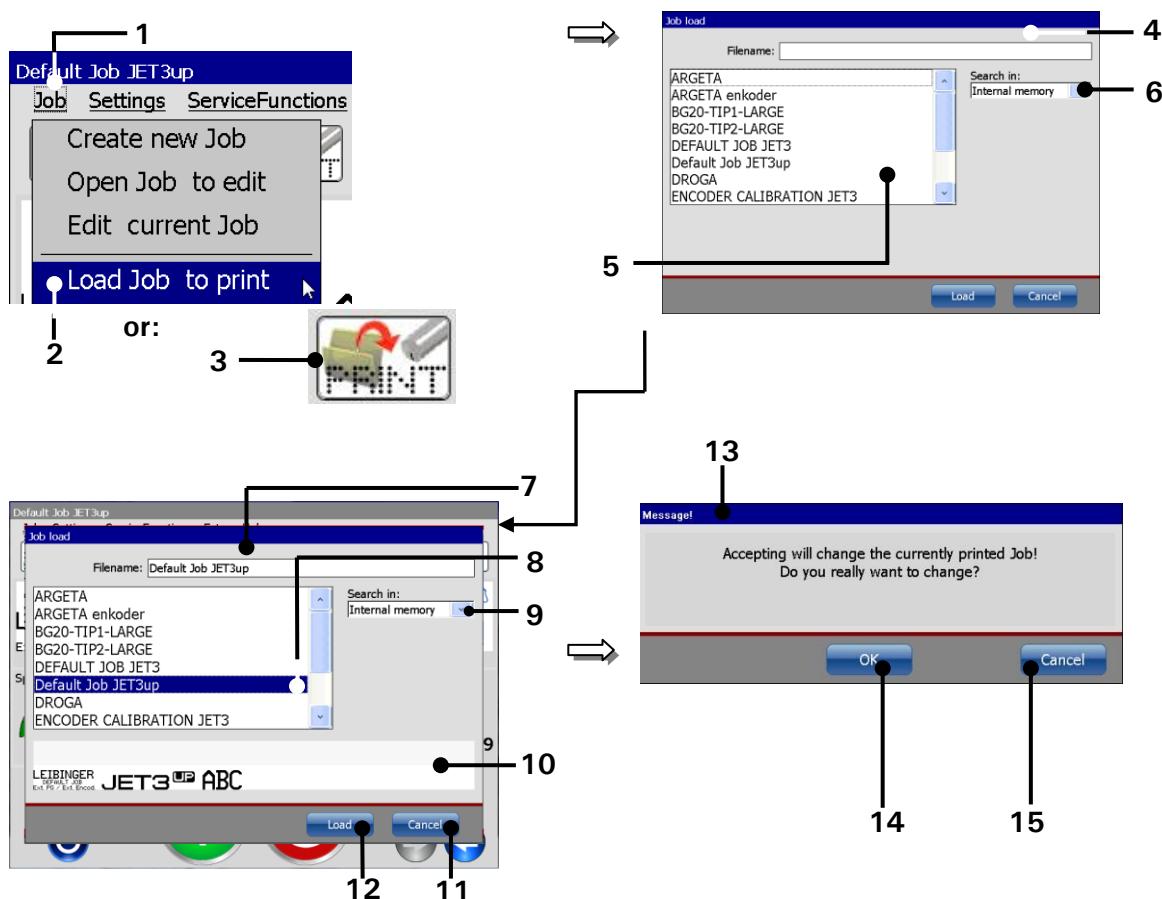
#### INFORMATION

- Please see chapter 8.3.1 Save job/Save job as for further information about saving a print job.
- Please see chapter 8 Job editor for details about the job editor.

### 7.2.4 Load Job to print

With the option <Load Job to print> you can load (open) a saved job directly for printing. For selection of a job the window "Load job" opens.

**Figure 33** Load job to print



- 1 – Drop-down menu <Job>
- 2 – Option <Load Job to print>
- 3 – Direct button (shortcut)
- 4 – Window <Job load>
- 5 – Pick list <Print jobs>
- 6 – Drop-down list <Search in>
- 7 – <Filename> of selected print job
- 8 – Selected job

- 9 – Selected storage medium
- 10 – Display <Job preview>
- 11 – <Load> Button
- 12 – <Cancel> Button
- 13 – Message <Change print job>
- 14 – <OK> Button
- 15 – <Cancel> Button

**Proceeding:**

- Select the drop-down menu <Job> (1) and the option <Load Job to print> (2) or the accordant direct button [Shortcut] (3).
- The window <Job load> (4) pops up.
- Select the requested job in the pick list <Job list> (5). With the drop-down list <Search in > (9) you can select different memory locations.
- The name of the selected job is now shown on the display <Filename> (7). Additionally a preview of the printing job is faded in on the display <Job preview > (10).
- Press the <Load> button (11) to take over the selected job or press the button <Cancel> (12) to cancel the process.
- A confirmation prompt (13), pops up.
- Confirm the change by pressing the button <OK> (14) or cancel the process with the button <Cancel> (15).

### 7.2.5 Create new job list

All numbers in the following description refer to figure 34

The menu item <Create new job list> offers three options:

- Extern Job select (3)
- Batch job (12)
- Job organisator (19)

Each option represents a special type of job list. The dialog boxes of all 3 options have all the same <Menu bar> (2) which will be described separately. Each of the 3 types of job lists has its own dialog box. Changes made in these dialog boxes may either be confirmed with the <OK> button (10) or discarded with the <Cancel> button (11). There are examples for all types of job lists at the end of this chapter.

#### Extern Job select (3)

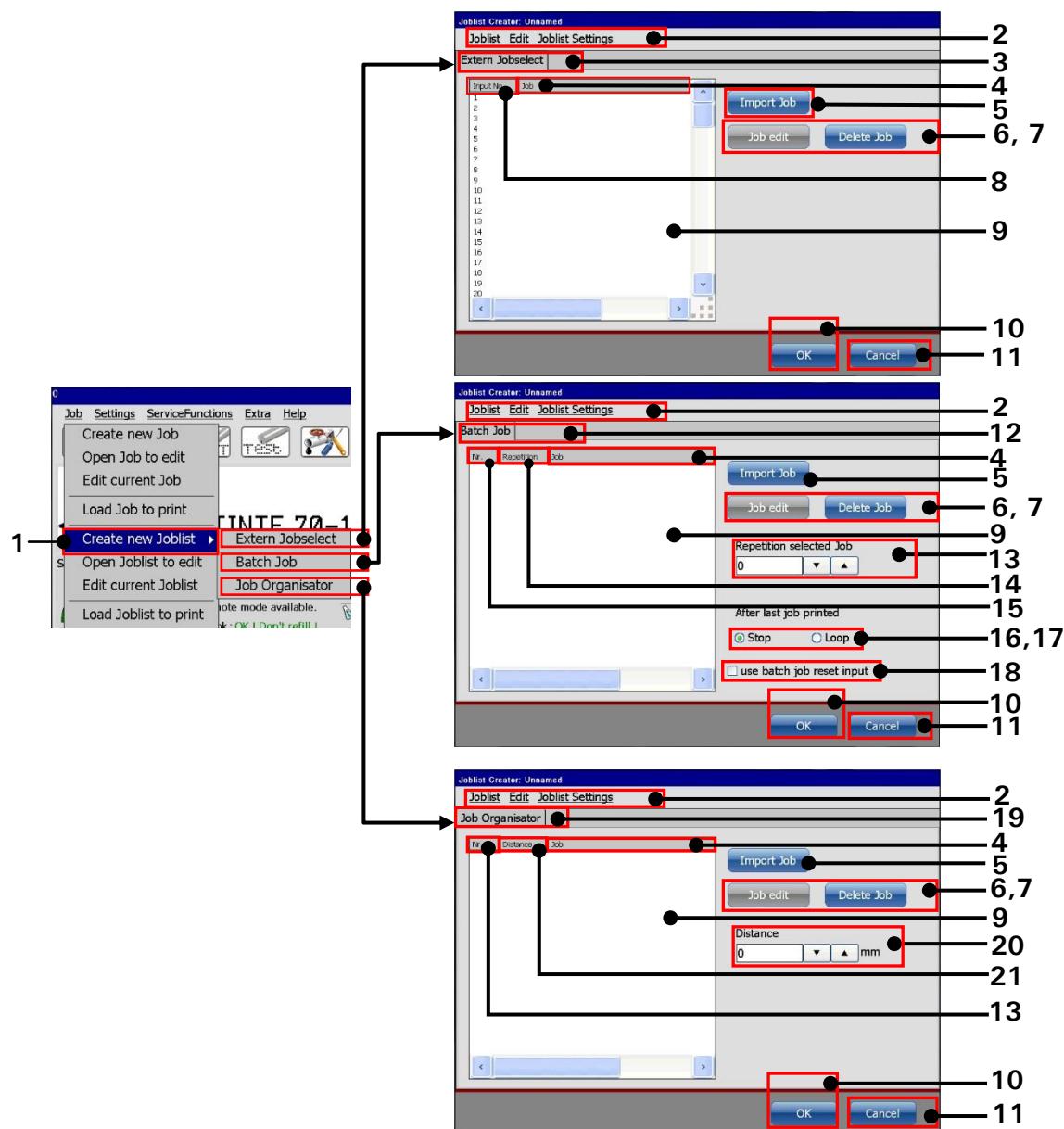
Up to 1023 print jobs can be listed in an <Extern Jobselect> list (3). A job is added either with the <Import Job> button (5) or with the respective option of the <Edit> drop-down menu of the menu bar (2). Both will open an <Open file> dialog box. The print job will be added at the current cursor position. With the <Delete Job> button (6) the currently marked job will be removed from the list display (9). The job list shows <Input No> (8) and <Job> name (4). The <Input No> (7) represents the address of the print job. The addressing is done in binary form through the digital inputs of connector X4. Details about connector X4 can be found in the addendum. With each <PrintGo> signal the currently addressed print job will be printed.

#### Batch Job (12)

Up to 1023 print jobs can be listed in an <Batch Job> job list (12). A job is added either with the <Import Job> button (5) or with the respective option of the <Edit> drop-down menu of the menu bar (2). Both will open an <Open file> dialog box. A print job will be added below the current cursor position. With the <Delete Job> button (6) the currently marked job will be removed from the list. The job list shows the <No.> (15), the number of <Repetitions> (14) and the name of the <Job> (4). The number of <Repetitions> (13) for a selected print job is defined and indicated through a display field with Numeric keypad and/or arrow keys. The print jobs plus optional repetitions will be printed in the order of the job list display (9). The job list (9) can either be processed in a loop (17) or the print-out can be stopped after the last job on the list was printed (16).

### **Job organisator (19)**

Up to 16 print jobs can be listed in a <Job organisator> list (19). A job is added either with the <Import Job> button (5) or the respective option of the <Edit> drop-down menu of the menu bar (2). Both will open an <Open file> dialog box. A print job will be added below the current cursor position. With the <Delete Job> (6) button the currently marked job will be removed from the list. The job list shows the <No.> (13), the <Distance> (21) between the reference point and the print job and the name of the <Job> (4). The reference point is defined by the <PrintGo> signal. The <Distance> for a selected print job is defined and indicated through a display field with a Numeric keypad and/or arrow keys (20). The print jobs will be printed in the order of the job list (9) taking into account the <Distance> settings (20).

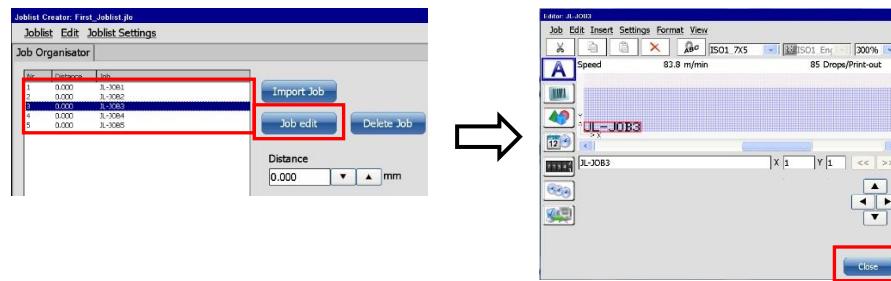
**Figure 34** Creating a new job list



### Important

It is possible to edit single jobs that are part of a joblist directly in the joblist editor.

A click on the <Job edit> button will open the currently selected print job in the <Job Editor>.



The job can be edited and saved in the <Job Editor>. The <Close> button closes the <Job Editor> and one gets back to the <Joblist Editor>.

The name of the job in the <Joblist Editor> remains always the same no matter under which name the selected job is saved in the <Job Editor>. Please see chapter 8 Job editor for details about the <Job Editor>.



### Important

A joblist has to be saved first before a single print job of the joblist can be opened in the <Job Editor> with the <Job Edit> button of the <Joblist creator>. Otherwise an error message will pop up.

All numbers in the following description refer to figure 35

#### Menu bar of the job list creator (1)

In the following all dialog boxes related to the menu bar of the job list creator are described. Changes made in these dialog boxes may either be confirmed with the <OK> button (19) or discarded with the <Cancel> button (20).

### Joblist (1a)

The drop-down menu <Joblist> (1a) offers options for file handling and for exiting the dialog box.

<Save Joblist> (2)	Will save the file under the current file name. After saving the dialog box will close.
<Save Joblist as> (3)	Opens a <Save file as> dialog box (6) and offers the option to save the file under a different name. After saving the dialog box will close.
<Load joblist to print> (4)	Should not be used while creating a new job list. This function should only be used during job list editing.
<Close joblist creator> (5)	Closes the dialog box. If the current job was not already saved a message box will ask for saving.

### Edit (1b)

The drop-down menu <Edit> (1b) offers the same options as the two buttons on the tabs of the respective job list types.

<Import job> (7)	Opens a <Open-file> dialog box. Jobs will be either imported at the current list position or at the next available position depending on the type of job list.
<Job edit> (8)	Opens the currently selected job in the job editor
<Delete jobs> (9)	Will delete the currently marked job in the job list.

### Joblist settings (1c)

The drop-down menu <Joblist settings> (1c) offers options for the global settings of the job list. These options apply to all jobs in the job list no matter what original settings the single job had.



#### INFORMATION

For further descriptions please see also

- chapter 8.5.1 Print style - Font parameters
- chapter 8.5.2 Print parameter
- chapter 8.5.3 Encoder parameter
- chapter 8.5.4 Date change offset

Selecting an item on the drop-down list will open a dialog box with 4 tabs. The 4 tabs show the 4 menu items of the drop-down list <Joblist settings> (1c) (not all parameters are available for all types of joblists!):

**Printstyle (15)**

<b>&lt;Print height&gt; (16)</b>	The setting defines the distances between the drops and therefore the print height.
<b>&lt;Orientation&gt; (17)</b>	All printing objects can be rotated by 180°.
<b>&lt;mirrored&gt; (18)</b>	All printing objects will be mirrored.

**Print Parameter (21)**

<b>&lt;PrintGo Distance&gt; (22)</b>	Distance between two print-outs. This option is only available for the job list type <b>&lt;Job organisator&gt;</b> . It refers to print-outs created by the <b>&lt;PrintGo Repeat&gt;</b> option. Please see example.
<b>&lt;PrintGo Repeat&gt; (23)</b>	Number of repetitions with each PrintGo signal. This option is only available for the job list type <b>&lt;Job organisator&gt;</b> . Please see example.

**PrintGo Parameter (20)**

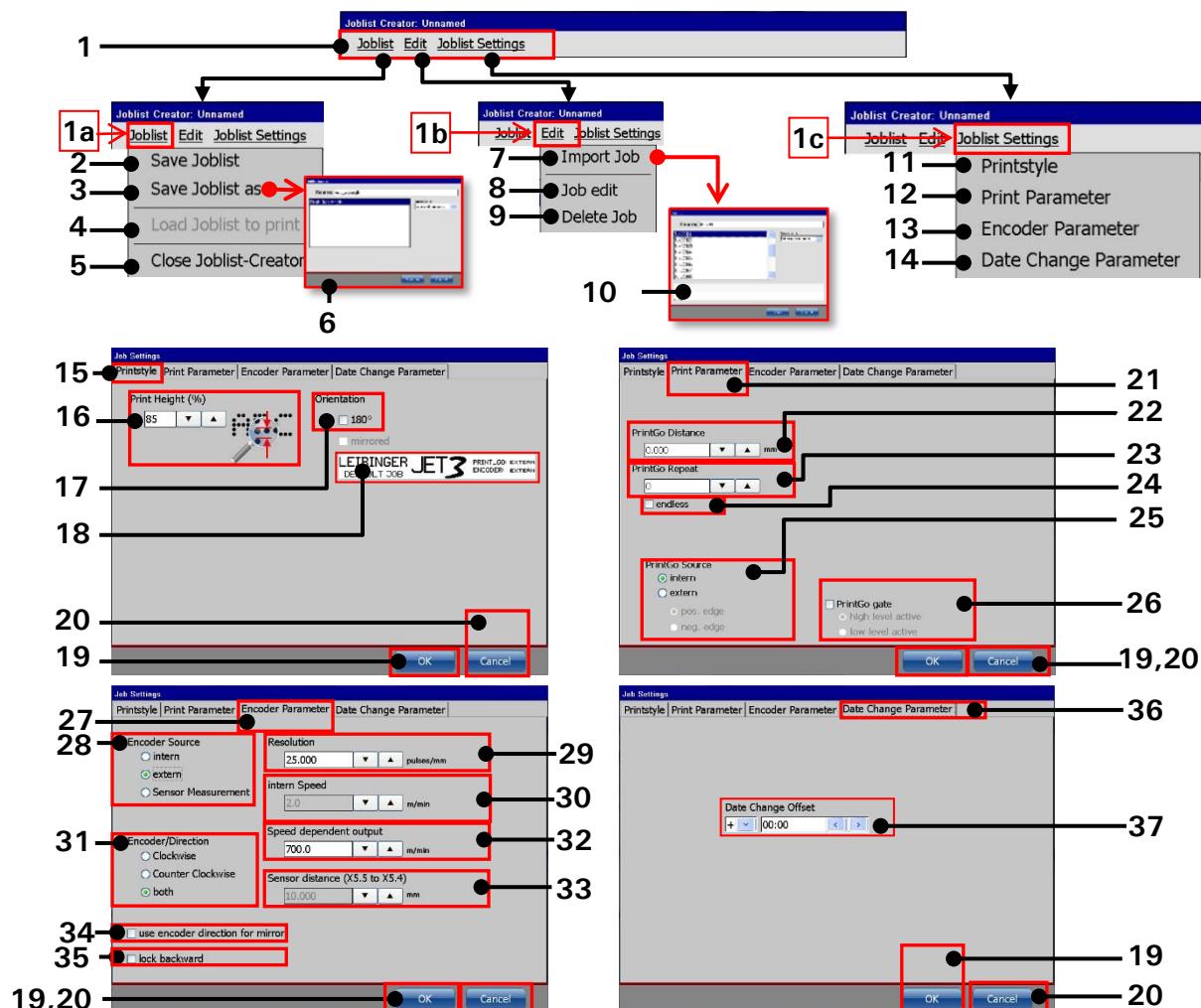
<b>&lt;endless&gt; (24)</b>	The print-out will be carried out until a <b>&lt;PrintStop&gt;</b> command occurs. This option is only available for the job list type <b>&lt;Job organisator&gt;</b> . Please see example at the end of this chapter.
<b>&lt;PrintGo Source&gt; (25)</b>	Defines the source and the edge to be evaluated of the PrintGo signal
<b>&lt;PrintGo Gate&gt; (26)</b>	With this option selected an additional print start query will be activated using a separate PrintGo Gate sensor. The print-out will only start as long as the monitored sensor is active. Additionally it can be defined which kind of signal level shall be recognized as "active".

**Encoder Parameter (27)**

<b>&lt;Encoder Source&gt; (28)</b>	The encoder source can either be external (hardware encoder) or internal (defining the speed).
<b>&lt;Resolution&gt; (29)</b>	In this display field the resolution of the used encoder has to be defined in pulses per millimeter.
<b>&lt;intern Speed&gt; (30)</b>	There has to be an internal speed defined in case no external encoder is used.
<b>&lt;Encoder/Direction&gt; (31)</b>	For an external encoder it can be defined which rotational directions shall be detected.
<b>&lt;Speed dependent output&gt; (32)</b>	The digital outputs of the JET3up printer can be linked with the measured speed. The assigned output switches to high level once the set speed is reached /exceeded. The assigned output switches back to low level when the speed falls 10% below the set speed. Please see chapter <b>8.5.3.5 Speed dependent output</b> for details.
<b>&lt;Sensor distance&gt; (33)</b>	Distance parameter if the speed is measured by two sensors instead of an encoder.
<b>&lt;use encoder direction for mirror&gt; (34)</b>	The directional information of the encoder can be used to mirror the print out.
<b>&lt;lock backward&gt; (35)</b>	With this option selected the backward movements of an external encoder will be ignored.

**Date Change Parameter (36)**

<b>&lt;Date Change Offset&gt; (37)</b>	There can be defined a date change offset with a maximum of 23 hours and 59 minutes. The offset can be defined as positive or negative offset. E.g. with an offset of +3 the date would not change at 00:00 but at 03:00.
--	---

**Figure 35** Menu bar Job list creator

- 1 – Menu bar <Joblist Creator>  
 1a – Drop-down menu <Joblist>  
 1b – Drop-down menu <Edit>  
 1c – Drop-down menu <Joblist sett.>  
 2 – Option <Save Joblist>  
 3 – Option <Save Joblist as>  
 4 – Option <Load Joblist to print>  
 5 – Option <Close Joblist Creator>  
 6 – Dialog box <Save file as>  
 7 – Option <Import Job >  
 8 – Option <Job edit>  
 9 – Option <Delete Job>  
 10 – Dialog box <Open file>  
 11 – Option <Printstyle>  
 12 – Option <Print Parameter>  
 13 – Option <Encoder Parameter>  
 14 – Option <Date change Param.>  
 15 – Tab <Printstyle>  
 16 – Display field <Print height>  
 17 – Display field <Orientation>  
 18 – Check box <mirrored>  
 19 – Button <OK>  
 20 – Button <Cancel>  
 21 – Tab <PrintGo Parameter>  
 22 – Display field <PrintGo Distance>  
 23 – Display field <PrintGo Repeat>  
 24 – Check box <endless>  
 25 – Settings <PrintGo Source>  
 26 – Settings <PrintGo gate>  
 27 – Tab <Encoder Parameter>  
 28 – Settings <Encoder Source>  
 29 – Settings <Encoder Resolution>  
 30 – Settings <intern Speed>  
 31 – Settings <Encoder Direction>  
 32 – Settings <Speed dependent out.>  
 33 – Settings <Sensor distance>  
 34 – Check box <direction for mirror>  
 35 – Check box <lock backward>  
 36 – Tab <Date Change Parameter>  
 37 – Settings <Date Change Offset>

### 7.2.5.1 Create new job lists – Example : Extern Jobselect

#### Task:

Three different print jobs shall be printed. The print-out shall not be carried out in a fixed order but on the basis of direct addressing each print job. The addresses of the print jobs shall be 1, 5 and 7. The print order shall be 1-7-5-5-1.

#### Presets:

The described presets depend on the used hardware and may vary.

The digital I/O for the <External Joblist> on connector X4 are connected to a source which can provide 10-bit binary address signals.

The print-out speed is measured with an external encoder with a resolution of 12.5 pulses/mm. The encoder shall only work clockwise and shall be locked against backward movement detection. The speed dependent output shall not be used. The <PrintGo> signal is a positive signal edge provided from an external sensor. The <PrintGo Gate> function shall not be used and the print-out shall not be stopped immediately when a <PrintStop> signal occurs but the current print job shall be finished. The <Date Change Parameter> option shall not be used.

It is assumed that the three different print jobs are already created. For these print jobs no <PrintGo Delay> no <PrintGo Distance> and no <PrintGo Repetitions> were defined. For these topics there will be a separate example.

#### Approach:

The numbers in brackets refer to the numbers in Figure 36

1. Open the <Extern Jobselect> tab from the menu bar of the main window of the printer: <Job>-<Create new Joblist>-<Extern Job select> (1).
2. Place the cursor in the first row of the job list display and push the <Job Import> button (2).
3. Select the print job for address "1" (3). The address is shown in the first column of the job list display: <Input No> (4).
4. Fill the following rows in the job list display with the two remaining print jobs (4).
5. Enter the following settings in the <Joblist settings> (5-8):

**Printstyle (5)**

<Print height>	Default (80%)
<Orientation>	Default (0°)
<mirrored>	Default (no)

**PrintGo Parameter (6)**

<PrintGo Distance>	Not available for <Extern Joblist>. This parameter can be defined within each print job. It will only affect print jobs with repetitions.
<PrintGo Repeat>	Not available for <Extern Joblist>. This parameter can be defined within each print job. Distances between repetitions are defined with the <PrintGo Distance> parameter within the print job.
<endless>	Not available for <Extern Joblist> This parameter can be defined within each print job.
<PrintGo Source>	<Extern> and <positive edge>.
<PrintStop interrupts print-out immediately>	Default (no)
<PrintGo Gate>	Default (no)

**Encoder Parameter (7)**

<Encoder Source>	Extern
<Resolution>	12.500
<intern Speed>	Not available if an external encoder is used
<Encoder/Direction>	Clockwise
<Speed dependent output>	Not used. Default (700)
<lock backward>	yes

**Date Change Parameter (8)**

<Date Change Offset>	Default (0)
----------------------	-------------

6. Save the created job list (9-10).
7. Open the job list with the <Load Joblist to print> (11-12).
8. Get the printer ready to print (open nozzle seal, push green <PrintStart> button).
9. Apply the address of the print job at the first position of the job list to the X4 connector (decimal = 1; 10-bit binary = 0000000001) (13).
10. With the next <PrintGo> signal the addressed print job will be printed.
11. Apply the address of the print job at the seventh position of the job list to the X4 connector (decimal = 7; 10-bit binary = 0000000111) (13).
12. With the next <PrintGo> signal the addressed print job will be printed.
13. Apply the address of the print job at the fifth position of the job list to the X4 connector (decimal = 5; 10-bit binary = 0000000101 (13).
14. With the next <PrintGo> signal the addressed print job will be printed.

- 15.The print job at the fifth position of the job list shall be printed twice. Therefore the address has not to be changed for the next print-out (13). It will be printed again with the next <PrintGo> signal.
- 16.Apply the address of the print job at the first position of the job list to the X4 connector (decimal = 1; 10-bit binary = 0000000001 (13)).
- 17.With the next <PrintGo> signal the addressed print job will be printed.
- 18.The task is finished.

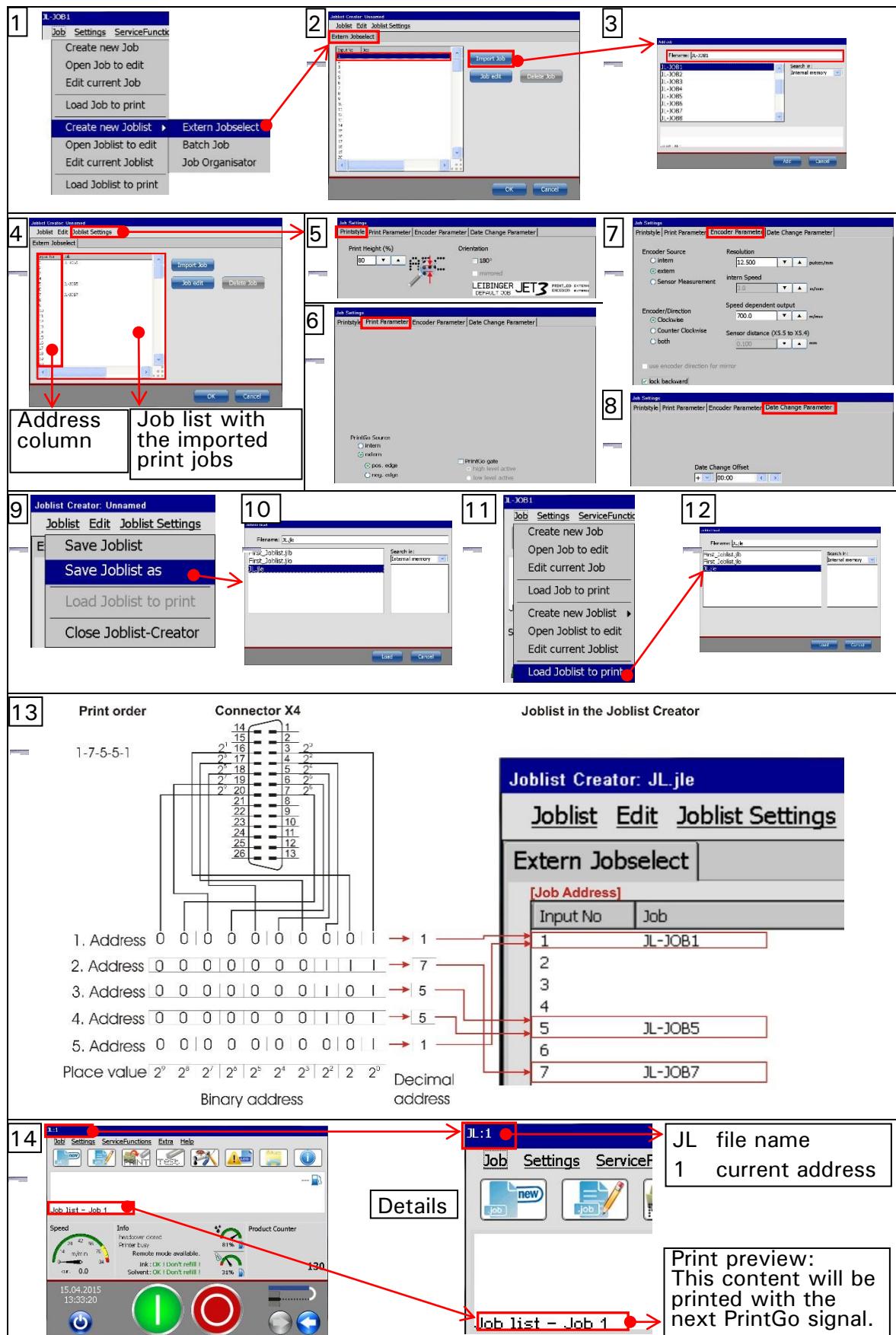
---

**Basic rules for the job list type <External Job>:**

---

- Each print job is managed separately.
- Each print job needs a <PrintGo> signal to be printed.
- A single print job of the <External Job> job list can be edited directly in the joblist editor. A click on the <Job edit> button will open the currently selected print job in the <Job Editor>. After changes are saved in the <Job Editor> leave the <Job Editor> with the <Close> in order to return to the joblist editor.
- <PrintGo distance>, <PrintGo repetition> and the option for <endless> printing have to be set within the single print jobs.
- An empty address will be ignored. The last addressed print job will remain in the print storage.
- The WYSIWYG preview of the main window always shows the print job that will be printed with the next <PrintGo> signal (14).

Figure 36 Extern Joblist Example 1: Extern Jobselect



### 7.2.5.2 Create new job lists – Example : Extern Jobselect with distances

**Task:**

This example is based on the last example (see 7.2.5.1).

Three different print jobs shall be printed. The print-out shall not be carried out in a fixed order but on the basis of direct addressing each print job. The addresses of the print jobs shall be 1, 5 and 7 and the print order 1-7-5-5-1. The job list is the same as for Example 1 but the parameters of the single print jobs are different.

For this example the following parameters were added to each print job:

Print job address	Print job	PrintGo delay [mm]	PrintGo distance [mm]	PrintGo repetition	endless
1	JL-Job1	0	60	2	no
5	JL-Job2	20	50	3	no
7	JL-Job3	30	70	1	no

**Presets:**

The presets for this example are the same as for example 1.

**Settings:**

The joblist settings are the same as for example 1.

**Approach:**

The numbers in brackets refer to the pictures in Figure 37.

1. Open the job list with the <Load Joblist to print> (1-3).
2. Apply the address of the print job at the first position of the job list to the X4 connector (decimal=1; 10-bit binary=0000000001) (4).
3. With the next <PrintGo> signal the addressed print job will be printed. For this print job the <PrintGo delay> is set to 0 mm. Therefore the printout will start directly with the <PrintGo> signal (6). <PrintGo repetition> is set to two and the <PrintGo distance> is set to 60 mm. Therefore there will be a total of three printouts (6) and the distances between the first dots of each printout/repetition will be 60 mm (7).
4. Apply the address of the print job at the seventh position of the job list to the X4 connector (decimal=7; 10-bit binary=0000000111) (13) (8).
5. With the next <PrintGo> signal the addressed print job will be printed. For this print job the <PrintGo delay> is set to 30 mm. Therefore the printout will start 30 mm after the position where the <PrintGo> signal occurred (9). <PrintGo repetition> is set to 1 and the <PrintGo distance> is set to 70 mm. Therefore there will be a total of two print (10) outs and the distances between the first dots of each printout/repetition will be 70 mm (11).
6. Apply the address of the print job at the fifth position of the job list to the X4 connector (decimal=5; 10-bit binary=0000000101 (12).

7. With the next <PrintGo> signal the addressed print job will be printed. For this print job the <PrintGo delay> is set to 20 mm. Therefore the printout will start 20 mm after the position where the <PrintGo> signal occurred (13). <PrintGo repetition> is set to 3 and the <PrintGo distance> is set to 50 mm. Therefore there will be a total of four printouts (14) and the distances between the first dots of each printout/repetition will be 50 mm (15).
8. The print job at the fifth position of the job list shall be printed twice. Therefore the address has not to be changed for the next print-out (16). The print job will be printed again with the next <PrintGo> signal and it will have the same distances between printouts as the last printout.
9. Apply the address of the print job at the first position of the job list to the X4 connector (decimal=1; 10-bit binary=0000000001 (17).
10. With the next <PrintGo> signal the addressed print job will be printed. For this print job the <PrintGo delay> is set to 0 mm (18). Therefore the printout will start directly with the <PrintGo> signal (19). <PrintGo repetition> is set to two and the <PrintGo distance> is set to 60 mm. Therefore there will be a total of three printouts (20) and the distances between the first dots of each printout/repetition will be 60 mm (21).
11. The task is finished.

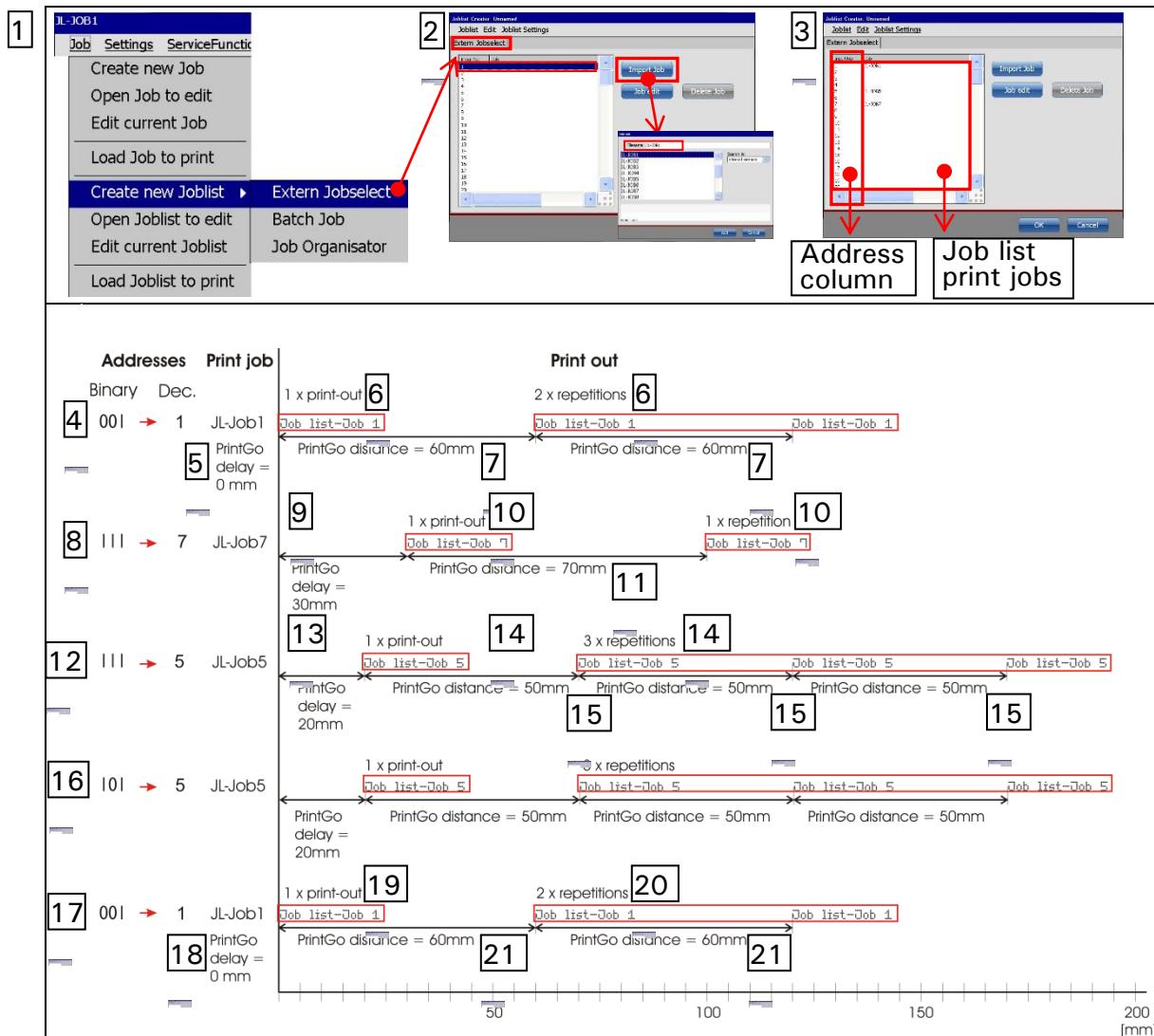
---

**Basic rules for the job list type <Extern Job select> with distances:**

---

- An error message occurs if the set <PrintGo distance> is shorter than the printout itself.
- A single print job of the <External Job> job list can be edited directly in the joblist editor. A click on the <Job edit> button will open the currently selected print job in the <Job Editor>. After changes are saved in the <job editor> leave the <Job Editor> with the <Close> in order to return to the joblist editor.
- 
- The <PrintGo Distance> is measured between the first left print dots of two printouts.
- The <PrintGo delay> is the distance between the PrintGo signal and the start of the printout.
- <PrintGo delay> and <PrintGo distance> have no effects on distances between two print jobs of the job list but only on distances within a print job.

Figure 37 Extern Job select Example 2: Extern Jobselect with distances



### 7.2.5.3 Create new job lists – Example „Batch Job”

#### Task:

Five different print jobs shall be printed (JL-Job1 to JL-Job5). The print-out shall be carried out in a fixed order. The print jobs shall be printed in the following order and with the respective repetitions:

Print job no.	Print job	Number of printouts and repetitions	Total number of printouts	<PrintGo delay> in [mm]. Defined in each print job
1	JL-Job1	1 printout, 0 repetitions	1	0
2	JL-Job2	1 printout, 2 repetitions	3	10
3	JL-Job3	1 printout, 1 repetitions	2	20
4	JL-Job4	1 printout, 3 repetitions	4	10
5	JL-Job5	1 printout, 0 repetitions	1	30

#### Presets:

The described presets depend on the used hardware and may vary.

The print-out speed is measured with an external encoder with a resolution of 12.5 pulses/mm. The encoder shall only work clockwise and shall be locked against backward movements. The speed dependent output shall not be used. The <PrintGo> signal is provided from an external sensor and provides a positive edge. The <PrintGo Gate> function shall not be used and the print-out shall not be stopped immediately when a <PrintStop> signal occurs but the current print job shall be finished. The <Date Change Parameter> option shall not be used.

It is assumed that the 5 different print jobs are already created. A <PrintGo delay> (distance between <PrintGo> signal and start of the printout) cannot be defined in the job list. A <PrintGo delay> has to be defined in each print job itself. The <PrintGo delay> of each of the five print jobs of this example are listed in the table above.

#### Approach:

**The numbers in brackets refer to the numbers in Figure 38**

1. Open the <Batch Job> tab from the menu bar of the main window of the printer: <Job> - <Create new Joblist> - <Batch> (1).
2. Push the <Import> button for adding the first print job to the list (2).
3. Select the first print job (2). The first column of the job list displays the print job number, the second the numbers of repetitions and the third the print job names (3)
4. Define the number of repetitions for the selected job (3).
5. Fill the job list display with the 4 remaining print jobs (4) and assign the required repetitions to each job (4).
6. Enter the following settings in the <Joblist settings> (5-8):

**Printstyle (5)**

<Print height>	Default (80%)
<Orientation>	Default (0°)
<mirrored>	Default (no)

**Print Parameter (6)**

<PrintGo Distance>	Not available for <Batch Job>. Parameters defined within a print job will be ignored.
<PrintGo Repeat>	Not available for <Batch Job> job list. Parameters defined within a print job will be ignored.
<endless>	Not available for <Batch Job> job list. Parameters defined within a print job will be ignored.
<PrintGo Source>	<Extern> and <positive edge>.
<PrintStop interrupts print-out immediately>	Default (no)
<PrintGo Gate>	Default (no)

**Encoder Parameter (7)**

<Encoder Source>	Extern
<Resolution>	12.500
<intern Speed>	Not available if an external encoder is used
<Encoder/Direction>	Clockwise
<Speed dependent output>	Not used. Default (700)
<lock backward>	yes

**Date Change Parameter (8)**

<Date Change Offset>	Default (0)
----------------------	-------------

7. Save the created job list (9-12).
8. Open the job list with the <Load Joblist to print> command (13-14).
9. Get the printer ready to print (open nozzle seal, push green <PrintStart> button).
10. With the next <PrintGo> signal the first print job of the job list will be printed. There are no repetitions defined for this print job, therefore there will be only one printout. The <PrintGo delay> is 0 mm (13).
11. With the next <PrintGo> signal the second print job of the job list will be printed. There are two repetitions defined, therefore there will be two more printouts with the next two PrintGo signals. The <PrintGo delay> for each printed job is 20 mm (13).
12. With the next <PrintGo> signal the third print job of the job list will be printed. There is one repetition defined, therefore there will be one more printout with the next PrintGo signal. The <PrintGo delay> for each printed job is 30 mm (13).
13. With the next <PrintGo> signal the fourth print job of the job list will be printed. There are three repetitions defined, therefore there will be four more printouts with the next four PrintGo signals. The <PrintGo delay> for each printed job is 20 mm (13).

14. With the next <PrintGo> signal the fifth print job of the job list will be printed. There no repetitions defined, therefore there will be a total of one printout. The <PrintGo delay> for each printed job is 30 mm (13).

15. The task is finished.

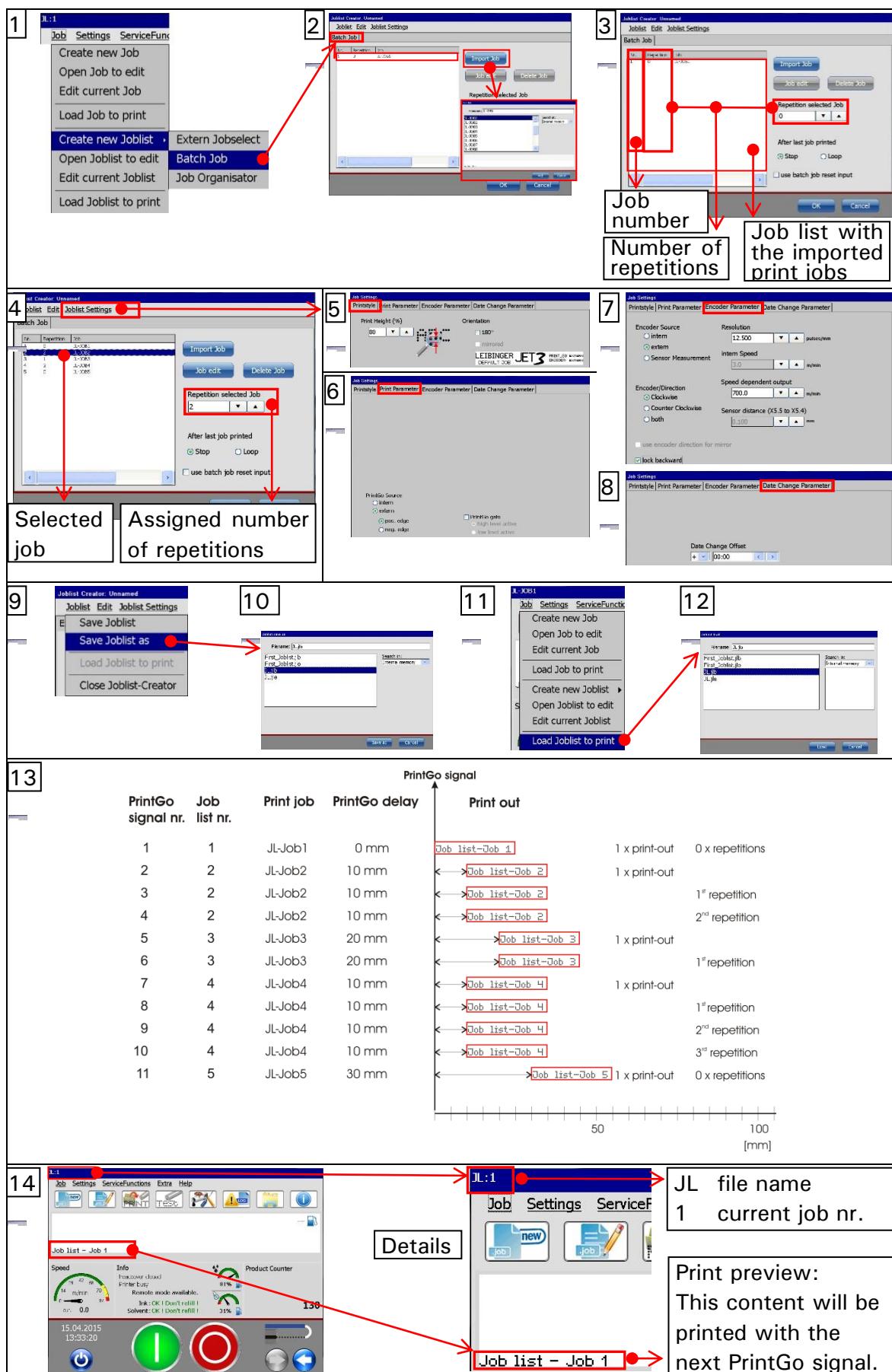
---

**Basic rules for the job list type <Batch Job>:**

---

- Each print job is managed separately.
- A <PrintGo> signal is required for each printout and each repetition.
- A single print job of the <Batch Job> job list can be edited directly in the joblist editor. A click on the <Job edit> button will open the currently selected print job in the <Job Editor>. After changes are saved in the <job editor> leave the <Job Editor> with the <Close> in order to return to the joblist editor.
- <PrintGo distance>, <PrintGo repetition> and the option for <endless> printout are not available for <Batch Job> job lists. All settings regarding these parameters which were made within the print jobs will be ignored.
- A <PrintGo delay> can be defined within each print job separately.
- The WYSIWYG preview of the main window always shows the print job that will be printed with the next <PrintGo> signal (14).

Figure 38 Extern Joblist Example 3: Batchjob



#### 7.2.5.4 Create new job lists – Example : Job organisator

##### Task:

Three different print jobs shall be printed (Job1 to Job3) using the job list type **<Job organisator>**. The whole print list shall be printed twice. The second printout shall be in a distance of 150 mm after the **<PrintGo>** signal.

**Important:** The **<Job Organisator>** offers the possibility to define the number of repetitions with **<PrintGo repeat>** and the **<PrintGo distance>** for the repetitions and for the complete job list. All settings for these parameters made within each print job will be ignored in the job list.

The only exception is the first print job imported to the list. The parameters for **<PrintGo distance>** and **<PrintGo repeat>** of this print job will be applied for the job list **<PrintGo>** settings. Nevertheless these parameters can be adjusted in the job list settings even after the first job was imported.

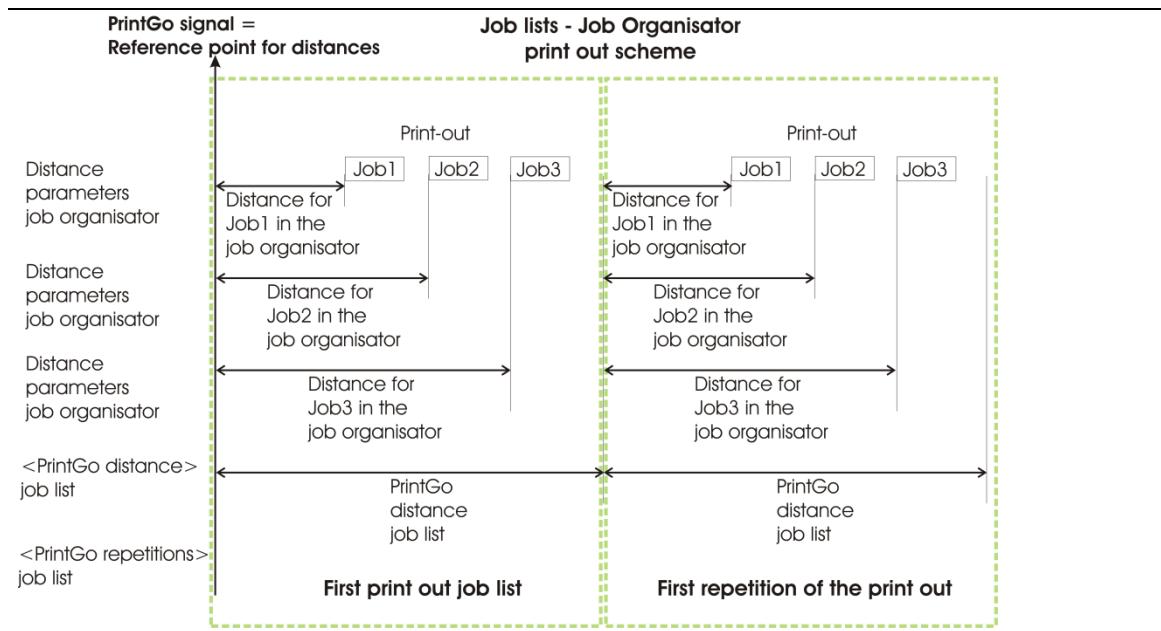
Beside these parameters the settings for **<PrintGo Control>** and **<StrokeGo Control>** are also taken from the first print job imported. **These parameters cannot be adjusted within the <Joblist Settings>.** Changes are only possible by deleting all jobs on the job list and importing the first job again.

The **<PrintGo>** signal sets the reference point for all distances assigned to the print jobs on the job list. The distances to be assigned for each print job on the job list, the **<PrintGo distance>** for the job list and the number of repetitions of the job list are shown in the table below:

##### **Job list parameters**

Job no.	Print job	Distance [mm]	<b>&lt;PrintGo distance&gt;</b> job list [mm]	<b>&lt;PrintGo repetition&gt;</b> job list
1	Job1	30	---	---
2	Job2	70	---	---
3	Job3	110	---	---
Complete job list			150	1 printout 1 repetition

The following picture gives an schematic overview:



### Presets:

The described presets depend on the used hardware and may vary.

The print-out speed is measured with an external encoder with a resolution of 12.5 pulses/mm. The encoder shall only work clockwise and shall be locked against backward movements. The speed dependent output shall not be used. The **<PrintGo>** signal is provided from an external sensor and provides a positive edge. The **<PrintGo Gate>** function shall not be used and the print-out shall not be stopped immediately when a **<PrintStop>** signal occurs but the current print job shall be finished. The **<Date Change Parameter>** option shall not be used.

It is assumed that the 3 different print jobs are already created.

### Approach:

The numbers in brackets refer to the numbers in Figure 39

1. Open the **<Job organisator>** tab from the menu bar of the main window of the printer: **<Job>-<Create new Joblist>-<Job Organisator>** (1).
2. Push the **<Import>** button for adding the first print job to the list (2).
3. Select the first print job (2). The first column of the job list shows the print job number, the second the distance between the **reference point** and the printout and the third the print job names (3).
4. Assign the distance for the print job (3).
5. Fill the job list display with the two remaining print jobs (4) and assign the required distances to each job (4).
6. Enter the following settings in the **<Joblist settings>** (5-8):

**Printstyle (5)**

<Print height>	Default (80%)
<Orientation>	Default (0°)
<mirrored>	Default (no)

**Print Parameter (6)**

<PrintGo Distance>	150 mm
<PrintGo Repeat>	1
<endless>	Not selected
<PrintGo Source>	<Extern> and <positive edge>.
<PrintStop interrupts print-out immediately>	Default (no)
<PrintGo Gate>	Default (no)

**Encoder Parameter (7)**

<Encoder Source>	Extern
<Resolution>	12.500
<intern Speed>	Not available if an external encoder is used
<Encoder/Direction>	Clockwise
<Speed dependent output>	Not used. Default (700)
<lock backward>	yes

**Date Change Parameter (8)**

<Date Change Offset>	Default (0)
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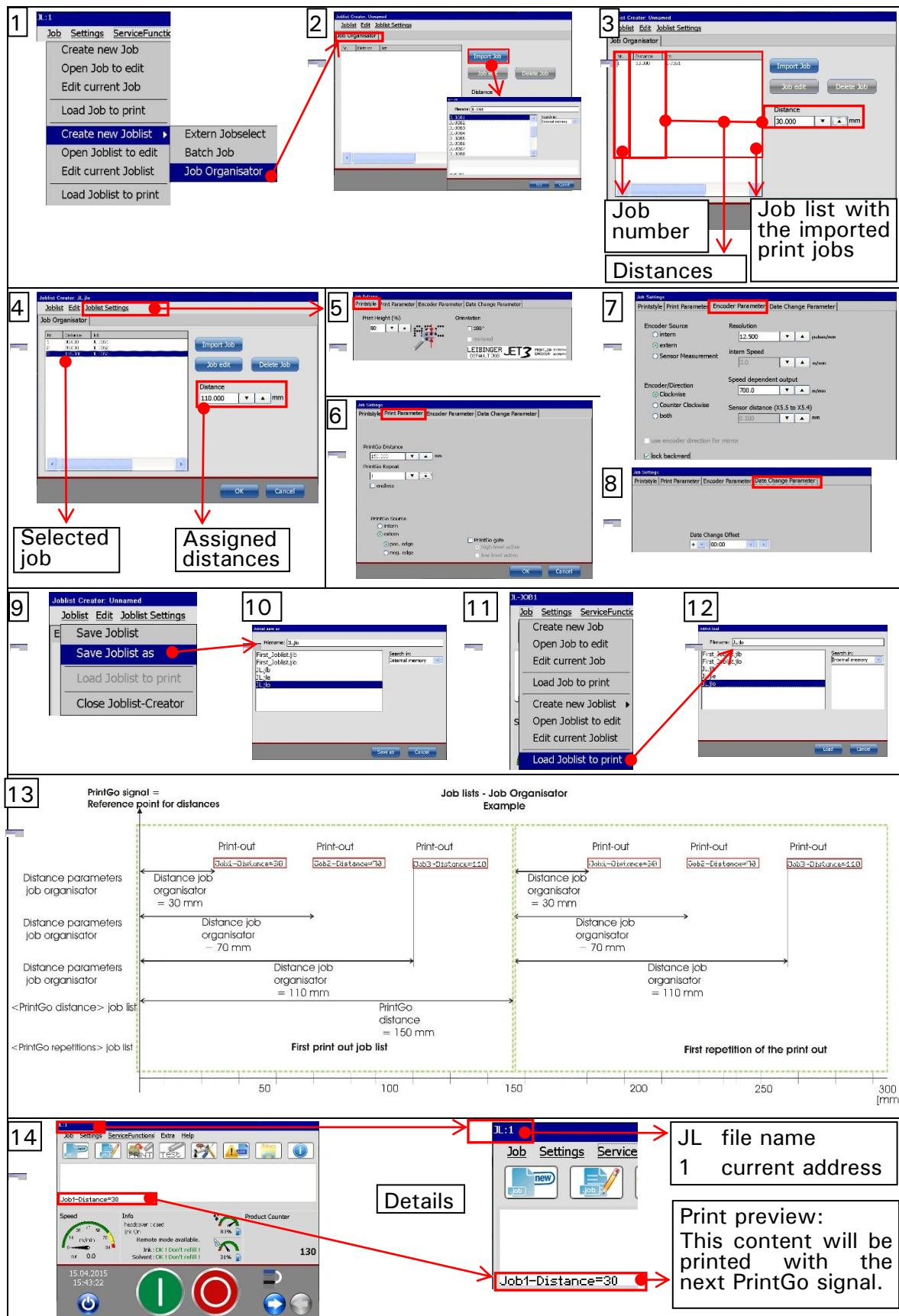
7. Save the created job list (9-10).
8. Open the job list with the <Load Joblist to print> command (11-12).
9. Get the printer ready to print (open nozzle seal, push green <PrintStart> button).
10. The <PrintGo> signal sets the reference point for all distances assigned to the print jobs on the job list. The first print job of the job list will be printed in a distance of 30 mm to that reference point (13).
11. The second print job of the job list will be printed in a distance of 70 mm to the reference point (13).
12. The third print job of the job list will be printed in a distance of 110 mm to the reference point. (13).
13. In the <PrintGo Parameters> of the <Joblist Settings> parameter for <PrintGo distance> and <PrintGo repetition> were set. The <PrintGo distance> was set to 150 mm and there shall be one repetition. Therefore all three jobs on job list will be printed again in the same manner as described in points 9-11. The repetition will start 150 mm from the reference point (13).
14. The task is finished.

**Basic rules for the job list type <Job Organisator>:**

---

- The printout of the complete job list including all repetitions is started with one <**PrintGo**> signal.
- A single print job of the <**Job Organisator**> job list can be edited directly in the joblist editor. A click on the <**Job edit**> button will open the currently selected print job in the <**Job Editor**>. After changes are saved in the <**Job editor**> leave the <**Job Editor**> with the <**Close**> in order to return to the joblist editor.
- All distances assigned to print jobs on the job list are related to the same reference point. The reference point is set with the <**PrintGo**> signal.
- If a distance assigned to a job is shorter than the sum of all distances and print jobs lengths coming before that job no error message occurs. The too short distance will just be ignored and the printout will start right after the last print job. **Too short distances between the print jobs on the job list, too short distances for print jobs will lead to wrong distances for defined print job repetitions!**
- For the <**PrintGo distance**> which is defining the printout distance for repetitions the same reference point is used as for the distances assigned to the print jobs on the joblist. For each additional repetition the <**PrintGo distance**> is added up respectively. Here also all defined distances will be considered.
- If the <**PrintGo distance**> of the job list is shorter than one complete printout of the job list no error message occurs. The too short distance will just be ignored and the printout of the repetition will start right after the last printout.
- The WYSIWYG preview of the main window always shows the print job that will be printed with the next <**PrintGo**> signal (14).

Figure 39 Extern Joblist Example 4: Job organisator

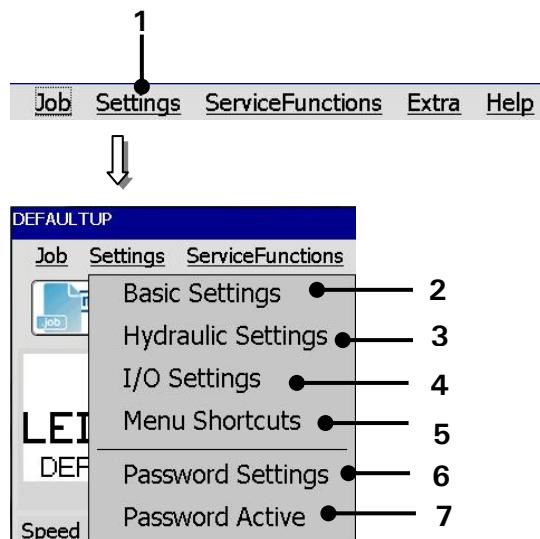


### 7.3 Settings

The drop-down menu <Settings> in the menu bar of the main window offers the following options:

- Basic settings
- Hydraulic settings
- I/O settings
- Menu Shortcuts
- Password settings
- Password active

**Figure 40** Drop-down menu “Settings”



- 1 – Drop-down menu <Settings>
- 2 – Option <Basic Settings>
- 3 – Option <Hydraulic Settings>
- 4 – Option <I/O Settings>

- 5 – Option <Menu Shortcuts>
- 6 – Option <Password Settings>
- 7 – Option <Password active>

### 7.3.1 Basic settings

The drop-down menu <Settings> (1) in the menu bar of the main window offers the option <Basic Settings> (2). This opens a dialog box (3) with a tab bar (4). The available basic settings are grouped by tabs. The following tabs are available:

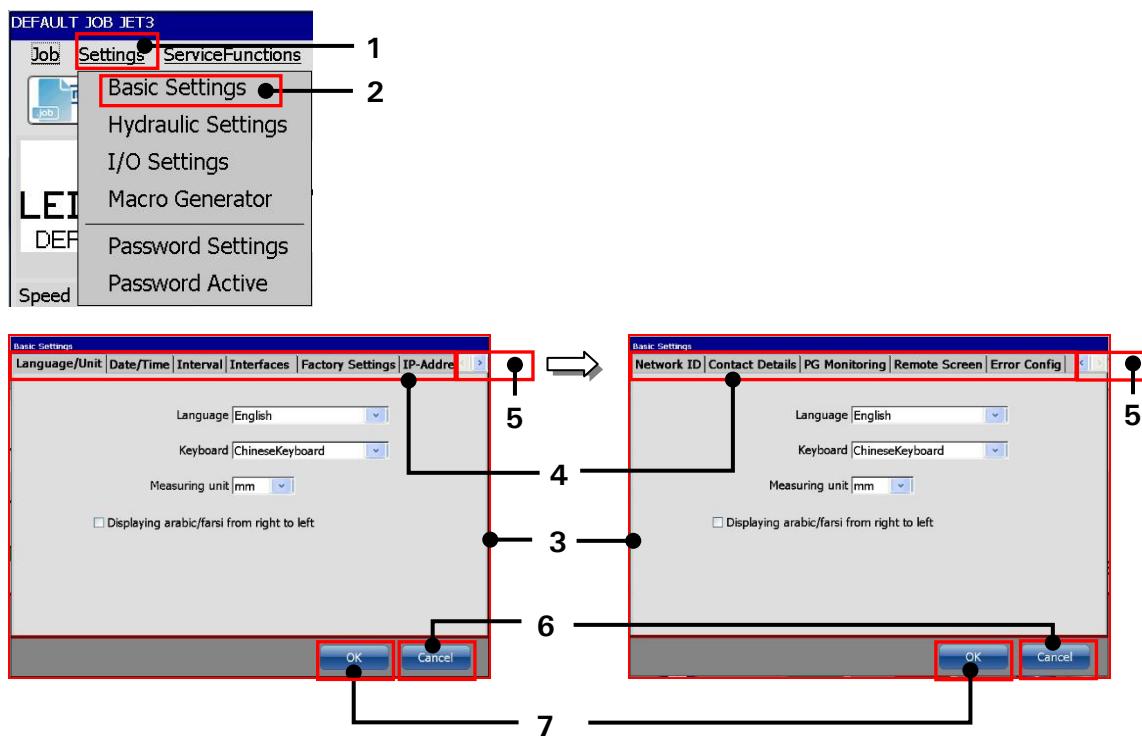
- |                               |                    |                       |
|-------------------------------|--------------------|-----------------------|
| ■ Language/Unit (Measurement) | ■ Factory Settings | ■ Solvent Saving Mode |
| ■ Date/Time                   | ■ IP-address       | ■ Remote screen       |
| ■ Interval function           | ■ Netzwerk ID      | ■ Error config        |
| ■ Encoder interface           | ■ Contact details  |                       |

A tab is selected by clicking on its caption. Use the arrow buttons (5) for shifting the tab bar horizontally in order to see all available functions.

**Note:** The software is based on common Windows™-standards.

With the <OK> button (7) all settings and changes are saved and the dialog box will be closed.

**Figure 41** Dialog box basic settings



- 1 – Drop-down menu <Settings>  
 2 – Option <Basic Settings>  
 3 – Dialog box <Basic Settings>  
 4 – Tab bar with tab captions

- 5 – Arrow key for shifting tab bar  
 6 – Button <Cancel>  
 7 – Button <OK>

### 7.3.1.1 Language and units

The JET3up allows the selection of the operation language, the ISO-fonts which are assigned to the keyboard as well as the used measuring unit. The parameters which are set currently are displayed in the drop-down lists.

#### 1. Menu language:

The available menu languages are listed in the drop-down list. The available languages depend on the ordered version of the printer.

**Note:**

The function is also helpful to simplify the communication (e.g. in case of service) with the dealer or the LEIBINGER service-hotline because English language can be generally selected irrespectively of the installed language package.

With the selected language the accordant ISO-font is assigned automatically to the keyboard.

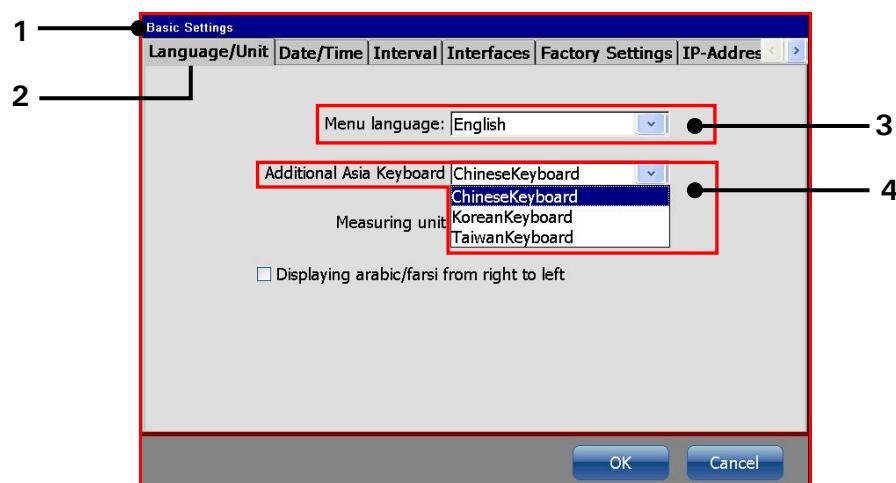
#### 2. Additional Asia Keyboards:

The Drop-down list offers several special Asia keyboards which are not covered by the standard fonts.

**Annotation:**

The allocation of a special additional Asia Keyboardis may also be reasonable e.g. if you have to create characters of another language group additionally to the standard characters of the set language. These characters are then available in the advanced font of the keyboard.

**Figure 42 Set language and keyboard**



1 – Dialog box <Basic settings>  
2 – Tab <Language/Unit>

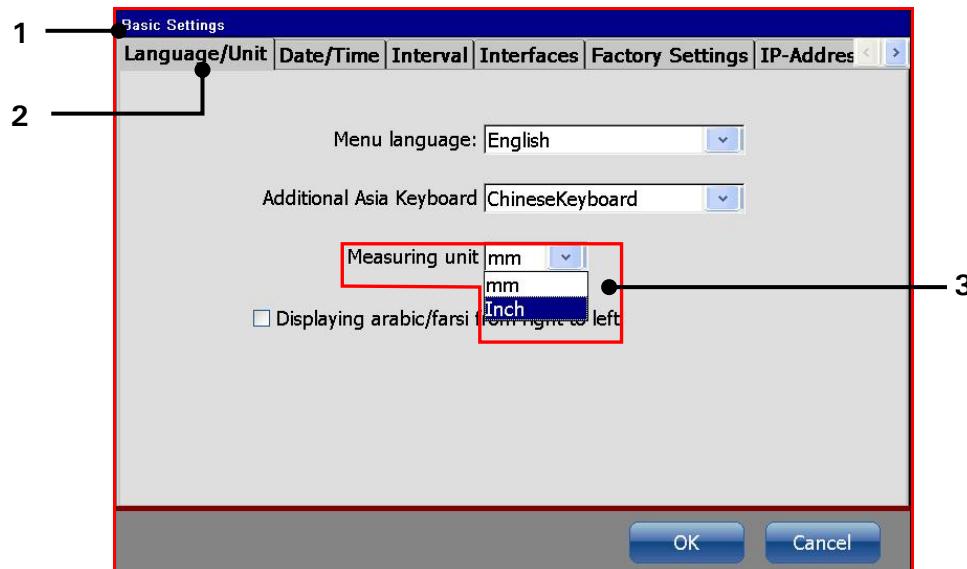
3 – Drop-down list <Language>  
4 – Drop-down list <Keyboard>

**Proceeding:**

- Press on the tab <Language/Unit> (2) to select the tab.
- Press on the arrow key of the accordant drop-down list. The drop-down list opens for selection.
- Now select the requested language or the requested keyboard font.

**3. Measuring unit:**

The two different measuring units „mm“ and „inch“ are available.

**Figure 43 Set measuring unit**

1 – Dialog box <Basic Settings>  
2 – Tab <Language/Unit>

3 – Drop-down list <Measuring unit>

**Proceeding:**

- Press on the tab <Language/Unit> (2) to select the tab.
- Press on the arrow key of the drop-down list <Measuring unit> (3). The drop-down list opens for selection.
- Now select the requested measuring unit.

### 7.3.1.2 Date and time

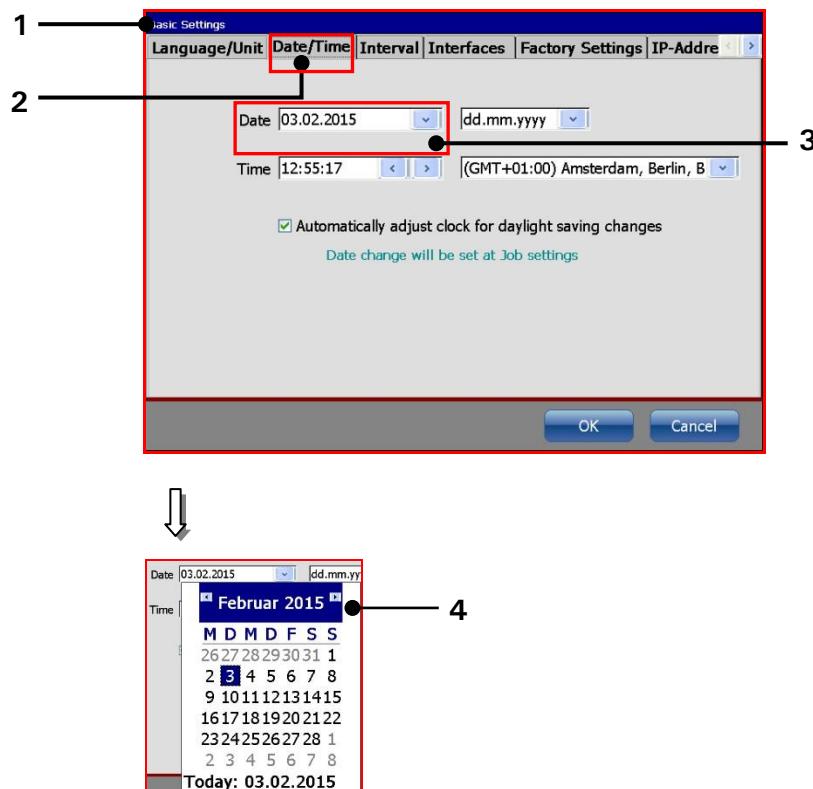
Under the tab <Date/Time> you can set the current time, the time zone, the current date and the date format as well as the automatic change from summertime (daylight saving time-[DST]) to wintertime.

#### 1. Set date:

##### Proceeding:

- Press on the tab <Date/Time> (2) to select the tab.
- Press on the arrow key of the drop-down list <Date> (3). A calendar (4) opens.
- Select the requested date. The calendar will be automatically closed and the selected date is taken over.

**Figure 44** Set date

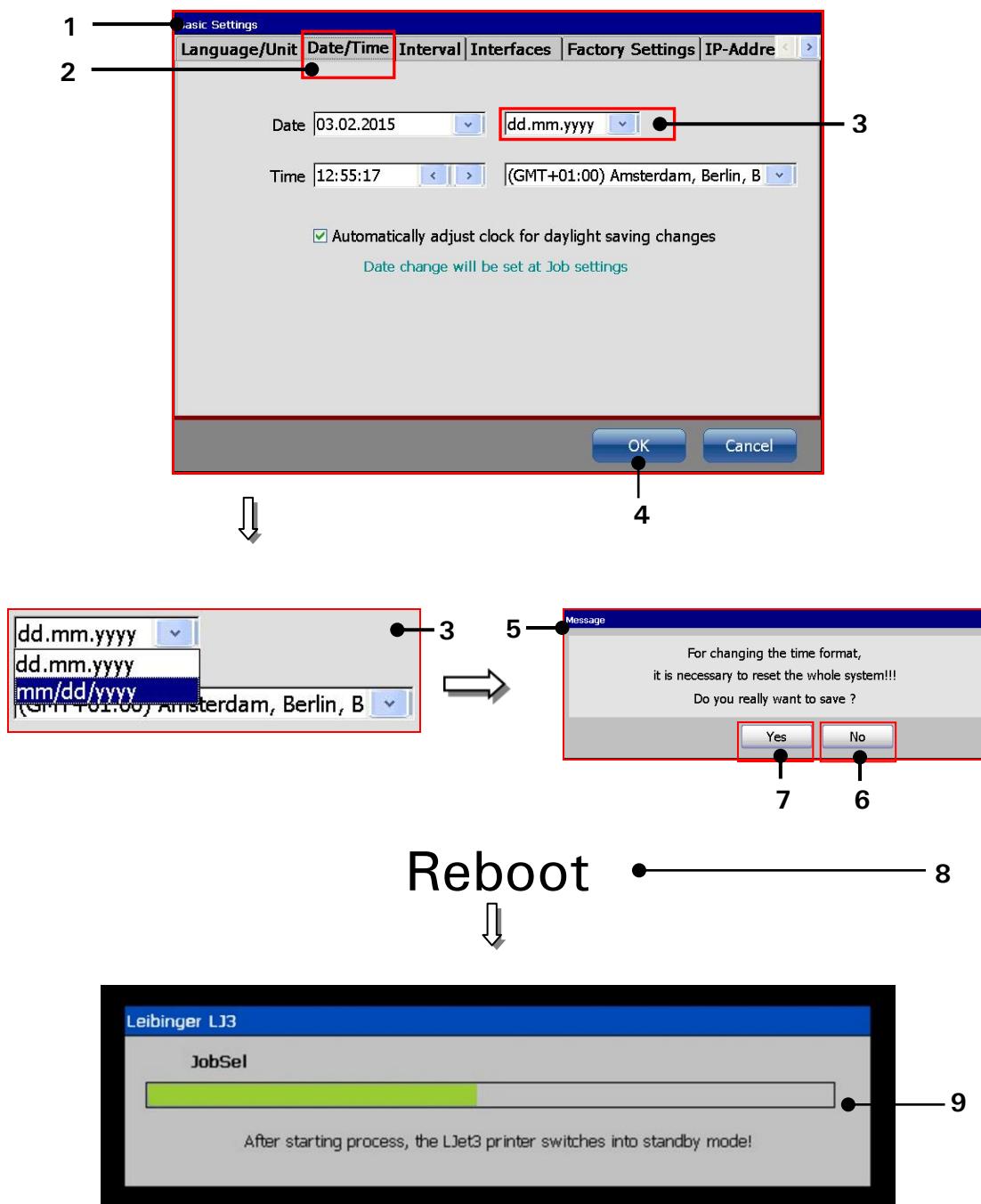


1 – Dialog box <Basic Settings>  
2 – Tab <Date/Time>

3 – Drop-down list <Date>  
4 – Calendar

## 2. Set date format:

**Figure 45 Set date format**



- |                                  |                  |
|----------------------------------|------------------|
| 1 – Dialog box <Basic Settings>  | 6 – <No> Button  |
| 2 – Tab <Date/Time>              | 7 – <Yes> Button |
| 3 – Drop-down list <Date format> | 8 – Reboot       |
| 4 – <OK> Button                  | 9 – Progress bar |
| 5 – Confirmation prompt          |                  |

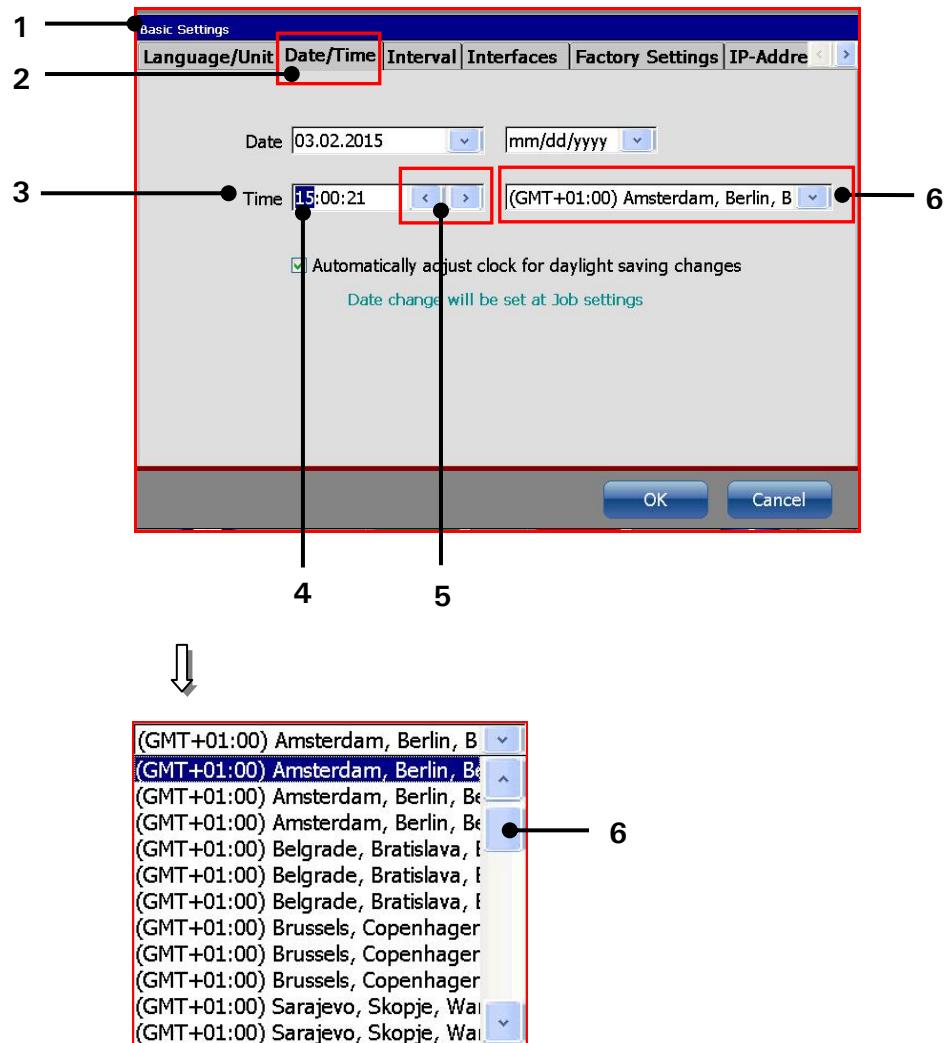
**Proceeding:**

- Press on the tab <Date/Time> (2) to select the tab.
- Press on the arrow key of the Drop-down list <Date format> (3) to define the format. A drop-down list opens.
- Now select the requested format.
- Press the button <OK> (4) to take over the changes.

**ATTENTION**

For changing the date format you have to shut down the complete system and initialize it again!

- A **confirmation prompt** (5) pops up. Press the button <No> (6) to abort the process or press the button <Yes> (7) to save the changes.
- Now the device will be rebooted automatically.
- After the reboot the device switches into standby-mode (display is dark).

**3. Set time and time zone:****Figure 46** Set time and time zone

1 – Dialog box &lt;Basic Settings&gt;

4 – Example hour block selected

2 – Tab &lt;Date/Time&gt;

5 – Arrow keys

3 – Setting field &lt;Time&gt;

6 – Drop-down list &lt;Time zone&gt;

**Proceeding:**

- Press on the tab <Date/Time> (2) to select the tab.
- Now mark in the setting field <Time> (3) the hour-, minute- or second block to change the values.
- With the two <Arrow keys> (5) you can increase or reduce the values of the blocks which are each marked.
- To define the time zone press on the drop-down list <Time zone> (6). The Drop-down list opens for selection.
- Now select the requested time zone.

**4. Automatic clock change:**

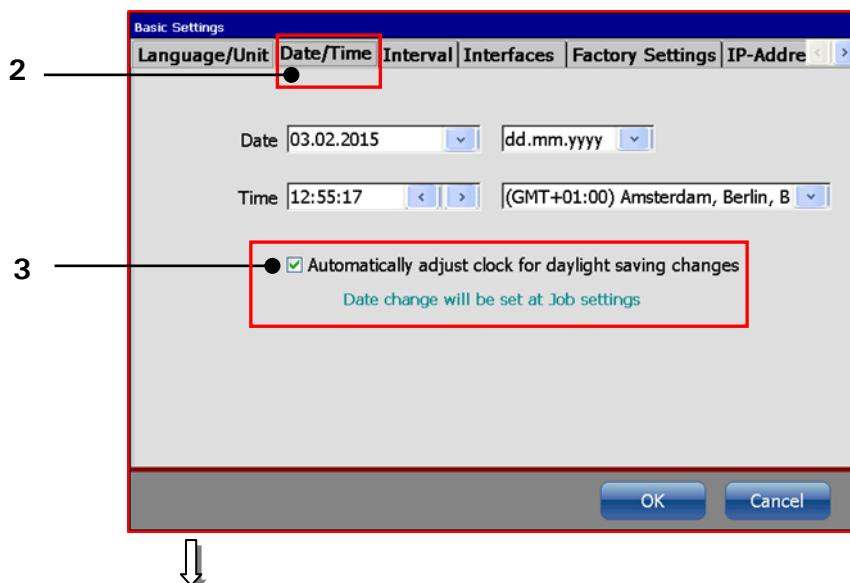
The function enables you to activate or deactivate the automatic change to summer- and wintertime (daylight savings time [DST]).

**Proceeding:**

E.g.: The automatic change to summer- and wintertime should be activated.

- Press on the tab <Date/Time> (2) to select the tab.
- Now activate the automatic clock change by clicking on the check box (3). An automatic change is displayed by √ in the check box.

**Figure 47      Automatic clock change (Summer-/Wintertime)**



Automatic change is switched off

Automatically adjust clock for daylight saving changes



Automatic change is switched on

Automatically adjust clock for daylight saving changes

- 1 – Dialog box <Basic Settings>      3 – Check box <Summer-/Wintertime>  
2 – Tab <Date/Time>

#### 7.3.1.3 Interval operation - Set interval time

The mode <Interval operation> enables the input of start- and end times when the LEIBINGER JET3up turns on or off automatically (e.g. 10.20 pm, the device turns on / 10.40 pm, the device turns off) to circulate the ink.

The JET3up provides three free configurable time frames for interval operation. It is not mandatory to use all three time frames.

This function prevents that the ink dries up or sediments as well as the jamming of the nozzle if the printer is turned off for a longer time.

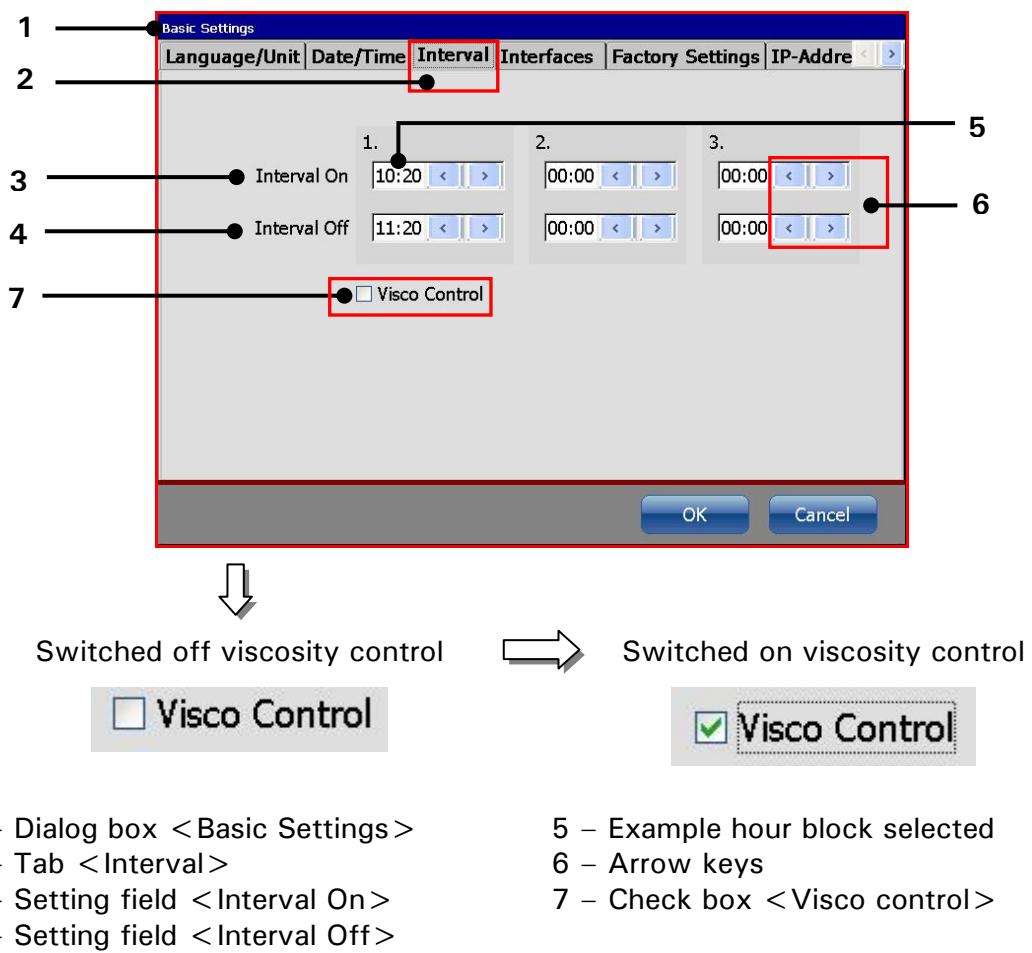
As standard the interval operation is carried out without viscosity control. In case of need the viscosity control can be also activated for the interval operation.



##### ATTENTION

The viscosity control should be only activated for special operating conditions of the JET3up or after consultation with the LEIBINGER-service department.

You should set an interval time of at least 20 minutes.

**Figure 48 Interval operation (Set interval time)**

### Proceeding:

- Press on the tab <Interval> (2) to select the tab.
- Now mark in the setting field <Interval On> (3) the hour- or minute block to change the values.
- With the two <Arrow keys> (6) you can increase or reduce the blocks which are each marked.
- Now carry out the settings in the field <Interval Off> (4) accordingly.
- Now activate if necessary the viscosity control by clicking on the check box (7). An activated control is displayed by a √ in the check box.

#### 7.3.1.4 Interface (Encoder interface)

Under the tab < Interfaces> you can set the interface for the incremental encoder and you can also switch on or off the bounce time delay. The bounce time delay is required for working with external jobs.

Definition „bounce time“ and „bounce time delay“:

##### Bounce time:

Describes the period which a signal requires after an input has been switched to reach a defined status (0 or 1) again.

##### Bounce time delay:

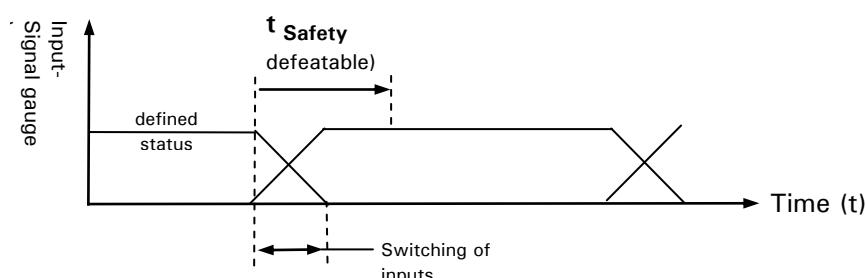
Describes a predefined safety time. That means if an input is switched, the signal will be only valid after this safety time.

At the LEIBINGER JET3up you can switch on or off this safety time.

Bounce time delay	Advantages	Disadvantages
off	Faster change of jobs	No safety for bouncing signals afterwards
on	High safety for bouncing signals afterwards	Slower change of jobs

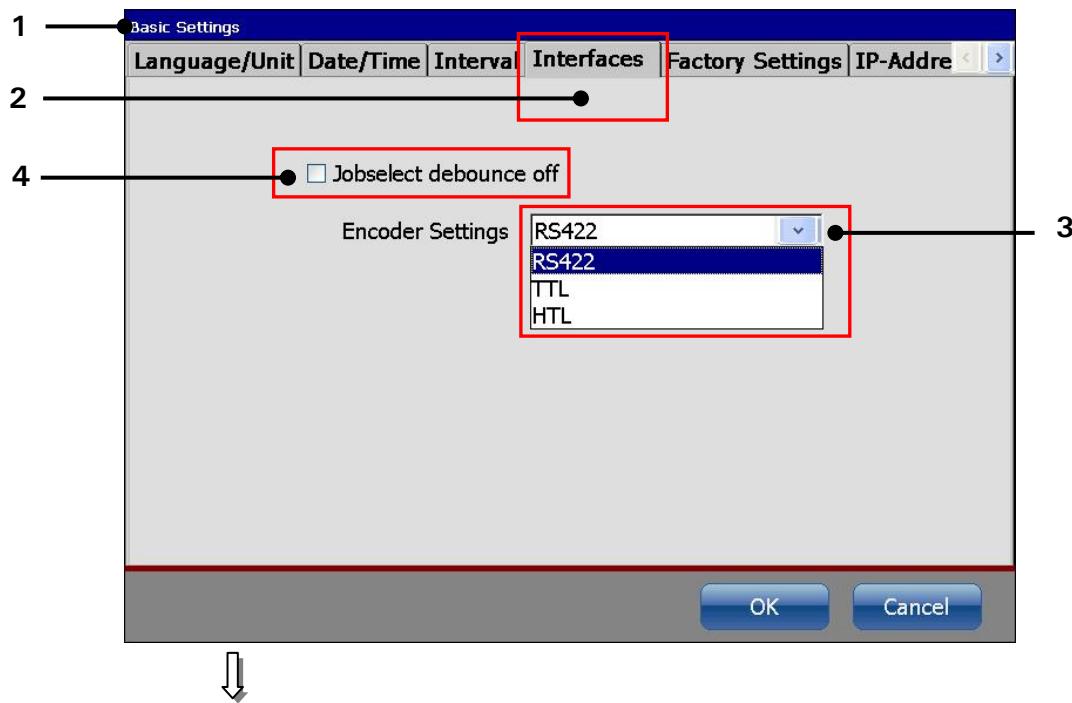
Figure 49

##### Bounce time delay



**Proceeding:**

- Press on the tab < Interfaces > (2) to select the tab.
- Press on the arrow key of the drop-down list <Encoder Settings> (3). The drop-down list opens for selection.
- Now select the required interface.
- If required activate now the bounce time delay by clicking on the check box (4). An activated delay is displayed by ✓ in the check box.

**Figure 50 Select encoder interface**

Bounce time delay is switched off → Bounce time delay is switched on

Jobselect debounce off

Jobselect debounce off

1 – Dialog box <Basic Settings>  
2 – Tab < Interfaces >

3 – Drop-down list <Encoder settings>  
4 – Check box < Bounce time delay off >

Pos.	Interface	Description
1.	RS422	5V / 4 Signals (A, Ā, B, B̄)
2.	TTL	5V TTL / 2 Signals (A, B)
3.	HTL	24V / 2 Signals (A, B)

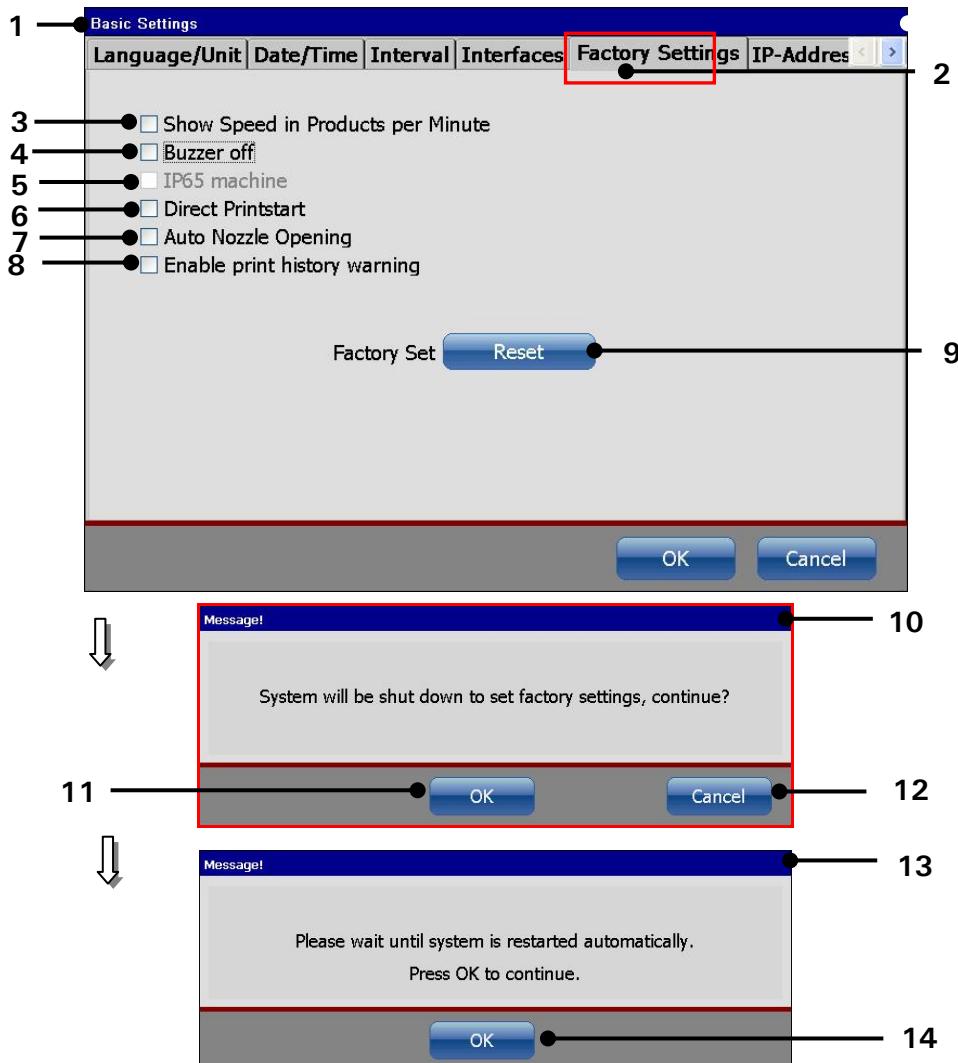
### 7.3.1.5 Factory Settings

Under the tab <Factory settings> you can reset the printer adjustments to the standard settings.



**Attention**  
The consequences of resetting to the factory settings should be considered!

**Figure 51** Reset device to factory settings



1 – Dialog box <Basic Settings>

8 – Option <Activate warning messages for print history protocol>

2 – Tab <Factory Settings>

9 – Button <Reset>

3 – Option <Products per minutes>

10 – Confirmation prompt

4 – Option <Buzzer off>

11 – Button <OK> for safety confirmation

5 – Option <IP65 Machine>

12 – Button <Cancel>

6 – Option <Direct Printstart>

13 – Message <Restart>

7 – Option <Auto Nozzle Opening>

14 – Button <OK> for restart

**Proceeding for resetting to factory settings:**

- Press on the tab <**Factory Settings**> (2) to select the tab.
- Press the button <**Reset**> (9).
- A **Conformation prompt** (10) if you would like to continue with the process is displayed. Press the button <**Cancel**> (12) to abort the process or press the button <**OK**> (11) to reset the device.
- The message <**Restart**> (13) is displayed.
- Press the button <**OK**> (14). The device is shut down automatically and will be rebooted afterwards. After this process the JET3up is reset to the standard settings.

**Options****Products per minutes**

If this check box is selected the speed indicator in the main window of the printer displays the current speed as products/minute instead of m/minute.

The products per minutes are calculated on the basis of 2-second measuring intervals during which the PrintGo signals are counted. The displayed speed is an average value of all values calculated within the last 60 seconds. Therefore it may take up to 1 minute until a stable value is reached. The calculation is restarted with each Print Start command.

**Buzzer off**

If this check box is selected there will be no buzzer sound in the case of warning and error messages.

**Attention****Switching the buzzer off may be affect printer safety!**

There is a risk of not recognizing a critical situation fast enough!

Make sure that warning and error messages are always recognized in a timely manner.

**IP 65 Machine**

This check box is only selected with printers that have the IP65 option. The check box can only be selected by LEIBINGER service staff or service staff authorized by LEIBINGER.

**Direct printstart**

If this check box is selected the printer will switch to **Print Start** mode as soon as the nozzle is opened.

In combination with the Auto start option it is possible to get the printer from **stand-by** mode to **Print Start** mode with just one touch.

### Auto Nozzle Opening

If this check box is selected the printer will start from the stand-by mode with one touch to the **Print Stop** mode. The boot sequence looks as follows:

1. Booting the printer software
2. Initialization
3. Bleeding
4. Open nozzle
5. Print Stop

### Activate warning messages for log file memory

If this check box is selected there will warning messages pop up when 95% of the data logging memory is filled. Please see chapter **7.4.5 Data logging - Log file** for details about data logging.

#### 7.3.1.6 IP-Address

The tab **<IP-Address> (2)** provides the settings for the IP-Address of the device.

In order to integrate the LEIBINGER JET3up printer in a network based on the internet protocol an IP-address has to be assigned to the device.

The assignment of the IP-address can be either done manually or automatically by using a DHCP server.

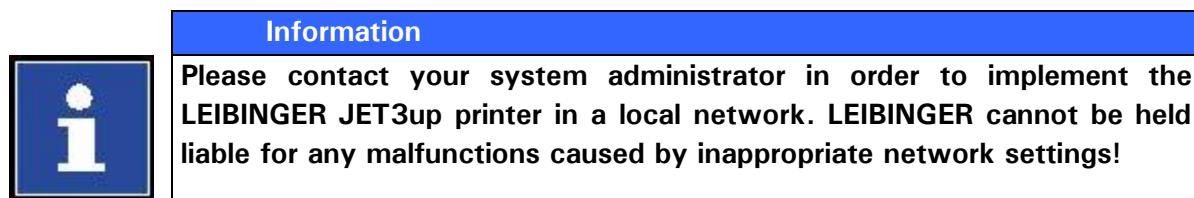
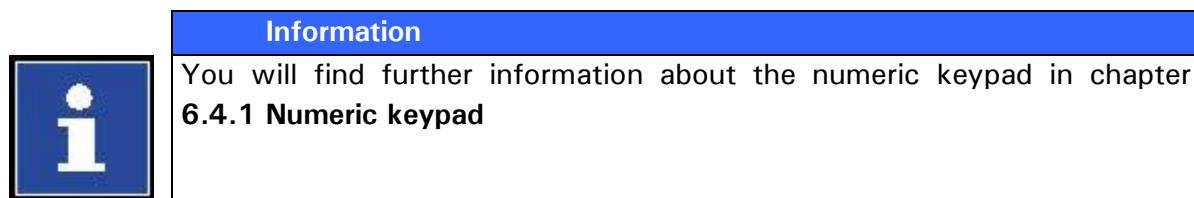
Together with the IP-address the subnet mask **(4)** and the IP-address of the default gateway **(5)** have to be specified.

The LEIBINGER JET3up printer offers to use a **network path** for several purposes. If this option is used the IP addresses of the DNS **(8)** and the WNS **(9)** server have also to be specified. For details about the **network path** options please see chapter

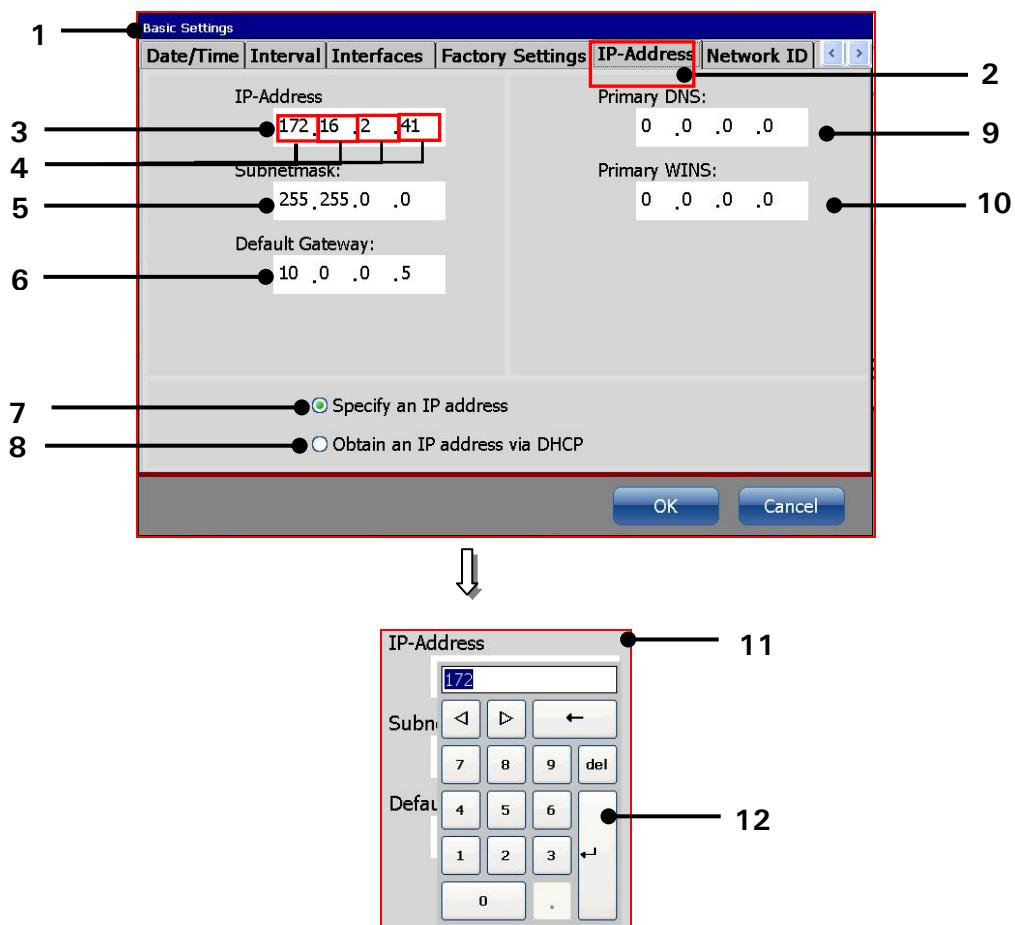
#### 7.3.1.7 Network ID.

##### Proceeding:

- Select the **<IP-Address> (2)** tab.
- Click on a address block to be changed. Address blocks are separated by dots. E.g. the IP-address consists of 4 address blocks **(4)** and each block has a value between 0 and 255. A numeric keypad **(10)** opens for input. Confirm inputs with the return key of the numeric keypad **(11)**.
- Now carry out the settings for every further address block accordingly.
- The subnet mask **(4)**, the IP address for the standard gateway **(5)** and, in case the network path option is used, the addresses for the DNS **(8)** and WINS **(9)** are set in the same way.
- Alternative proceeding: with the option "Obtain an IP address via DHCP" **(7)** the IP address of the LEIBINGER JET3up printer is assigned automatically by DHCP.



**Figure 52 Set IP-address**



- |                                      |   |
|--------------------------------------|---|
| 1 – Dialog box <Basic Settings>      | 7 – Radio button manual IP address                                  |
| 2 – Tab <IP-Address>                 | 8 – Radio button IP address via DHCP                                |
| 3 – Setting field <IP-Address>       | 9 – Primary DNS address   |
| 4 – Address blocks of the IP address | 10 – Primary WINS Adress  |
| 5 – Setting field <Subnet mask>      | 11 – Numeric keypad; first address block of the IP address selected |
| 6 – Setting field <Default gateway>  | 12 – Return key   |

### 7.3.1.7 Network ID

The tab <Network ID> (2) provides the settings for a network path.

A configured network path offers the possibility to save/load print jobs from a network drive and use this drive for log files.

With this option activated the save/load dialog box will offer the set network drive as an additional storage.



#### Important

In order to use the network path function the DNS and the WINS addresses have to be set on the IP address tab. Please see details in chapter 7.3.1.6 IP-Address.

#### Proceeding:

1. From the <Basic settings> dialog box (1): select the <Network ID> (2) tab.
2. Fill in all input fields in accordance to the network the printer is connected to.

#### User name (3)

The user name has to be one which is already registered in the network the printer is connected to.

#### Password (4)

The password has to correspond to the user name.

#### Domain (5)

Enter the domain name of the network the printer is connected to.

#### Device name (6)

Under this is the name the printer is listed on the network list.

#### Path for extern access (7)

Specify the path to the computer/server where the **JET3UP** folder is located

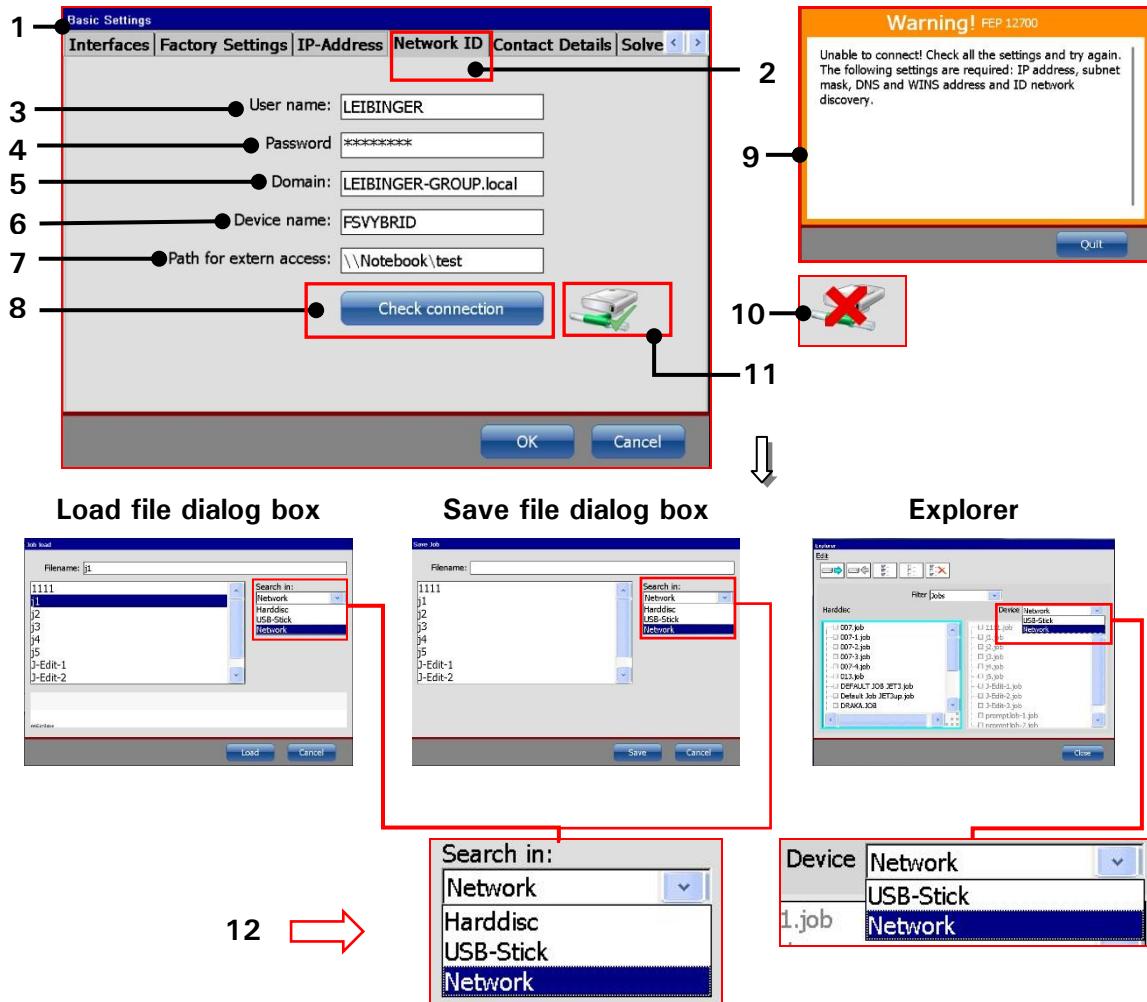


#### Information

Accessing external storages like USB or a folder on the network the JET3up printer expects a certain folder structure. In the root directory of the USB stick or the specified network path there has to be a folder named **JET3UP**. In this folder there have to be 3 subfolders:

- Fonts
- Graphics
- Jobs

The file filters in the file-open and file-save dialog boxes will automatically check for these folders. Also the file explorer of the printer expects this folder structure. Therefore it is important to comply with these standards.

**Figure 53 Network path settings**

- |                                 |                                    |
|---------------------------------|------------------------------------|
| 1 – Dialog box <Basic Settings> | 7 – Input <Network path>           |
| 2 – Tab <Network ID>            | 8 – <Check connection> button      |
| 3 – Input <User name>           | 9 – Warning <Connection failed>    |
| 4 – Input <Password>            | 10 – Icon <No connection>          |
| 5 – Input <Domain>              | 11 – Icon <Connection established> |
| 6 – Input <Device name>         | 12 – <Network> item added          |



#### Important

The network connection is established with the <**Check connection**> button. A successful connection is indicated with green marked icon (11)

### 7.3.1.8 Contact details

The tab <**Contact details**> (2) provides an input field (3) for storing contact details. These contact details are displayed in the **Information** dialog box (4) on page 1 (5). If this field is left empty (3) the respective field in the **Information** dialog box will also stay empty (5).

#### Proceeding:

1. From the <**Basic settings**> dialog box (1): select the <**Contact details**> (2) tab.
2. Enter the contact details in the input field (3).

#### Basic rules for entering contact details

A click in the input field (3) will open a software keyboard (6). All inputs will be displayed centered (7). The width of the input field defines the length of the input per line (8). If a line is filled completely the next input will cause a return (9). There is a maximum of 8 lines available (10).

A return can also be created with the keyboard's return key (11). Using the return key it is also possible to create empty lines (12).

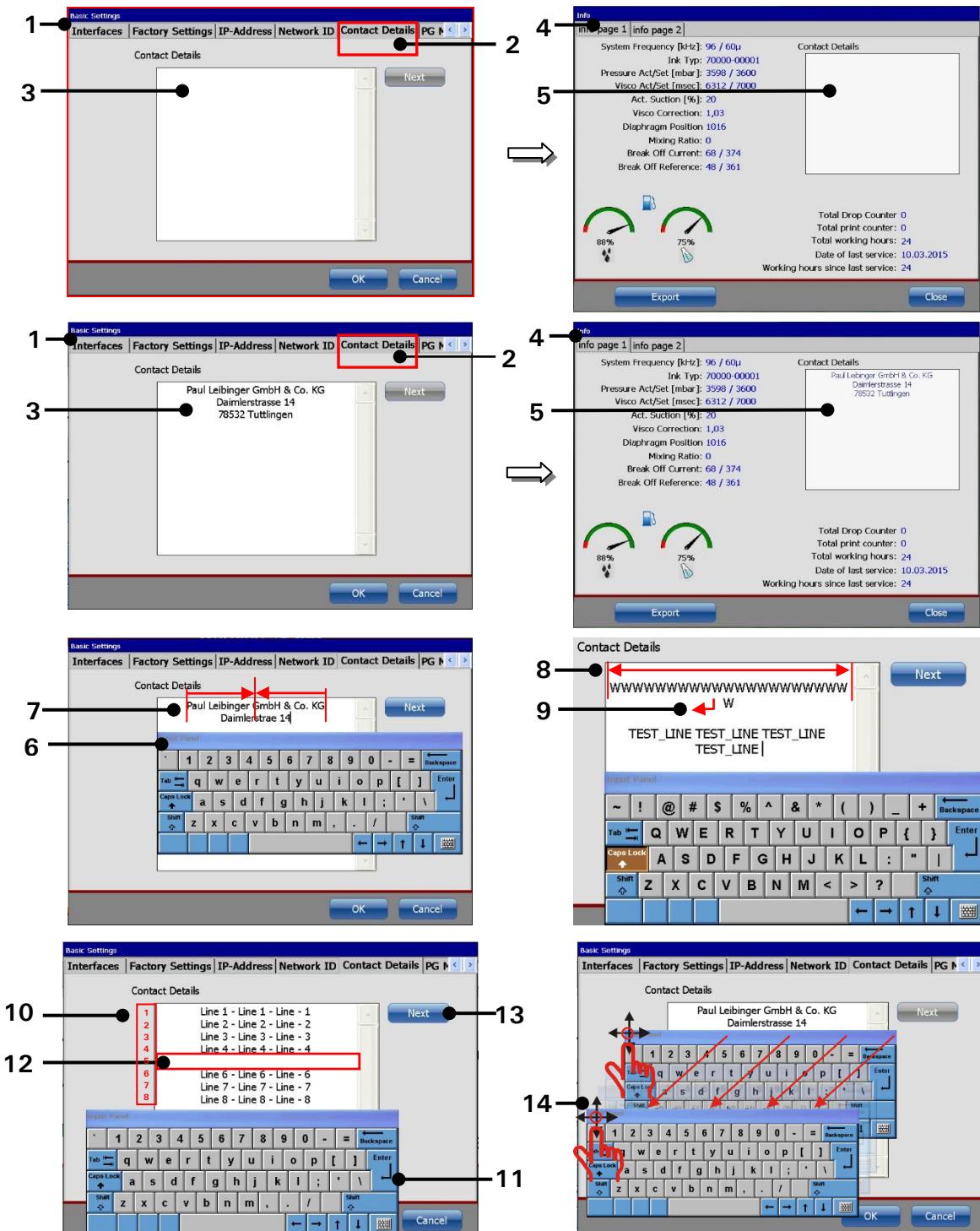


#### Important

Empty lines are not visible in the input field.  
If during input the return key of the software keyboard shows no reaction there may be already 8 lines created. This can be checked by using the arrow-down or arrow-up key of the keyboard.

Inputs have to be confirmed by the <**Accept**> button (13).

If the keyboard covers the input field it can be moved by drag'n drop (14).

**Figure 54 Contact details**

- 1 – Dialog box <Basic Settings>
- 2 – Tab <Contact Details>
- 3 – Input <Contact Details>
- 4 – Dialog box <Info>
- 5 – Display <Contact Details>
- 6 – Software keyboard
- 7 – Inputs are centered formatted

- 8 – The input per line is limited by the width of the input field
- 9 – Returns are created automatically
- 10 – The maximum of input is 8 lines
- 11 – <Return key>: create new lines
- 12 – Empty line
- 13 – <Accept> button
- 14 – Moving keyboard with drag 'n drop

### 7.3.1.9 Solvent Saving Mode

With the <**Solvent Saving Mode**> function activated the nozzle will be closed after a time interval set without a PrintGo (PG) signal received.

The tab <**Solvent Saving Mode**> (2) provides the input field (3) for the setting of the time interval. The interval is set by minutes and the maximum is 999 minutes.

As long as the interval is set to 0 the <**Solvent Saving Mode**> function is off.

Through the open nozzle air can get into the hydraulic system and this will cause a higher solvent consumption. Therefore the nozzle should only be opened during printing. **It is recommended to close the nozzle during times without printing.** The <**Solvent Saving Mode**> makes sure that the nozzle will be closed if there are no PrintGo signals received for a certain time.

With the LEIBINGER **Sealtronic** the circulation of the ink will continue as long as the printer is not in stand-by mode even if the nozzle is closed. Therefore a print start with a nozzle closed will only take the seconds to open the nozzle.



#### Information

The LEIBINGER **Sealtronic** nozzle-seal technology prevents the clogging of ink not only in the nozzle itself but also in the return line. Due to this it provides an instant start-up of the printer, even after long shutdowns.

#### How is the nozzle sealed:

In order to close the nozzle the gutter tube will move towards the O-ring of the nozzle and seal it airtight. The result is a hermetically sealed ink circulation. No air can penetrate into the nozzle and return line and therefore clogging of ink is definitely eliminated. A time consuming manual or automatically operated nozzle cleaning process is not necessary.

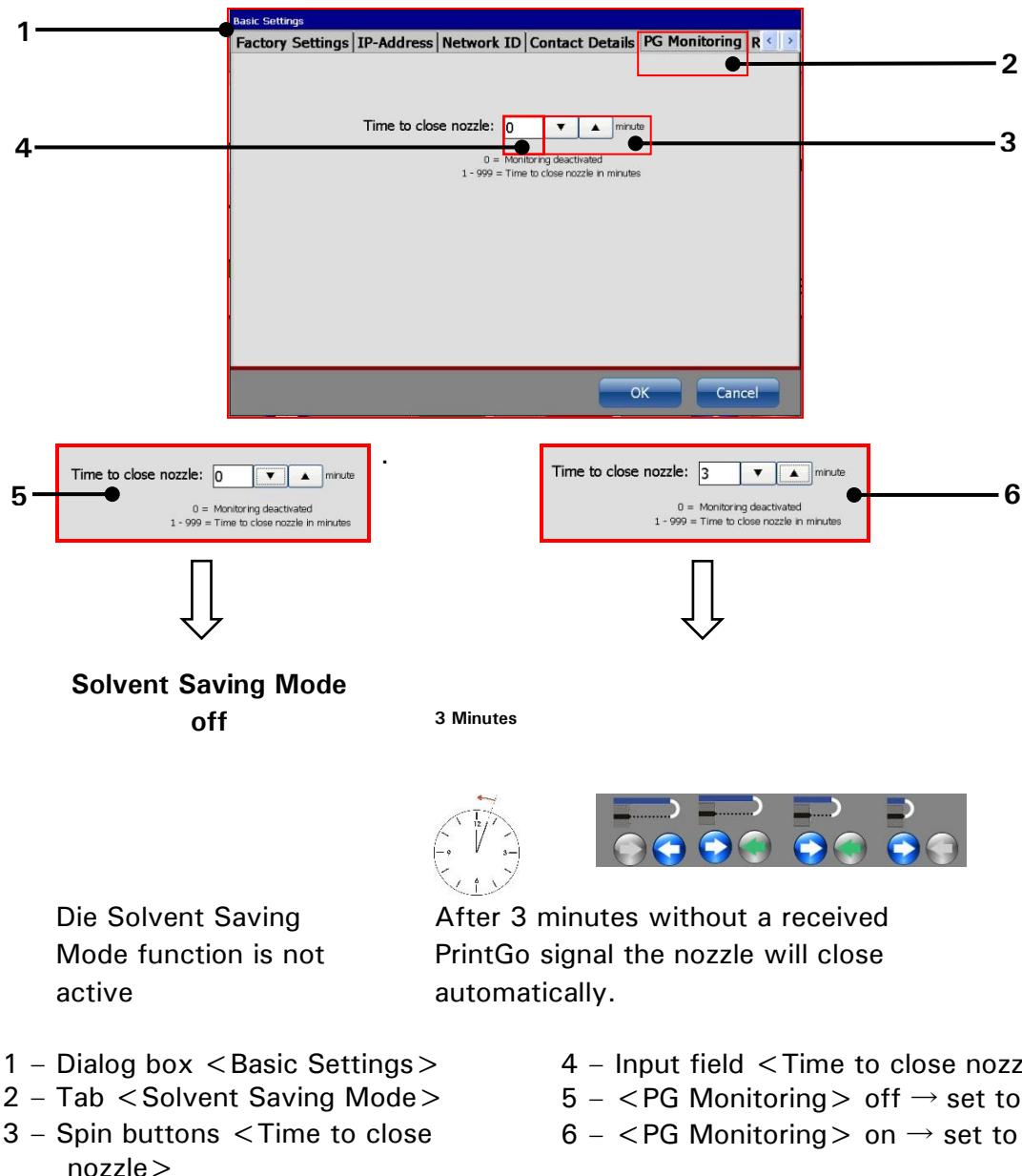
There are different ways for closing the nozzle:

1. Manually by using the respective buttons of the main window.  
Please see chapter **6.4 User interface and printer operation**
2. Automatically by the operating system when the printer is shut down.
3. Automatically by using the <**Solvent Saving Mode**> function.
4. Manually by special functions within the service menu. **Only for service purposes.**

#### Proceeding:

1. From the <**Basic settings**> dialog box (1): select the <**Solvent Saving Mode**> (2) tab.
2. Enter the time interval using either the spin buttons or the numeric keypad which pops up by clicking in the input field (3).

The default setting is 0. With this setting the <**Solvent Saving Mode**> function is off. There are inputs between 1 minute and 999 minutes allowed.

**Figure 55 Solvent Saving Mode**

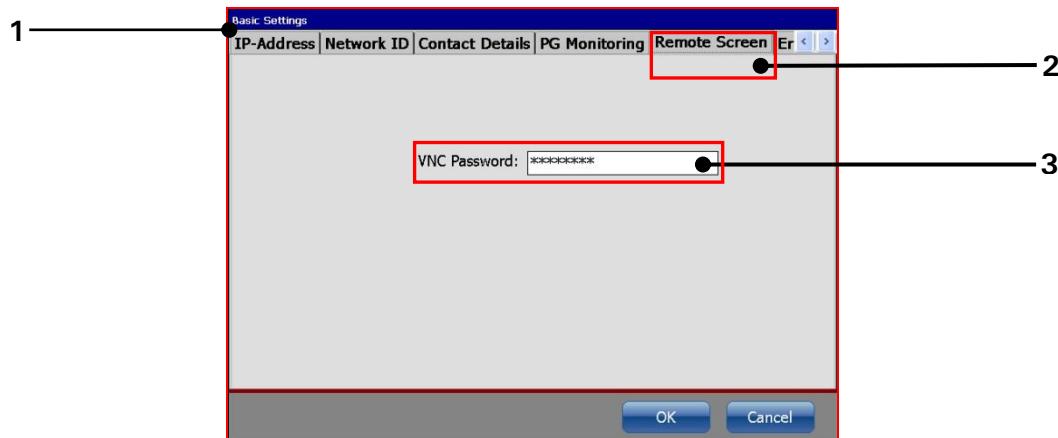
### 7.3.1.10 Remote screen

The JET3up printer provides a VNC server for remote access. Basically it takes two steps to use the VNC server of the printer:

1. Assign a password for the VNC server
2. Start the VNC server

This access to the VNC server is password protected. This password is set on the tab <Remote screen>.

**Figure 56**    Remote Screen - Password



1 – Dialog box <Basic Settings>  
2 – Tab <Remote Screen>

3 – Input <VNC Password>

A click on the Main window option <Extra> - <Start Remote Screen> will start the VNC server. The active VNC server is indicated by a status display in the main window.

In order to stop the VNC server click on the Main window option <Extra> - <Close Remote Screen> .

**Figure 57**    Remote Screen – Indicator remote mode



1 – Main window  
2 – Main window menu item <Extra>

3 – Option <Start Remote Screen>  
4 – Status display <Remote mode available>

## Remote Control - Settings

With the VNC server running (indicated in the main window) it is possible to access the VNC server with a VNC client running on an external device like a desktop PC, a notebook or a tablet computer. In order to establish a connection between a VNC client and the VNC server of the JET3up printer the following settings are required:

- The VNC server on the JET3up printer must be started
- The IP address of the JET3up printer has to be adjusted to the network the VNC client is running on.
- For a successful connection the password set for the VNC server of the JET3up printer is required.

### Example

#### Proceeding:

1. Set the IP address and subnet mask of the JET3up printer. All other settings in the IP Address dialogbox are not relevant for the setup of VNC connection. The settings depend on the network into which the printer has to be implemented.
2. Connect a WiFi router to the JET3up. There is ethernet cable for the M12D coded socket of the JET3up required.
3. **Please see the manual of the router for details about the settings.** In this example the router is set to the following IP-Address: **192.168.1.1**. The VNC server of the JET3up printer uses **port 5900**.
4. Connect the external device on which the VNC client software is installed either by cable or WiFi to the router.
5. Start the VNC client on the external device and enter the required settings. The required settings depend on the VNC client used. Please see the VNC client's manual for details. With the correct settings a connection to the JET3up printer can be established. The display of the JET3up will be mirrored on the VNC client software and the printer can be operated from the external device.
6. It is possible to add more than one WiFi device like e.g. laptops, Android/Apple tablets /phones to the WiFi net of the router in order to access the JET3up printer. Make sure that there is a VNC client like **Real VNC**, **Ultra VNC** (Windows OS) or **screens VNC** (IOS) installed on the device. For Android devices you can use **bVNC** or **Real VNC**.
7. You can also make a cable connection to the router. The number of cable connections depends on the type of router used. Cable connections may be used e.g. to connect a desktop PC. **In that case you have to make sure that the LAN adapter of the PC is set to the correct address space!**

**Information**



Please contact your system administrator in order to implement the LEIBINGER JET3up printer in a local network. LEIBINGER cannot be held liable for any malfunctions caused by inappropriate network settings!  
The software suggested are to be understood as examples.  
The suggested software are no LEIBINGER products nor it will be supported by LEIBINGER.

**Figure 58** Remote Control – Connection scheme

#### Tablet WiFi connection



Connected to router by WiFi.  
Using the SSID and password of the WiFi router

VNC Client software is required

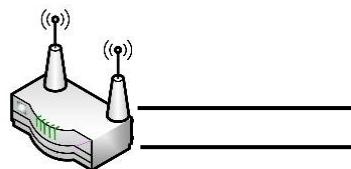
#### LEIBINGER JET3up

A cable for the M12D coded socket of the JET3up is required.

#### Notebook WiFi connection



Connected to router by WiFi. Using the SSID and password of the WiFi router



VNC Client software is required

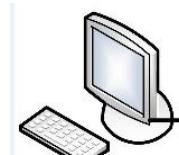
#### Example:

Router IP-Address:  
192.168.1.1

#### Example:

JET3up IP-Address:  
192.168.1.10  
Subnet mask:  
255.255.0.0

#### Desktop PC cable connection



Connected to router by cable

VNC Client software is required

#### Example:

Desktop PC IP-Address: 192.168.1.5  
The address has to be within the address space of the router.

### 7.3.1.11 Error Config

The tab <Error Config> provides several functions for a customized error messages management.

It is possible to declare the type of message for certain messages. For the declaration there are three types predefined:

- Information
- Warning
- Error

The default setting is <Error> for all messages listed. The declaration defines which digital output will be activated in case the respective message occurs. Please see chapter **7.3.3.2 Digital Outputs** for details about the assignment of messages to digital outputs.

It is only possible to assign messages which are declared either as <Error> or as <Warning> to a digital output. A message declared as <Information> will cause no further reaction and has only to be confirmed.



<b>Caution</b>	
	<p>Depending on the settings of the digital outputs &lt;Error&gt; and &lt;Warning&gt; messages may trigger digital signals on certain outputs. Check all settings and connections of the printer before putting it into operation. The settings for the error and warning messages and the respective digital signals are safety-relevant. Make sure that all declarations and assignments are carried out in an appropriate manner.</p>

#### Proceeding:

From the <Basic settings> dialog box (1): select the <Error Config> (2) tab.

All messages available for a customized configuration are listed with message code (3) and the message itself (4). When this list is opened for the first time all messages are declared by default as errors (5).

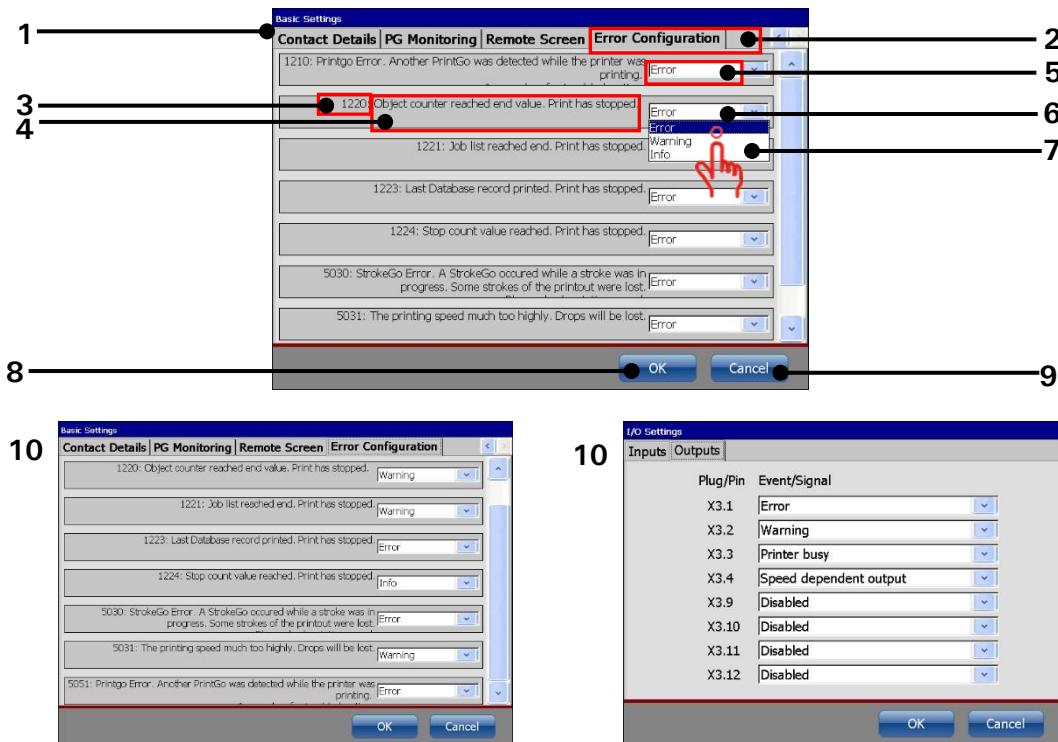
In order to change the declaration click on arrow of the drop-down list. The drop-down list provides 3 options (6):

- Information
- Warning
- Error

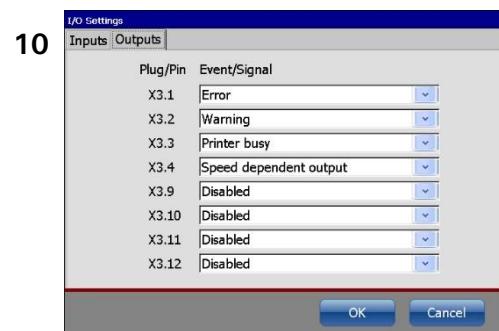
An option is selected by clicking on it (7).

All changes have to be confirmed with a click on the <OK> button (8). In order to discard all changes click the <Cancel> button (9).

The Example (10) shows how the error configurations interact with the settings in the I/O dialog box.

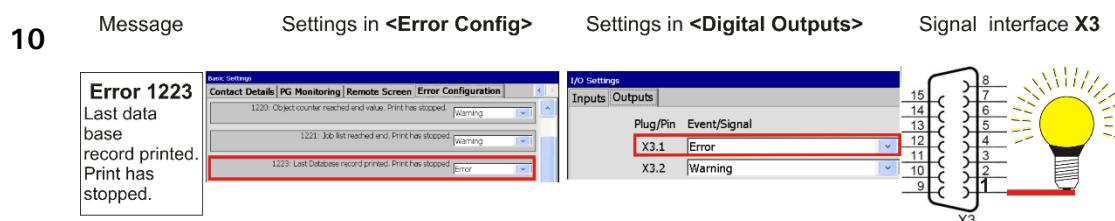
**Figure 59 Error config**

Example settings on the <**Error Config**> tab.



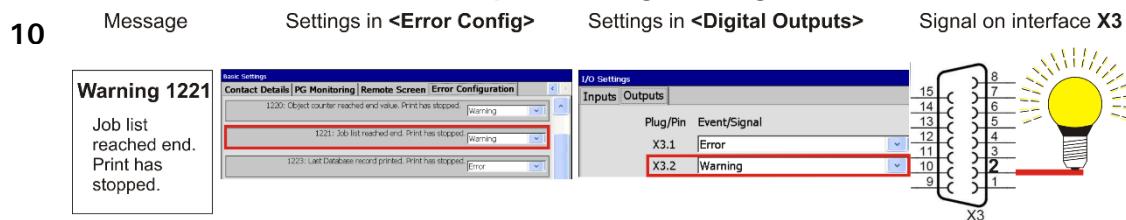
Example settings on the <**Outputs**> tab of the <**I/O settings**> dialog box.

### Example Error Message



Example for a error message: After the last record of a data base was printed the error message with code **1223** pops up and the digital output **X3.1** switches.

### Example Warning Message



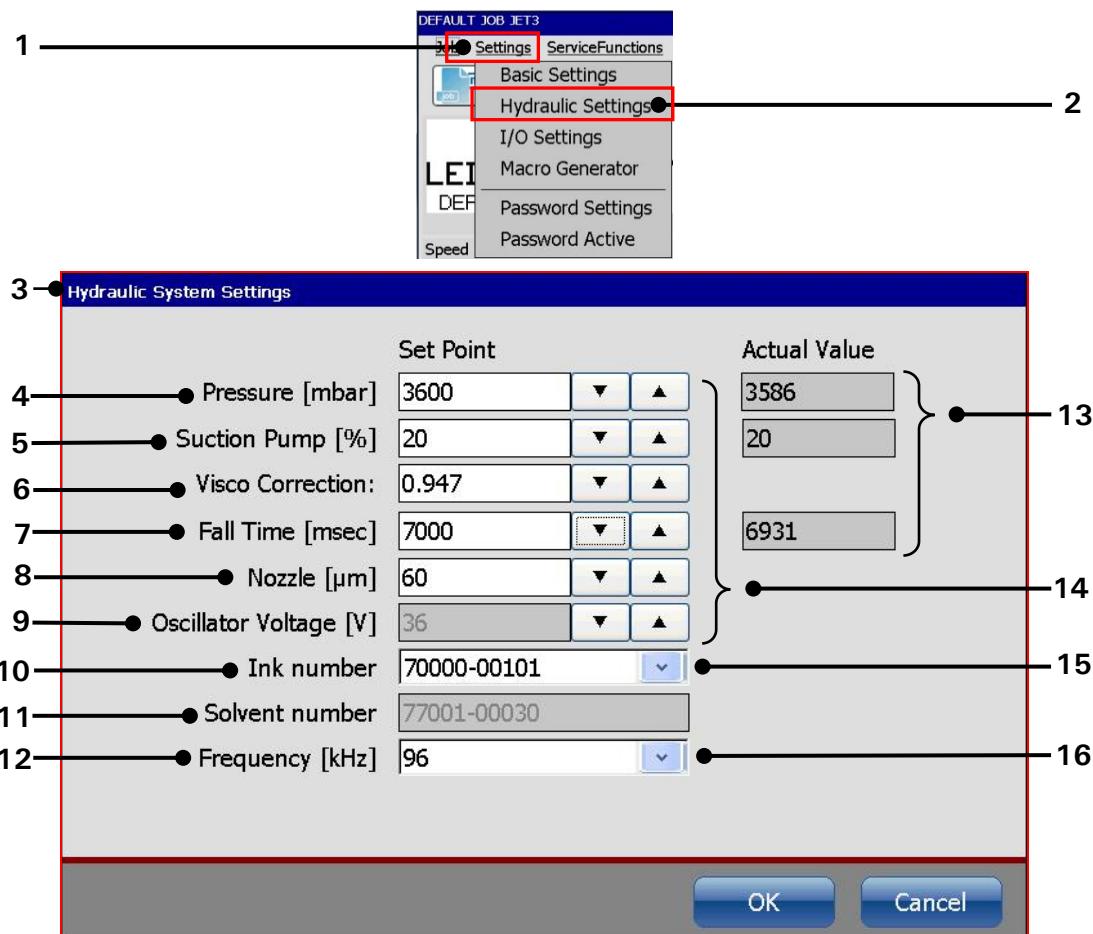
Example for a warning message: After the end of a job list is reached the error message with code **1221** pops up and the digital output **X3.2** switches.

- 1 – Dialog box <Basic Settings>
- 2 – Tab <Error Config>
- 3 – Message code
- 4 – Message content
- 5 – Default setting <Error>

- 6 – Drop-down list message options
- 7 – Select option
- 8 – <OK> button
- 9 – <Cancel> button
- 10 – Examples

### 7.3.2 Hydraulik settings

Figure 60 Hydraulic settings



- 1 – Drop-down menu <Settings>
- 2 – Option <Hydraulic settings>
- 3 – Dialog box <Hydraulic settings>
- 4 – Input field <Pressure [mbar]>
- 5 – Input field <Suction pump [%]>
- 6 – Input field <Visco correction>
- 7 – Input field <Fall time [msec]>
- 8 – Input field <Nozzle [ $\mu\text{m}$ ] size>

- 9 – Input field <Oscillator Voltage [V]>
- 10 – Input field <Ink number>
- 11 – Input field <Solvent number>
- 12 – Input field <Frequency [kHz]>
- 13 – Indicators for current values
- 14 – Spin buttons for settings
- 15 – Drop-down list <Ink number>
- 16 – Drop-down list <Frequencies>



#### Warning

All settings in the <Hydraulic> menu have a direct impact on the functionality of the printer!  
**Wrong or inappropriate settings may cause the printer to stop the work and /or may lead to hardware damages!**

All values were set at factory for an optimal operation. Changes must only be carried out by LEIBINGER service technicians or staff trained by LEIBINGER service technicians.

## Functional descriptions

### Pressure (4)

This is the setpoint of the pressure of the hydraulic circuit in [mbar].

### Suction pump (5)

The suction pump works at partload. The partload value is defined percentage of the full load.

### Visco correction (6)

The printer is supplied with a factory calibrated viscometer. The <Visco correction> is used for such calibrating purposes.

### Fall time (7)

This is the setpoint for the viscosity of the current ink.

### Nozzle (8)

The size of the nozzle of the printer in [ $\mu\text{m}$ ].

### Oscillator Voltage (9)

The setpoint of the oscillator voltage. This value is only adjustable through a special service access.

### Ink number (10)

The number of the currently used ink.

### Solvent number (11)

The number of the solvent suitable for the current ink. This value is set automatically dependent on the current ink.

### Frequency (12)

The setpoint of the frequency of the oscillator.

### Indicators for current values (13)

The pressure within the hydraulic circuit, the power consumption of the suction pump and the falltime (viscosity) are constantly measured and indicated.

### Spin buttons for settings (14)

All setpoints can be changed by using the spin buttons of the respective input fields.

### Drop-down list <Ink number> (15)

The drop-down list shows the available inks.

### Drop-down list <Frequencies> (16)

The drop-down list shows the available frequencies.

### 7.3.3 I/O-settings

With the option <I/O Settings> (2) you can open the dialog box „I/O Settings“ (3).

This dialog box shows the function or status assignment to the available digital inputs and outputs.

6 inputs and 8 outputs are available.

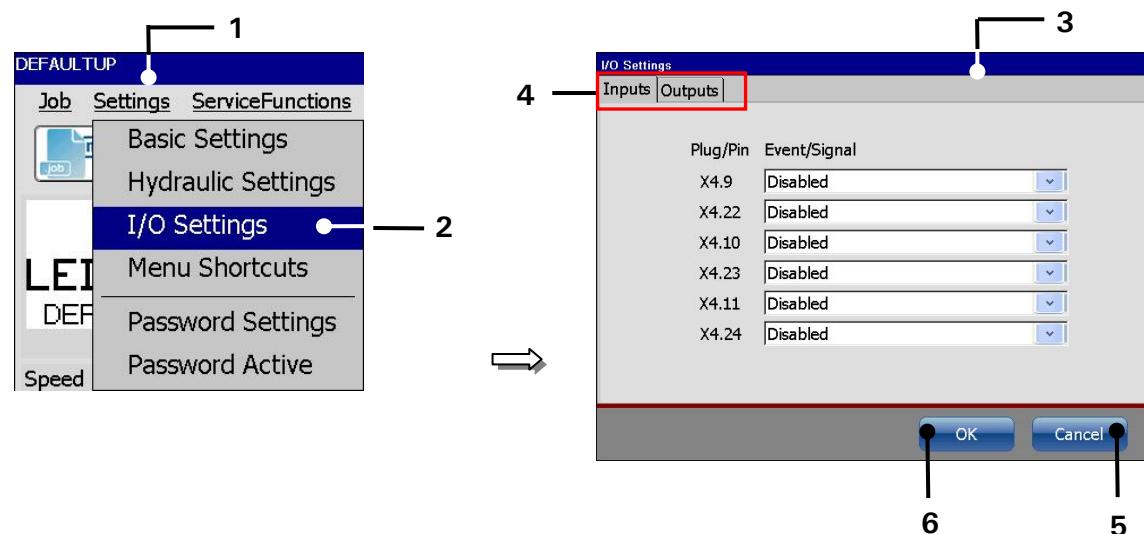
The selection of the tab „Inputs“ and „Outputs“ happens by clicking on the accordant tab (4).

**Note:** The proceeding corresponds to the Windows™-standard procedure.

With the button <OK> (5) you can close the dialog box and you can save the settings.

The button <Cancel> (6) closes the dialog box without taking over the carried out changes.

**Figure 61** Dialog box I/O Settings



- 1 – Drop-down menu <Settings>  
2 – Option <I/O Settings>  
3 – Dialog box <I/O Settings>

- 4 – Tabs  
5 – Button <OK>  
6 – Button <Cancel>

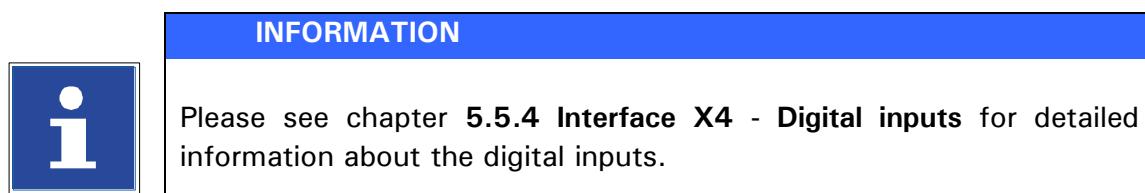
### 7.3.3.1 Digital Inputs

With the tab <Inputs> you can assign functions to the available inputs.

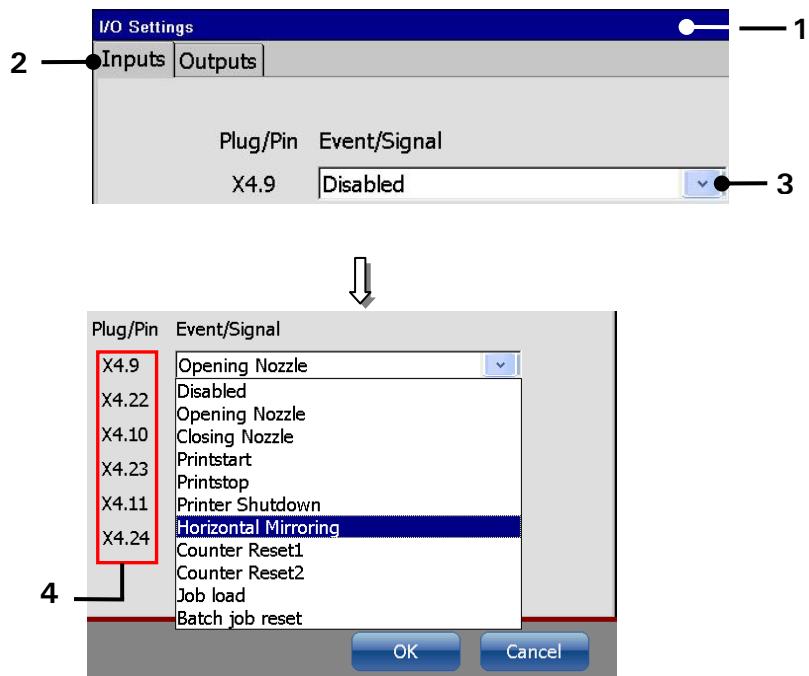
E.g.: Input 1 (X4.9 (of the Pin No. 9 of interface X4)) should be assigned the function "Counter reset".

**Proceeding:**

- Select the <Inputs> tab (2)
- Press on the arrow key of the drop-down list of the input 1 [X4.9] (3). The drop-down list provides a list of functions for selection.
- Now select the required event/signal.



**Figure 62 Assign functions to digital inputs**



1 – Dialog box <I/O Settings>  
2 – Tab <Inputs>

3 – Drop-down list <X4.9>  
4 – Pin designation

### 7.3.3.2 Digital Outputs

With the tab <Outputs> you can assign printer states and messages to the available outputs.



#### ATTENTION

Standardly the outputs 1-3 are already predefined!

- Output 1 (X3.1) = Error
- Output 2 (X3.2) = Warning
- Output 3 (X3.3) = Printer busy

E.g.: The output X3.9 (Pin No. 9 of interface X3) should be assigned to the message "Product counter reached value".

#### Proceeding:

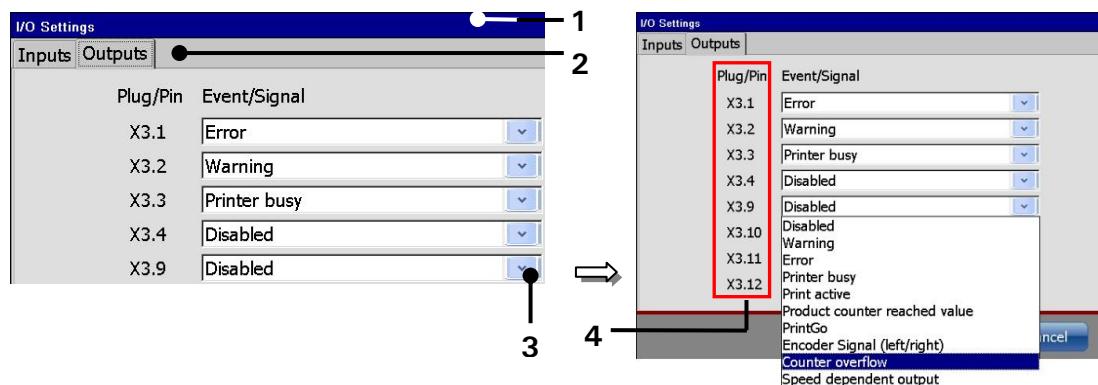
- Press on the tab <Outputs> (2) to select the tab.
- Press on the arrow key of the drop-down list of the output [X3.9] (3). The drop-down list provides a list of events/signals for selection.
- Now select the required event/signal.



#### INFORMATION

Please see chapter 5.5.5 Interface X3 - Digital outputs for details about digital outputs

**Figure 63** Assign states and messages to digital outputs



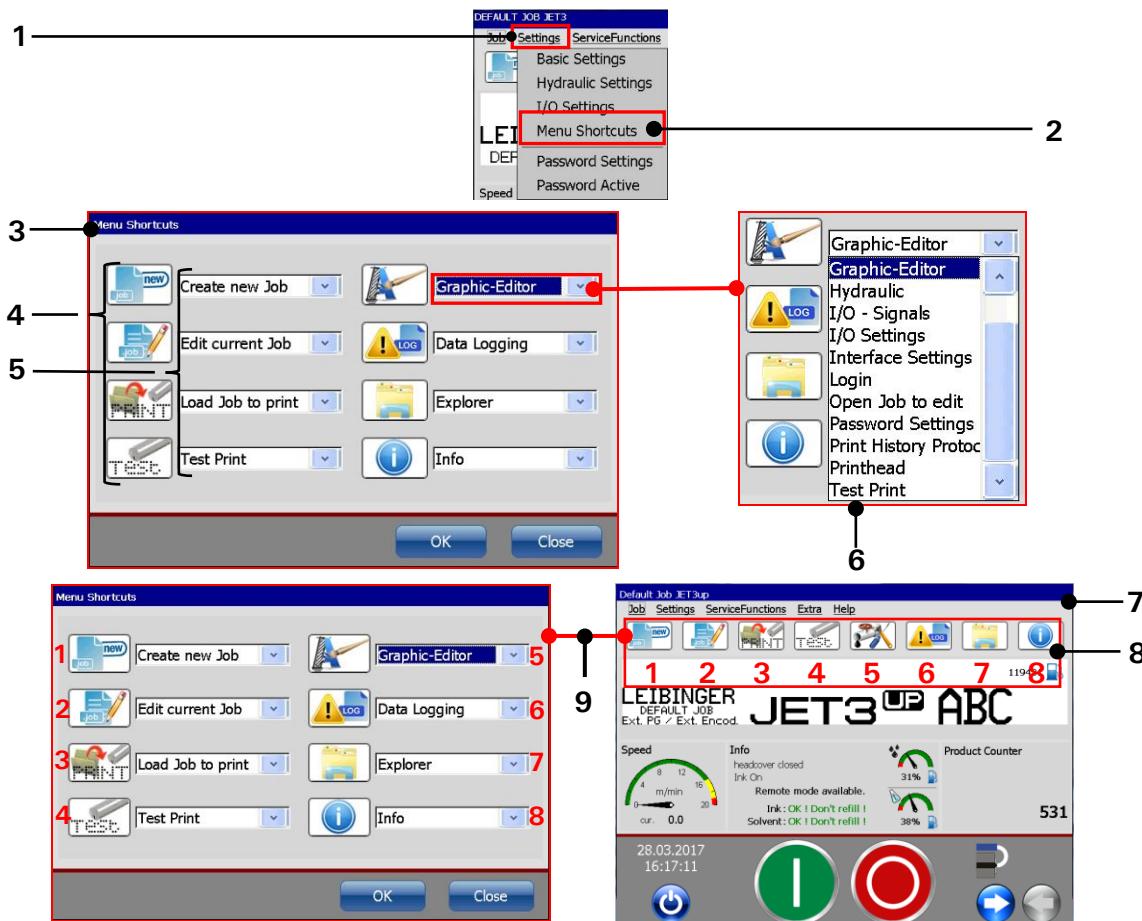
1 – Dialog box <I/O Settings>  
2 – Tab <Outputs>

3 – Drop-down list <X3.9>  
4 – Pin designation

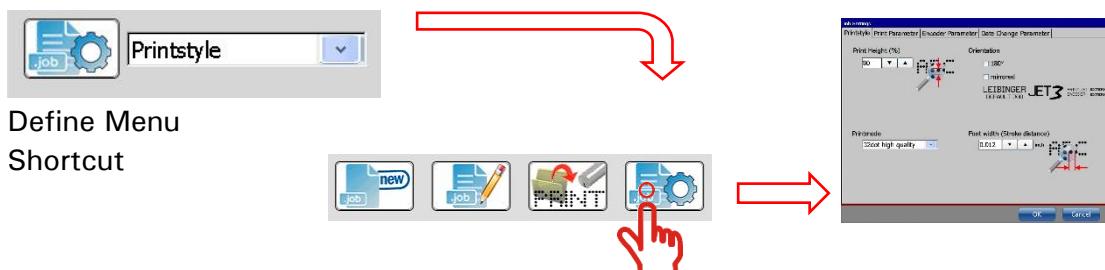
### 7.3.4 Menu Shortcuts

In the main window of the printer there are 8 buttons for direct access to certain functions. With the <Menu Shortcuts> dialog box one can configure these Menu Shortcuts. It is possible to define the position and the function of each button.

**Figure 64** Menu Shortcuts



**Example 9**



Defined Menu Shortcut in the Main Window

A click on the button starts the assigned function.

- 1 – Drop-down menu <Settings>
- 2 – Option <Menu Shortcuts>
- 3 – Dialog box <Menu Shortcuts>
- 4 – Icons of the selected functions
- 5 – Input fields for the direct buttons

- 6 – Drop-down list of functions
- 7 – Main Window of the printer
- 8 – Menu Shortcuts in the Main Window
- 9 – Assignments: Functions → Menu Shortcuts

## Example

### Task

There shall be created a direct access button for the dialog box <Printstyle> in the main window of the printer.

### Proceeding

See Figure 64 and the **Example** in Figure 64.

1. Choose the button position in the <Menu Shortcuts> dialog box.
2. The button positions are defined as depicted in Figure 64 (point 9).
3. Assign the dialog box <Printstyle> to the button by selecting it from the drop-down list.
4. All settings are confirmed with the <OK> button of the <Menu Shortcuts> dialog box and the dialog box will be closed.
5. Now the direct access button is available in the main window of the printer



#### Information

All direct access buttons are already assigned to a certain function at the time the printer will be put into operation the first time. There are always 8 direct access buttons available. It is not possible to delete buttons or to leave them without a function assigned. It is only possible to change the function assignment of a direct access button.

### 7.3.5 Password settings and user permissions

The LEIBINGER JET3up offers a user based password protection in order to prevent from faulty operation or non-authorized access. It is possible to set different kind of access privileges for 5 users.

#### 7.3.5.1 Dialog box password settings

A click on the option <Password Settings> (2) opens the dialog box <Password settings> (3).

The following settings are available:

---

- Selection of users
- Definition of access rights.
- Definition of passwords

In the several tabs you can enable or lock the functions (8) for the currently selected user. Functions are enabled / disabled by checking / unchecking the checkboxes.

In order to switch between tabs click on the caption of the tab (7).

**Note:** The proceeding corresponds to Windows™-standard procedures.

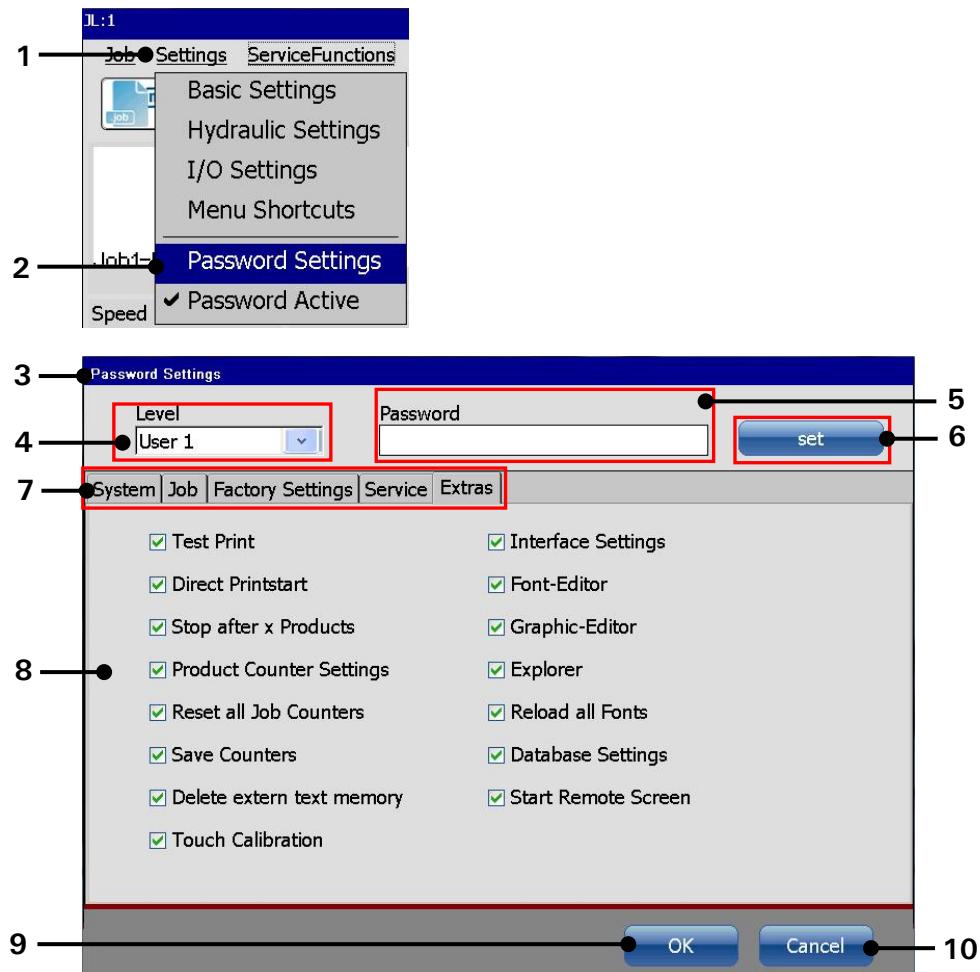
The drop-down list <User> (5) provides 5 user. All settings entered are always valid for the currently selected user.

The password for the currently selected user is set in the input field <Password> (5). The input field <Password> shows also a password already set in plain text. In order to change an existing password it can just be overwritten.

With the button <set...> (6) the password entered for the current user level will be taken over.

With the button <OK> (9) the settings will be saved and the menu closes.

The button <Cancel> (10) discards all changes and closes the dialog box.

**Figure 65** Dialog box password settings

- |                                    |   |
|------------------------------------|---|
| 1 – Drop-down list <Settings>      | 6 – <set...> button                               |
| 2 – Option <Password Settings>     | 7 – Tab bar                                       |
| 3 – Dialog box <Password Settings> | 8 – Settings – Options depend on the selected tab |
| 4 – Drop-down list <User>          | 9 – <OK> button                                   |
| 5 – Input field for <Password>     | 10 – <Cancel> button                              |

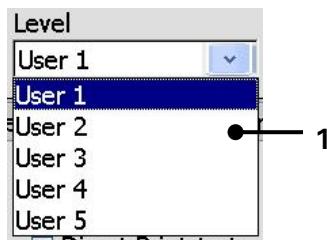
#### **Proceeding:**

- Click on the menu entry <Settings> (1) and the select the option <Password Settings> (2).
- The <Password Settings> dialog box (3) pops up.

### 7.3.5.1.1 Selection of a user

With the drop-down list <User> (1) a user is selected.

**Figure 66 Selection of users**



1 – Drop-down list <User>

### 7.3.5.1.2 Definition of password

The password for the currently selected user can be entered in the input field <Password> (1). A password already set will be displayed in the input field and can be overwritten if necessary.

**Proceeding:**

Example: The password „Leibinger“ shall be defined for user 1.

- Click in the input field <Password> (1). A keyboard (3) pops up for input.



#### INFORMATION

You will find further information regarding the operation with keyboard in the chapter **6.4.1 Keyboard**

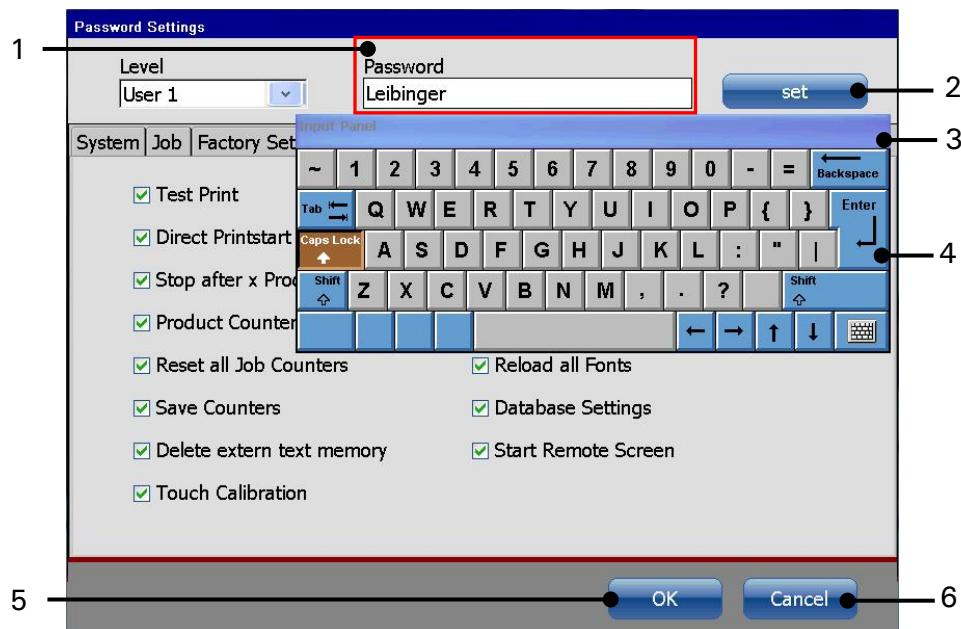
- Enter the password „Leibinger“. The input is displayed in the input field <Password> (1).
- Press the button <Enter> (4) of the keyboard field to finish the input.
- Now press the button <set...> (2) to take over the entered password.



#### ATTENTION

In order to complete the setting of the password the dialog box has to be closed with the <OK> button (5)!

In order to discard all changes close the dialog box with a click on the <Cancel> button (6).

**Figure 67 Define a password**

1 – Input field &lt;Password&gt;

2 – &lt;set...&gt; Button

3 – Keyboard

4 – &lt;Enter&gt; Button

5 – &lt;OK&gt; Button

6 – &lt;Cancel&gt; Button

### 7.3.5.1.3 Definition of access privileges

On the several tabs of the dialog box you can enable or disable functions for the currently selected user. An enabled function is displayed by a tick () in the check box.

So, it is possible to define special access privileges for 5 different user whereby each user can have its own password.

**Note:**

If a function is blocked for a user, the respective button is either blocked or a warning message will pop up.

### 7.3.5.2 Lost password

If the password of the highest defined access right (Supervisor) has been lost special measures are required. In this case please contact the your > LEIBINGER dealer.

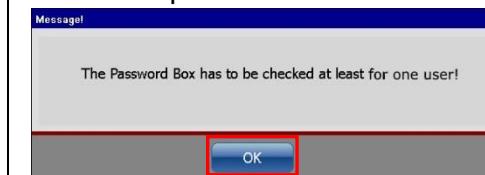


#### Attention

The most critical user privilege in terms of the password and user management is the <**Password active**> option on the **Factory settings**> tab of the password settings dialog box:



This option has to be checked off at least for 1 user. If you try to uncheck this option for all users there will pop a warning message and it will not be possible to uncheck the option:



### 7.3.6 Password protection and Password prompt

If the password protection of the printer is activated a password prompt pops up with each start of the printer.

Additionally the <**Login**> option in the <**Extra**> drop-down menu is activated and selectable. Without the password protection activated the option is greyed out.

With this option a user can log in during the operation to e.g. carry out functions which are not enabled for the currently logged in user.

It does not matter whether a user is logged in at the time the printer is switched off. The printer will always start in logged out mode and the password prompt will pop up.

If the password function is activated there is a checkmark  in front of the <**Password activ**> option.

Additionally the current user respectively the last user that has logged out is displayed in the title bar.



#### Attention

**Do not forget to log out after you have changed the settings of the printer!**

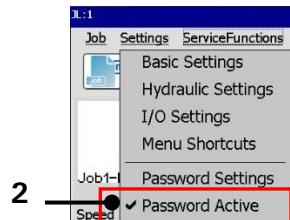
**Only then the printer is protected against unauthorized use.**

**Figure 68 Password related warning messages and indicators**

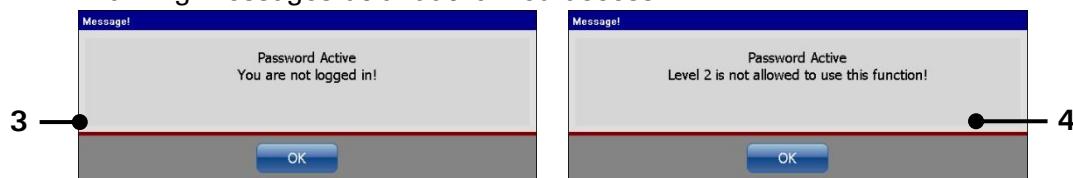
Current user / last logged in user in the title bar:



Checkmark indicates <Password Active>:



Warning messages at unauthorized access:



1 – Title bar with password indicator

3 – Message <Login required>

2 – Activation of the password function

4 – Message <Unauthorised access >



#### Information

If no correct password has been entered at the password prompt during the start of the device, only the function <**Log on**> in the menu <**Extra**> is available for the current user.

If no user is logged-in each attempt starting a function on the printer will be answered with a respective warning message.

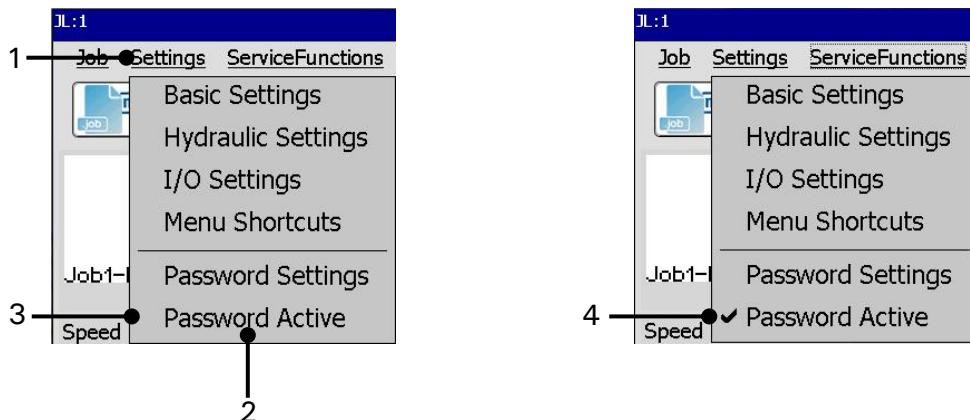
The same will happen in case a log-on user tries to start a function for which the user has no permission.

### 7.3.7 Password activation

The function is activated or deactivated as follows:

- Click on the drop-down menu <Settings> (1) and select the option <Password Activate> (2).
- The function is activated or deactivated depending on the current status.

**Figure 69** Activate/deactivate password



1 – Drop-down menu <Settings>    3 – Option <Password Active> deactivated  
2 – Option <Password Active>    4 – Option <Password Active> activated



#### INFORMATION

You will find further information regarding login/logout and switching on the device in the following chapters:

**6.5.3.2 Switching on with password protection**

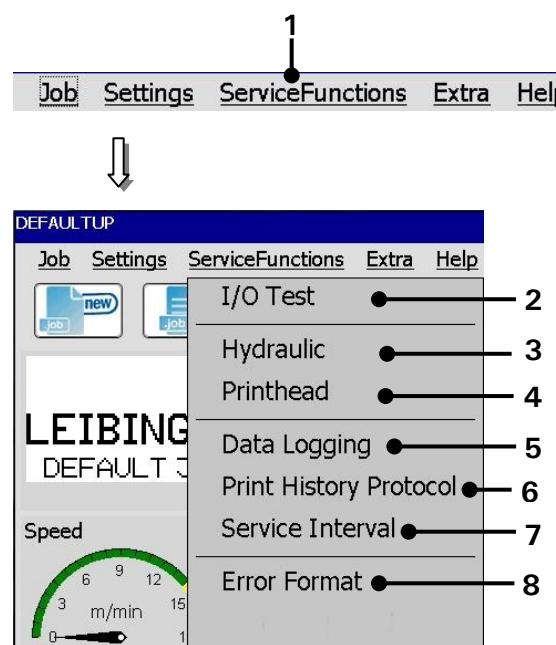
**7.5.3 Login**

## 7.4 Service functions

With the button <ServiceFunctions> in the main dialog box bar the submenu „Service functions“ is displayed. The following options are available:

- I/O-Test
- Data Logging
- Remote Control
- Hydraulic
- Service Interval
- Printhead
- Error Format

**Figure 70** Service functions menu

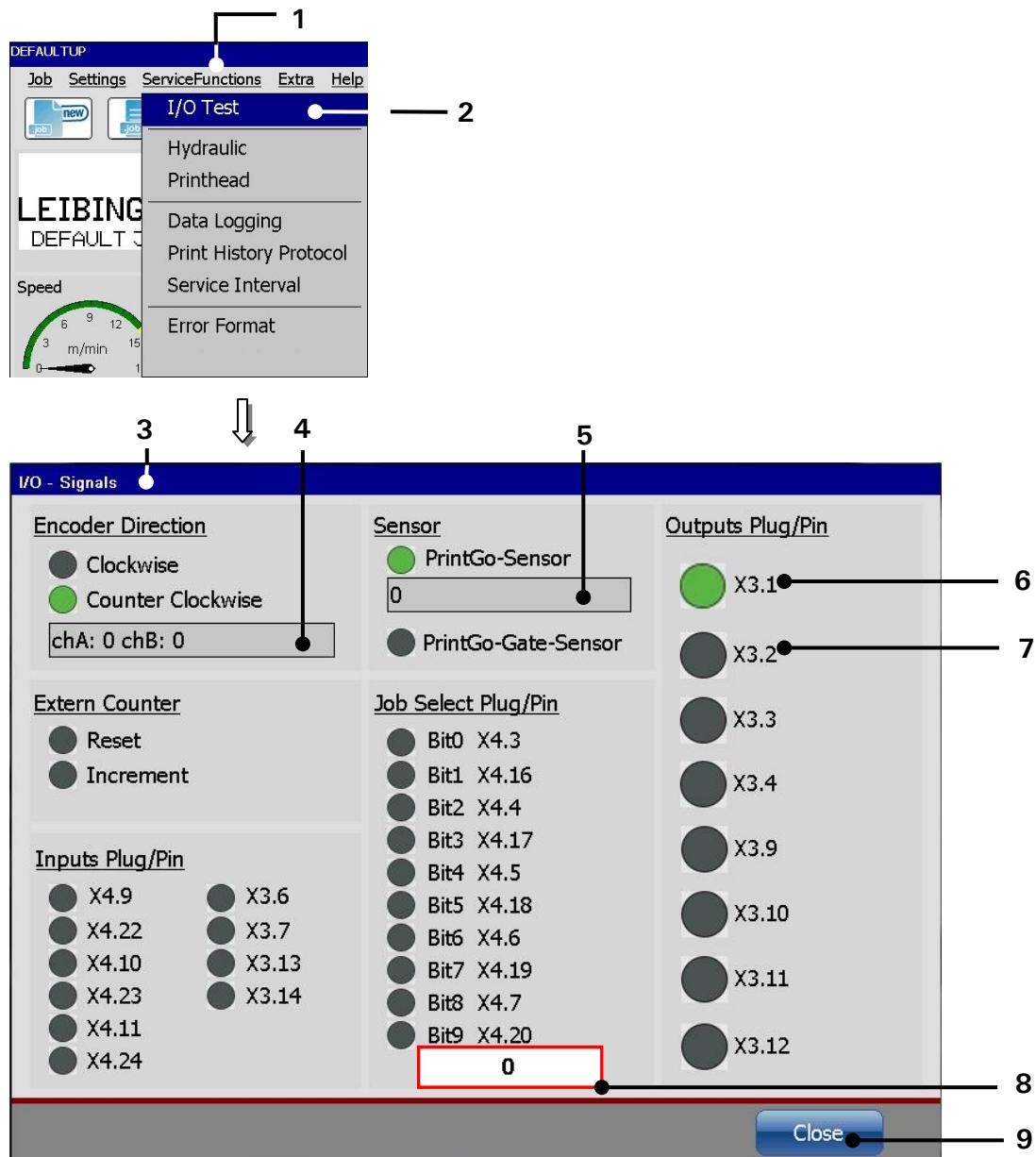


- |                               |                                     |
|-------------------------------|-------------------------------------|
| 1 – Button <ServiceFunctions> | 5 – Option <Data Looging>)          |
| 2 – Option <I/O Test>         | 6 – Option <Print History Protocol> |
| 3 – Option <Hydraulic>        | 7 – Option <Service Interval>       |
| 4 – Option <Printhead>        | 8 – Option <Error Format>           |

#### 7.4.1 I/O Test - Signal test

With the option <I/O Test> (2) the dialog box „I/O-Signals (3)” is displayed. The dialog box shows the states of the inputs and outputs of the device.

**Figure 71** I/O-Signal test



- |  |   |
|--|---|
| 1 – Drop-down menu <ServiceFunctions>                  | 5 – Signal counter for PrintGo signals              |
| 2 – Option <I/O-Test>                                  | 6 – Status indicator <I/O active>                   |
| 3 – Dialog box <I/O-Signals>                           | 7 – Status indicator <I/O inactive>                 |
| 4 – Signal counter for channels A and B of the encoder | 8 – Decimal value of the current Job Select address |
|  | 9 – <Close> Button                                  |

The dialog box allows testing the inputs and outputs of the LEIBINGER JET3up for troubleshooting without additional tools.

While the dialog box <I/O-signals> is open in- and output signals **do not** affect the <I/O Settings> .

Outputs can be activated/deactivated by a click on the respective button.

Active in-/outputs are displayed by a green status display.

Closing the dialog box will reset all settings and counters.

#### 7.4.2 Hydraulic-/Printhead – and special functions



##### SERVICE WORK AND SPECIAL FUNCTIONS

This work must only be carried out by trained personnel or by Leibinger service technicians!

By pressing one of the options <**Printhead**> (2) or <**Hydraulic**> (4) or with the respective direct buttons [Shortcuts] (3) or (5) you can open the dialog box „**Hydraulic/Printhead Test**“ (6).

This dialog box provides the verification of hydraulic components, activation or deactivation and setting of print head functions as well as the processing of special functions. All changes have only a temporary effect, that means as long as the dialog box is open.

The selection of a tab happens by clicking on the accordant tab (7).

**Note:** The proceeding corresponds to the Windows™-standard procedure.

By pressing the button <**Fast shutdown**> (9) the JET3up is turned off immediately, without carrying out further actions (e.g. closing the nozzle).

The button <**Close**> (8) closes the dialog box.

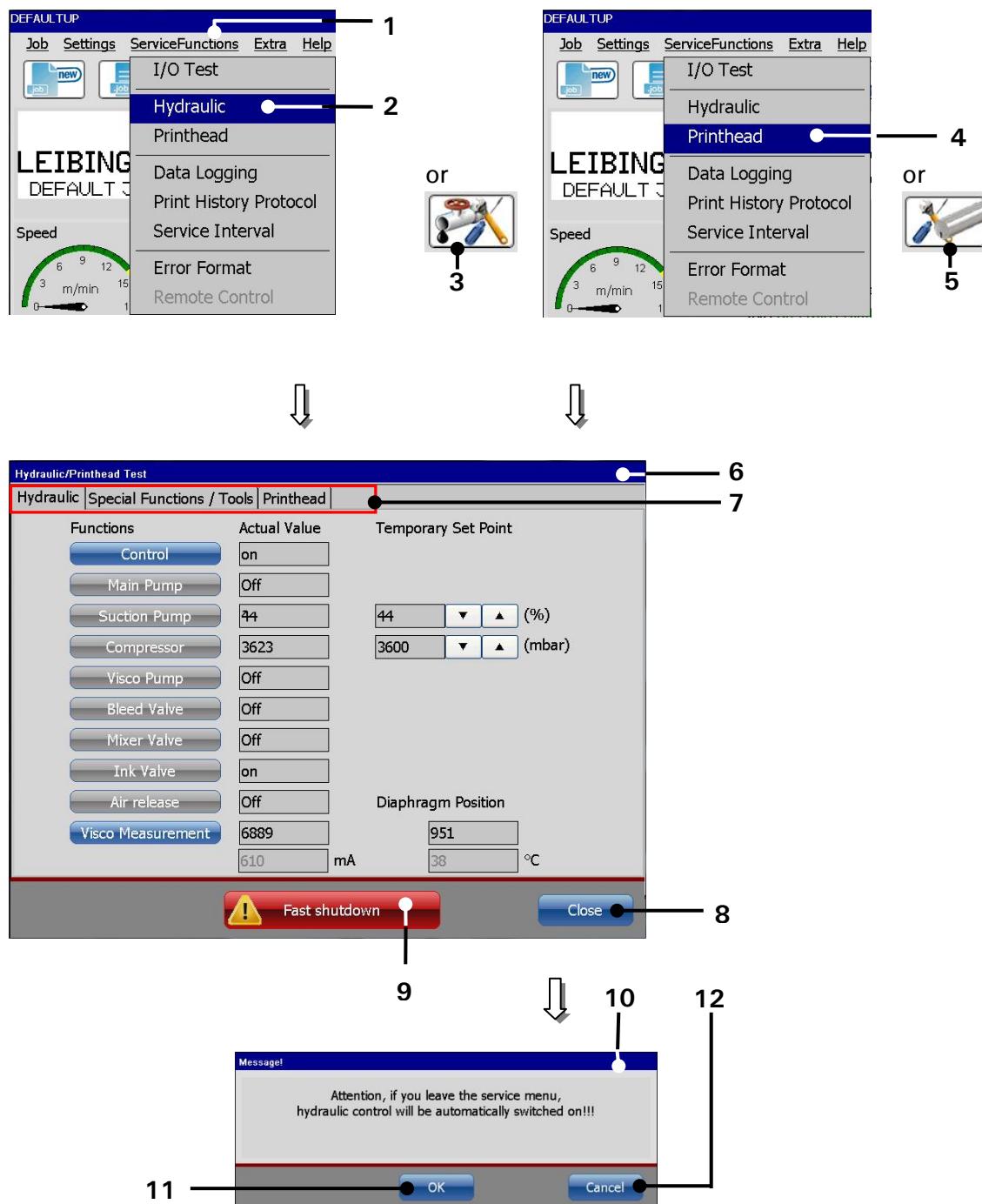


##### INFORMATION

By closing the dialog box all changes are reset to the normal/fully automatic operating condition!

When the dialog box is closed a confirmation prompt (10) pops up.

**Figure 72 Hydraulic/Printhead test dialog box**



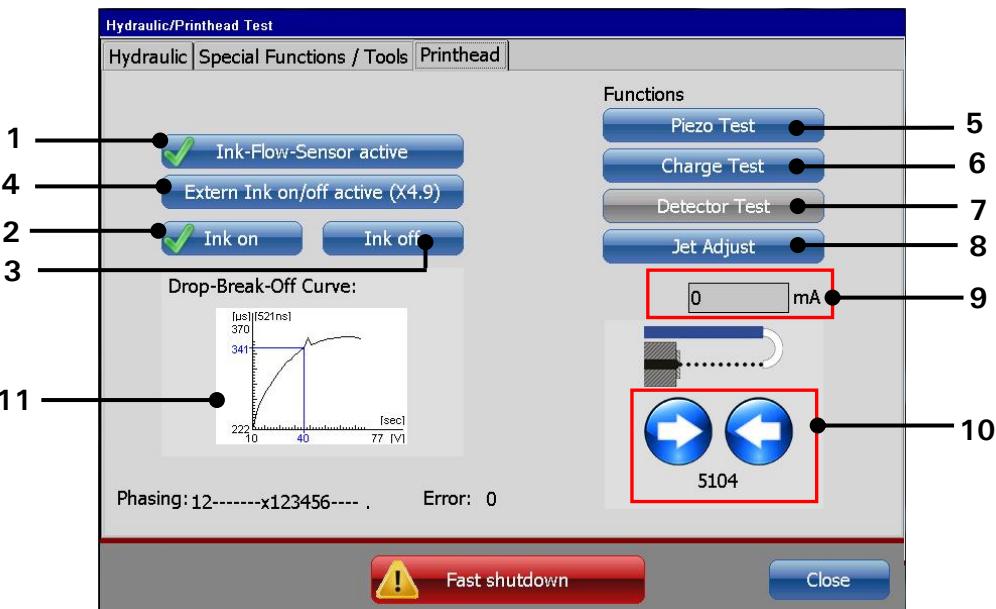
- |  |                            |
|--|----------------------------|
| 1 – Drop-down menu <ServiceFunctions>    | 7 – Tab bar                |
| 2 – Option <Hydraulic>                   | 8 – <Close> Button         |
| 3 – Direct button (Shortcut) <Hydraulic> | 9 – <Fast shutdown> Button |
| 4 – Option <Printhead>                   | 10 – Confirmation prompt   |
| 5 – Direct button (Shortcut) <Printhead> | 11 – Button <OK>           |
| 6 – Dialog box <Hydraulic/Printh. Test>  | 12 – Button <Cancel>       |

### 7.4.3 Printhead functions

On the <Print head> tab the following functions are available:

- Ink-Flow-Sensor active
- Extern Ink on/off active
- Ink on/Ink off
- Piezo Test
- Charge Test
- Detector Test
- Jet Adjust

**Figure 73** Printhead tab



- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| 1 – <Ink-Flow-sensor active> Button   | 6 – <Charge Test> Button             |
| 2 – <Ink on> Button                   | 7 – <Detector Test> Button           |
| 3 – <Ink off> Button                  | 8 – <Jet Adjust> Button              |
| 4 – <Extern Ink on/off active> Button | 9 – Current during open/close nozzle |
| 5 – <Piezo Test> Button               | 10 – Open/Close nozzle stepwise      |
| 6 – <Charge Test> Button              | 11 – Display <Drop-Break-Off-Curve>  |

#### 7.4.3.1 Jet monitoring - Ink-Flow-Sensor active

The ink jet monitoring provides highest operating reliability due to the additional monitoring of the ink backflow. The full automatic monitoring turns off the ink jet as soon as the ink backflow is interrupted. The nozzle seal will be closed automatically and head impurities are therefore prevented.

By pressing the button <**Ink-Flow-Sensor active**> (1) the jet monitoring is turned on or off.

An activated jet monitoring is designated by a on the button.

#### 7.4.3.2 Ink on/off

With the two buttons <Ink on> (2) and <Ink off> (3) the ink delivery to the nozzle is turned on or off.

The status of the ink delivery is designated by a  on the accordant button.

This function can be generated also „remote-controlled“ by an electronical contact (see also the informations in the following chapter).

#### 7.4.3.3 Extern Ink on/off

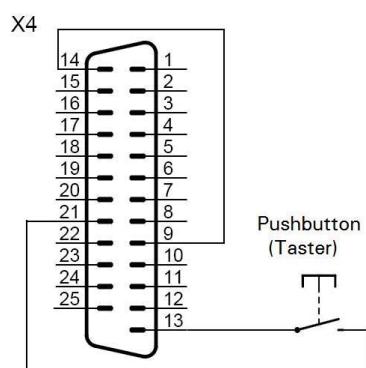
During cleaning works at the print head it can be helpful (e.g. in case of a long umbilical) that the ink delivery can be turned on/off externally. The JET3up requires impulses for the control. This can be reached with a bridge between pin 9 and 14 and a switch contact (push button) at the pins 21 and 13 of the I/O interface **X4**.

Example:

First impulse = switches off the ink delivery

Second impulse = switches on again the ink delivery

Diagram/Plug assignment:



The signal which is pending at the interface is only analyzed by the JET3up if the function <**Extern Ink on/off active**> (4) is turned on.

If the function is activated, it is shown by a  on the display.

#### 7.4.3.4 Piezo test and charge test



##### INFORMATION

You will find further information in the separate document  
**Service manual!**

#### 7.4.3.5 Jet adjustment



##### Dangerous electrical voltage in the printhead!

The jet adjustment can only be carried out by authorized staff or Leibinger service technicians!



##### Inflammable (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head and the device!



##### Risk of injury!

Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!



##### Risk of injury!

Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

This function provides a support for a required correction of the jet position.

##### Proceeding:



##### Information

For further information please contact the Leibinger-Service Department or your authorized dealer!

#### 7.4.4 Special functions and tools

Under the tab <Special Functions/Tools> the following functions are available:

- |                   |                                      |
|-------------------|--------------------------------------|
| ■ Pressureless    | ■ Calc last PG Drops                 |
| ■ Constant Bleed  | ■ Mix only Ink                       |
| ■ Deplete Ink     | ■ Mix only Solvent                   |
| ■ Deplete Solvent | ■ Fill up Routine                    |
| ■ Calc Delay Time | ■ Ignore error messages and warnings |

##### 7.4.4.1 Constant bleed



###### ATTENTION

The function constant bleeding is only activated or functional under the following device conditions:

- Ink suction is turned on
- Nozzle is closed
- Head cover is removed

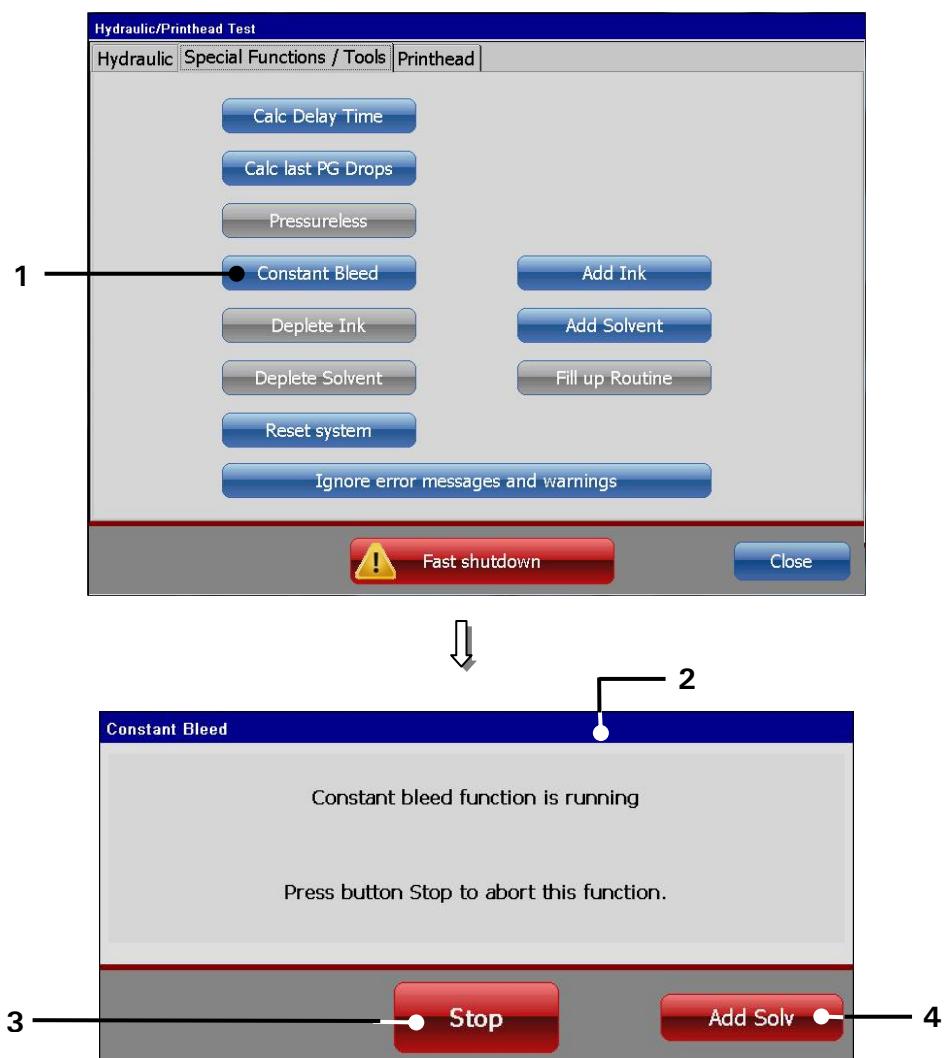
By pressing the button <Constant Bleed> (1) the constant bleeding is started. During the process the message „Constant Bleed“ (2) is displayed. The bleeding can be canceled any time by pressing on the button <Stop> (3). During this process the visco pump is activated for 3 sec. every minute to ensure a purging of the pump.

With the button <Add Solv> (4) you can add only solvent. This function provides specially filling operations to bleed e.g. the solvent tube or to set the viscosity of the ink faster to a lower value.



###### ATTENTION

By adding solvent the ink can be diluted too strong. Therefore this function should only be carried out by qualified personnel.

**Figure 74 Constant bleed**

1 – &lt;Constant Bleed&gt; Button

2 – &lt;Constant Bleed&gt; Message

3 – &lt;Stop&gt; Button

4 – &lt;Add Solv.&gt;Button

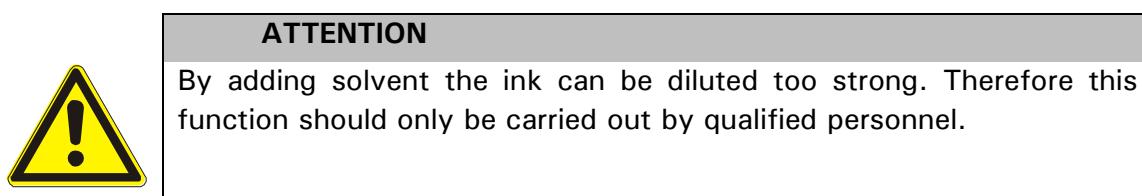
#### 7.4.4.2 Mix only ink/sovent

With the two buttons <Mix only Ink > (1) and <Mix only Solvent > (2) only ink or solvent can be supplied to the hydraulic circuit.

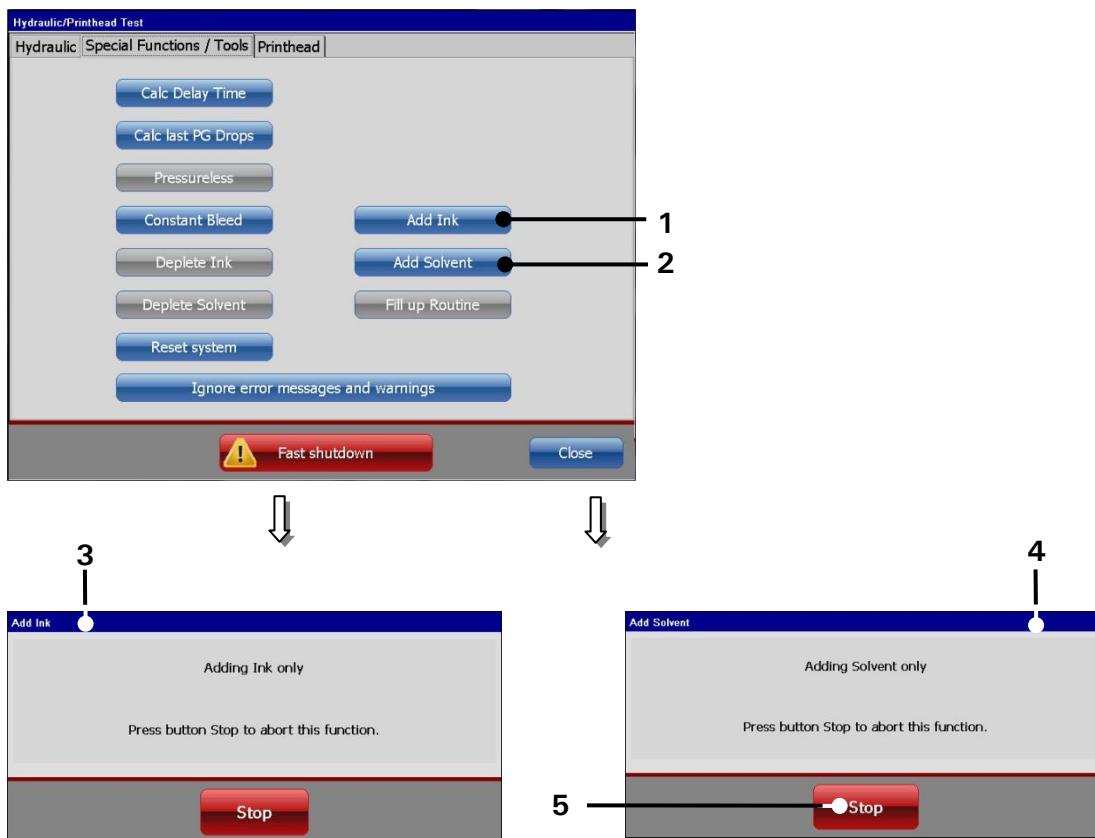
These functions allow to set the viscosity of the ink fast to a lower or higher value.

The execution of addition of the selected medium is displayed by an accordant message (3).

With the button <Stop> (4) the process will be finished.



**Figure 75 Add only ink/solvent**



- 1 – <Mix Ink> Button
- 2 – <Add Solvent> Button
- 3 – Message <Adding ink only>

- 4 – Message <Adding solvent only>
- 5 – Button <Stop>

#### 7.4.4.3 Ignore all error messages and alarm messages

With this function the error- and alarm messages of the device e.g. for starting up, filling, or for service works can be canceled.

By pressing the button <Ignore error messages- and warnings> the function is turned on or off.

If the function is activated, it is marked by a  on the display.

#### 7.4.5 Data logging - Log files

Several printer parameters and all error messages are saved in a log file every minute and for the last 72 hours. This log file offers a good support for diagnostic and troubleshooting. The current logfile can be exported either to a network storage device or an USB stick.

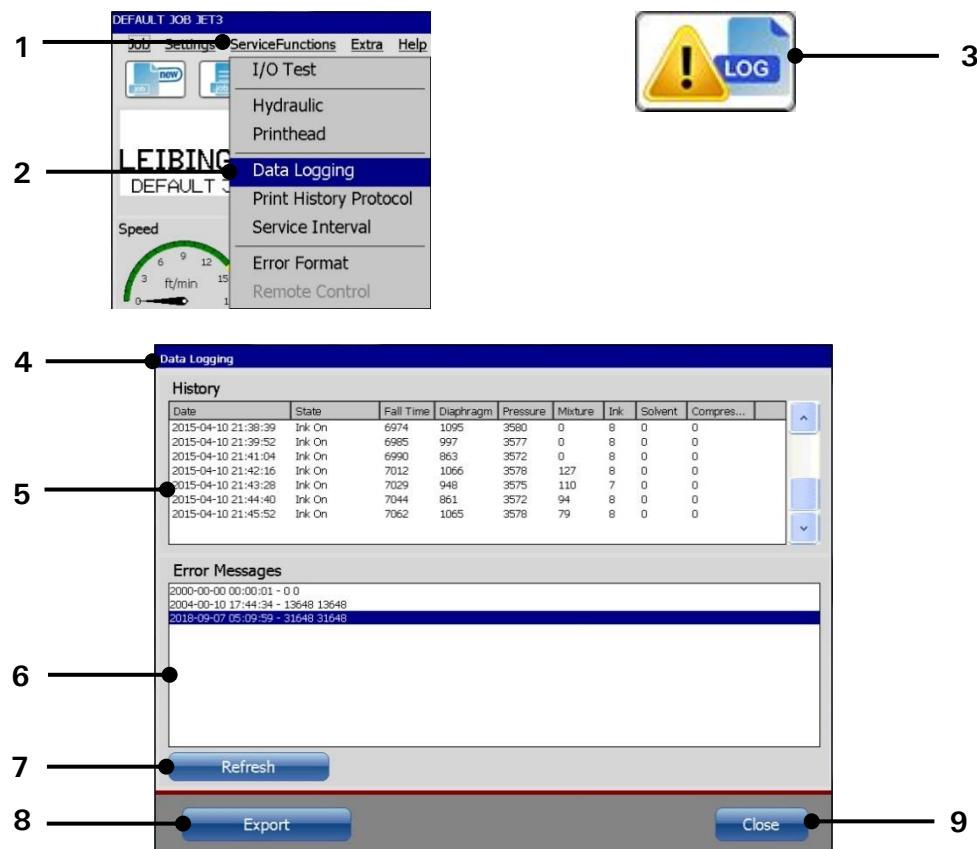
##### 7.4.5.1 Data logging dialog box

The <Data Logging> dialog box (4) can be accessed either through the <Data Logging> option (2) on the <ServiceFunctions> drop-down list(1) or the accordant direct button (shortcut) (3).

A click on the <Refresh> button (4) updates the data displayed. With the <Export> button the data is exported either to a network storage device or an USB stick. For details about exporting data see next chapter.

The <Close button> closes the dialog box.

**Figure 76 Data logging - Dialog box**



- |   |                                 |
|---|---------------------------------|
| 1 – Drop-down menu <Service Functions>      | ..6 – <Error Messages> protocol |
| 2 – Option <Data Logging>                   | 7 – <Refresh> Button            |
| 3 – Direct button (Shortcut) <Data logging> | 8 – <Export> Button             |
| 4 – <Data Logging> dialog box               | 9 – <Close> Button              |
| 5 – <Parameter History> protocol            |                                 |

#### 7.4.5.2 Export log file

The displayed information can be exported to an external memory device like an USB-stick or a network storage device.



##### Important

In order to store the data on a network storage device the network path settings have to be configured. Please see chapter **7.3.1.7 Network ID** for details.

The socket for the USB stick is located on the reverse side of the printer. Please see chapter **5.5 Interfaces** for details.



##### Important

In addition the current system information file will also be exported. Please see chapter **7.6.1 <Information> dialog box** for details about the system information file.

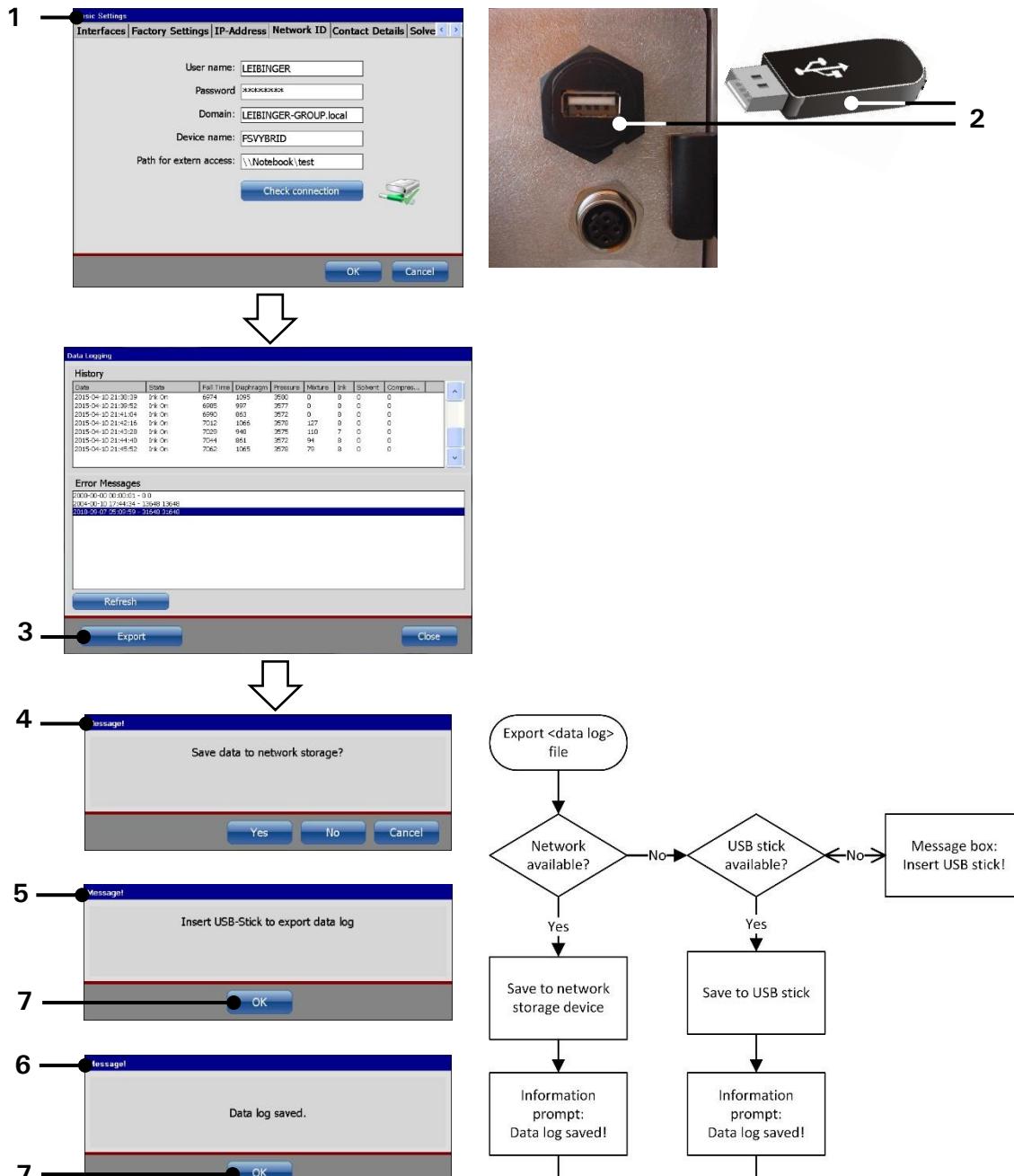
#### Proceeding:

- Configure the <**Network ID**> of the printer in the <**Basic settings**> (1)
- and/or
- Plug an USB-Stick into the USB-socket of the device (2).
- Press the button <**Export**> (3).
- If there is a network ID configured and the network connection is activated a confirmation prompt will pop up asking whether the data shall be saved to the network storage device (4). If this message is confirmed the information will be stored on the network storage device. If the message is not confirmed it is checked whether an USB stick is available. If no USB stick is available a respective message box pops up (5). With an USB stick inserted the information is stored to the USB stick.
- When the data is saved on the connected medium a confirmation message pops up (6).
- The message has to be confirmed with the <**OK**> button (7).
- The files are saved in a folder named **JET3UP\_Log**. If this folder does not already exist it will be created by the <**Export**> function.



##### Information

The number of entries in the log files is limited. The maximum number is 7200. The logging interval is 1 Minute. Therefore the log files stored in the printer's memory cover only 3 days. It is recommended exporting the log data on a regular basis. **There will be no warning messages!** The storage works as a circular buffer. When 100% is reached the memory is overwritten, starting with oldest entries.

**Figure 77 Export data log file**

1 – &lt;Network ID&gt; Configuration

2 – USB socket / USB stick

3 – &lt;Export&gt; button

4 – Confirmation prompt &lt;Network storage&gt;

5 – Message box &lt;Insert USB stick&gt;

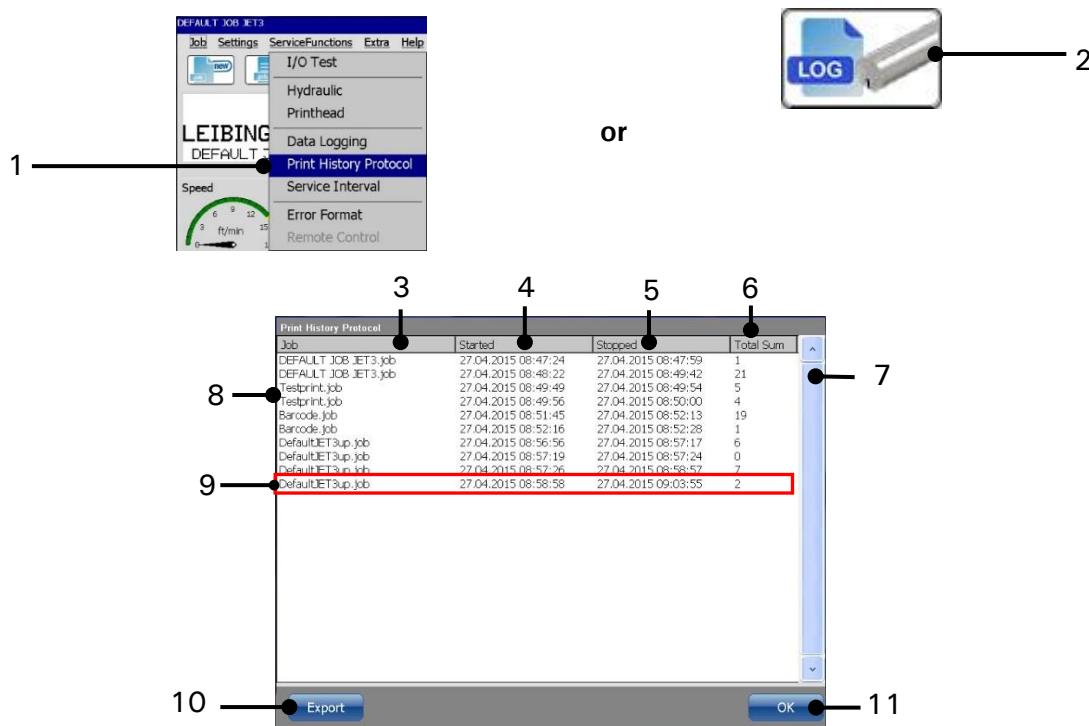
6 – Message box saved&lt;Data log&gt;

7 – &lt;OK&gt; button

#### 7.4.6 Print history protocol

The <Print History protocol> shows all print jobs printed and provides information about the start and stop time and the total number of printouts per print job..

**Figure 78** Print historie protocol



- 1 – Option <Print History Protocol>
- 2 – Shortcut <Print History Protocol>
- 3 – Print job name
- 4 – Time stamp: first start of the print job
- 5 – Time stamp: last stop of the print job
- 6 – Total printouts of the selected print job

- 7 – Vertical scrollbar
- 8 – List of printed jobs
- 9 – Print event
- 10 – <Export> Button
- 11 – <OK> Button

#### Proceeding:

- Open the <Print History Protocol> of the printer either by clicking on the respective option on the <ServiceFunctions> drop-down list (1) or through the respective direct button (shortcut icon) (2).
- The <Print History Protocol> shows a list of the last 1000 print events (8).
- Each entry shows the name of the print job (3), the date and time when it was started first (4) and the date and time when it was stopped last (5). The <Total sum> column shows the total number of print outs (6) for the respective event. The vertical scrollbar allows to scroll through the list (7).
- A <Print event> (9) is defined by a <PrintStart> signal and a <PrintStop> signal.

#### 7.4.6.1 Export <Print History Protocol>

The displayed information can be exported to an external memory device like an USB-stick or a network storage device. There is always the complete information about each print job exported.



##### Important

In order to store the data on a network storage device the network path settings have to be configured. Please see chapter **7.3.1.7 Network ID** for details.

The socket for the USB stick is located on the reverse side of the printer. Please see chapter **5.5 Interfaces** for details.

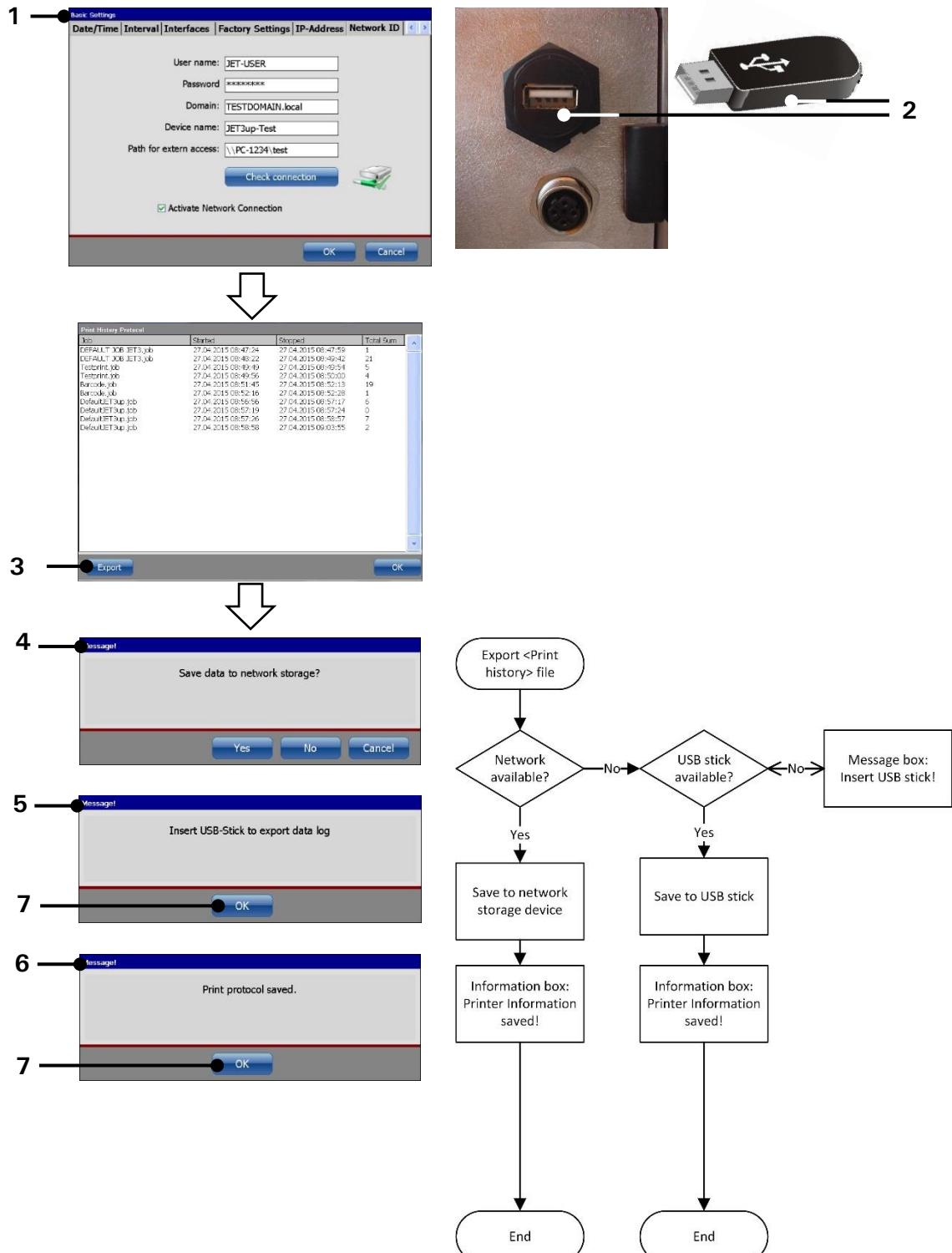
##### Proceeding:

- Configure the <**Network ID**> of the printer in the <**Basic settings**> (1) and/or
- Plug an USB-Stick into the USB-socket of the device (2).
- Press the button <**Export**> (3).
- If there is a network ID configured and the network connection is activated a confirmation prompt will pop up asking whether the data shall be saved to the network storage device (4). If this message is confirmed the information will be stored on the network storage device. If the message is not confirmed it is checked whether an USB stick is available. If no USB stick is available a respective message box pops up (5). With an USB stick inserted the information is stored to the USB stick.
- When saving is finished a confirmation messages pop up (6)
- The message has to be confirmed with the <**OK**> button (7).
- The files are saved in a folder named **JET3UP\_Log**. If this folder does not already exist it will be created by the <**Export**> function.



##### Information

The number of print events that are recorded is limited. The maximum number of recorded events is 1000. The memory works as a circular buffer. When the maximum of entries allowed is reached the oldest entries will be overwritten. Therefore it is recommended exporting the data on a regular basis in order to have a backup. It is possible to activate a warning message. With the warning activated a message box advising the user to export the <**Print History Protocol**> before the oldest entries are overwritten. Please see chapter **7.3.1.5 Factory Settings** for details.

**Figure 79 Export print history file**

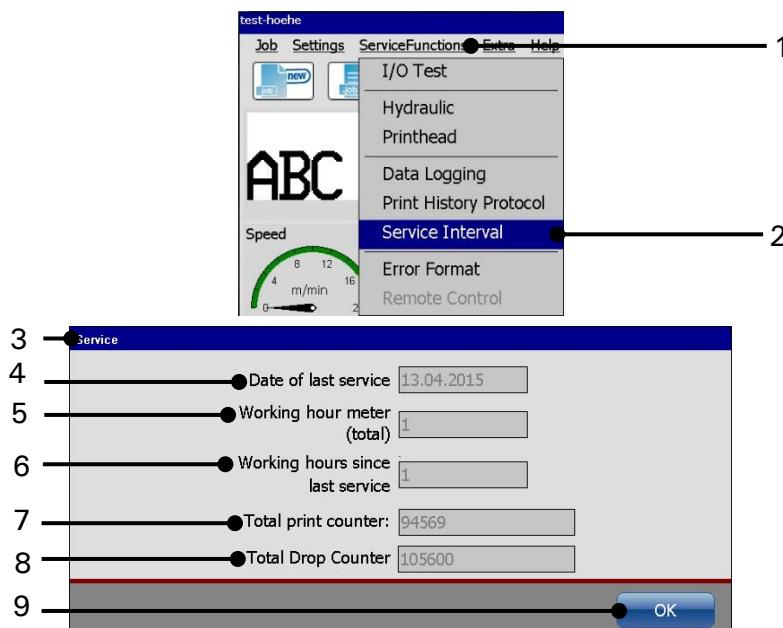
#### 7.4.7 Service interval

The option <Service Interval> (2) opens the dialog box "Service" (3). The dialog box shows the following parameters:

- The date of the last inspection (4)
- The total amount of operation hours (5)
- Operation hours since the last inspection (6)
- Total number of prints counter (7)
- Total number of drops counter (7). The accuracy of the drop counter is +/- 100 drops.

The button <OK> (8) closes the window.

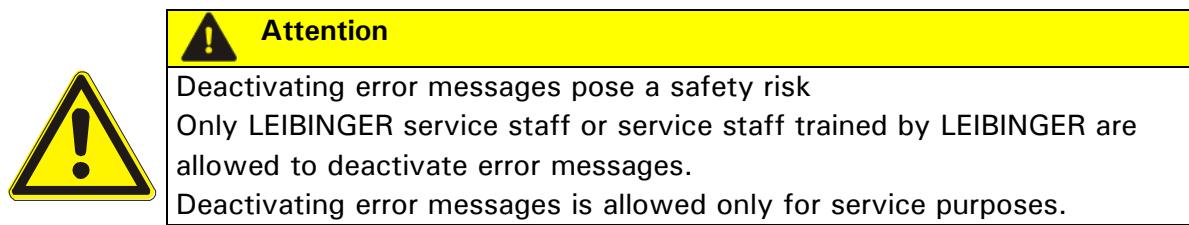
**Figure 80 Service interval dialog box**



- 1 – Drop-down menu  
<ServiceFunctions>  
2 – Option <Service Interval>  
3 – Dialog box <Service>  
4 – <Date of last service>  
5 – <Working hour meter>

- 6 – <Working hours since last service>  
7 – <Total print counter>  
8 – <Total drop counte>  
9 – <OK> Button

#### 7.4.8 Error Format



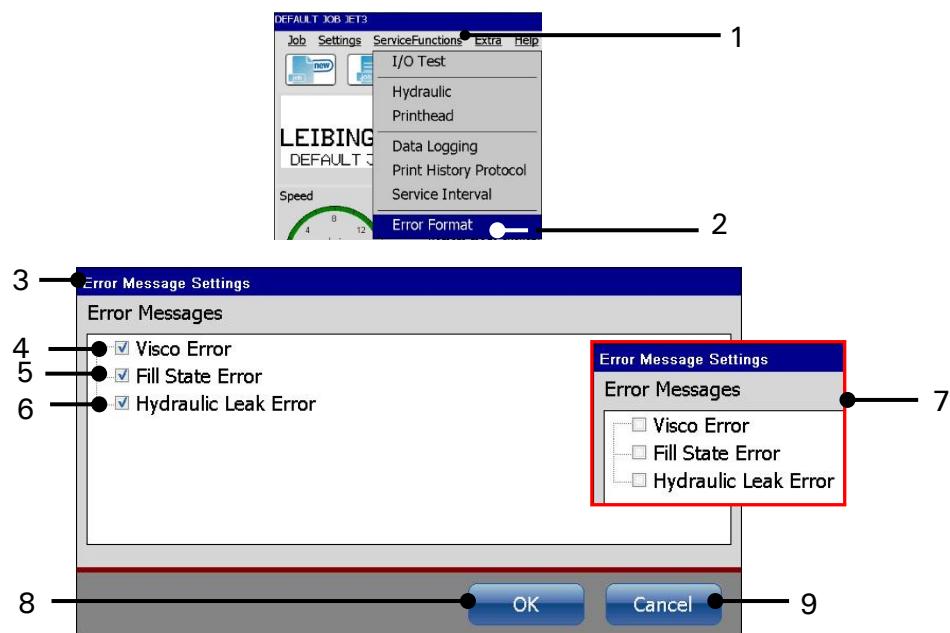
With the function <Error Format> it is possible to deactivate certain error messages. **This function is meant only for service purposes!**

The option <Error Format> (2) opens the dialog box <Error Message Settings> (3). The dialog box shows the following parameters:

- Visco Error (4)
- Fill State Error (5)
- Hydraulic Leak Error (6)

With the <OK> button (8) all changes are saved and the dialog box is closed. The <Cancel> button (9) discards all changes and closes the dialog box.

**Figure 81 Dialog box Error Message Settings**



- |  |                                   |
|--|-----------------------------------|
| 1 – Drop-down menu <Service functions> | 5 – Option <Fill State Error>     |
| 2 – Option <Error Format>              | 6 – Option <Hydraulic Leak Error> |
| 3 – Dialog box <Error Message Setting> | 7 – Deactivated error messages    |
| 4 – Option <Visco Error>               | 8 – <OK> Button                   |
|  | 9 – <Abbrechen> Button            |

### Approach

Error messages are activated by default. This is indicated with a tick in the respective checkboxes (4-6).

With a click on a checkbox the tick is removed (7). Closing the dialog box with the <OK> button (7) will save the changes and the respective error message is deactivated. This function is only meant for service purposes. After finishing service work the error messages **must** be activated again.

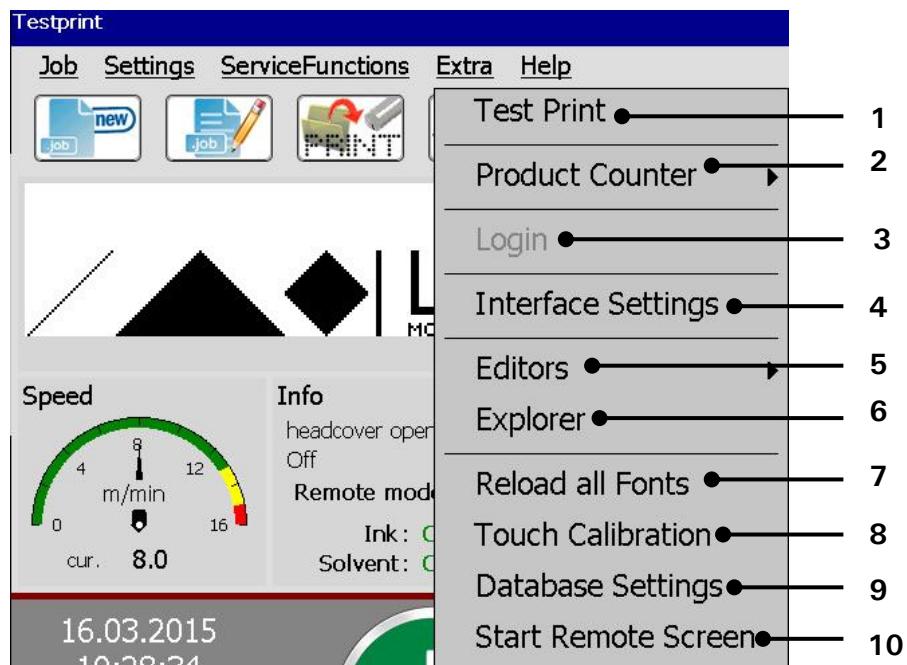
**The error messages will be activated automatically with each start of the printer!**

## 7.5 Extra

A click on the menu entry <Extra> in the menu bar of the main window opens the drop-down menu <Extra>. The following options are available:

- |                      |                         |                            |
|----------------------|-------------------------|----------------------------|
| ■ Test Print         | ■ Product Counter       | ■ Login                    |
| ■ Interface Settings | ■ Editors – Font editor | ■ Editors – Graphic editor |
| ■ Explorer           | ■ Reload all Fonts      | ■ Touch Calibration        |
| ■ Database Settings  | ■ Start Remote Screen   |                            |

**Figure 82** Drop-down menu <Extra>



- 1 – Load <Test Print>
- 2 – <Product counter> options
- 3 – Open <Login> dialog box
- 4 – Open <Interface settings>
- 5 – <Editors> options

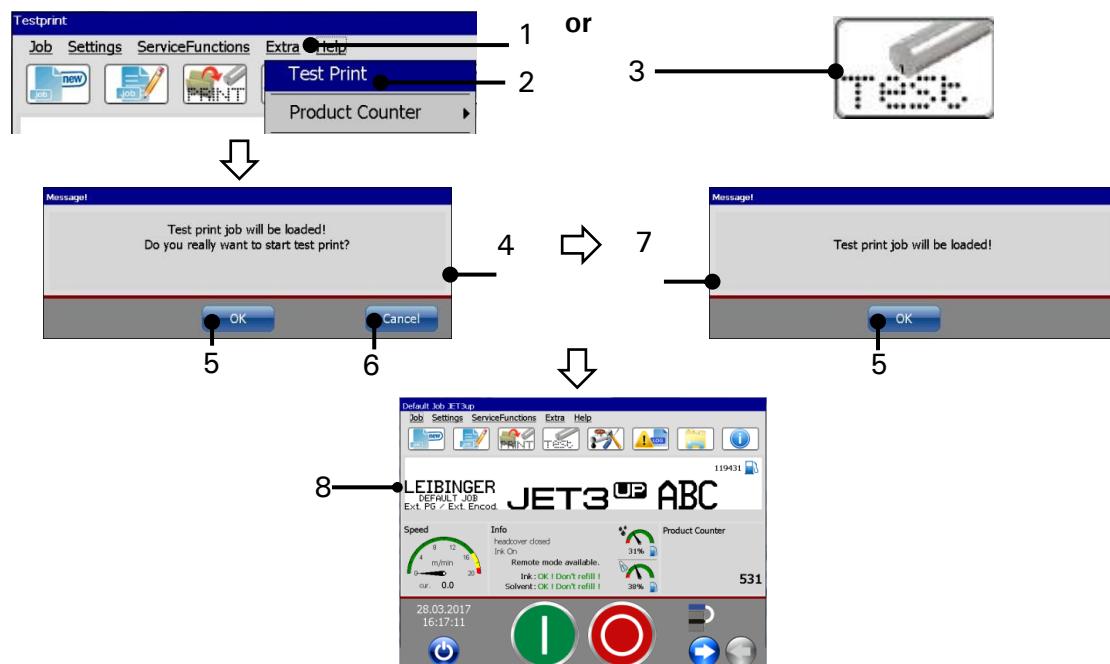
- 6 – Start <Explorer>
- 7 – <Reload all font> option
- 8 – Start <Touch calibration>
- 9 – Open <Database settings>
- 10 – Start VNC server/Remote screen

### 7.5.1 Test print

With the option <Test Print> a defined default job with set internal PrintGo-source is loaded. This job can be used by the operator as basis to create a new job or to control the print function of the JET3up.

**The default job is loaded as follows:**

**Figure 83** Test print (Load default job)



- |  |                               |
|--|-------------------------------|
| 1 – Drop-down menu <Extra>               | 5 – <OK> button               |
| 2 – Option <Test Print>                  | 6 – <Cancel> button           |
| 3 – Direct button (shortcut) <Testprint> | 7 – <Job loaded> confirmation |
| 4 – Confirmation prompt                  | 8 – Loaded <Test Print>       |
- Click on the menu item <Extra> (1) and select the option <Test Print> (2) or click on the accordant direct buttons (shortcut) (3).
  - A **confirmation prompt** (4), pops up
  - Confirm by pressing the <OK> button (5) or cancel the process with the <Cancel> button (6).
  - A **message** (7), that the test print-job is loaded pops up.
  - Confirm the message with the <OK> button (5). The job is now loaded and ready for to be printed.



#### ATTENTION

- For the <Test Print> job all signals are generated internally and no sensor or encoder is required. Therefore, if the test print is loaded while <print start> is activated, the JET3up starts immediately with the printing process.
- **Caution! Ink escapes immediately from the print head**

## Proceeding

- Click on the menu item <Extra> (1) and select the option <Test Print> (2) or click on the accordant direct buttons (shortcut) (3).
- A **confirmation prompt** (4), pops up
- Confirm by pressing the <OK> button (5) or cancel the process with the <Cancel> button (6).
- A **message** (7), that the test print-job is loaded pops up.
- Confirm the message with the <OK> button (5). The job is now loaded and ready for to be printed.

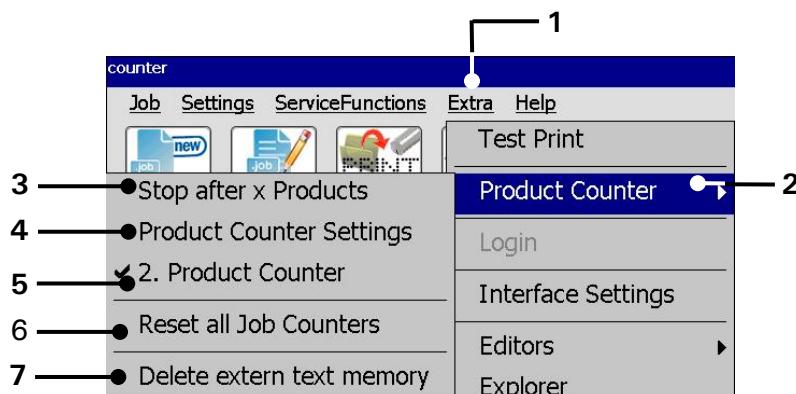
### 7.5.2 Product counter

For the production counter options select the menu item <Product Counter> (2) in the <Extra> drop down menu (1). Select an option from the submenu.

The following options are available:

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>■ Stop after x Products</li> <li>■ Reset all Job counters</li> </ul> | <ul style="list-style-type: none"> <li>■ Product Counter Settings</li> <li>■ Delete extern text memory</li> </ul> | <ul style="list-style-type: none"> <li>■ 2. Product Counter</li> </ul> |
|---|---|--|

**Figure 84** Open product counter dialog box



- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 1 – Drop down menu <Extra>          | 5 – Option <2. product counter>     |
| 2 – Menu item <Product Counter>     | 6 – Option <Reset all Job counters> |
| 3 – Option <Stop after x Products>  | 7 – Option <Delete ExternText       |
| 4 – Open <Product Counter Settings> | memory>                             |

### 7.5.2.1 Stop after x products - Pre-defined print stop

With the option <**Stop after x Products**> the amount of prints will be defined after the LEIBINGER JET3up should release an automatic print stop.

If a print stop has been pre-defined the value is displayed in the status field <**Production Counter**> of the main window.



#### ATTENTION

Before the re-start of the production, the production counter has to be necessarily reset to get a correct result.

Proceeding (see figure 85):

- Press the option <**Stop after x Products**> (2).
- The dialog box <**Stop at x Products**> (3) pops up.
- Set the value with the **Arrow keys** (4). The value of the counter will be increased or reduced in single steps by pressing the accordant buttons.  
or
- Click in the **input field** (5). The **Numeric keypad** (6) opens for input.



#### INFORMATION

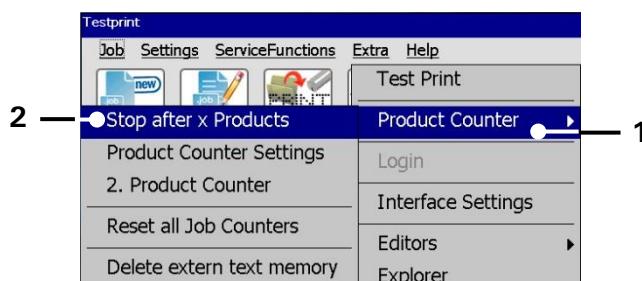
You will find further information regarding the working with Numeric keypads in the chapter **6.4.1 Numeric keypad**

- Confirm the value set by pressing the <**Set**> button (7) or cancel the process with the <**Cancel**> button (8).
- The value set is displayed in the <**Product Counter**> status field (9) of the main window. A pre-defined print stop setting is marked with a red frame for better visualization.
- If the x-value set is equal or lower than the value set for the 1. production counter the input will be ignored.

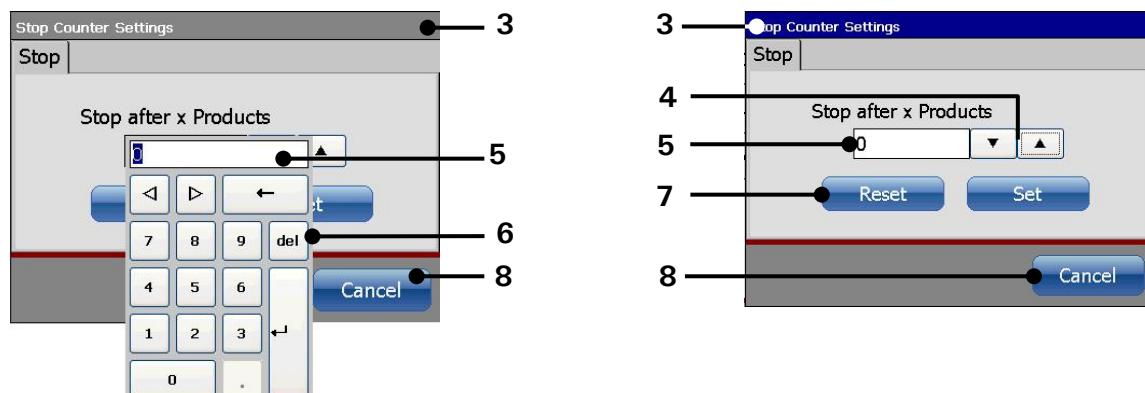
**Figure 85 Stop after x products - pre-defined print stop**

Select <Stop after x Products / 1 or 2 product counters

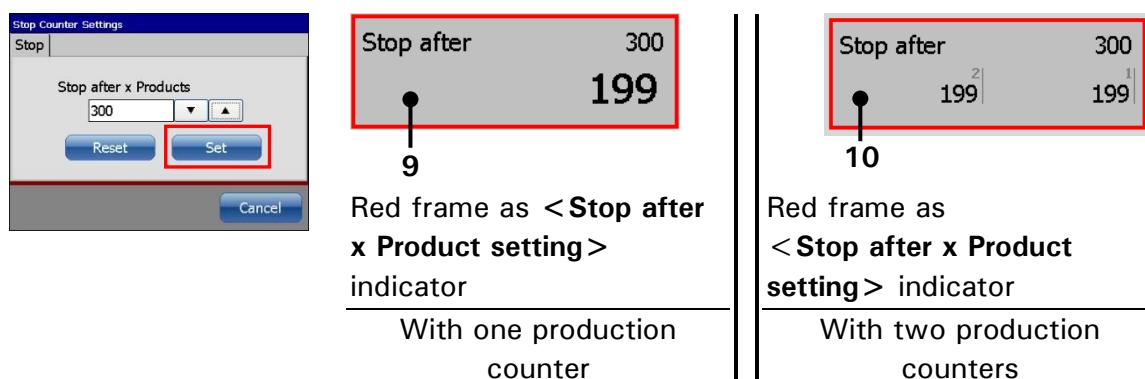
Basically this function works the same way no matter whether there are one or two product counters defined. A second product counter does not have any effect on this function. The only difference is the look of the status field.



The dialog box of the <Stop after x Products> function is a submenu of the <Product counter> menu.



The parameter can either be set with the virtual keyboard or with the arrow keys.



The settings are confirmed with the <Set> button.

Depending on whether there is a second production counter defined or not the status field looks different.

- 1 – <Product Counter> Options
- 2 – <Stop after x Products> Option
- 3 – Dialog box <Stop at xProducts>
- 4 – Arrow keys
- 5 – Input field

- 6 – Numeric keypad
- 7 – <Set> Button
- 8 – <Cancel> Button
- 9 – Sta. field <Prod. Counter> 1 counter
- 10 – Sta. field <Prod. Counter> 2 counter

### 7.5.2.2 Product counter settings

**Proceeding** (see Figure 86 and Figure 87)

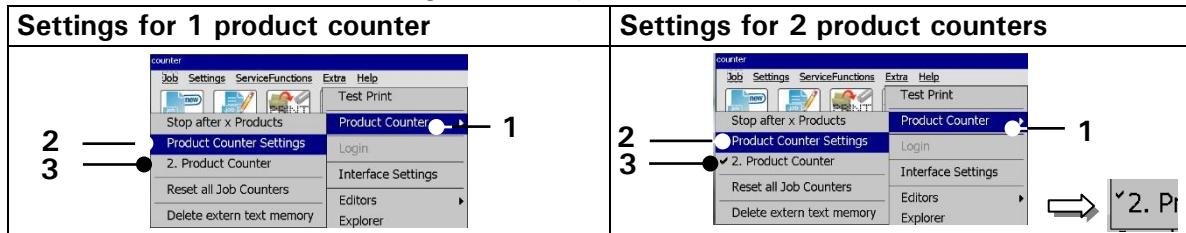
- Press the option <Product Counter Settings> (2).
- The window <Product Counter Settings> is displayed. Depending on how many product counters are defined (1 or 2) (6) you can see 1 or two tabs.

#### 1. Reset counter (Figure 86)

- Press the button <Reset> (4) to reset the counter or cancel the process with the button <Cancel> (6).
  - If there are 2 product counters defined each of them has to be reset separately.
- Note:** There will be no further confirmation prompt.
- The value „0“ is now displayed in the status field <Production Counter> of the main dialog box.

**Figure 86 Product Counter Settings - Reset**

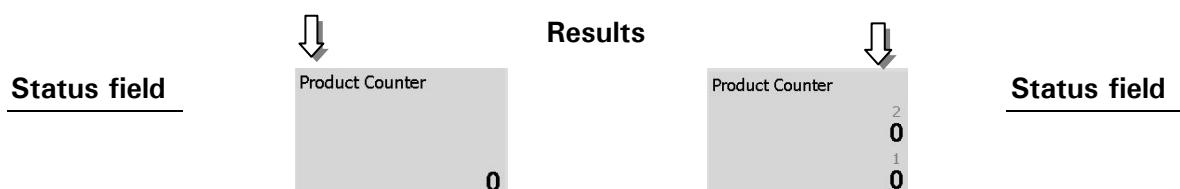
Select Product Counter Settings / 1 or 2 product counters



Reset one product counter	Reset two product counters

To reset the product counter push the <Reset> button. The dialog box will close and the product counter is set to 0.

Each product counter has to be reset separately. Pushing the <Reset> button will close the dialog box and set the respective product counter to 0.



- 1 – Options <Product Counter>  
 2 – Option <Product Counter Settings>  
 3 – Option <2. Product Counter> with indicator  
 4 – <Reset> Button  
 5 – <Set> Button  
 6 – <Cancel> Button

**ATTENTION**

Please check whether there are counter objects (job counters) defined for the currently loaded job. If there are counter objects (job counters) whose method for the <Counter reset> is set to „**production counter**“, they will be also reset. The reset method “**production counter**” for <Counter reset> is only available for the 1. product counter.  
You will find further information regarding the counter reset methods in the chapter **8.7.3.1.10 Counter reset (methods)**

**2. Change counter values (Figure 87)**

- Change the value of the counter with the **arrow keys** (7). The value of the counter is increased or reduced in single steps by pressing the accordant buttons.  
**Or**
- Click in the **Counter input field** (4). The **Numeric keypad** (8) opens for input.
- If there are 2 product counters defined each of them has to be set separately. The product counter dialog box has to be re-opened for that procedure.

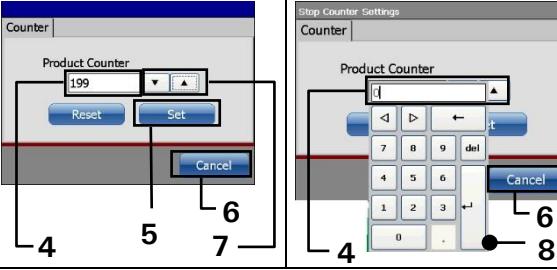
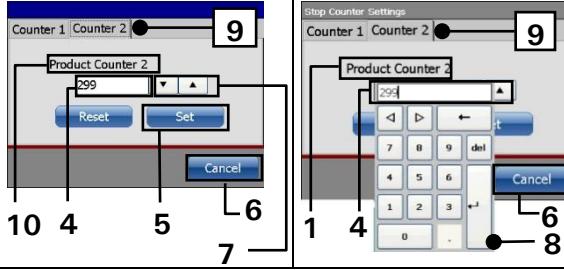
**INFORMATION**

You will find further information regarding the working with Numeric keypads in the chapter **6.4.1 Numeric keypad**

- Confirm the value change by pressing the button <**Set**> (5) or cancel the process with the button <**Cancel**> (6).
- The set value is now displayed in the status field <**Production Counter**> of the main window.
- This procedure has to be carried out for each product counter separately. The dialog box has to be re-opened to set the second product counter.

**Figure 87 Product Counter Settings – Change values**

Select Product Counter Settings / 1 or 2 product counters

Settings for 1 product counter	Settings for 2 product counters
	
<p><b>Set one product counter</b></p> 	<p><b>Set two product counters</b></p> 
<p>The counter can either be set with the arrow keys or with the virtual keyboard. Settings have to be confirmed with the <b>&lt;Set&gt;</b> button. To leave the dialog box without confirmation use the <b>&lt;Cancel&gt;</b> button.</p>	<p>The counters can either be set with the arrow keys or the virtual keyboard. Each counter has to be set separately. Settings have to be confirmed with the <b>&lt;Set&gt;</b> button. To leave the dialog box without confirmation use the <b>&lt;Cancel&gt;</b> button.</p>
<p style="font-size: 2em;">↓</p> <p><b>Results</b></p> <p><b>Status field</b>      <b>Product Counter</b> 199</p>	<p style="font-size: 2em;">↓</p> <p><b>Product Counter</b>      <b>Status field</b> 299 1 199</p>

- |  |   |
|--|---|
| 1 – Dialog box <Product Counter><br>2 – Option <Product Counter Settings><br>3 – Option <2. Product Counter> with indicator<br>4 – Counter input field<br>5 – <Set> Button | 6 – <Cancel> Button<br>7 – Arrow keys<br>8 – Numeric keypad<br>9 – Tabs for counter selection<br>10 – Counter indicator |
|--|---|

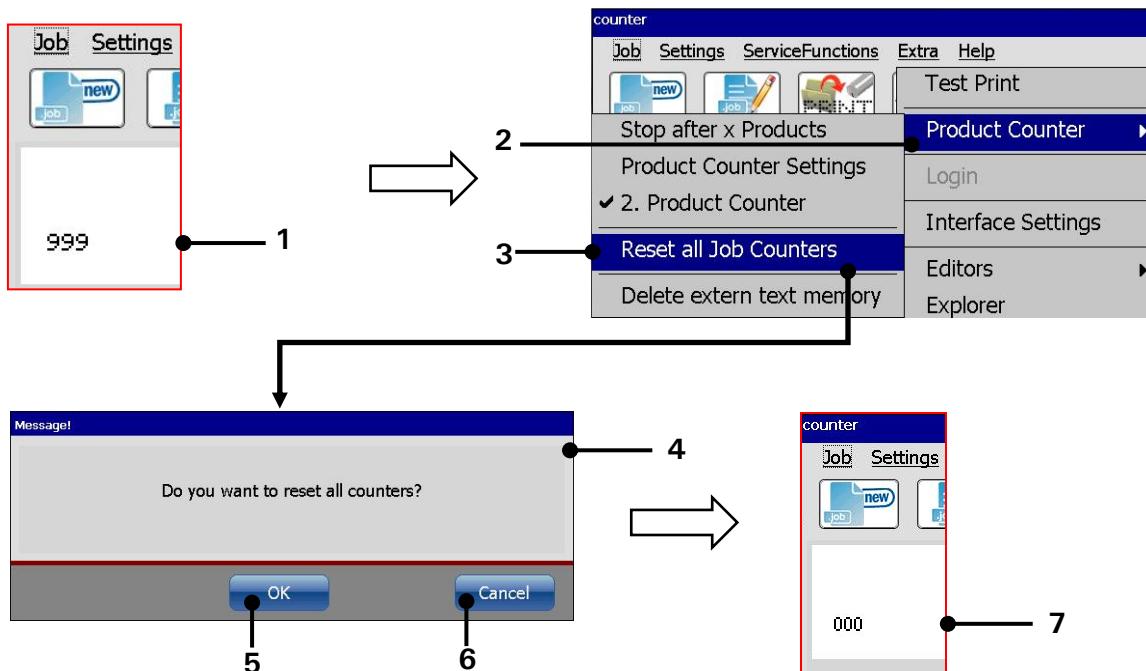
### 7.5.2.3 Reset all job counters

With this function all existing job counters in the currently loaded job will be reset.

#### Proceeding:

- **Example:** Print job with a counter object (job counter). The counter value is 999 (1).
- Press the option <Reset all Job Counters> (2) and (3).
- A confirmation prompt (4), is displayed.
- Confirm the reset by pressing the <OK> button (5) or cancel the process with the <Cancel> button (6).
- All job counters are reset (7)

**Figure 88 Product counter – Reset all counters**



- 1 – Example: Counter object/value:999  
 2 – Option <Product Counter>  
 3 – Option <Reset all Job Counters>  
 4 – <Confirmation prompt>

- 5 – <OK> Button  
 6 – <Cancel> Button  
 7 – Example: Counter object/value:000



#### ATTENTION

The reset of the job counter is irrevocably!

#### 7.5.2.4 Delete extern text memory

With this function the extern text memory will be reset. Please see chapter **8.7.5 Extern Text** for details.

#### 7.5.3 Login

With the **<Password function>** activated the **<Login>** option can be used in order to change the current user.

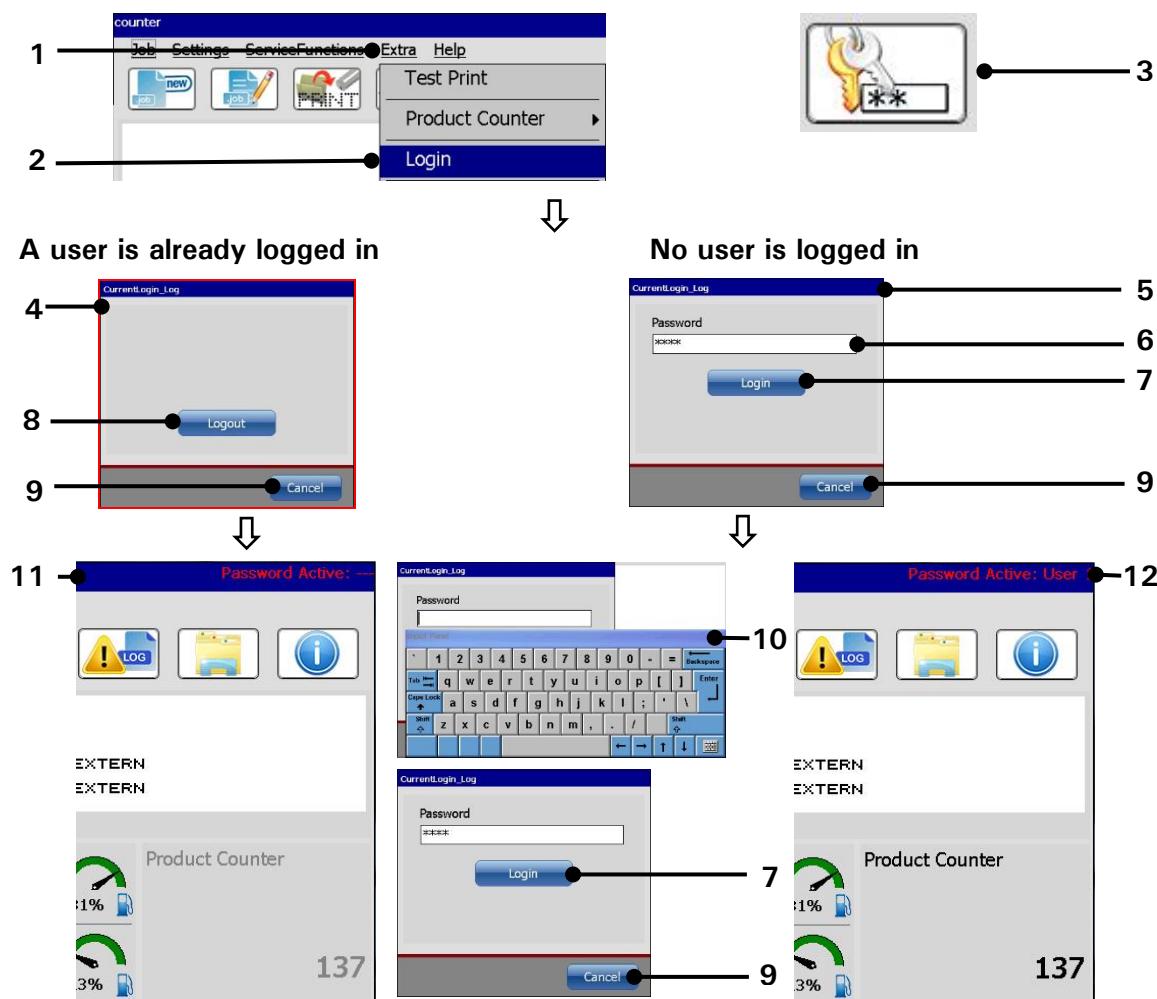
Please see chapter **7.3.5 Password settings and user permissions** for details about the **<Password function>**.

For the currently logged in user it is also possible to log out in order to prevent parameter changes by unauthorized staff.

The current state of the **<Password function>** is indicated in the upper right corner of the main window. When there is nothing indicated the password function is disabled.

##### 7.5.3.1 Log in / log out dialog box

**Figure 89** Log in / log out dialog box



1 – Drop-down-Menü <Extra>	7 – <Login> Button
2 – Open <Login> dialog box	8 – <Logout> Button
3 – Direct button (shortcut)	9 – <Cancel> Button
4 – Dialog box <Current login>	10 – Keyboard
5 – Title bar	11 – Password status indicator: logged out
6 – <Password> Input field	12 – Password status indicator: logged in

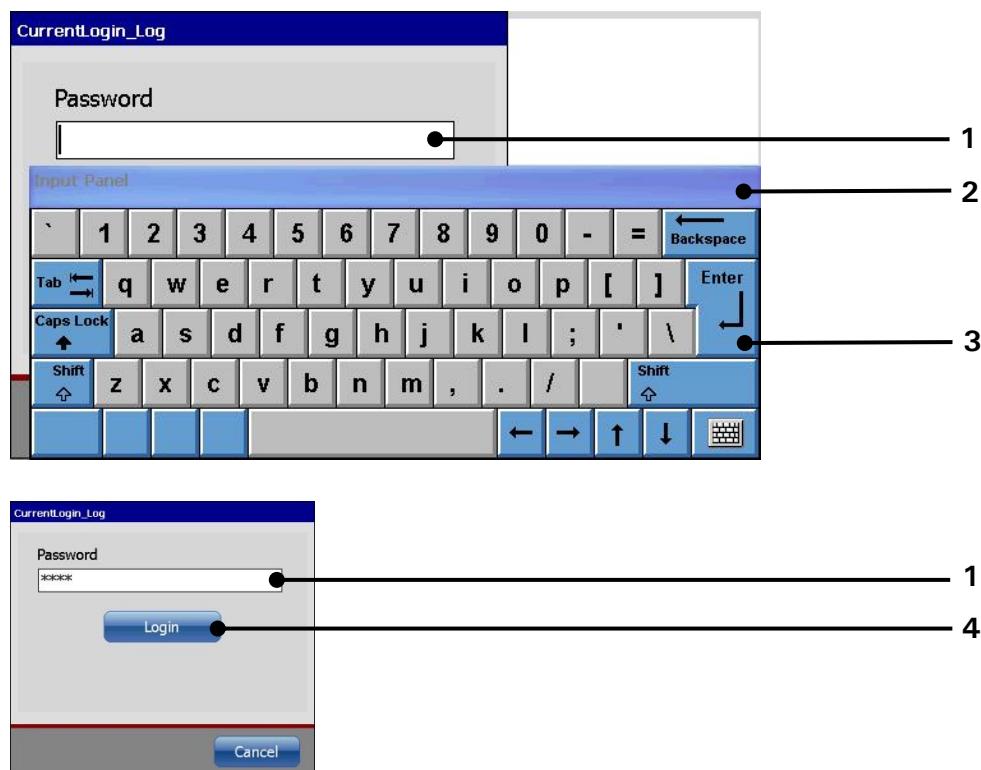
**Open login-/logout dialog box:**

- Select the <**Login**> (2) option from the drop-down menu <**Extra**> (1) or use the corresponding direct button (shortcut) (3).
- The <**Current login**> dialog box (4) pops up.
- In case a user is already logged in the <**Logout**> button (8) is displayed
- If there is no user logged in an input field for the user password is displayed (6).
- A click in the input field opens a keyboard field (10).
- Use the keyboard (10) to enter the (6) <**Password**> .
- Confirm the password input with the <**Login**> (7) button.
- Use the the<**Cancel**> button (9) in order to leave dialog box without changes.
- The current password status and a possibly logged in user is indicate in the upper right corner of the main window (11, 12).

### 7.5.3.2 Login or change user

- There can be assigned different user permissions to different users.  
The user password will determine which user permissions will be granted.
- A click in the <Input field> of the dialog box opens a <Keyboard field>.
- Enter a user password in the <Password input field> (1) using the software keyboard (2). <Password> (1) inputs are hidden by placeholders.
- Confirm inputs with the <Enter> (3) button of the keyboard.
- Press the <Login> (4) button. The user is logged in and the dialog box closes.
- The current password status is indicated in upper right corner of the main window.
- In order to change the user the current user has to log out. The new user has to log-in using his password following the described procedure.

Figure 90 Login user/change user)



1 – <Password> Input field  
2 – Keyboard field

3 – <Enter> Button  
4 – <Login> Button



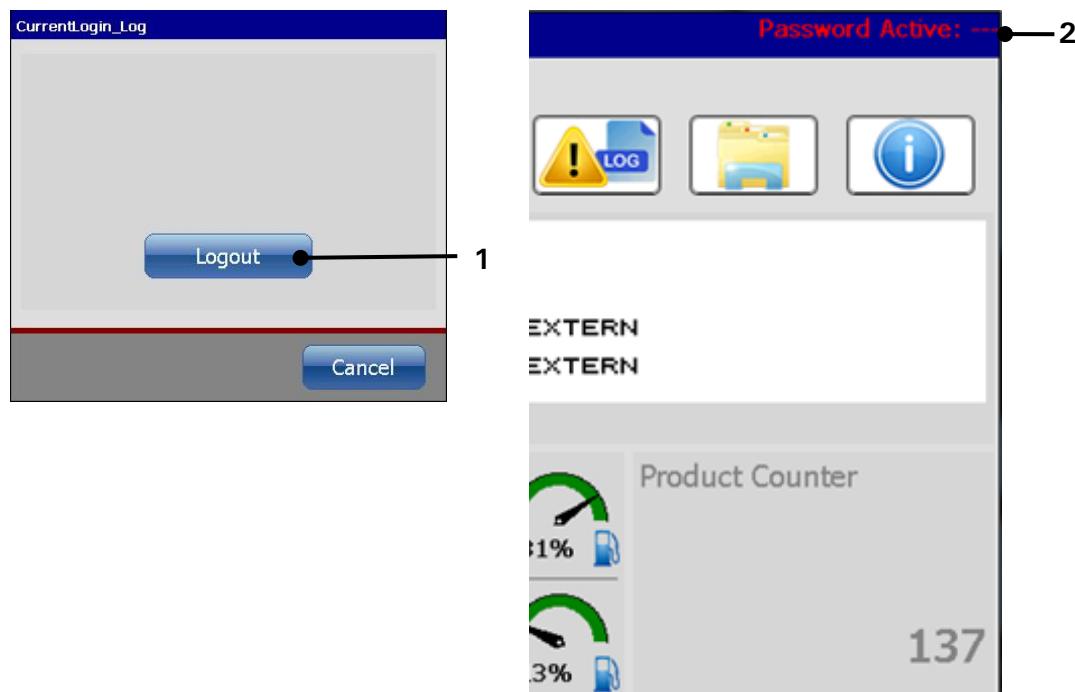
#### INFORMATION

You will find further information regarding the operation with keyboard in the chapter **6.4.2 Keyboard**  
For more details about the <Password function> and <User Permissions> please see chapter **7.3.5 Password settings and user permissions**.

### 7.5.3.3 User log out

- Press the <Logout> (1) button in order to log-out. The dialog box will be closed
- The <Password function> indicator in the main window displays the current state.

Figure 91 Login (User logout )



1 – <Logout> Button

2 – <Password> indicator in the main window



#### INFORMATION

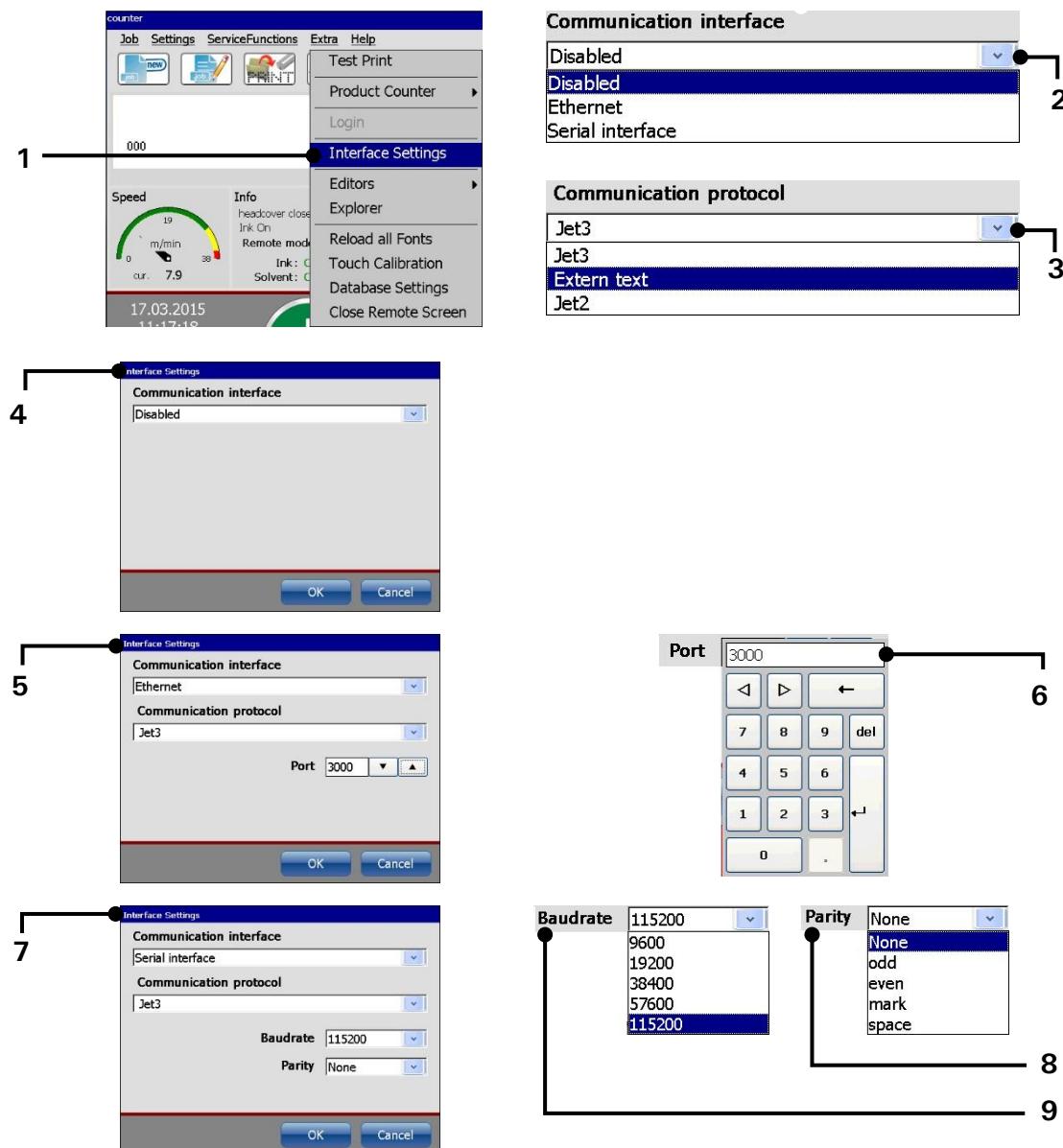
There is no password required for to log out.

In order to change user permissions or to disable the password function the user with the respective permissions has to log in.

#### 7.5.4 Interface settings

The dialog box <Interface settings> offers several options for the configuration of the available interfaces.

**Figure 92** Interface settings



- 1 – Open <Interface settings>
- 2 – Options for the <Communication interface>
- 3 – Options for the <Communication protocol>
- 4 – <Disabled> interfaces
- 5 – Settings <Ethernet> interface

- 6 – Port settings <Ethernet interface>
- 7 – Settings <Serial interface>
- 8 – Parity settings for <Serial interface>
- 9 – Baudrate settings for <Serial interface>

**Options: Communication interface (2)**

There is Ethernet interface and a serial interface available. Please see the chapter **5.5 Interfaces** for details about the hardware requirements. As an option it is also possible to disable all interfaces.

**Options: Communication protocol (3)**

There are three kinds of communication protocols available.

**JET3 protocol:**

This protocol is required for the JET3 script language

**ExternText protocol:**

This protocol is required for the <ExternText> function.

Please see chapter **8.7.5 Extern Text** for details.

**JET2 protocol:**

With this protocol JET2 software scripts can be used with the JET3up printer.

**Options: Disable interfaces (4)**

With this option selected the serial interface and the Ethernet interface will be disabled.

**Options: Ethernet interface (5)**

The default port for the Ethernet interface is 3000. This setting can be changed with the respective input field **(6)**. For an Ethernet connection also the IP address settings are important. Please see chapter **7.3.1.6 IP-Address** for details.

**Options: Serial interface (7)**

The serial interface offers 2 options for adjustments.

**Baud rate (8):**

The bit rate can be adjusted to an external sender/receiver. There are several bit rate settings available. Make sure that the bit rate selected corresponds with the settings of the external device.

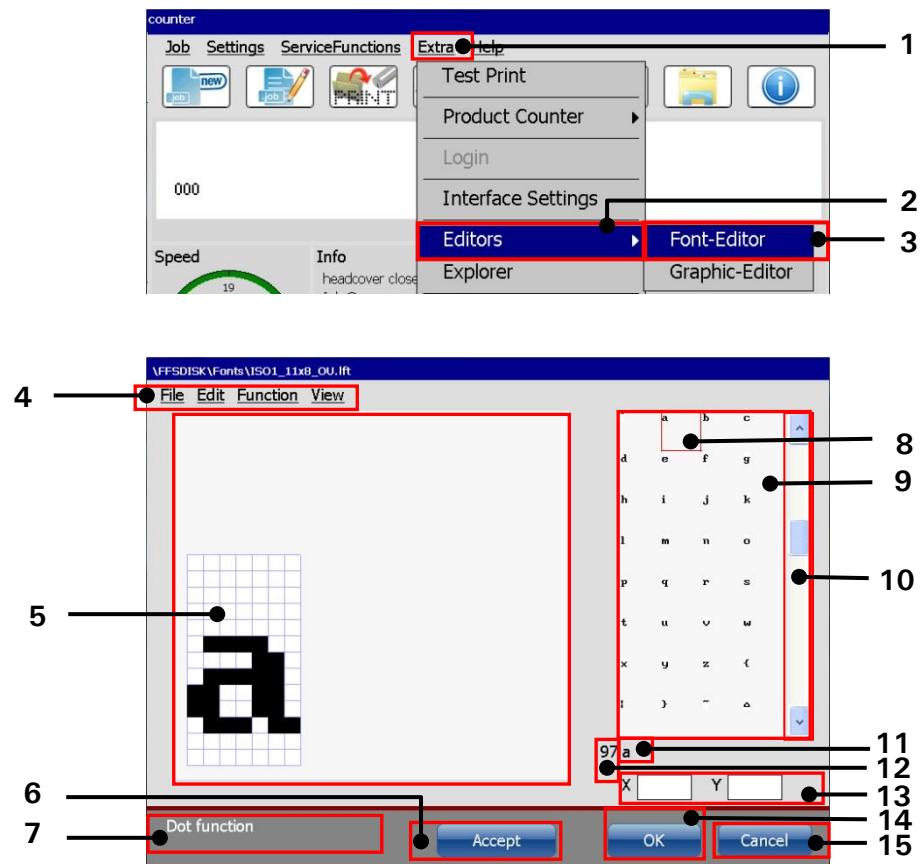
**Parity (9):**

With the parity settings the kind of parity check is defined. Make sure that the kind of parity check selected corresponds with the settings of the external device.

### 7.5.5 Font editor

With the font editor you can edit existing fonts and create new fonts. It is possible to define customized characters and either include them in existing fonts or create complete new fonts on the basis of custom characters. Edited or new fonts can immediately be used for print jobs. The editor provides several functions and tools that ensure a convenient operation.

**Figure 93** Font editor (Start, user interface, structure)



- |  |  |
|--|--|
| 1 – Menu item <Extra>                      | 9 – Font preview   |
| 2 – Option <Editor>                        | 10 – Scroll bar  |
| 3 – Option <Font-Editor>                   | 11 – Standard ASCII character of the selected character    |
| 4 – Menu bar <Font editor>                 | 12 – Decimal ASCII value of the selected character         |
| 5 – Drawing area with grid                 | 13 – x-y coordinates of the last click in the drawing area |
| 6 – Button <Accept>                        | 14 – Button <OK>   |
| 7 – Status bar for current tool or command | 15 – Button <Cancel>                                       |
| 8 – Selected character                     |  |

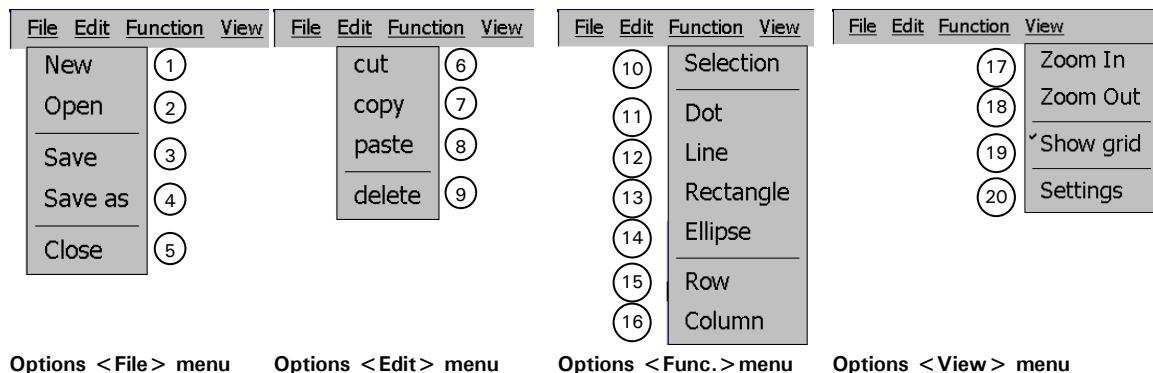
The font editor is started from the main window of the printer. To start the font editor choose the respective menu item from the drop-down menu (3):

<Extra>-<Editors>-<Font editor>.

The user interface of the font editor consists of various components:

### Menu bar

With the drop-down menus of the menu bar (4) you can select various commands, options and tools. The following drop down menus are available:



**File:** The <File> menu provides all standard operations for file handling:

- **New (1):** A new font file is created. In a first step you will have to define the size of the editor and the grid (measured in dots)
- **Open (2):** Opens a standard file dialog box to open a stored font from the file system (hard disk, SD-card or USB-stick)
- **Save (3):** Saves the current file. If the current file is still unnamed a standard file dialog box will open and you will have to specify the file name and the storage location
- **Save as (4):** Opens a standard file dialog box to save the current file. You will have to specify the file name and the storage location
- **Close (5):** Closes the current file. If there were made any changes to the file you will be asked whether you like to save them.

**Edit:** The <Edit> menu provides several standard commands for drawing objects:

- **Cut (6):** Cuts out a selected area (see: <Function>-<Selection>) and stores it in the clipboard until you use the <cut> or <copy> command again.
- **Copy (7):** Copies a selected area (see: <Function>-<Selection>) and stores it in the clipboard until you use the <cut> or <copy> command again.
- **Paste (8):** In the status bar of the drawing area you will be asked to place the cursor in the upper left corner of the drawing area but this is not mandatory.

**Edit:**

(Continuation)

Basically the cursor can be positioned at any position on the drawing area. After you placed the cursor the current clipboard content will be pasted. The point you click on represents the upper left corner of the object you paste. If there is not enough space for the object on the drawing area it will be cropped. Existing dots will be replaced.

- **Delete (9):** Deletes a selected area (see: <Function>-<Selection>)

**Function:** **The <Function> menu provides several tools to create and select drawing objects:**

---

- **Selection (10):** With this tool you can select parts of the drawing area. The selected area is always a rectangle which is defined by two points.
- **Dot (11):** Drawing tool for single dots. If you place the cursor on an empty grid point of the drawing area a black dot will be set. If you place the cursor on an existing black dot it will be deleted.
- **Line (12):** Drawing tool for lines. The line is defined by the starting point and the end point. Existing dots will be replaced.
- **Rectangle (13):** Drawing tool for rectangles. The rectangle is defined by two points and it has no filling. Existing dots will be replaced.
- **Ellipse (14):** Drawing tool for ellipses. The ellipse is defined by two points and it has no filling. Existing dots will be replaced.
- **Row (15):** Drawing tool to fill a complete row with dots. The row is selected with the cursor. Existing dots will be replaced.
- **Column (16):** Drawing tool to fill a complete column with dots. The row is selected with the cursor. Existing dots will be replaced.

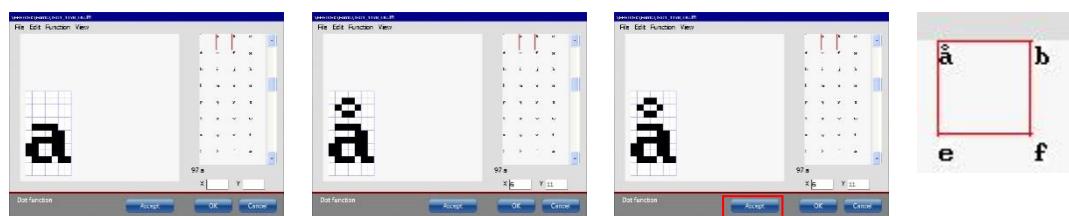
**View:** **The View> menu provides zooming tools and options for the settings of the grid and the editor size:**

---

- **Zoom In (17):** There are 10 zoom levels available. With each click you zoom in by one step.
- **Zoom out (18):** There are 10 zoom levels available. With each click you zoom out by one step.
- **Show grid (19):** With this option selected a grid layer is added to the drawing area. With the standard resolution the grid layer corresponds with the grid of the drawing area.
- **Settings (20):** Opens a dialog box with the settings for the size of the drawing area of the editor and the resolution of the grid layer. All values are stated in dots. The maximum settings for the editor are 32 dots in height (depends on the font matrix) and 20000 dots in width.

### Font preview

The font preview shows all characters of the currently loaded font. The printer software works with 8-bit ASCII fonts which means you have a maximum of 192 printable characters per font. Using the scroll bar you can scroll through all available characters of the currently loaded font. When you select one of the characters it is marked with a red frame and displayed in the drawing area. Edited characters will also be displayed in the preview area as soon as changes are applied with the <Accept> button.



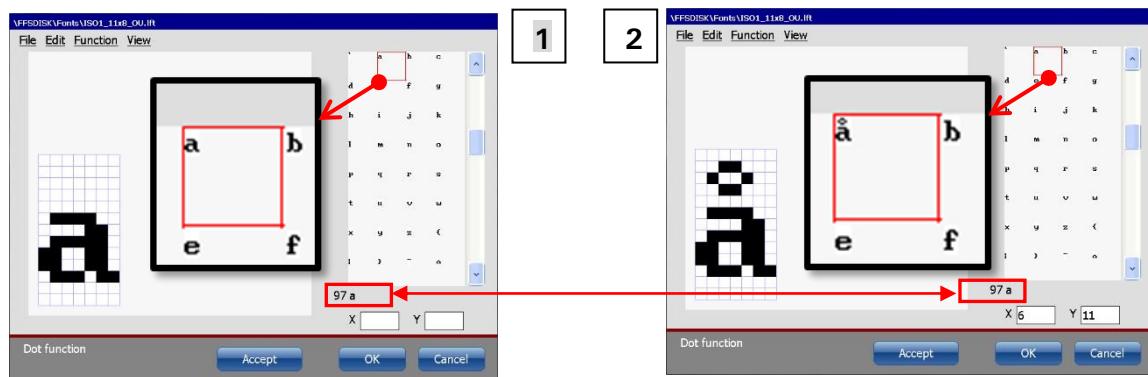
The selected character is marked with a red frame in the font preview and displayed in the drawing area.

Changes are not visible in the font preview as long as the changes are not applied with the <Accept> button.

After clicking the <Accept> button the edited character is displayed in the preview.

Enlarged view of the edited character in the font preview area.

There is a status indicator at the bottom side of the preview area. It shows the decimal value of the ASCII code for the currently selected character and the corresponding standard ASCII character. The displayed standard ASCII character may differ from the character in the preview. There are two reasons for this: either the character was modified with the font editor or there is no character defined for the currently selected ASCII code.

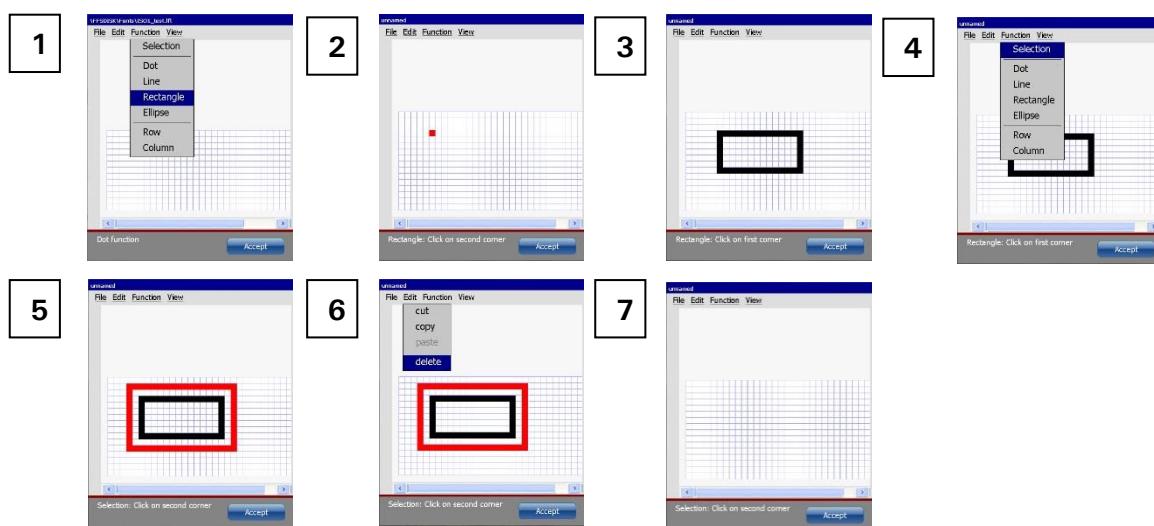


### Example:

The decimal ASCII value of the character "a" is 97 and the standard ASCII character is "a". After editing the character it looks different and it will be printed in that new design. Nevertheless the ASCII values remain the same.

### Drawing area

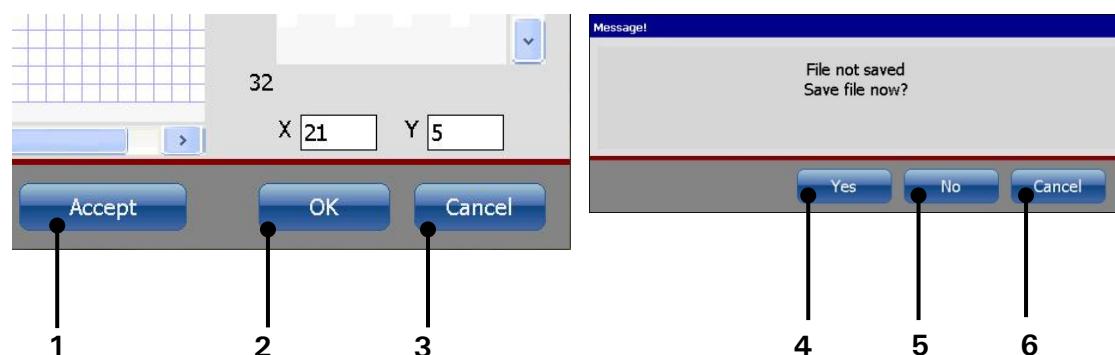
On the drawing area the current content of the selected ASCII character is displayed. You can edit the character using the tools and commands from the menu bar. To change the size of the drawing area and to set the grid you can use the options from the <View> drop-down menu. The status bar at the bottom side of the drawing area displays instructions for the current tool or command. There are x-y indicators in the lower right corner of the font editor. They show the position of the point in the drawing area on which was clicked last.



### Example:

First you draw a rectangle using the rectangle tool (1 to 3). Then you select the rectangle with the selection tool (4). The selection tool creates a red frame (5). At last you use the <Delete> command to delete the selected area (6-7).

### Command buttons

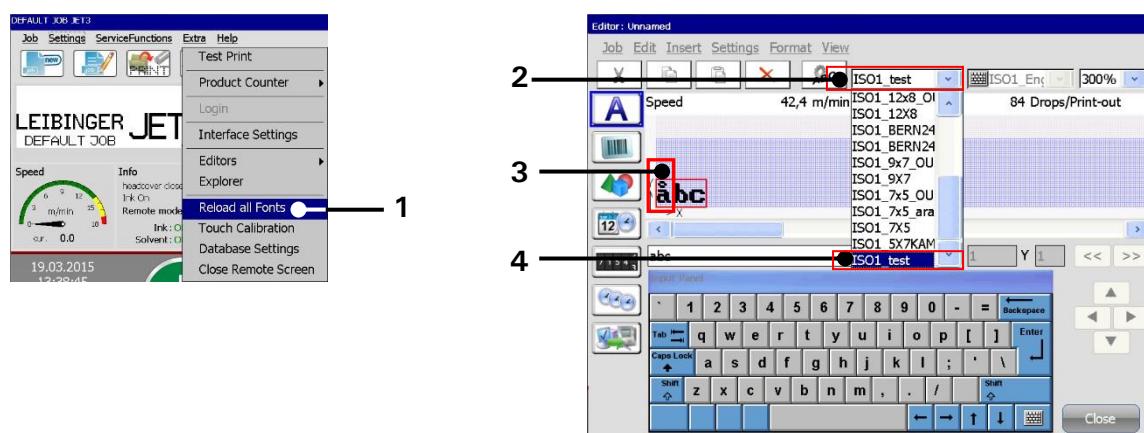


The font editor has three command buttons in the lower right corner:

- **Accept (1):** With this button all changes made to the currently selected character are confirmed and the character is applied to the opened font. All changes will be displayed in the font preview. The font editor will remain open for further editing.
- **Cancel (3):** With this button you can leave the editor without saving changes made after the last saving of the current file. The editor will be closed without further notice.
- **OK (2):** With this button you confirm the state of the current file. If the current file was not already saved a message box will be displayed asking if you want to save the current file. There are three options available:
  - a. **Yes (4):** the dialog box for saving files will be displayed
  - b. **No (5):** The message box and the font editor will be closed without saving the current file.
  - c. **Cancel (6):** The message box will close and you will return to the font editor.

### Make fonts available for the job editor

Edited or new fonts have to be loaded from the operating system before they are available in the job editor. For this you have to reload all fonts in the software system. The command for reloading all fonts is located in the <Extra> drop down menu (1). After the reload you will find the new or the edited font in the font dropdown list of the job editor (4). If the edited font is selected (2) the characters in the print job will be adjusted to the new font (3).



#### ATTENTION

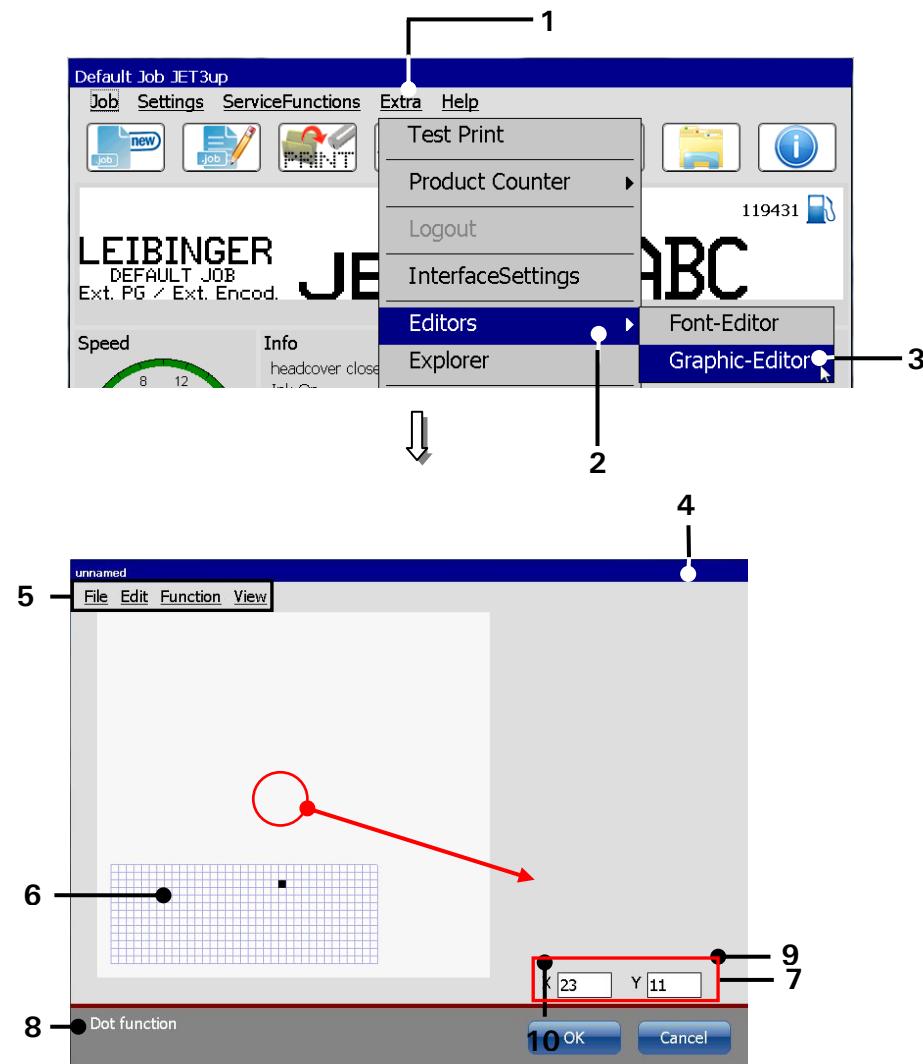
An edited or a new font will not be available as long as the font is not reloaded!

Edited or new font will NOT be re-loaded automatically!

### 7.5.6 Graphic editor

With the graphic editor you can easily create and change complex logos, pattern or writings. Functions as Copy&Paste, Zoom in/out and tools for drawing circles, lines and rectangles make the creation of graphics very easy. Using a USB mouse will provide the same ease of use as it is known from a computer workstation.

**Figure 94     Graphic editor - Start editor / design of the user interface)**



1 – <Extra> buttons

2 – Option <Editor>

3 – Option <Graphic-Editor>

4 – Dialog box <Graphic-Editor>

5 – Menu bar

6 – Drawing area

7 – Current <Coordinates>

8 – Status bar for current tool or command

9 – <Cancel> button

10 – <OK> button

Start the graphic editor dialog box with the option <Editors> - <Graphic-Editor> (2) and (3).

The graphic editor provides a menu bar with the following entries:

- File
- Edit
- Function
- View

<Graphics> are created and edited on the drawing area (6).

The <Coordinates> (7) indicate the current position on the drawing area.

The status bar for the current tool or command (8) indicates which tool is selected and what is expected as next step.

The <Cancel> button (9) closes the dialog box. If the inputs have been not saved yet, a confirmation prompt is displayed.

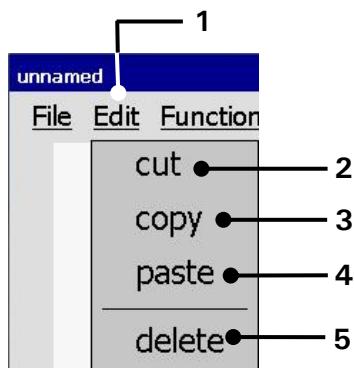
With the <OK> button (10) the graphic editor will be closed without further notice and all changes will be aborted.

#### 7.5.6.1 Edit tools

The drop-down menu <Edit> provides several tools.

**Note:** The function of the tools corresponds to Windows™-standard procedures.

Figure 95 Graphic editor (Edit tools)

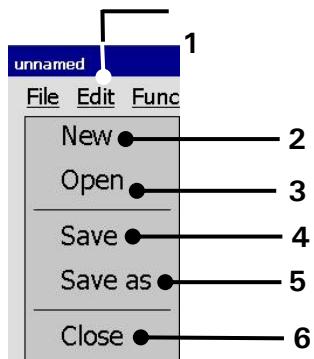


- 1 – Drop-down- menu <Edit>    3 – Edit tool <copy>    5 – Edit tool <delete>  
2 – Edit tool <cut>                  4 – Edit tool <paste>

### 7.5.6.2 File management

The drop-down menu <File> provides tools for the file management.

**Figure 96      Graphic editor - File management**



1 – Drop-down menu <File>

2 – Start a <New> file

3 – <Open> a file

4 – <Save> the current file

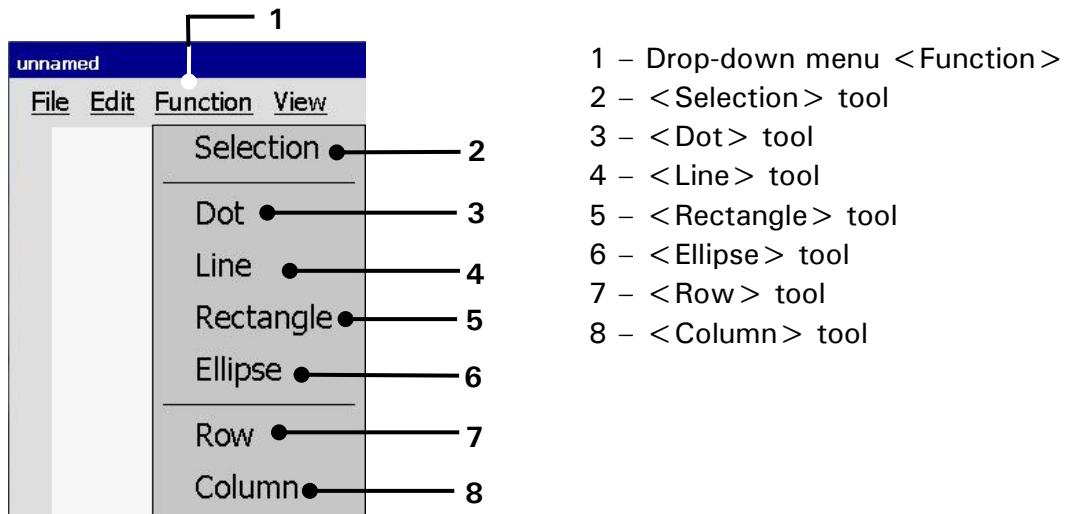
5 – <Save as> option for current file

6 – <Close> the graphic editor

Pos.	Org.-tool	Function
2	New	Starts a new graphic file
3	Open	Opens a <Open file > dialog box
4	Save	Saves the current file under the existing name.
5	Save as	Opens a <Save as> dialog box.
6	Close	Closes the graphic editor. There will be a confirmation prompt in case the current file was not already saved.

### 7.5.6.3 Drawing tools

**Figure 97** Graphic editor (Drawing tools)



The drop-down menu <Function> offers several graphic tools for editing and the selection of graphic elements.

**Note:**

The function of the tools refers to Windows™ standard drawing tools.

Regardless of the grid, points are always created with a 1x1 size.

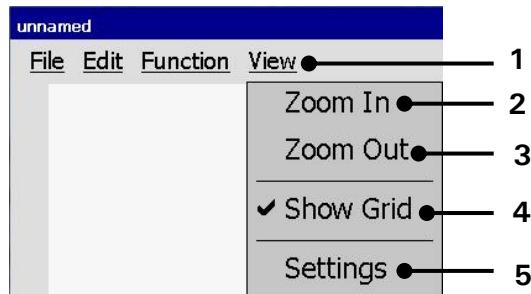
Lines, circles and rectangles are created with a grid width of 1.

Pos.	Drawing tool	Function
2	Selection	For the selection of graphic elements
3	Dot	Creates or deletes a single point on the drawing area.
4	Line	Creates a line defined by two points.
5	Rectangle	Creates a rectangle by two corner points
6	Ellipse	Creates an ellipse by two points
7	Row	Creates a horizontal line with the total length of the selected row of the grid.
8	Column	Creates a vertical line with the total length of the selected column of the grid.

#### 7.5.6.4 View menu

The drop down menu <View> provides several tools for zooming, the size of the editor and the grid.

**Figure 98     Graphic editor – View settings**



1 – Drop-down menu <View>

2 – <Zoom In> tool

3 – <Zoom Out> tool

4 – <Show grid>

5 – Opens <Settings>

Pos.	Display tool	Function
2	Zoom In	Zooms in the drawing area.
3	Zoom Out	Zooms out the drawing area.
4	Show grid	Turns on or off the grid. The activated function is indicated with a checkmark at the menu item.
5	Settings	Opens dialog box with the settings for the editor size and the grid.



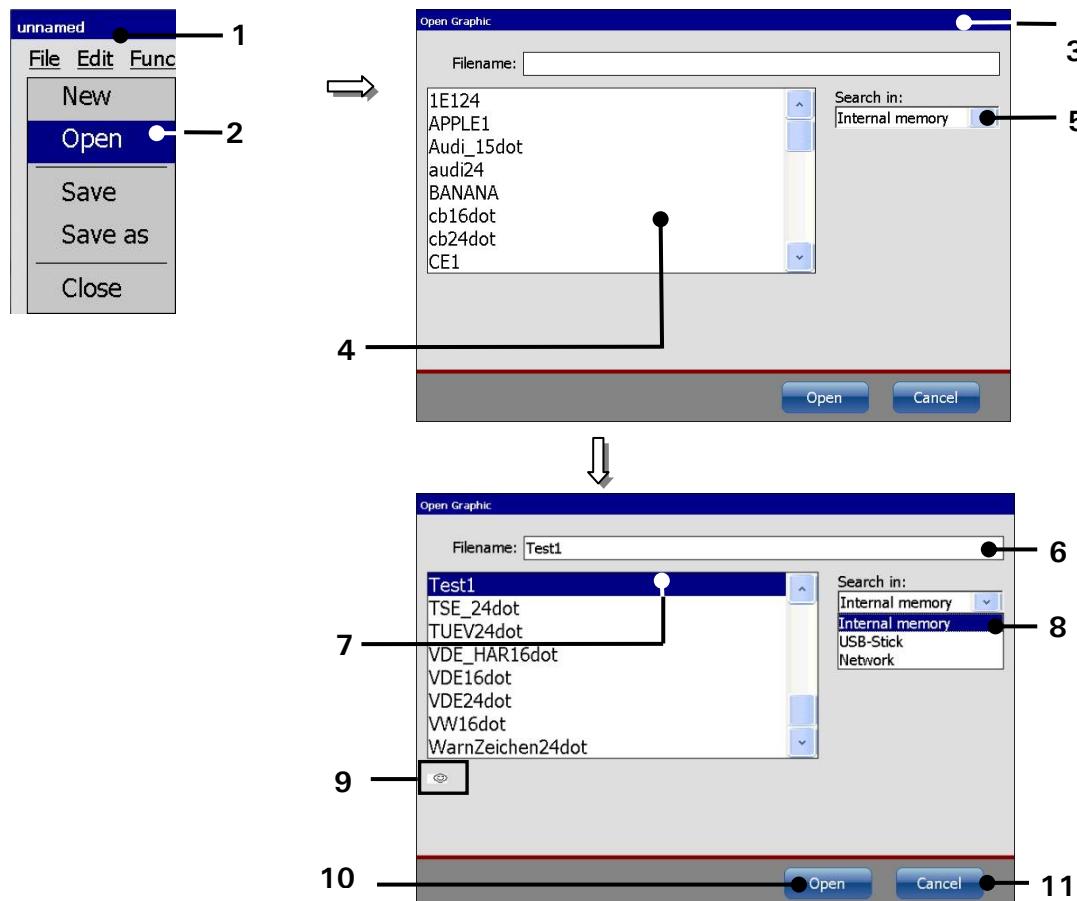
#### INFORMATION

You will find further information regarding the function of the several display tools also in the chapter **7.5.6.7 Graphic editor - Settings**

### 7.5.6.5 Load existing graphic

The menu item <Open> opens an <Open file> dialog box.

**Figure 99     Graphic editor Open file dialog**



1 – Drop down menu <File>

2 – Menu item <Open>

3 – <Open graphic file> dialog box

4 – File list <Graphic files>

5 – Drop-down list <Search in>

6 – Input field <Filename>

7 – Selected graphic file

8 – Selected storage device

9 – Preview of the selected graphic

10 – <Open> button

11 – <Cancel> button

#### Proceeding:

- In the drop-down menu <File> (1) press the menu item <Open> (2).
- The dialog box <Open graphic file> (3) pops up.
- Select a graphic file from the <graphic file list> (4). The drop-down list <Search in> (5) offers all available storage devices.
- The file name of the selected graphic is displayed in the input field <Filename> (6) and a preview of the graphic is displayed below the file list (9).
- Press the <Open> button (10) to load the selected graphic file. With the <Cancel> button (11) the dialog box will close without any changes.

### 7.5.6.6 Save graphic/Save graphic as

With the option <Save> the loaded file is saved under the current name. All existing data will be overwritten.

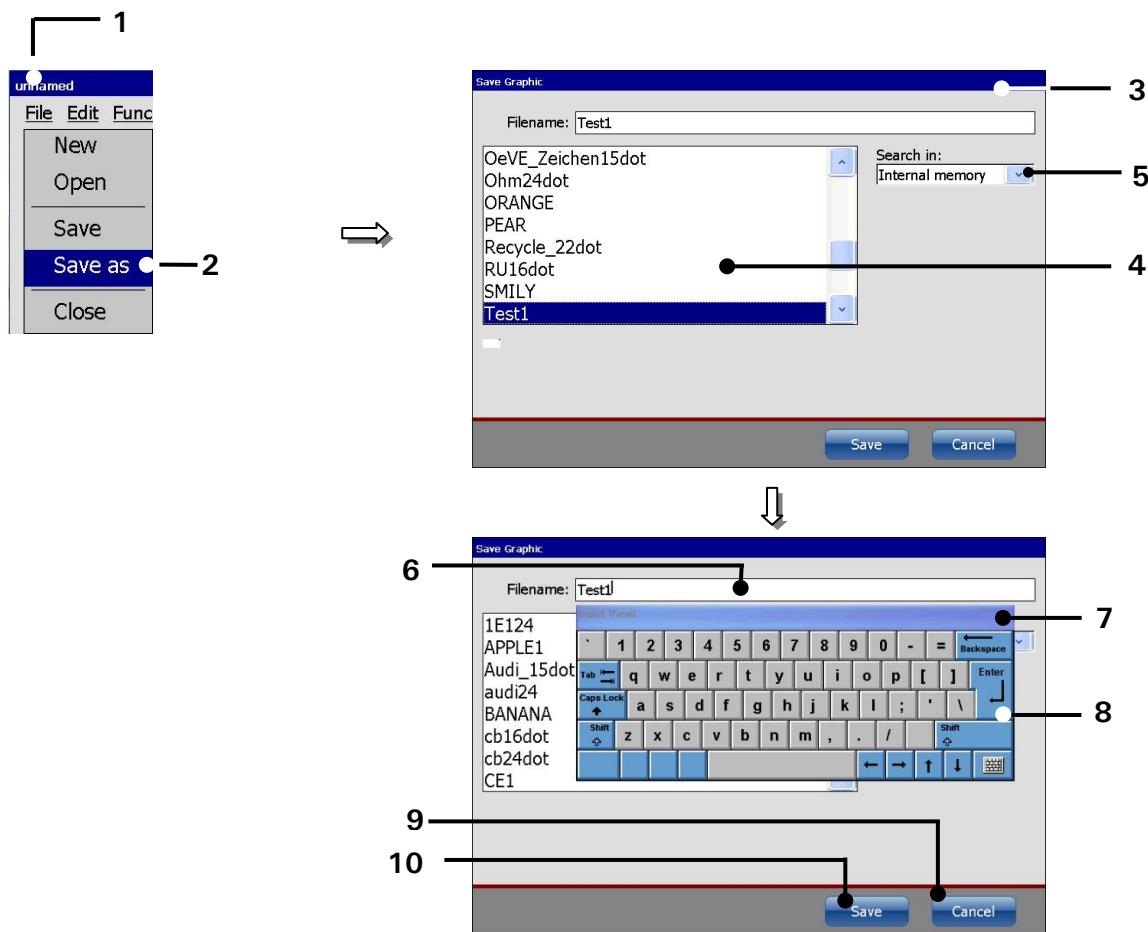
With the option <Save as> a <Save as> dialog box opens and the currently loaded file can be saved under a new name.



#### ATTENTION

**Note!** If the graphic is saved with the option <Save> or under an already existing filename, no confirmation prompt will be displayed. The existing data will be overwritten without further notice.

Figure 100 Graphic editor - Save file dialog



- 1 – Drop down menu <File>
- 2 – Option <Save as>
- 3 – <Save graphic> dialog box
- 4 – <Graphic file list>
- 5 – Drop-down list <Search in>

- 6 – Input field <Filename>
- 7 – Software keyboard
- 8 – <Enter> button
- 9 – <Cancel> button
- 10 – <Save> button

**Proceeding:**

- Select <**Save as**> (2) from the drop-down menu <**File**> (1).
- The <**Save as**> dialog box (3) pops up.
- The names of the already existing graphics are displayed in the <**Graphic file list**> (4). Select a storage device from the <**Search in**> drop-down list (5).
- Click in the input field <**Filename**> (6). A software keyboard (7) pops up.

**INFORMATION**

You will find further information regarding the working with keyboard in the chapter **6.4.2 Keyboard**

- Enter the file name.
- Press the button <Enter> (8) of the keyboard. The entered name will be taken over to the input field <**Filename**> (6).
- Clicking on the <**Save**> button (9) will save the file. Clicking on the <**Cancel**> button (10) will close the dialog box without any changes.

### 7.5.6.7 Graphic editor - Settings

The drop-down menu <**View**> provides several tools for zooming, the editor size and the grid. The following functions are available:

- Enlarge and reduce display size (Zoom in/out)
- Show grid
- Settings

With the option <**Settings**> you can set the editor size (width and height of the drawing area) as well as the grid size.

#### Proceeding:

- Press the menu item <**Settings**> (2) from the drop-down menu <**View**> (1)
- The dialog box <**Editor Settings**> (3) pops up.
- With the **Arrow keys** (4) you can increase or reduce the values of the editor size and the grid size stepwise.  
**or**
- Click in the input field (5) of the value to be changed. A Numeric keypad opens for input.



#### INFORMATION

You will find further information regarding the working with keyboard in the chapter **6.4.1 Numeric keypad**

- Close the dialog box with the <**OK**> (6) button.

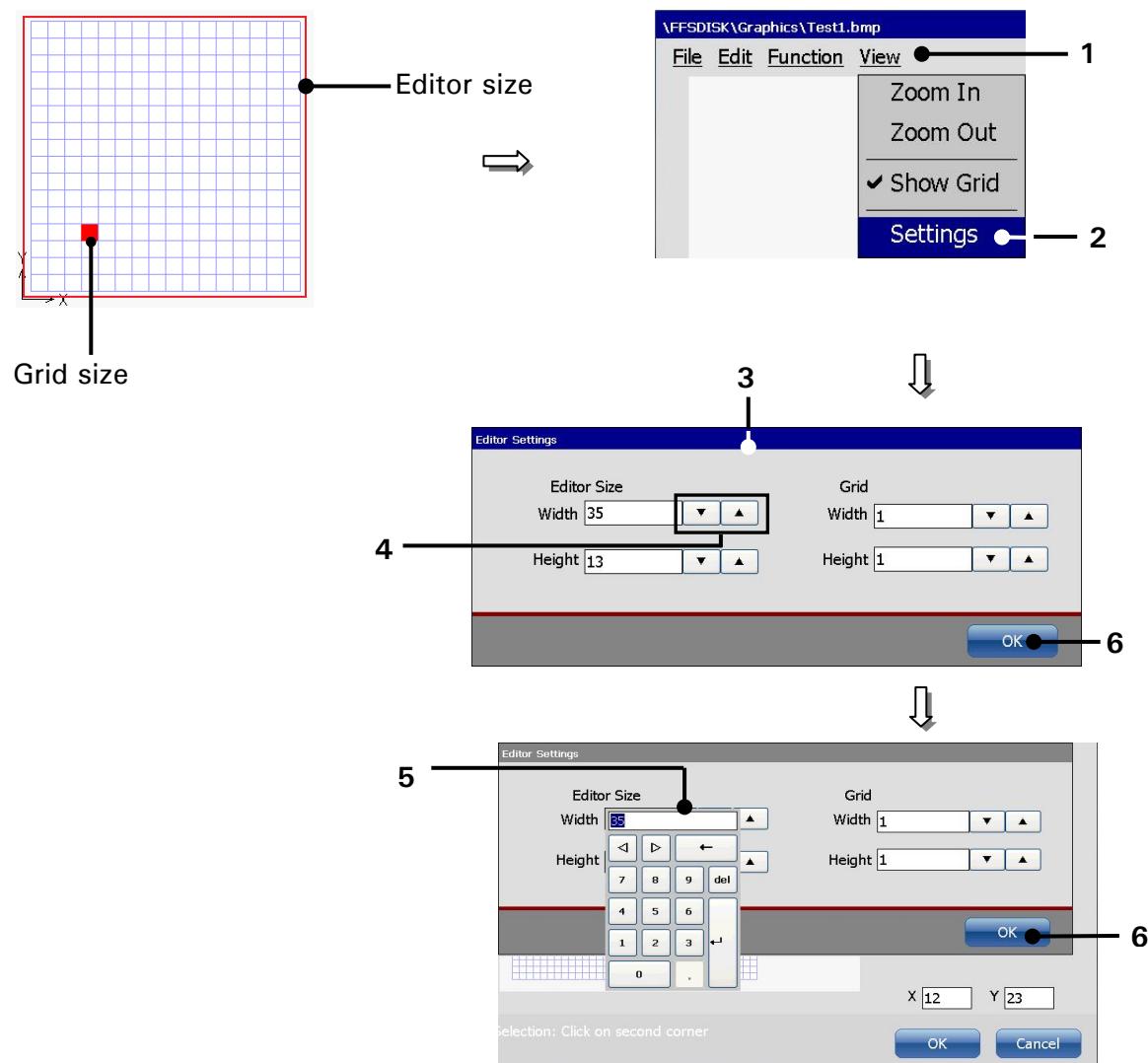
#### Note:

Regardless of the grid, points are always created with a 1x1 size. Lines, circles and rectangles are created with a grid width of 1



#### INFORMATION

You will find further information about the tools in <**View**> menu in the chapter **7.5.6.4 View menu**

**Figure 101 Graphic editor - Settings**

1 – Drop-down menu &lt;View&gt;

4 – Arrow keys

2 – Open &lt;Settings&gt;

5 – Input field

3 – Dialog box &lt;Editor Settings&gt;

6 – &lt;OK&gt; button

### 7.5.6.8 Create and process graphic elements

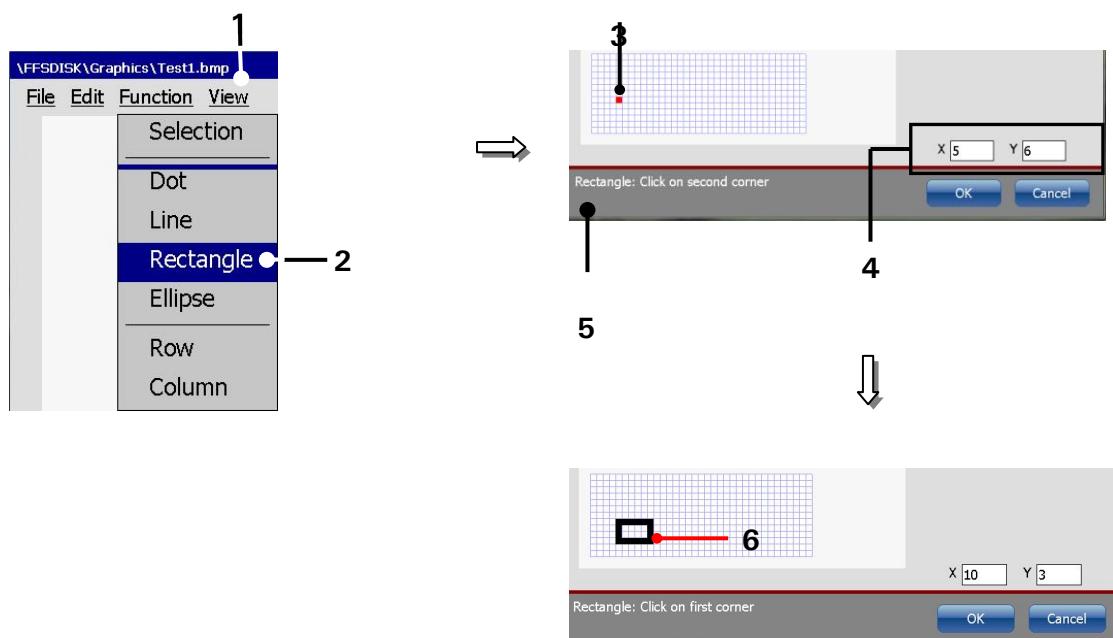
#### 1. Creation of graphic elements:

Example: A rectangle shall be created

##### Proceeding:

- Select the <Rectangle> tool (2) from the the <Function> drop-down menu (1).
- Click on the drawing area at the position of the first corner of the rectangle (3).
- This point is marked red. The position is displayed by the <Coordinates> indicator (4). In the <status bar for the current tool > (5) the next step is displayed.
- With a click on the position of the second corner of the rectangle (6) the rectangle will be created.

Figure 102 Graphic editor (Create a bitmap)



1 – Drop-down menu <Function>  
2 – <Rectangle> tool  
3 – First corner of the rectangle

4 – <Coordinates> indicator  
5 – <Status bar for the current tool >  
6 – Second corner of the rectangle

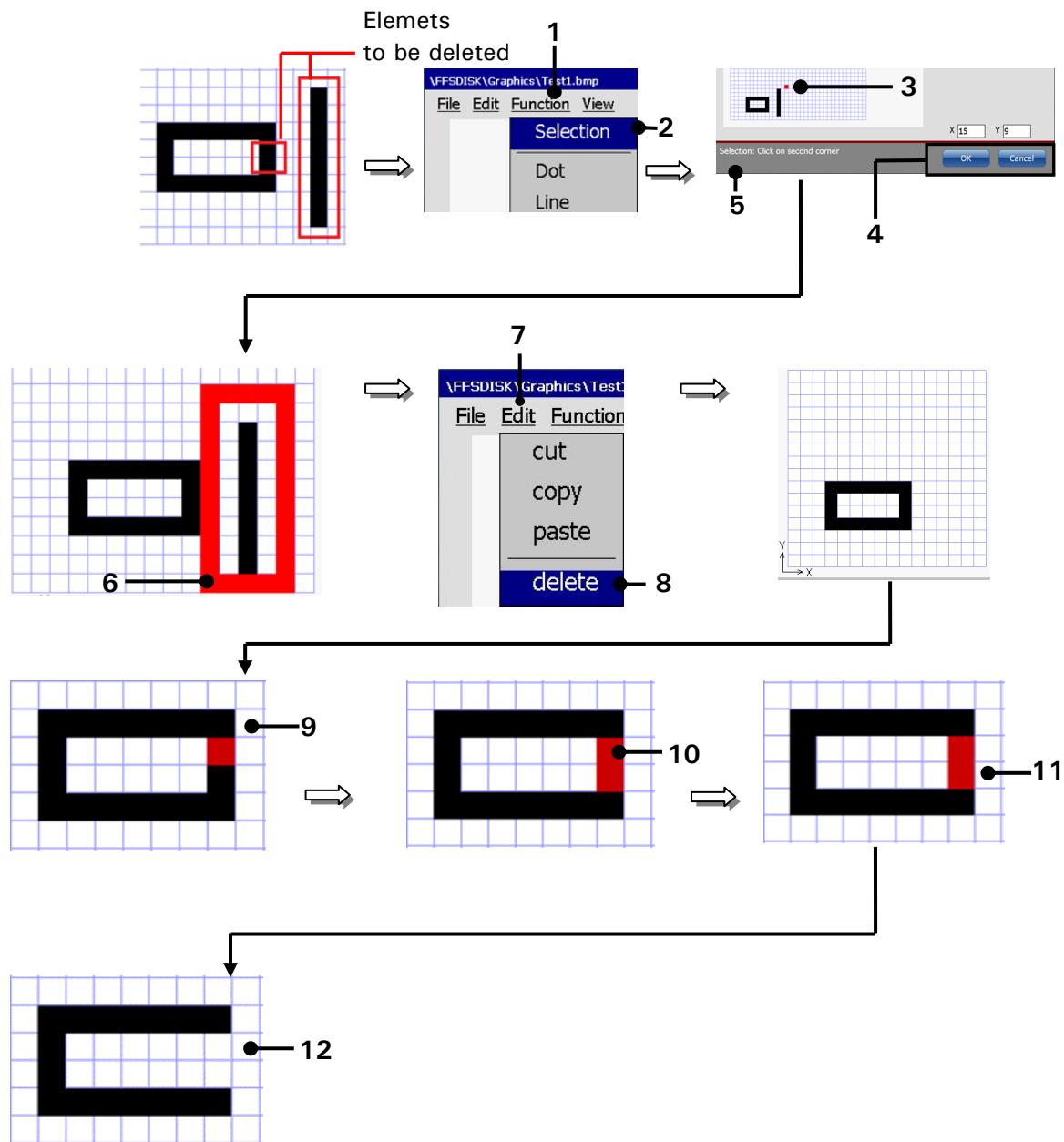
## 2. Deletion of graphic elements:

(Example: On side of a rectangle and a complete line shall be deleted)

### Proceeding:

- Start with the deletion of the line.
- Select the <Selection> tool (2) from the the <Function> drop-down menu (1).
- The selection frame is defined by two corner points (3) and (6) . Place the corner points in a way that the selection frame covers the line to be deleted.
- The <Coordinates> indicator (4) displays the respective positions of the corner points. The <Status bar for the current tool> (5) provides information for each step.
- Select the <Delete> tool (8) from the <Edit> drop-down menu (7) .
- The line covered by the selection frame will be deleted.
- In the next step one side of the rectangle will be deleted.
- Select the <Selection> tool (2) from the <Function> drop-down menu (1).
- Define the first corner point for the selection frame (11). At this point the contour of the rectangle will be interrupted. This point will be marked red.
- Define the second corner of the selection frame (12). This point is positioned just one dot below the first corner point. Actually this results not in a selection frame but in a selection line.
- Select the <Delete> tool (8) from the <Edit> drop-down menu (7).
- The part of the rectangle covered by the selection frame will be deleted.

**Figure 103 Graphic editor – Deletion of graphic elements**



1 – Drop-down menu <Function>

2 – <Selection> tool

3 – First corner of the selection frame

4 – <Coordinates> indicator

5 – <Status bar for the current tool>

6 – Second corner of the selection frame

7 – Drop down menu <Edit>

8 – <Delete> tool

9 – First corner of the selection frame

10 – Second corner of the selection frame

11 – Selected section of the rectangle

12 – Rectangle with the deleted section

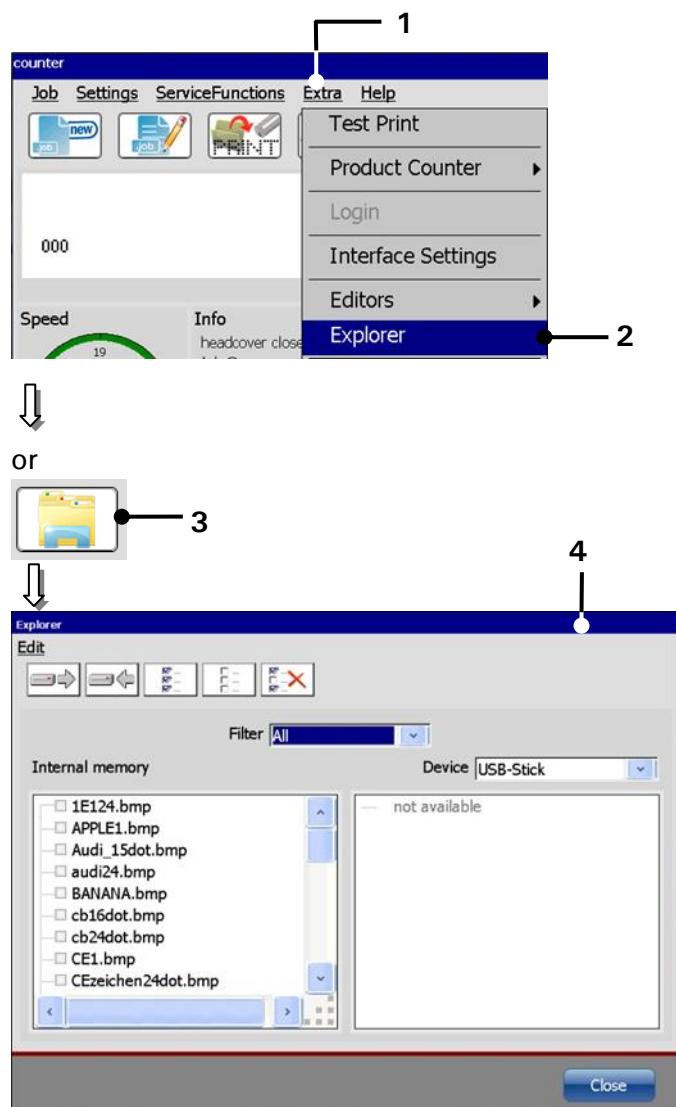
### 7.5.7 Explorer

The explorer administrates the data of the LEIBINGER JET3up. As the explorer of the PCs, the explorer in the JET3up allows the deletion of data as well as the free saving and loading of data on different media (e.g. USB-stick, Network) or of the internal memory. Selection window and filter functions allow a clear and easy to operate data management.

#### 7.5.7.1 Launch explorer

- Press the button <Extra> (1) and the option <Explorer> (2) or the accordant direct button (shortcut) (3).
- The dialog box <Explorer> (4) opens.

**Figure 104** Launch explorer

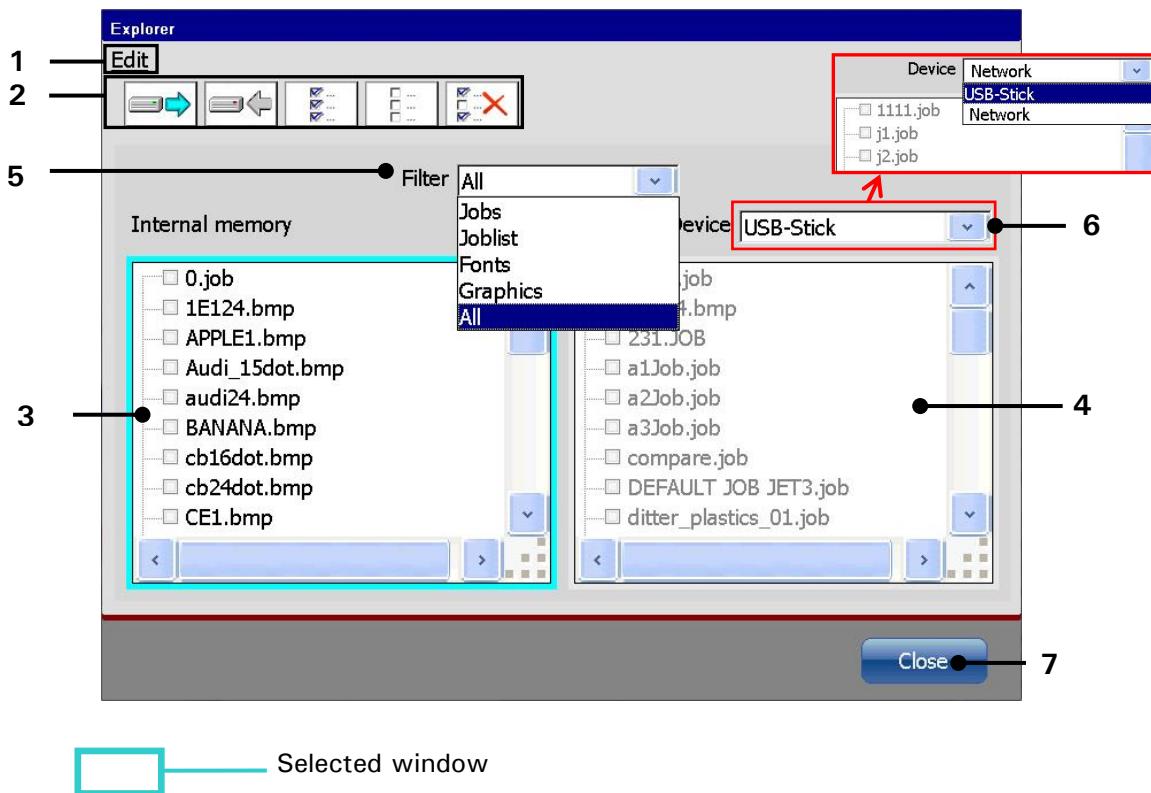


1 – Button <Extra>  
2 – Option <Explorer>

3 – Direct button (shortcut)  
4 – Dialog box <Explorer>

### 7.5.7.2 Explorer layout

**Figure 105 Explorer - Layout**



Selected window

- |                                |                                    |
|--------------------------------|------------------------------------|
| 1 – <Edit> drop-down menu      | 5 – Drop-down list <Filter>        |
| 2 – Direct buttons <Tools>     | 6 – Drop-down list <memory device> |
| 3 – File list <Intern. memory> | 7 – <Close> button                 |
| 4 – File list <Ext. memory>    |                                    |

- **<Edit> drop-down menu (1) and direct buttons [shortcuts] (2):** With the button or with the icons you can select the tools of the explorer.
- **File list <Internal memory> (3):** The file list displays the files or the filtered files of the internal data storage device of the JET3up are displayed.
- **File list <External memory> (4):** The file list displays the files or the filtered files of the external data storage device selected are displayed.

**Note:**

A preview window is activated by clicking on the display area of the window.  
The selected window is marked by a turquoise border.

- **Filter (5):** With the drop-down list you can select the several data fields which should be displayed or processed. If a filter has been used, only the accordant data is shown in the two selection windows.

The following filters are available:

---

- All
- Jobs
- Fonts
- Graphics
- Joblists

- **Memory device (6):** With the drop-down list you can select the external data storage device.
- The button <**Close**> (7) closes the explorer.



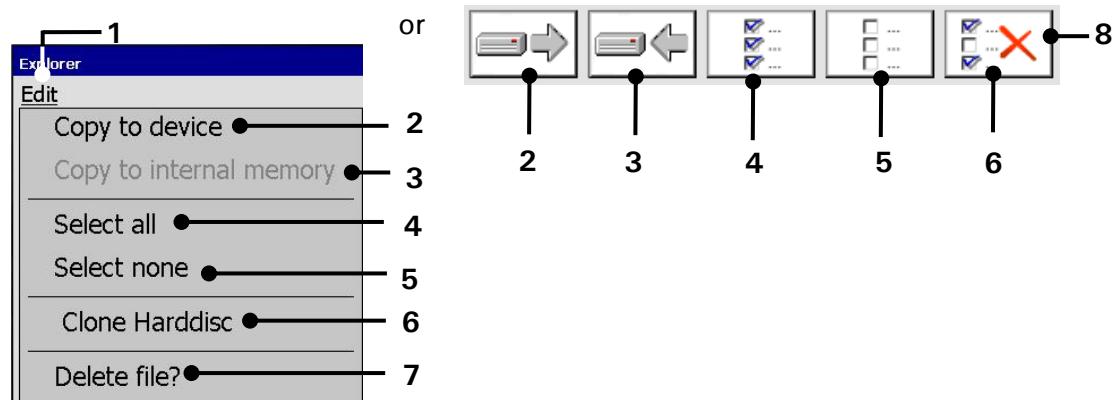
#### Information

It is possible to use a network path as external data storage device. Please see chapter **7.3.1.7 Network ID** for details about how to configure a network path for the JET3up printer.

### 7.5.7.3 Explorer tools

With the button <Edit> you can select the explorer tools. Further more most of the tools can be selected directly with the available icons (direct buttons).

**Figure 106 Explorer (Tools)**



1 – Menu item <Edit>

5 – <Select None> tool

2 – <Copy to Device> tool

6 – <Delete> tool

3 – <Copy to intern. memory> tool

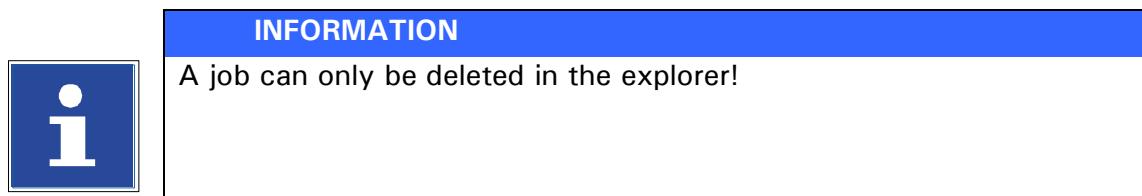
7 – <Clone Harddisc> tool

4 – <Select all> tool

8 – Direct buttons (Shortcuts)

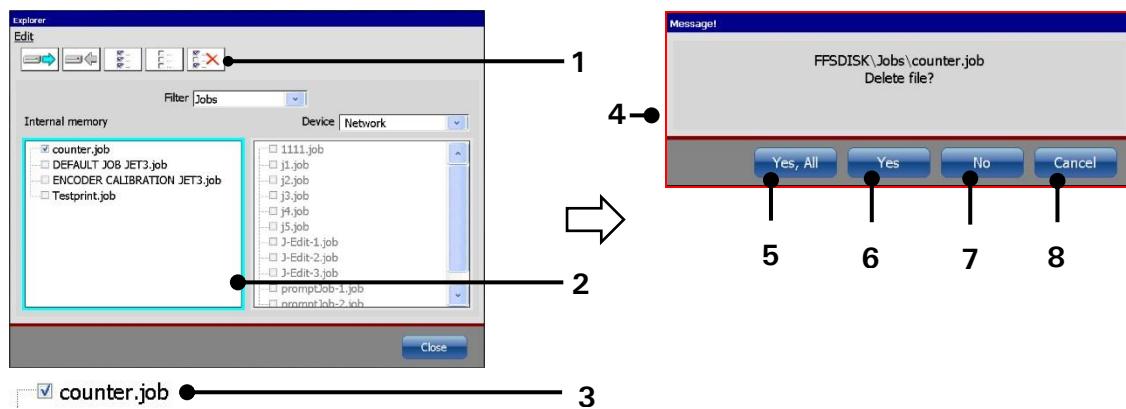
Pos.	Icon	Tool	Function
2.		Copy to (external) device	Copy marked data to an external memory device.
3.		Copy to Hard disc (internal memory)	Copy marked data from an external memory device to the internal memory of the JET3up.
4.		Select All	Selects all data in the active selection window. <b>Note:</b> Single files are selected by checking the respective check box or by clicking on the name of the file.
5.		Select None (Cancel selection)	Cancels the selection of all data of the active selection window. <b>Note:</b> Single files are unselected by unchecking the respective check box or by clicking on the name of the file.
6.		Delete	Deletes all marked data in the active selection window.
7.		Clone Hard disc	Duplicates all data of the JET3UP to an external data carrier.

#### 7.5.7.4 Delete jobs



(Example: The job „counter“ should be deleted in the internal memory.)

**Figure 107 Explorer (Delete job)**



1 – <Delete> Tool

5 – <Yes, All> Button

2 – Selection list <intern. memory>

6 – <Yes> Button

3 – Selected job

7 – <No> Button

4 – Confirmation prompt <Delete file>

8 – <Cancel> Button

#### Proceeding:

- Activate the selection list of the <internal memory> (2) by clicking on it. The border of the window is now displayed turquoise.
- Select the job with the file name "counter.job" (3) by clicking on the check box or the file name. The selection is displayed with a √ in the check box.
- Press the icon of the <Delete> tool (1).
- The confirmation prompt <Delete file?> (4) pops up.
- Press the button <Yes> (6) to delete the selected job or press the button <No> (7) or the button <Cancel> (8) to abort the process.

#### 7.5.8 Reload all fonts

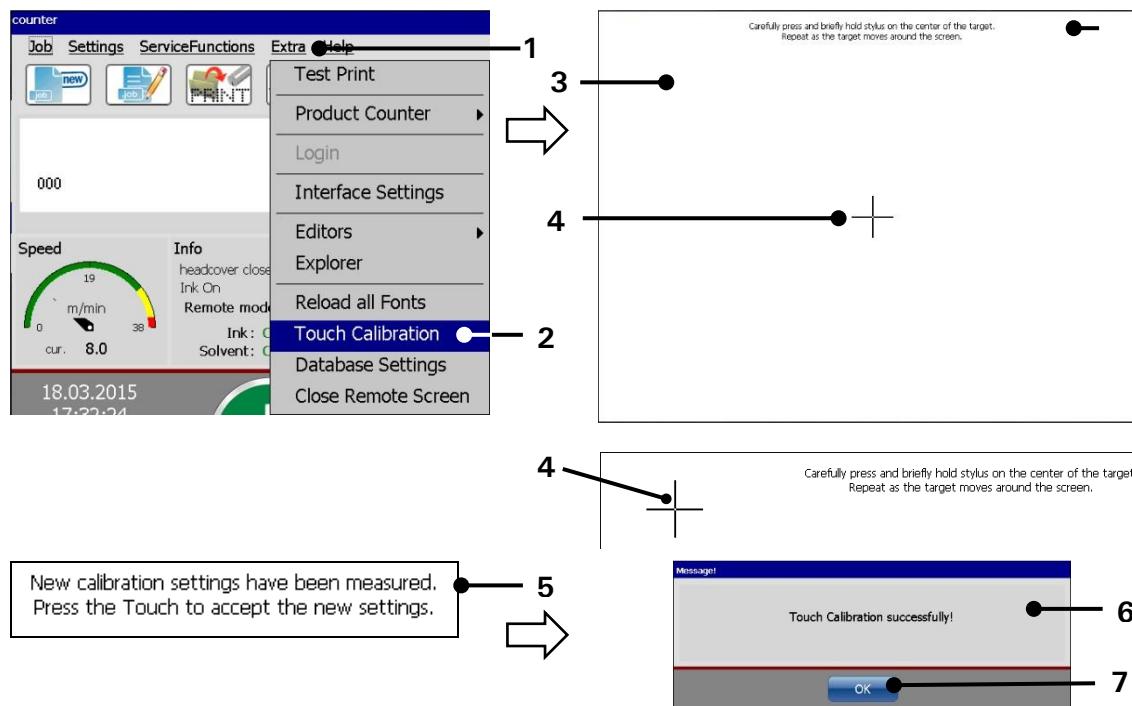
With these functions alle fonts in the font folder of the JET3up will be reloaded. This function is required to make fonts created or edited with the font editor available for print jobs.

Also if there is a font copied to the font folder of the JET3up from an external source all fonts have to be reloaded in order to make the recently added font available. Please see **Make fonts available for the job editor** on page 202 for details.

### 7.5.9 Touch-Calibration

The function provides a calibration of the TFT-Touch-Display. The device is delivered with a calibrated touch display. After the calibration process is started just follow the instructions on the display.

**Figure 108 Touch-calibration**



- |                              |  |
|------------------------------|--|
| 1 – Drop-down menu <Extra>   | 5 – Message <Settings have been measured>    |
| 2 – Open <Touch Calibration> | 6 – Message <Touch calibration successfully> |
| 3 – Calibration window       | 7 – <OK> Button                              |
| 4 – Calibration point        |  |



#### ATTENTION

To avoid faulty operation you have to carry out the calibration carefully!

#### Proceeding:

- Press the button <Extra> (1) and the option <Touch Calibration> (2).
- The calibration window (3) pops up.
- Now press carefully on the middle of the calibration point (4). Repeat the process as long as the calibration point moves on the display.
- If the settings are calculated an according message (5) is displayed. Follow the instructions.
- The message <Touch calibration successfully> (6) pops up.
- Finally press the button <OK> (7) to finish the process.

### 7.5.10 Database settings

A click on this option opens the dialog box for the database settings. These settings are required for the <Mailing function>. With the <Mailing function> the print data is stored either on an USB stick or on an external network device. Only appropriate database settings can provide a correct data access. Please see chapter **8.7.5.3 Extern Text Mailing** for details about the <Mailing function> and chapter **8.7.5.3.2 Extern Text Mailing – Database settings** for details about the database settings.

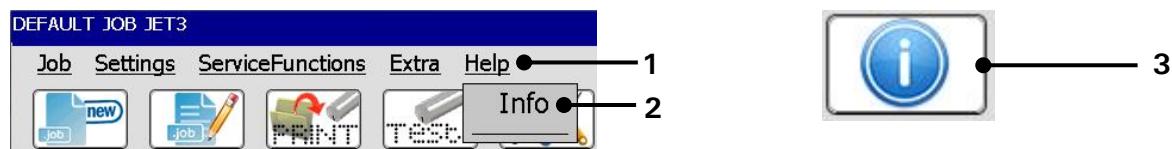
### 7.5.11 Start remote screen

A click on this option starts the VNC server of the JET3up printer. A running VNC server is indicated in the status field of the main Window. Please see chapter **7.3.1.10 Remote** for details.

## 7.6 Help

The drop-down menu <Help> (1) provides the menu item <Info> (2). This option will open the <Info> dialog box which consists of two pages arranged as tabs. There is also a direct button available in order to open the <Info> dialog box **directly**.

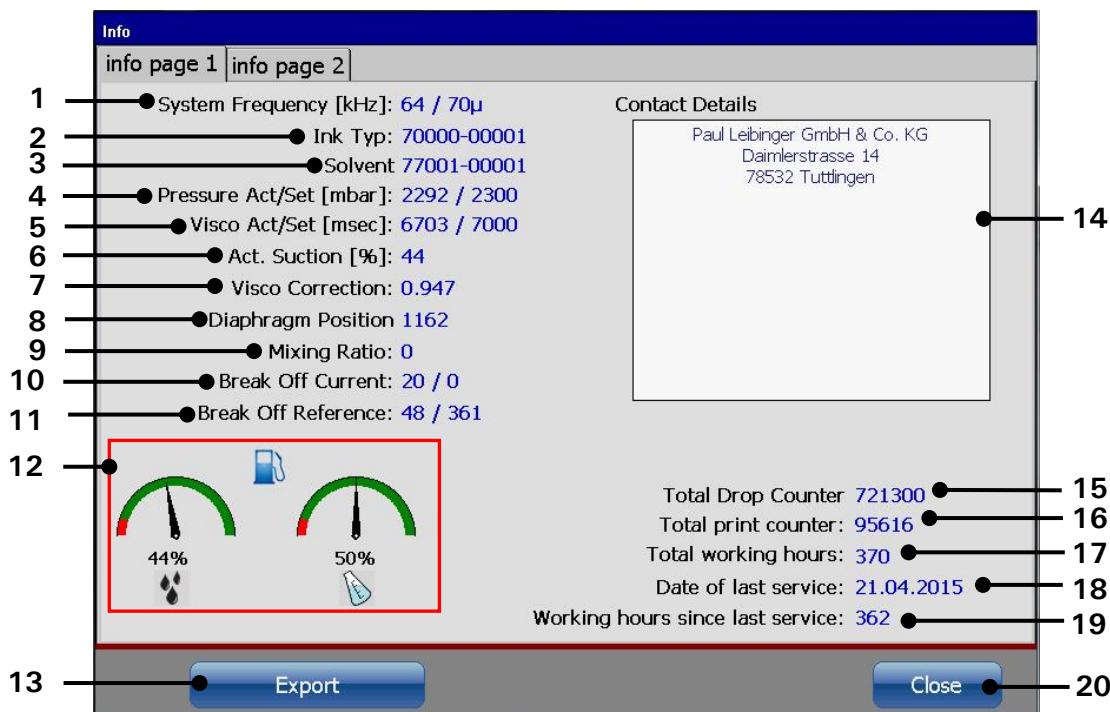
**Figure 109 Open the <Info> dialog box**



1 – Drop-down menu <Help>      3 – Direct button <Info>  
2 – Menu item <Info>

### 7.6.1 <Information> dialog box

**Figure 110 Info dialog box – Page 1**



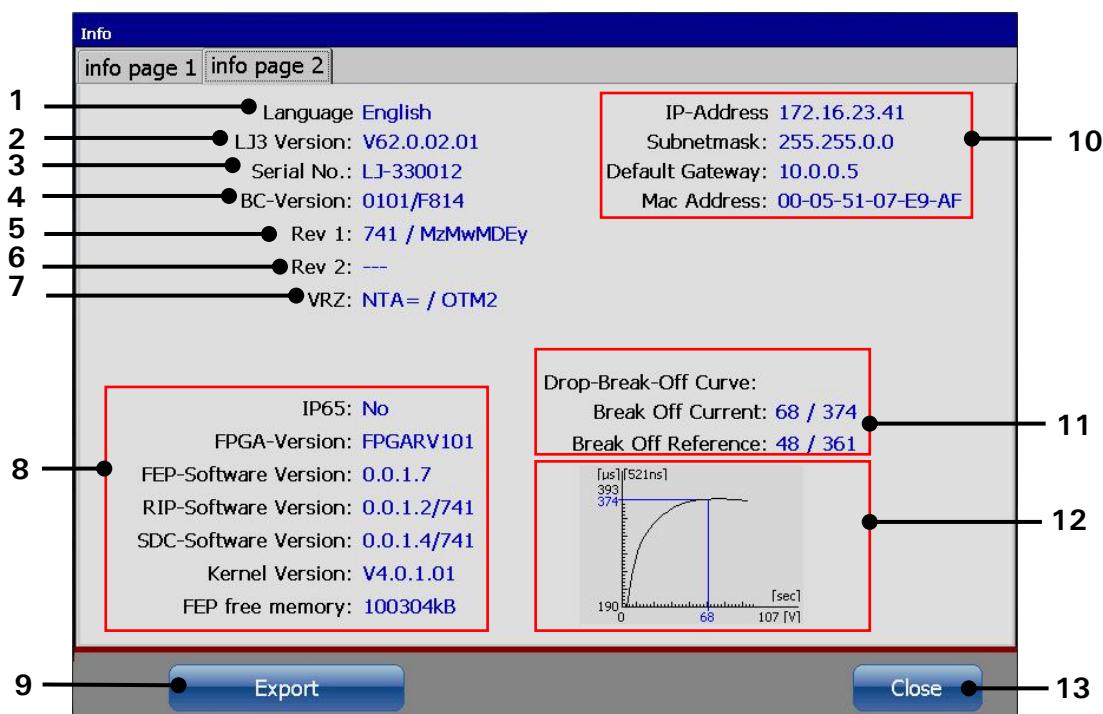
- |  |   |
|--|---|
| 1 – Current <System frequency> and <nozzle size>                     | 11 – Reference values for drop break-off voltage and time |
| 2 – Currently used ink type  | 12 – Indicators for ink and solvent levels                |
| 3 – Currently used solvent type                                      | 13 – <Export> of the <Info> data                          |
| 4 – <System pressure> Actual/nominal                                 | 14 – <Contact Details>                                    |
| 5 – <Viscosity> Actual/nominal                                       | 15 – Number of the <Total drops>                          |
| 6 – Actual output of the <suction pump> in [%] of the nominal output | 16 – Number of the <Total prints>                         |
| 7 – Current <Viscosity correction factor>                            | 17 – <Total working hours>                                |
| 8 – Current position of the <Diaphragma>                             | 18 – The date of the last Service                         |
| 9 – Mixing ration solvent/ink. 0 = currently no solvent is admixed   | 19 – Working hours since last service                     |
| 10 – Current drop break-off:voltage and time                         | 20 – <Close> button                                       |

The following system information are displayed in the window:

- Oscillator frequency and nozzle size of the device (1)
- The ink which has been filled in the device (2)
- The solvent which has been filled in the device (3)
- The nominal and actual values of the hydraulic system (4-12)
- Several information about operation hours, ink consumption, number of prints and service times (14-19)

With the button <Export> (13) you can save the system information in a network location or on an USB-stick. The button <Close> (20) closes the dialog box.

**Figure 111 Info dialog box – Page 2**



- 1 – Current <System language>
- 2 – Software version
- 3 – <Serial number>
- 4 – <Controller Version>
- 5 – Revision number 1
- 6 – Revision number 2
- 7 – VRZ number

- 8 – Hardware information
- 9 – <Export> of the <Info> data
- 10 – Network information
- 11 – Indicators for the drop break-off curve
- 12 – Illustration of the drop break-off curve
- 13 – <Close> button

The following system information are displayed:

- Several information about hard and software versions (1-8)
- Network information. The data corresponds with the IP-settings in the <Basic settings> dialog box (10).
- Information about the drop off curve (11-12).
- **The illustration of the drop break-off curve (12) is only available as long as the printer is in <Print mode> (nozzle open)! Otherwise a symbol with a red cross is displayed.**

With the button <**Export**> (11) you can save the system information on an external memory device (e.g. USB-stick). The button <**Close**> (12) closes the dialog box.

#### 7.6.1.1 Save info file

The displayed system information can be exported to an external memory device like an USB-stick or a network storage device.



##### Important

In order to store the data on a network storage device the network path settings have to be configured. Please see chapter **7.3.1.7 Network ID** for details.

The socket for the USB stick is located on the reverse side of the printer. Please see chapter **5.5 Interfaces** for details.



##### Important

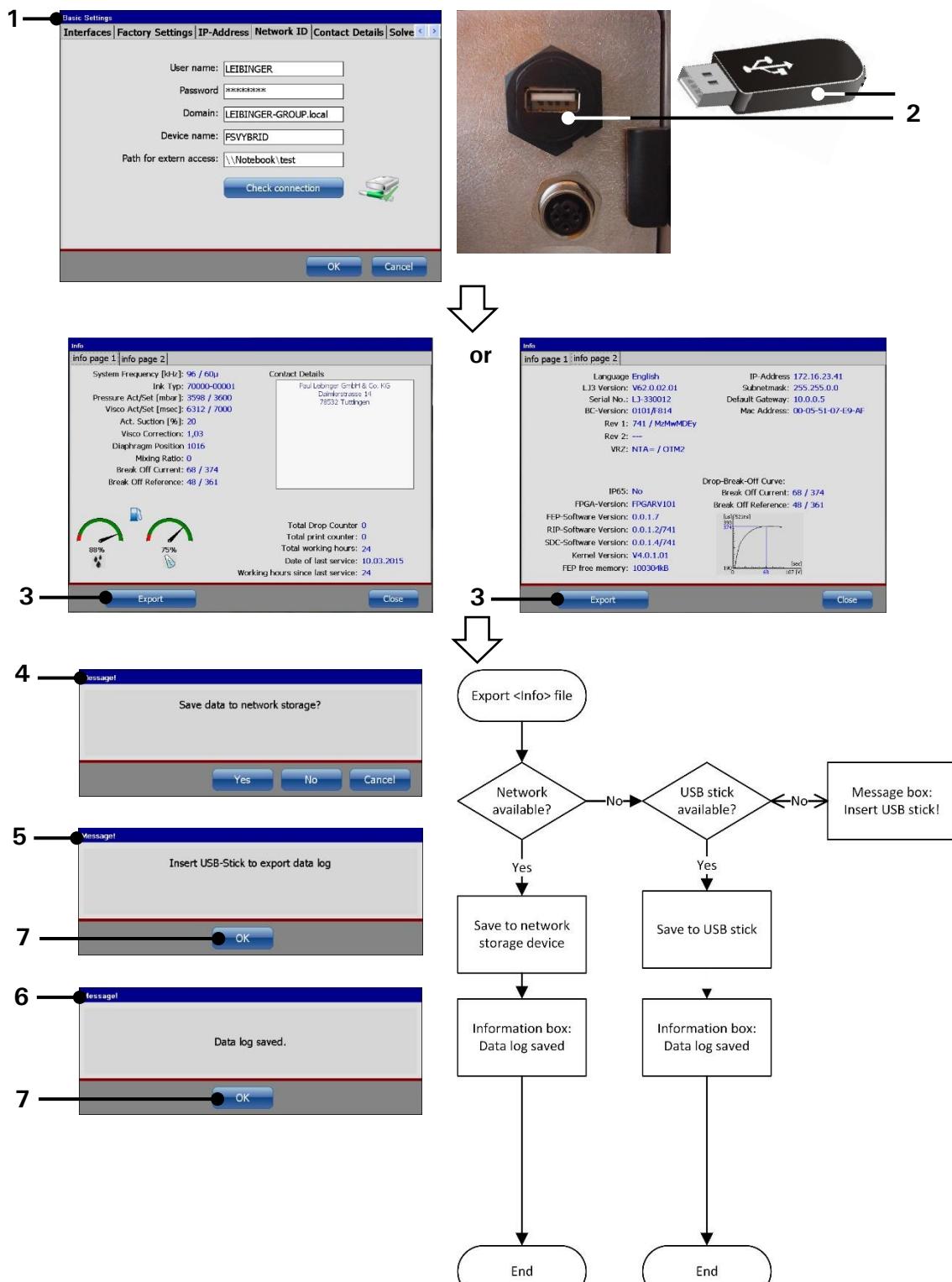
It does not matter whether the <**Export**> button is used on page 1 or page 2 of the <**Info**> dialog box. The content of both information pages will always be exported at once.

If there is an illustration of the drop break-off curve available it will also be exported as graphic file (\*.jpg).

In addition the current data logging file will also be exported automatically. Please see chapter **7.4.5 Data logging - Log file** for details about the data logging file.

**Proceeding:**

- Configure the <Network ID> of the printer in the <Basic settings> (1) and/or
  - Plug an USB-Stick into the USB-socket of the device (2).
  - Press the button <Export> (3).
- If there is a <Network ID> configured and the network connection is established a confirmation prompt will pop up asking whether the data shall be saved to the network storage device (4). If this message is confirmed the information will be stored on the network storage device. If the message is not confirmed (<No> button) it is checked whether an USB stick is available. If no USB stick is available a respective message box pops up (5). With an USB stick inserted the information is stored to the USB stick.
- When the data is saved on the connected medium a confirmation message pops up (6).
- The message have to be confirmed with the <OK> button (7).
- The files are saved in a folder named **JET3UP\_Log**. If this folder does not already exist it will be created by the <Export> function.

**Figure 112 Export system info file**

- 1 – <Network ID> Configuration
- 2 – USB socket / USB stick
- 3 – <Export> button
- 4 – Confirmation prompt <Network storage>

- 5 – Message box <Insert USB stick>
- 6 – Message box <Data log> saved
- 7 – <OK> Button

## 8 Job editor

The printing data is created and saved as a job in the job editor. A variety of Windows® similar tools make the operation easier. A job can consist of a lot different objects e.g. text blocks, graphics or barcodes whose contents and characters are changeable.

Functions as matrix, size, bold type, rotation etc. can be assigned to every single object irrespectively of each other. Current jobs can be edited or created new also during running production. All jobs are displayed in the WYSIWYG mode.

**Note:**

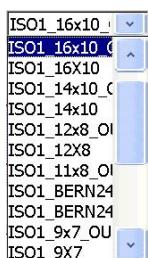
WYSIWYG = What you see is what you get (The display shows exactly what will be printed)

### 8.1 Window layout and menu structure

#### Description refers to figure 116

- **Menu bar (1):** With the buttons in the menu bar you can select the accordant submenus of the editor. The following submenus are available:
  - Job
  - Insert
  - Format
  - Edit
  - Settings
  - View
- **Direct buttons (2+4):** The direct buttons (shortcuts) provide a direct access to creation- and editing tools.
- **Selected <Object creation> tool (3):** the currently selected tool for <Object creation> is marked with a blue frame. Example: text object.
- **Input field <Text> (5):** If a text object is selected the <input field text> displays the current content of the object. With a click in the field a software keyboard pops up for editing the content. The software keyboard also pops up when the object creation tool <Text> is activated.
- **Direct button <Object settings> (6):** A click on that direct button (shortcut) will open the dialog box with the object properties. Please see chapter **8.4 Object settings** for details.
- **Font selection (7):** With the drop-down list you can change the font of the element selected.

**Figure 113 Font selection**



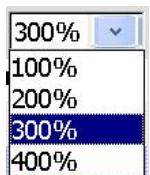
- **Keyboard language (8):** The drop-down list provides all available software keyboards. Depending on the language selected the layout of the keyboard may change. **The drop-down list is only available as long as no printing object is selected.**

**Figure 114 Keyboard selection**



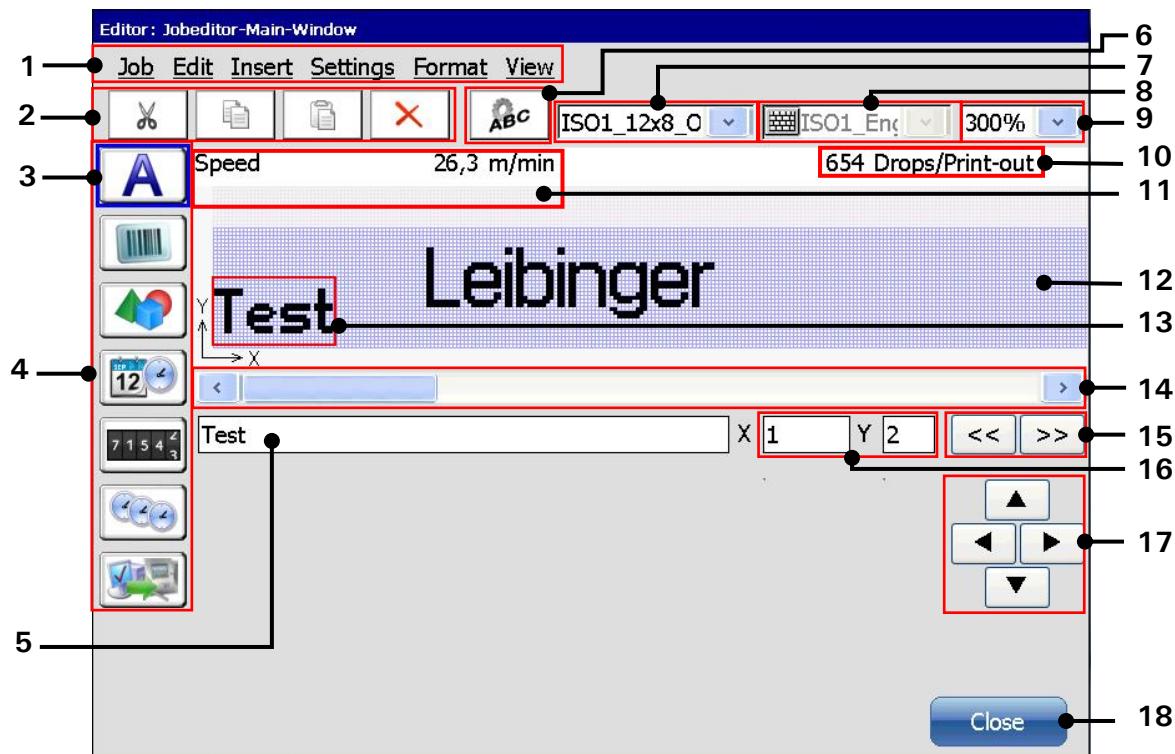
- **Zoom (9):** The drop-down list provides several zoom factors for the WYSIWYG editing and preview area (12).

**Figure 115 Zoom selection**



- **<Drops/Printout> (10):** The drops per printout indicator <Drops/Printout> (9) indicates the ink drops required for the currently loaded job. The calculation is based on the number of dots in the print job.
- **<Speed indicator> (11):** The speed displayed by the <Speed indicator> is the maximum printing speed allowed for the current print job. Higher speeds would lead to poor print quality.
- **WYSIWYG editing and preview area (12):** Within this area the printjobs are created. Printing objects can be moved freely within the area and the preview is a “What-you-see-is-what-you-get” preview. Therefore the preview gives a good idea of the print result to be expected.
- **Printing objects (13):** Printing objects selected are marked with a red frame.
- **Scrollbar (14):** Objects currently not visible in the editing area can be reached by using the horizontal scrollbar.
- **<Previous/Next Object selection> (15):** These buttons are only available when a printing object is selected. With a printing object selected a click on the <right arrow> button will select the next object to the right in the editing area. A click on the <left arrow> button will select the next object to the left in the editing area. There can be selected only one object at a time.

Figure 116 Job editor - Layout



- |  |  |
|--|--|
| 1 – Menu bar   | 10 – Drops per printout indicator                  |
| 2 – Direct buttons <Editing tools>                             | 11 – Indicator for maximum print speed             |
| 3 – Selected < Object creation tool >.<br>Example: Text object | 12 – WYSIWYG Editing area                          |
| 4 – Direct buttons<br><Object creation tools>                  | 13 – Selected text object with red<br>object frame |
| 5 – Input field <Text>   | 14 – Scroll bar                                    |
| 6 – Direct button <Object settings>                            | 15 – Previous/Next Object selection                |
| 7 – Drop-down list <Font selection>                            | 16 – <Coordinates> indicator                       |
| 8 – Drop-down list<br><Keyboard language>                      | 17 – Positioning buttons                           |
| 9 – Drop-down list <Zoom>                                      | 18 – Button <Close>                                |

- <**Coordinates**> indicator: The indicator shows the coordinates of the lower left corner of the printing object selected. The coordinates refer to the object frame not the object itself.
- <**Positioning buttons**> (17): With the four positioning buttons selected printing elements can be moved pixel by pixel.
- The <**Close**> button (18) closes the editor window. As long as changes were not saved already a confirmation prompt will pop up.

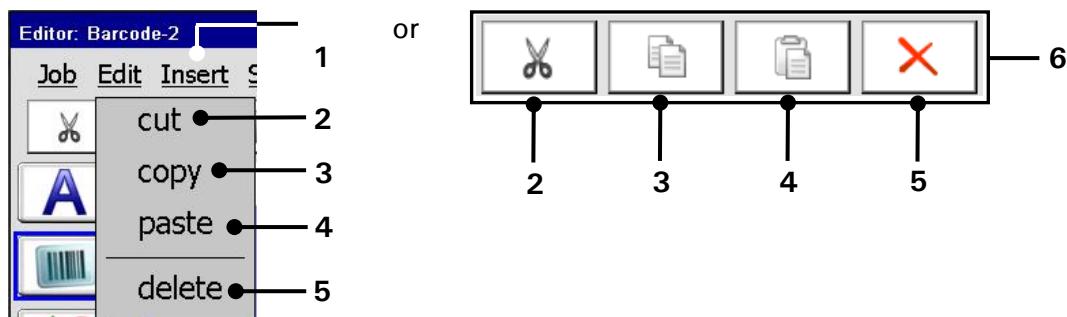
## 8.2 Job editor tools

### 8.2.1 Editing tools

With the button <Edit> you can select the editor tools. Further more you can also select the several tools with the available Icons (direct buttons).

**Note:** The function of the tools corresponds to the Windows™-functions.

**Figure 117 Job editor – Editing tools**



1 – Button <Edit>

2 – Edit tool <cut>

3 – Edit tool <copy>

4 – Edit tool <paste>

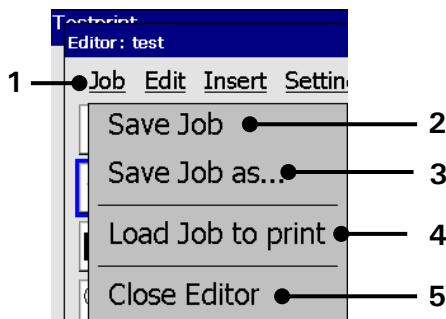
5 – Edit tool <delete>

6 – Direct buttons (Icons)

### 8.2.2 Job editor - File management

With the button <Job> you can select the organization tools of the job editor.

Figure 118 Job editor - File management tools)



1 – <Job> Button

4 – <Load Job to print>

2 – <Save Job>

5 – <Close Editor>

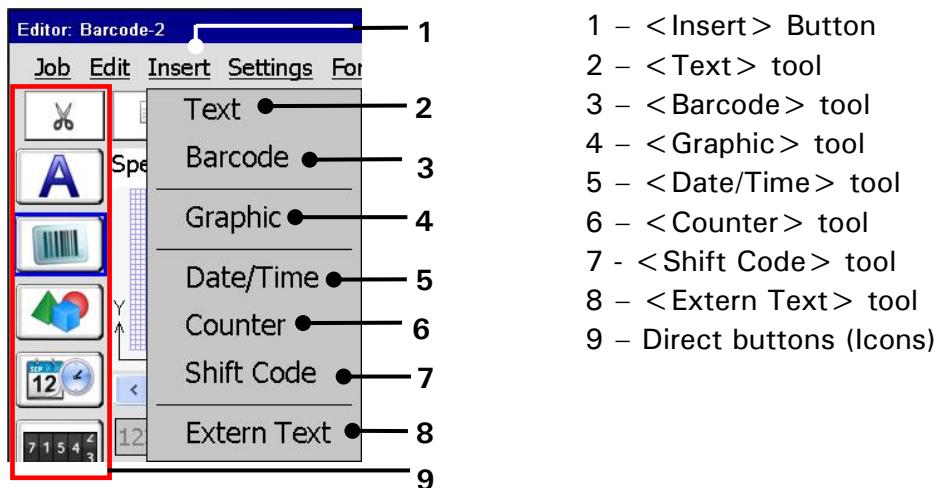
3 – Open <Save Job as> dialog

Pos.	Option	Function
2.	Save Job	Saves the current loaded job under the existing name.
3.	Save Job as	Saves the current loaded job or a new created job under a new name.
4.	Load Job to print	Loads the selected job into the active memory in the printer. This job will be the next one, which will be printed
5.	Close Editor	Closes the job editor. If changes weren't saved yet saved yet, a confirmation prompt pops up.

### 8.2.3 Object creation tools

With the button <Insert> you can select tools to create printing elements (texts, graphics, counters etc.). Further more you can also directly select the several tools with the available Icons (direct buttons).

**Figure 119 Job editor – Object creation tools)**



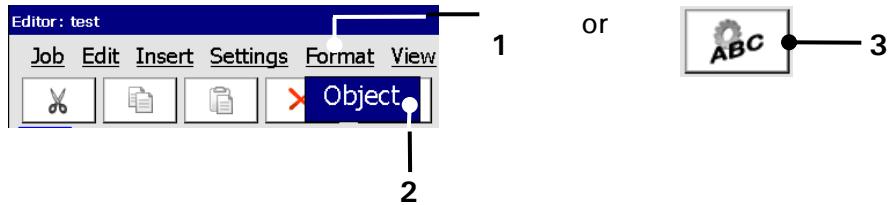
Pos.	Icon	Tool	Function
2.		Text	Provides the creation of text elements.
3.		Barcode	Provides the integration of barcodes and defines the certain parameters.
4.		Graphic	Provides the integration of an already existing graphic and defines the accordant parameters.
5.		Date/Time	Provides the integration of date- and time specification and defines the accordant parameters and requested replacements.
6.		Counter	Provides the integration of a counter as well as the definition of the accordant parameters and requested replacements.
7.		Shift Code	Provides the integration of a text element which is printed by predefined periods (shifts of time) as well the definition of the accordant parameters..
8.		Extern(al) Text	Provides the integration of an external text as well as the definition of the accordant parameters. By usage of this function an easy possibility is offered to integrate <b>variable data</b> in the printing text without any additional software- and programming works.

#### 8.2.4 Formatting tool

With the button <Format> you can select the formatting tool <Object> (2). Further more you can also select the tool directly with the accordant icon (3).

With the tool you can assign several object settings (e.g. font, contrast, alignment, etc.) to the selected printing elements. The displayed dialog box refers to the selected printing element (e.g. text, graphic, barcode, etc.).

Figure 120 Job editor - Format tool



1 – Button <Format>

3 – Direct button (shortcut)

2 – Formatting tool <Object>



#### INFORMATION

Please see the chapter **8.4 Object settings** for details about object settings.

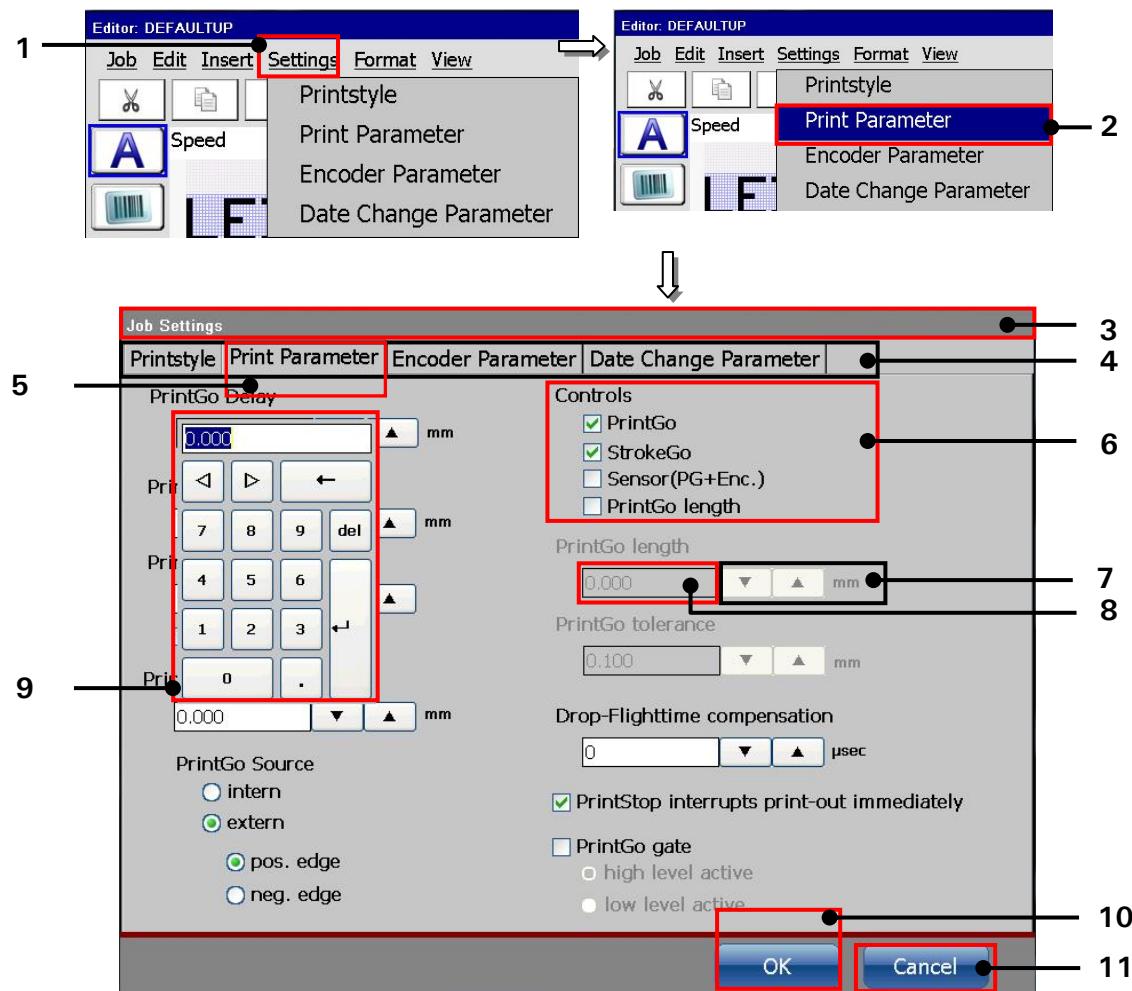
### 8.2.5 Job settings dialog box - Overview

The drop-down menu <Settings> offers the following options:

- Printstyle
- Print parameter
- Encoder parameter
- Date changing parameter

The settings for each option are arranged in tabs.

**Figure 121 Job editor - Parameter settings dialog box)**



1 – Drop-down menu <Settings>

2 – Option <Print Parameter>

3 – Dialog box <Job settings>

4 – Tab bar

5 – Tab caption <PrintGo Parameter>

6 – Check boxes

7 – Arrow keys

8 – Display field

9 – Numeric keypad

10 – Button <OK>

11 – Button <Cancel>

## Open a dialog box and enter settings

(Example: Enter settings within the tab „PrintGo Parameter“)

### Proceeding:

- Open the drop-down menu <Settings> (1) and select <Print Parameter> (2).
- This opens the <Job Settings> dialog box (3).
- The dialog box <Job Settings> has a tab with 4 tabs (4). Respectively the parameter settings are separated in 4 groups: <Print style>, <PrintGo Parameter>, <Encoder Parameter>, <Date change parameter>. A tab is selected by pressing the caption (5). In this example the <PrintGo Parameter> tab is selected.
- Options are activated using check boxes (6).
- Parameters are entered into display fields (8). Inputs or changes can either be made by using the arrow keys (7) or a numeric keypad (9).

#### INFORMATION



The chapter **6.4.1 Numeric keypad** describes further details regarding this input method.

- Pressing the <Cancel> button (11) discards all changes and closes the dialog box.
- Pressing the <OK> button (10) confirms and saves all settings and changes and closes the dialog box.

#### INFORMATION

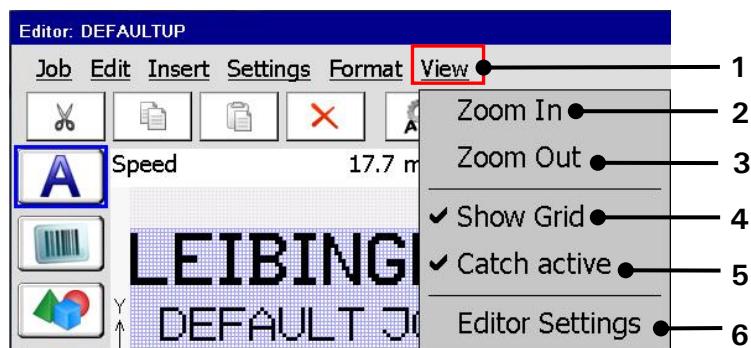


The chapter **8.5 Job settings** describes further details about the content of all tabs of the <Job Settings> dialog box.

### 8.2.6 View settings

With the button <View> you can select the viewing tools of the job editor.

**Figure 122 Job editor - Viewing tools**



1 – Drop-down menu <View>

2 – Viewing tool <Zoom In>

3 – Viewing tool <Zoom Out>

4 – Viewing tool <Show Grid>

5 – Viewing tool <Catch active>

6 – <Editor settings>

Pos.	Display tool	Function
2.	Zoom In	Zooms into the editing area.
3.	Zoom Out	Zoom out of the editing area
4.	Show Grid	Turns on or off the grid. The activated grid is indicated with a checkmark on the menu entry.
5.	Snap to grid	Turns on or off the snap to grid function. This function enables easy and exact positioning of elements. The activated function is indicated by a checkmark in the menu entry.
6.	Editor Settings	Opens the dialog box for the settings of the editor (size, grid).



#### Information

Please see chapter **8.6 Job editor settings** for details about the job editor settings.

### 8.3 Job editor – File management

In the job management the following submenus are available:

- Save Job
- Save Job as
- Close Editor
- Load Job to print

#### 8.3.1 Save job/Save job as

With the option <**Save Job**>, a job which opened for editing is saved under the current name.

With the option <**Save Job as**>, a job which opened for editing or a new created job can be saved under a new or particular name.



#### ATTENTION

There will be no confirmation prompt if a job is saved under an already existing file name. An already existing file will be overwritten without any further notice.

#### Proceeding:

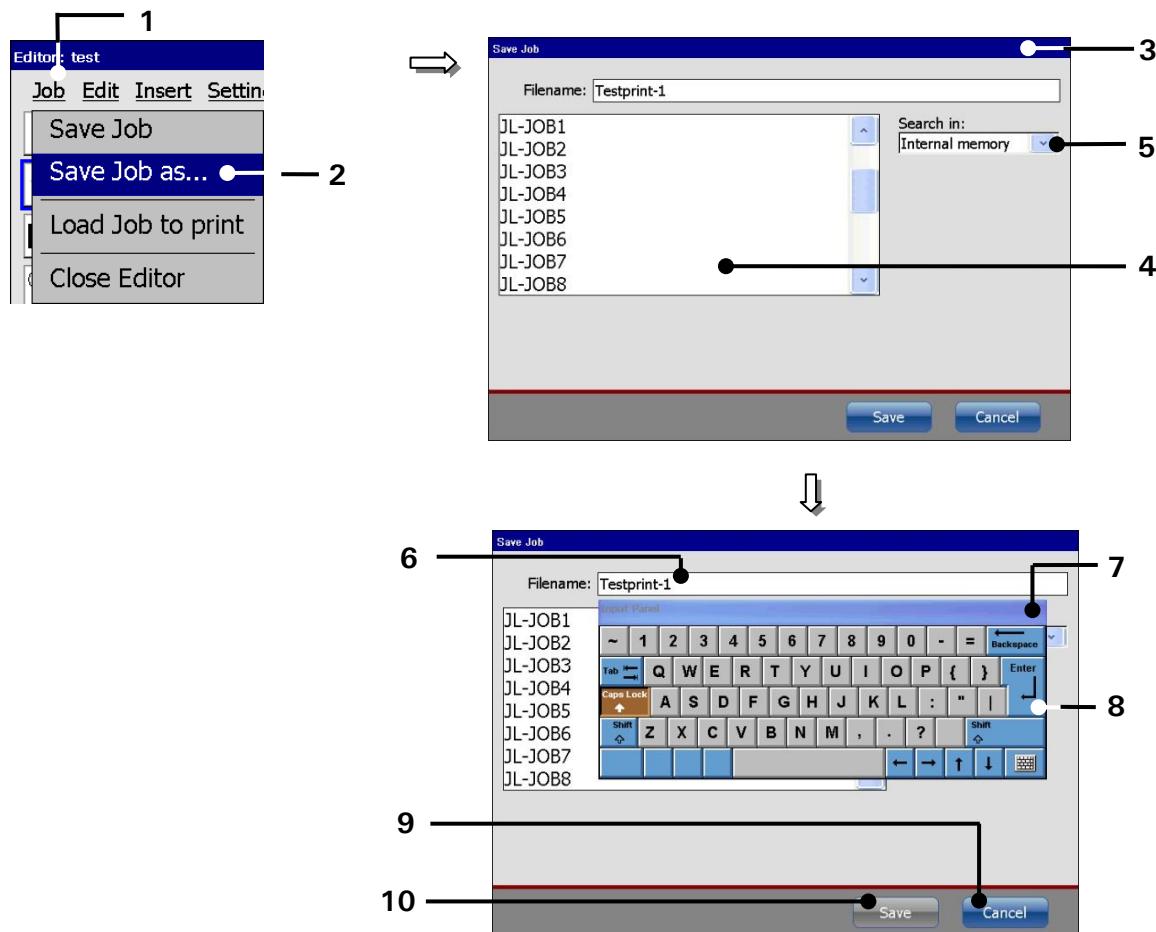
- Press the button <Job> (1) and the option <**Save Job as**> (2).
- The window <**Save Job**> (3) is faded in.
- The names of the already existing graphics are displayed in the data file selection field (4). With the drop-down list <**Search in**> (5) you can select the different memory devices.
- Click in the display <**Filename**> (6). A keyboard field (7) opens for input.



#### INFORMATION

You will find further information regarding the operation with keyboard in chapter **6.4.2 Keyboard**

- Enter the requested name.
- Press the button <**Enter**> (8) of the keyboard field. The entered name is taken over to the display <**name**> (6).
- Press the button <**Save**> (9) to finish the saving process or press the button <**Cancel**> (10) to abort the process.

**Figure 123 Job editor - Save job as**

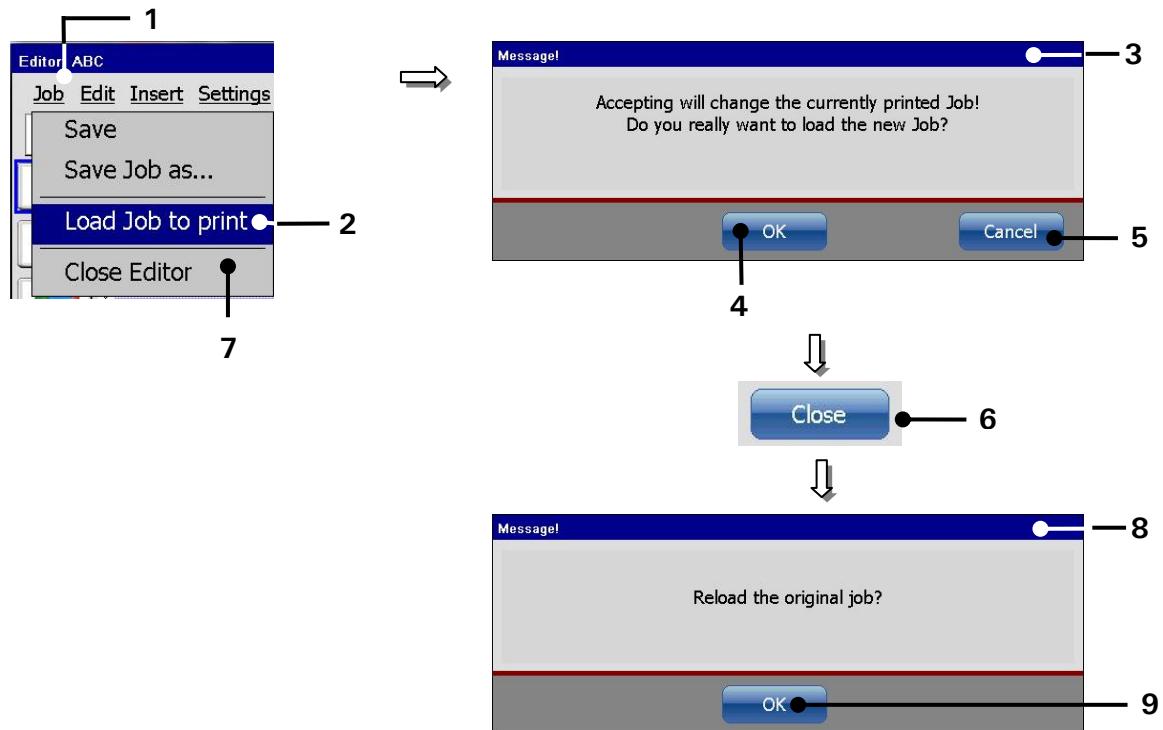
- 1 – Drop-down menu <Job>
- 2 – Option <Save Job as...>
- 3 – Dialog box <Save Job>
- 4 – Pick list <Print job files>
- 5 – Drop-down list <Search in>

- 6 – Input/Display field <Filename>
- 7 – Software keyboard
- 8 – <Enter> Button
- 9 – <Save> Button
- 10 – <Cancel> Button

### 8.3.2 Load job to print

With the option <Load Job to print> the job which is currently opened in the job editor can be loaded directly for printing.

**Figure 124 Job editor (Load job to print)**



- 1 – Drop down menu <Job>
- 2 – Option <Load Job to print>
- 3 – Message <Print job change>
- 4 – <OK> Button
- 5 – <Cancel> Button

- 6 – Button <Close>
- 7 – Option <Close Editor>
- 8 – Message <Reload original job>
- 9 – Button <OK>

#### Proceeding:

- Press the button <Job> (1) and the option <Load job to print> (2).
- A confirmation prompt (3) pops up.
- Confirm the change by pressing on the <OK> button (4) or cancel the process with the button <Cancel> (5).
- The job in the job editor is now loaded for printing. **Attention!** If there already occurred a <PrintGo> signal for the original job, the JET3up starts immediately the printing process.

**1. Print loaded job (without given print release):**

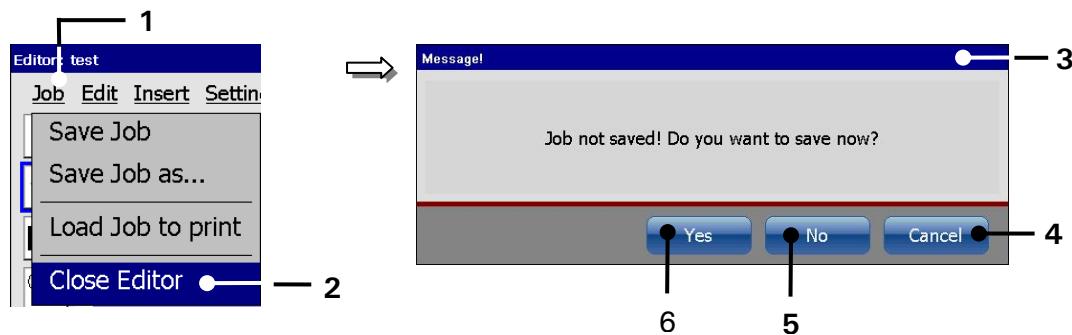
- Press the button <Close> (6) of the job editor.  
or
- Press the button <Job> (1) and the option <Close Editor> (7).
- A **confirmation prompt** (8), pops up asking whether if the original printing job should be loaded again.
- **For technical reasons only a confirmation is possible! After editing a print job and loading it to print printouts are only possible from within the job editor. In order to see the edited job in the Main Window the job has to be loaded from within the Main Window.**
- The job editor will be closed and the Main Window is displayed again. The printer is ready for the next <PrintGo> signal.

**2. Load original job again (reload):**

- Press the button <Close> (6) of the job editor.  
or
- Press the button <Job> (1) and the option <Close Editor> (7).
- A confirmation prompt (8), pops up asking whether if the original printing job should be loaded again.
- Press the button <OK> (10) to reload the **original** job.
- The job editor will be closed and the original job is now available.  
**Attention!** If there already occurred a <PrintGo> signal for the original job, the JET3up starts immediately the printing process.

### 8.3.3 Close job editor

Figure 125 Close job editor



1 – Button <Job>  
2 – Option <Close Editor>  
3 – Confirmation prompt

4 – Button <Cancel>  
5 – Button <No>  
6 – Button <Yes>

With the option <Close Editor> you can close the job editor.

If changes were not already saved a confirmation prompt pops up.

In this case the following options are available:

- Press the button <Cancel> (4) to abort the process and to go back to the editor.
- Press the button <No> (5) to leave the editor without saving the job.
- Press the button <Yes> (6) to save the job when leaving the editor. **Attention!** The saving happens under the current data file name. The existing data will be overwritten!

## 8.4 Object settings

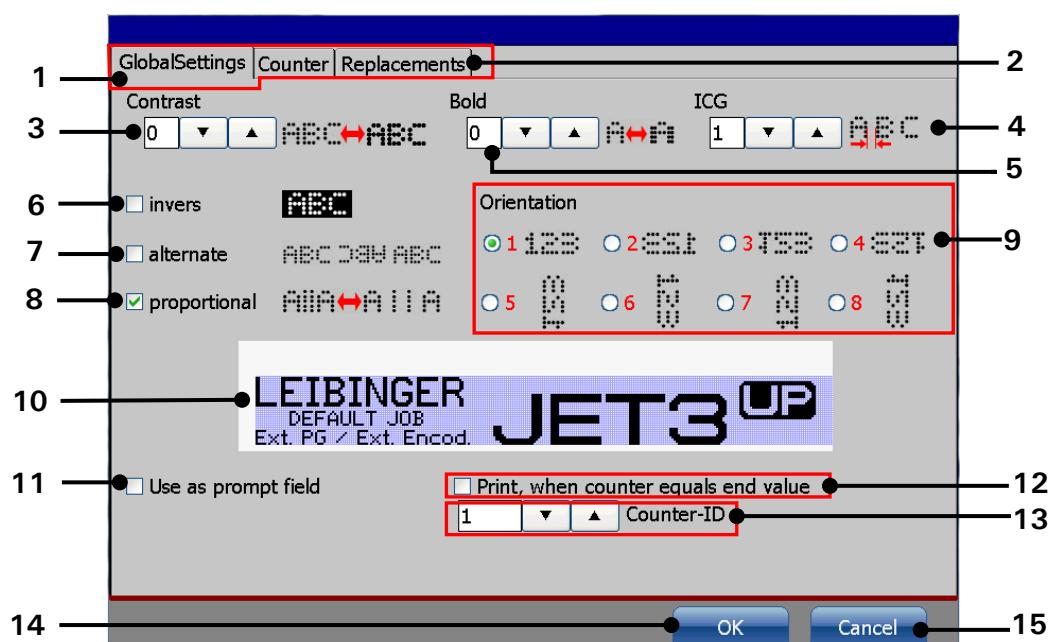
The <Object Settings> dialog box provides the settings for the object properties of the currently selected object. The available settings and parameters are grouped tabs and depend on the kind of object selected.

Please see chapter **8.2.3 Object creation tools** about the details of object creation.

If a new object is created with one of the object creation tools the <Object settings> dialog box opens automatically.

Most of the settings provide small icons that show the outcome of the respective setting. Additionally there is a preview area that shows the effects of the settings on the object selected.

**Figure 126** Object setting dialog box



- 1 – <Global settings> tab
- 2 – Tab bar <Object settings>
- 3 – <Contrast> spin button
- 4 – <ICG> spin button
- 5 – <Bold> spin button
- 6 – <Inverse> checkbox
- 7 – <Alternate> checkbox
- 8 – <Proportional> checkbox

- 9 – <Orientation> and <Mirroring>
- 10 – Preview with selected counter object
- 11 – <Prompt field> checkbox
- 12 – <Counter> checkbox
- 13 – <Counter-ID> spin button
- 14 – <OK> button
- 15 – <Cancel> button

### Available settings

Pos.	Object settings	Note
3	Printout contrast	Not available for barcodes and graphics
4	ICG - Inter Character Gap	Not available for barcodes and graphics
5	Bold printout	Not available for barcodes and graphics
6	Printout inverted	See separate description
7	Alternating printout	See separate description
8	Proportional printout	Not available for barcodes and graphics
9	Orientation and mirroring	See separate description
11	Prompt field function	Not available for graphics
12	Print when counter = 0	Object is assigned to a counter
13	Assigned Counter ID	Counter ID the object is assigned to

#### 8.4.1 Contrast value

The setting determines the print contrast of the object. Allowed are values between 0 – 7. The currently value set is shown in the respective input field.

In order to increase the contrast of a printout, dots were printed on top of each other.

**Example** 0 = no contrast increasing (single printout)

1 = 2 dots are placed on top of each other

2 = 3 dots are placed on top of each other

.....

7 = 8 dots are placed on top of each other

The value set is displayed in the respective input field.

**Figure 127 Object settings – Contrast**





### ATTENTION

For technical reasons the <**Contrast**> function works only for complete strokes (vertical printed dot line). This means that objects positioned above or below the object with the contrast Attribute will also be affected from the setting.

**Example:**

In a two line printout the contrast attribut was assigned to the object in the lower line only. Nevertheless the objects in the upper line which are positioned directly above the object with the contrast attribut will be also affected from this setting.

1. Line:	Leib	binger Ink-Jet
2. Line:	Printer	

**Note:**

The higher the contrast set the lower is the max. printing speed!

#### 8.4.2 Bold level - Bold text

In order to set the <**bold**> attribute to a text the bold level has to be determined. There are 8 levels available: 0 – 7. The currently value set is shown in the respective input field.

The <**bold**> attribute is created by printing additional parallel strokes to the standard dots.

**Example** 0 = no bold text (single strokes)

1 = 2 dots are placed parallel (2 strokes)

2 = 3 dots are placed parallel (3 strokes)

.....

7 = 8 dots are placed parallel (8 strokes)

The value set is shown on the accordant input field.

**Figure 128 Object settings (Bold text)**

**Printout:**

Standard      With bold attribut

Bold	0	▼	▲	A↔A
------	---	---	---	-----

A B C      F A E S C

Bold	1	▼	▲	A↔A
------	---	---	---	-----

### 8.4.3 ICG-value (Inter Character Gap)

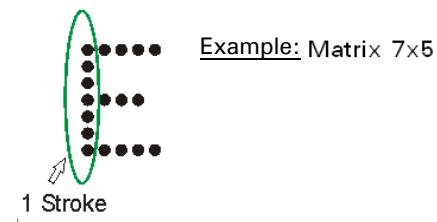
ICG stands for **Inter Character Gap**. The setting determines the distance between the several characters. As larger the character distance has been selected, as more „**Blank strokes**“ are inserted between the single characters.

The value can be set between 0 – 7.

- Example**
- 0 = no distance between the characters
  - 1 = 1 blank stroke is generated between the characters
  - .....
  - 7 = 7 blank strokes are generated between the characters

The currently value set is shown in the respective input field.

**Explanation:**



One vertical movement of the ink jet is called a **stroke**.  
A printout consists of a number of continuous strokes.

**Figure 129 Object settings (ICG)**

**Printout:**

ICG = 0

**ABC**

ICG = 1

**ABC**

ICG = 7

**A B C**

ICG

ICG	0	▼	▲	ABC
-----	---	---	---	-----

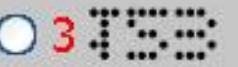
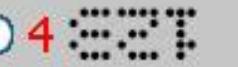
ICG	7	▼	▲	ABC
-----	---	---	---	-----

ICG	1	▼	▲	ABC
-----	---	---	---	-----

#### 8.4.4 Orientation and mirroring

The settings for the <Orientation> and <Mirroring> of an object are combined. Objects can be rotated by 90°/180° or 270° and the result can be vertically mirrored. Therefore there are 8 combinations available.

Figure 130 Object settings - Orientation and mirroring

1	2	3	4
Not rotated	Not rotated	Rotated by 180°	Rotated by 180°
Not mirrored	Vertically mirrored	Vertically mirrored	Not mirrored
 1 123	 2 231	 3 T53	 4 S2T
 5	 6	 7	 8
5	6	7	8
Rotated by 90°	Rotated by 270°	Rotated by 90°	Rotated by 270°
Vertically mirrored	Not mirrored	Not mirrored	Vertically mirrored

#### 8.4.5 Printout options

There are several printout options available which can also be combined with each other. These options affect the look of the printout of the object selected.

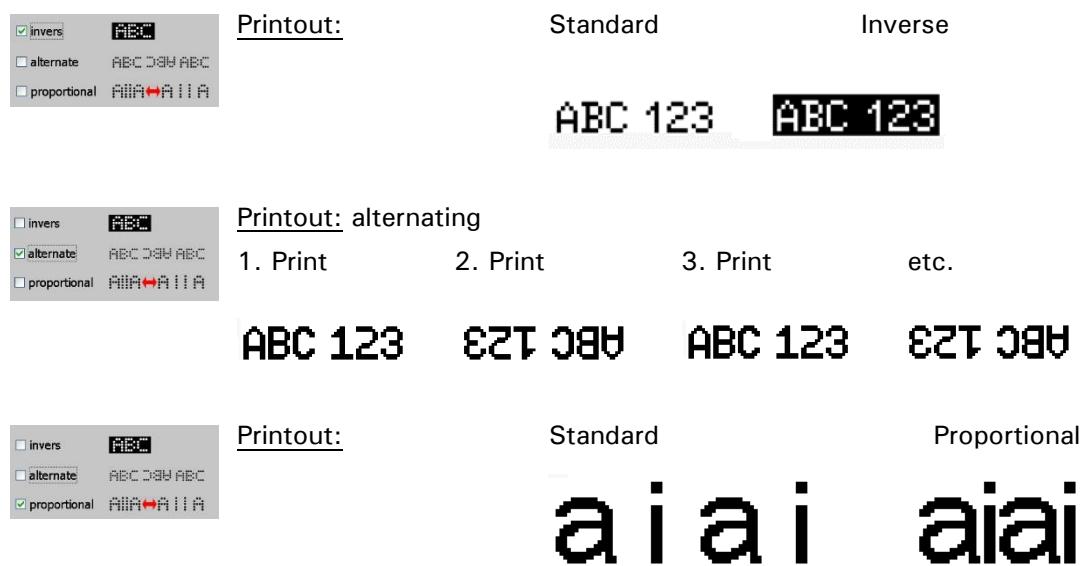
The result is displayed in the preview area of the <Global settings> dialog box.

The following options are available:

- invers
- alternate
- proportional

An option is activated by ticking off the respective checkbox.

**Figure 131 Printout options**



- **Inverse printout:** The printing element is printed inverse.

Example:

A printout of letters with black ink on a white substrate.

**Without** the option <Invers> the letters are printed in black.

**With** the option <Invers> the area around the letters will be printed in black and the letters stay white.

- **Alternating printout:**

Every second printout is mirrored horizontally and vertically.

- **Proportional printout:**

In standard mode each letter printed has a fixed width. With the <proportional> option the space between the letters printed is optimized.

#### 8.4.6 Counter assignment

With this function you can assign a counter to an object in order to create a periodically repeated object.

Basically a counter can be assigned to all kinds of objects:

- Text objects
- Barcode objects
- Graphic objects
- Time/Date objects
- Counter objects
- Shift code objects
- External text objects

With an activated assigned counter you can define at which counter reading the object shall be printed. With this function it is possible to create a print job with periodically repeated elements. See example for details.

Please see details regarding the counter function in chapter

##### 8.7.3.1 Counter parameter

**Figure 132 Settings for counter assignment**

###### Check box Print, when counter

= end value

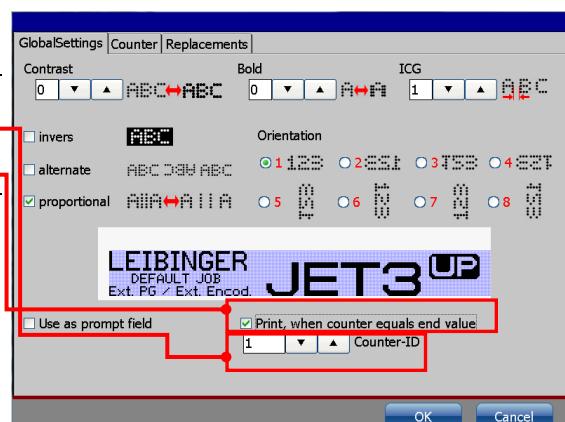
With this box checked a counter is assigned to the object.

###### Arrow keys Counter ID

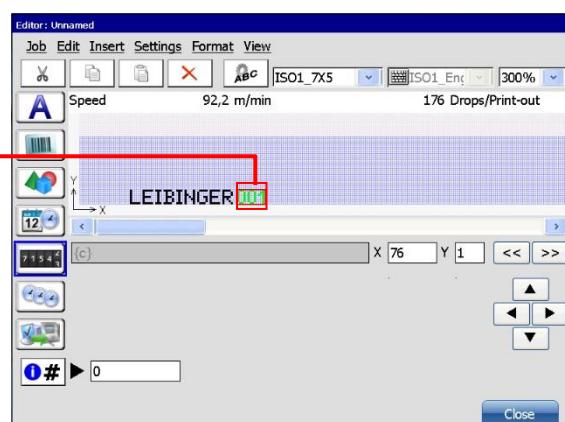
With these spin buttons you choose the required counter. You'll have to make sure that there is a counter object defined in the job and and that the correct ID is set.

If there's no counter defined in the current print job or in case you set the wrong ID the counter assignment settings will be ignored.

Selected counter object



**Settings for counter assignment**



**Non-printable counter in the preview of the job editor**

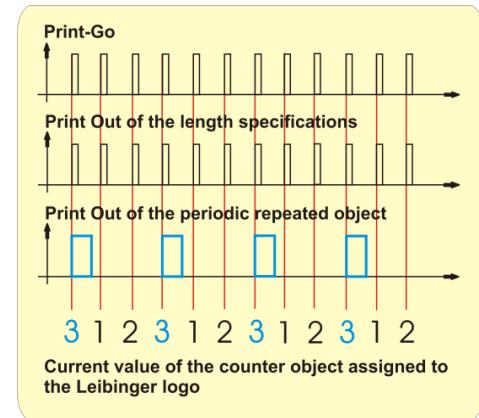
**Example** In this example lengths specifications are printed on a cable (for details see <Meter-Go-function>). In addition the word **Leibinger** shall be printed together with each third printout. See Picture 1 for details.



**Picture 1 – Example cable print: the Leibinger logo together with each third meter printout**

The printout of the length specifications are controlled by the PrintGo signals. The printout of the **Leibinger** logo is controlled by the value of the counter that is assigned to the **Leibinger** text object.

Picture 2 shows the timing diagram. For this print job are several settings required.

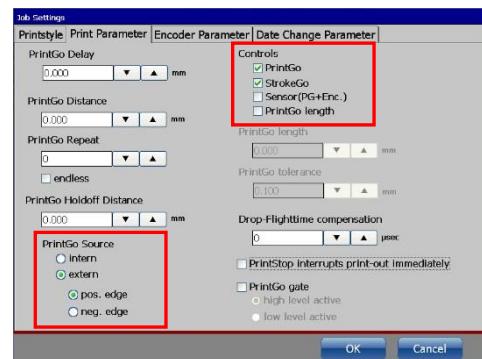


**Picture 2 – Timing diagram for the periodically repeating object**

### Settings for the PrintGo parameters

The PrintGo parameters are the same for all objects printed. The PrintGo signals (from the external measuring system) and the StrokeGo signals (from the external encoder) are used to control the printout.

Relevant settings are marked in **Picture 3**.



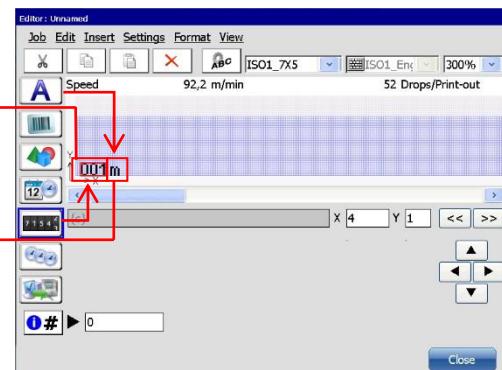
**Picture 3 – PrintGo settings for all printed objects**

### The two „object groups” in the JET3up job editor

#### “Length specification group”

Counter object for the length specifications.

Text object for the unit [m].  
No specific settings needed.



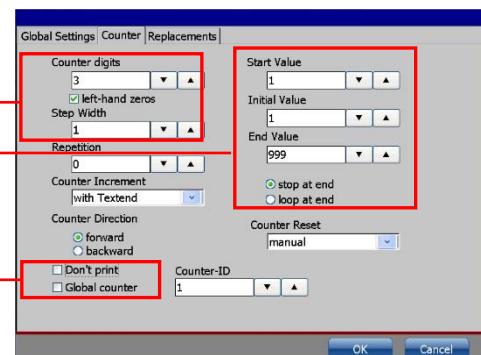
**Picture 4 – JET3up job editor:  
Objects for the length  
specifications printout**

#### Counter parameters

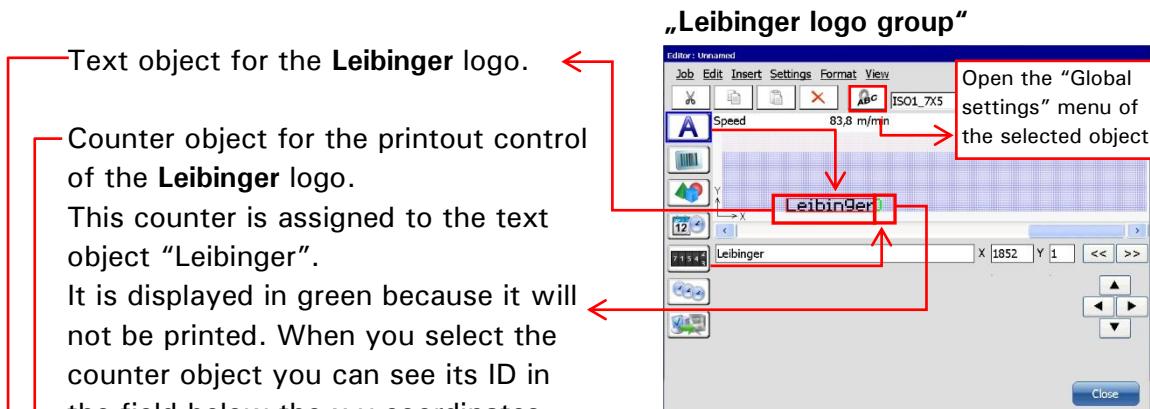
Counter parameters

#### Printout of lengths specifications

1. The lengths specifications are printed with 3 digits, left-hand zeros and step width is 1  
In this example: 1 meter.
2. The count will start at 1 meter and it will stop after 999 meter.
3. The current counter value is printed after each PrintGo signal.

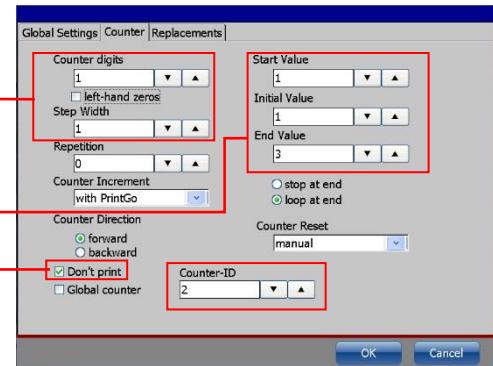


**Picture 5 – Counter settings for  
the length specifications  
printout**

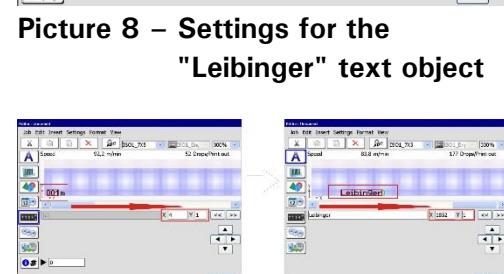
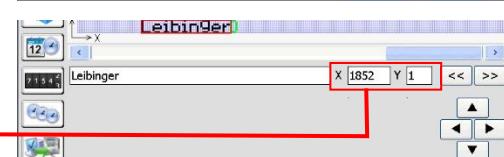
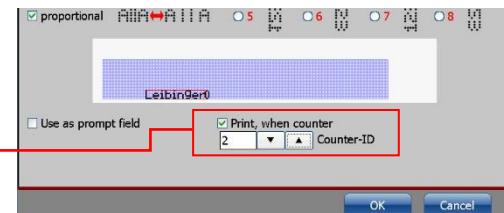


Picture 6 –

### JET3up job editor: Objects for the „Leibinger“ logo printout



Picture 7 – Counter settings for the Leibinger text object



#### 8.4.7 Prompt field

This function provides a fast access to editable objects.

The following objects can be defined as <Prompt fields>:

Object type	Editability
Text object	Text content
Barcode object	Barcode content
Counter object	Counter initial value
Time/Date object <b>only if declared as expiry date*</b>	Days or months before expiration

\* There has to be set a value >0 for the expiry date offset. Otherwise the prompt function is not available for a date or time object.

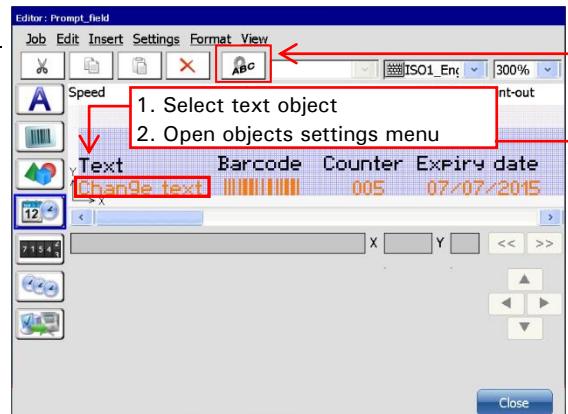
Depending on the object type the editability is different. If an object is declared as a <Prompt field> it is possible to edit it without entering the editor. The editing can be done directly on the WYSIWYG screen.

Figure 133 Settings for prompt field

#### JET3up job editor

##### Object

To use an object as a <Prompt field> select the object in the JET3up job editor and open the object settings menu



Text object in the JET3up job editor

#### Global object settings

**Check box - Use as <Prompt field>.**

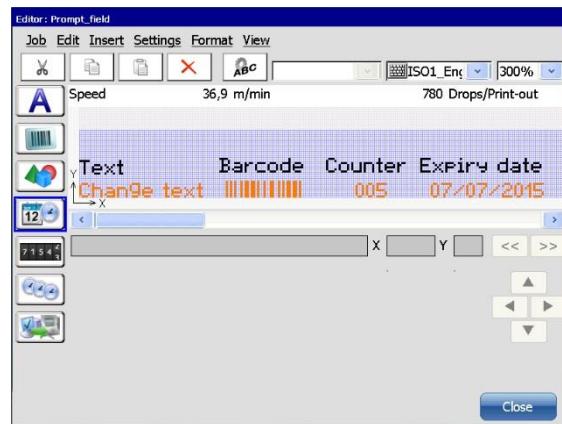
Checking this box opens a text entry field to assign a name to the <Prompt field>. Prompt fields have to be named for a better handling in case you are working with more than one <Prompt field>.



Declaring an object as a <Prompt field>

The number of <Prompt fields> within a print job is only limited by the maximum number of objects you can have in a print job.

In the JET3up editor the <Prompt field> is displayed in a orange color and it shows the current content



<Prompt field> in the editor

With the "Show prompt" button you can open a dialog box for changing the content

The <Prompt fields> in the WYSIWYG window of the main window. You can see the field itself with the current content and a button labelled "Show prompt".

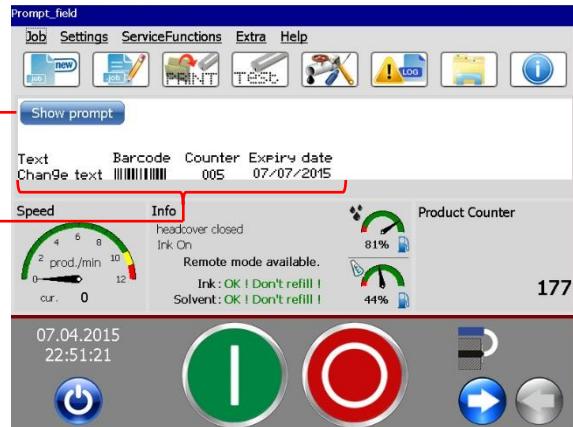
The button "Show prompt" opens a dialog box that shows a list of all <Prompt fields> of the current print job with the respective contents.

It is also possible to change the current content of each <Prompt field>.

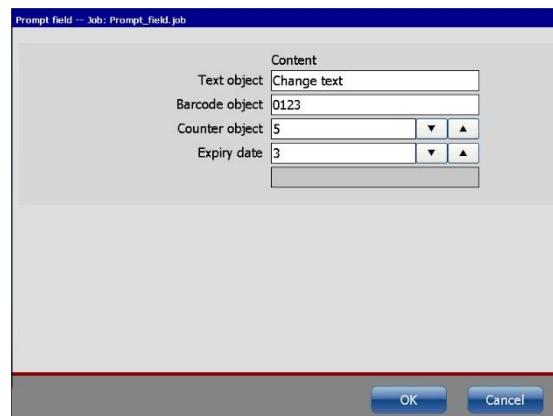
All changes have to be confirmed with the OK button.

Changes will be shown immediately in Dialog box of the <Prompt field> the WYSIWYG window.

**The same dialog box will show up when you open a job with <Prompt fields>.**



The <Prompt field> in the WYSIWYG window



## Overview Settings and Changes

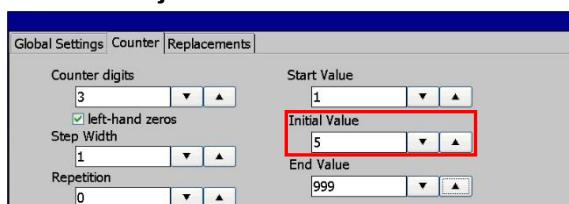
Original settings are made in the respective object settings menus

### Text object



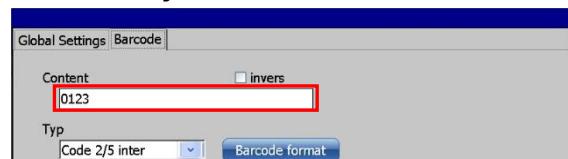
The content of the text object is originally set directly in the JET3up editor.

### Counter object



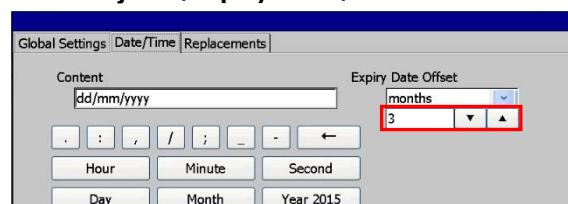
The content of a counter is originally set in the object settings. The value that can be changed using the <Prompt field> is the <Initial value>.

### Barcode object



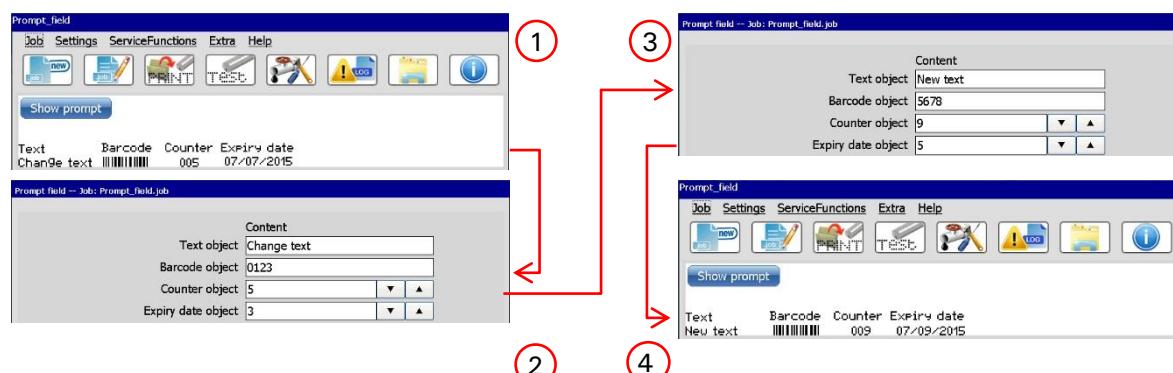
The content of a barcode object is originally set in the object settings.

### Date object (Expiry date)



The content of a date object is originally set in the object settings. The value that can be changed using the <Prompt field> is the <Expiry Date Offset>.

### New settings made by using the <Prompt field>



WYSIWYG Window and <Prompt field> properties with the original settings.

WYSIWYG Window and <Prompt field> properties with the new settings.

All changes can be made in one dialog box without entering the JET3up Editor!

## 8.5 Job settings

The dialog box <Job settings> is grouped in 4 tabs. The 4 groups are:

### Printstyle

This tabs provides all parameters regarding the look and the size of the printout

### Print parameter

This tab provides all parameters regarding the positioning of the printout and the evaluation of sensors.

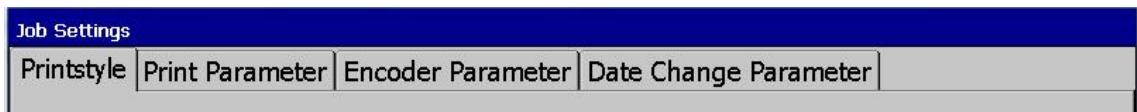
### Encoder parameter

This tab provides all parameters regarding the speed and direction of the printout whereby the speed/direction measurement can be done with an external encoder, a speed defined internally or by the evaluation of external sensors.

### Date change parameter

This tab provides the option of defining a date offset.

**Figure 134 Job settings dialog box – Available tabs**



### INFORMATION

You will find an overview and further information regarding the available parameters in chapter **8.2.5 Job settings dialog box - Overview**

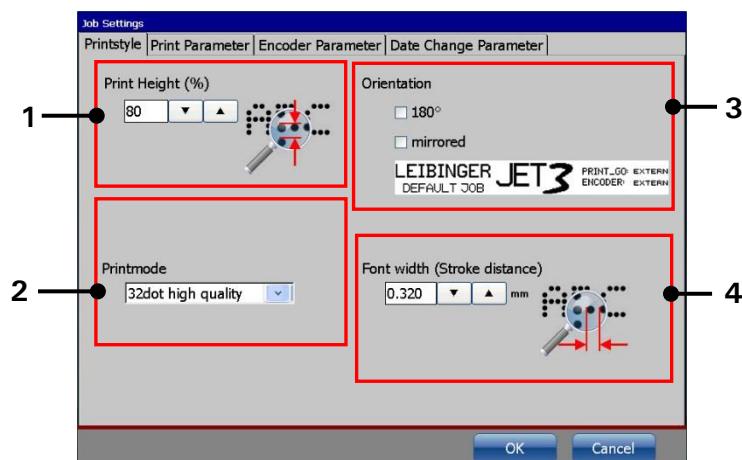
### 8.5.1 Print style - Font parameters

The <Printstyle> provides parameters for the design of the printout.

The following parameters are available:

- |                                |               |
|--------------------------------|---------------|
| ■ Print height                 | ■ Orientation |
| ■ Font width (Stroke distance) | ■ Print mode  |

**Figure 135** Printstyle tab



1 – Print height

3 –Orientation

2 –Printmode

4 –Font width

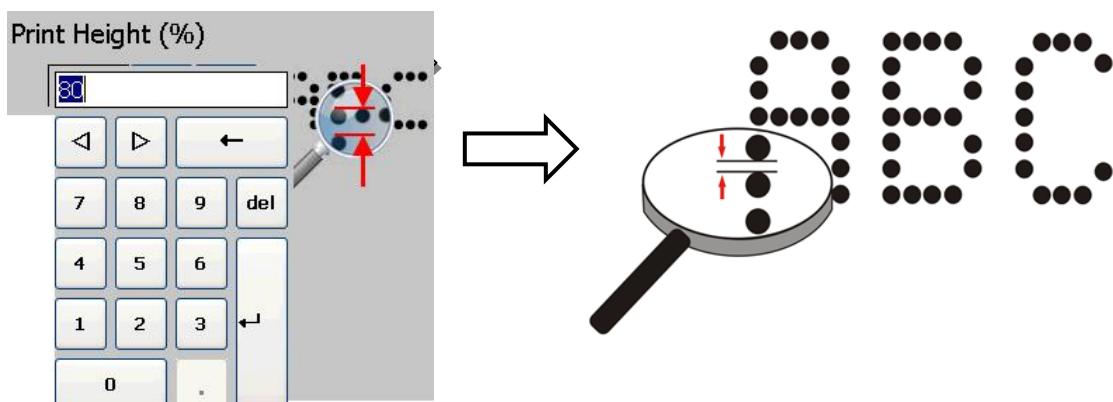
#### 8.5.1.1 Print height

The setting defines the print height. The print height is determined by the vertical drop distance. The value can be set between 1 – 100%.

The value set is displayed in the respective input field.

As higher the entered value, as larger the distance between the single dots.

**Figure 136** Font parameter values (Print height)



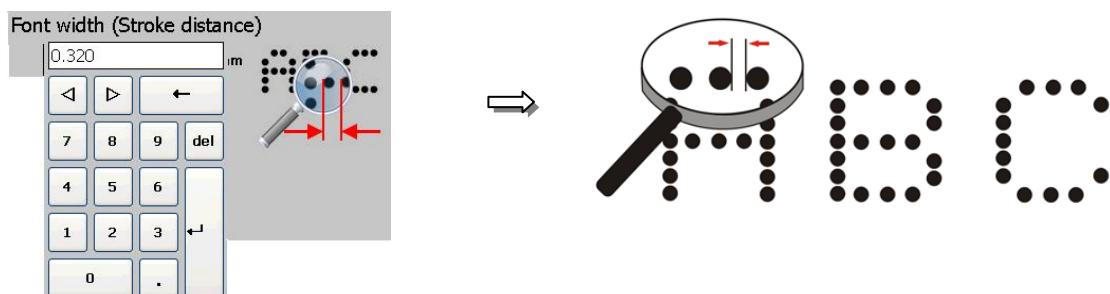
### 8.5.1.2 Font width - Stroke distance

The setting determines the print width. The print width is determined by the horizontal drop distance of the strokes. A **stroke** is one vertical movement of the ink jet. The input dimensions corresponds with the dimensions selected in the <Basic settings> menu e.g. **mm**.

The value set is displayed in the respective input field.

As higher the entered value, as larger the distance between each stroke.

**Figure 137** Font parameters - Font width



### 8.5.1.3 Orientation

There are three options available to change the orientation of the printband.

The printband can be rotated by 180° → checkbox (1)

The printband can be vertically mirrored → checkbox (2)

The printband can be rotated **and** mirrored → checkbox (1) + (2)

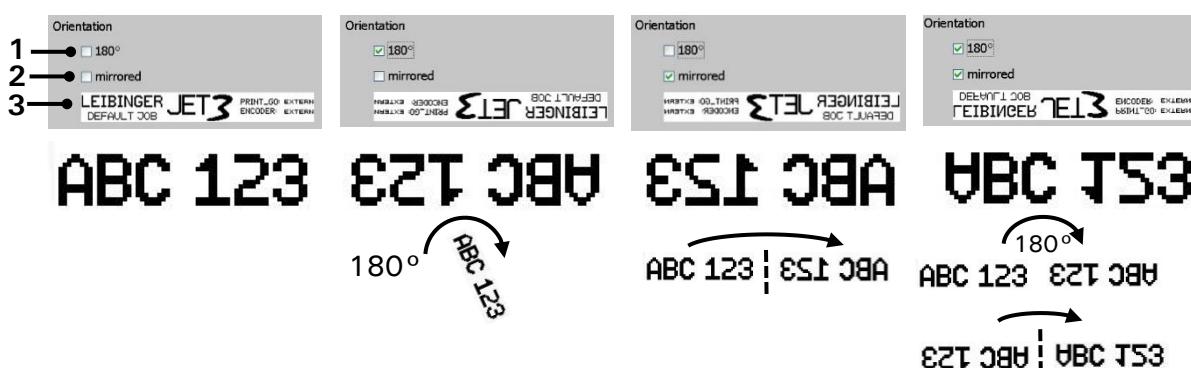
There is a preview window below the checkboxes in order to check the results.



#### ATTENTION

The settings not only have an effect on single printing objects but on the complete print-band!

**Figure 138** Font parameters - Orientation of the print band



- 1 – Checkbox <Orientation>  
2 – Check box <mirrored>

- 3 – Preview

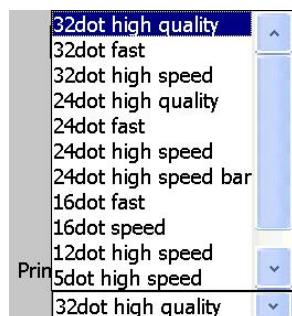
#### 8.5.1.4 Print mode

The print mode is selected from the <Print mode> drop-down list. There are 12 printing modes available.

The print modes are classified in three categories: the maximum number of vertical dots per line, the print quality and the printing speed. You can either aim for high print quality or high speed. There are five different values for the dots and three modes for quality respective speed available whereby not all combinations of these criteria are possible.

- **Available dot modes:** 32, 24, 16, 12, 5 and 2-line 7x5
- **High quality mode:** This mode allows the best possible positioning of the single dots and therefore the best possible print quality. Change to fast mode if the required speed cannot be reached in HQ-mode.
- **Fast mode:** This mode is a good compromise between quality and speed. Change to high speed mode if the required speed cannot be reached in HQ-mode.
- **Speed mode** The <Speed mode> is located between the <Fast mode> and the <High speed mode>.
- **High speed mode:** This mode ensures the fastest possible print speed. The quality of the printout is not optimal but acceptable.

**Figure 139** Font parameters - Print mode



Pos.	Print mode	Annotation
1	2-line 7 dot high speed	
2	5 dot high speed	
3	12 dot high speed	
4	16 dot fast	
5	16 dot speed	
6	24 dot high speed barcode	
7	24 high speed	
8	24 dot fast	
9	24 dot high quality	
10	32 dot high speed	
11	32 dot fast	
12	32 dot high quality	



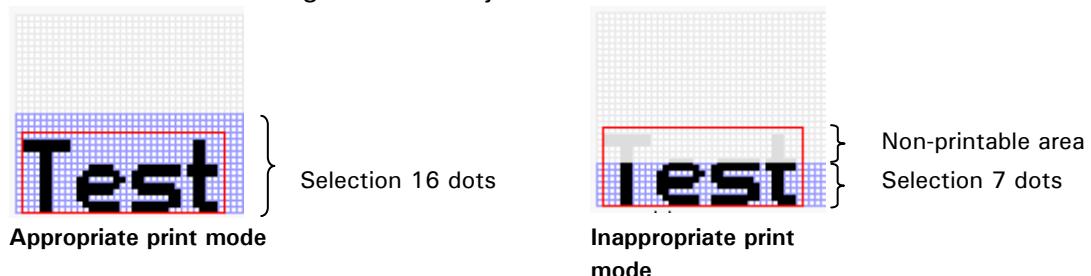
#### ATTENTION

The number of vertical dots of the **print mode** selected has to be greater or equal than the number of vertical dots of the selected font matrix. Inappropriate print modes may result in incomplete printouts.

A mismatch between the selected print mode and the selected font matrix can be identified in the preview shown in the editing area of the Job editor.

#### Example for a selected font matrix of 12x 8 (12 dots in height and 8 dots in width):

Previews in the editing area of the job editor



### 8.5.2 Print parameter

The <Print Parameter> tab provides parameters for the kind of text output, the PrintGo source and several monitoring functions in combination with sensor evaluations.

#### List of available settings:

- |                            |                                    |
|----------------------------|------------------------------------|
| ■ PrintGo-Delay            | ■ Monitoring and control functions |
| ■ PrintGo-Distance         | ■ PrintGo length                   |
| ■ PrintGo-Repeat           | ■ PrintGo tolerance                |
| ■ PrintGo-Holdoff Distance | ■ Drop Flighttime                  |
| ■ PrintGo Source           | ■ PrintGo-Gate                     |



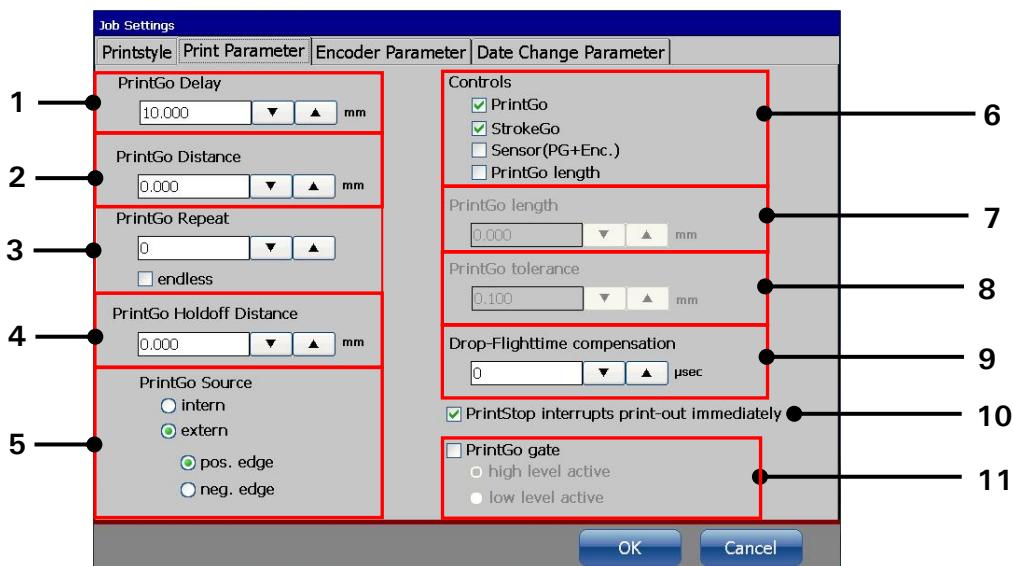
#### Important

The JET3up printer works with an internal shift register for PrintGo signals. Up to 8 PrintGo signals are buffered. This allows distances between the products to be printed on which are shorter than the length of a single product.

#### Note:

Because of the size of the buffer the shift register will only work properly as long as there are not more than 8 products between the PrintGo sensor and the printhead.

**Figure 140 Print parameter tab**



- 1 – PrintGo delay settings
- 2 – PrintGo distance settings
- 3 – PrintGo repeat settings
- 4 – PrintGo Holdoff distance settings
- 5 – PrintGo Source settings
- 6 – Print control settings

- 7 – PrintGo length settings
- 8 – PrintGo tolerance settings
- 9 – Drop-Flighttime compensation
- 10 – PrintStop settings
- 11 – PrintGo gate settings

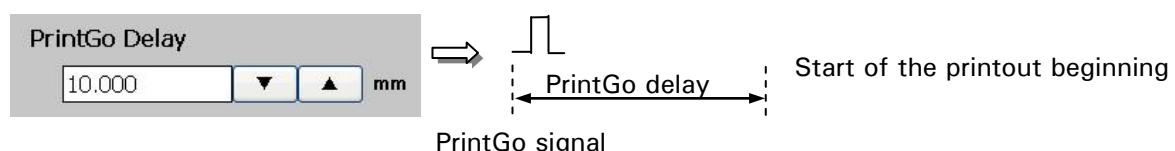
### 8.5.2.1 PrintGo-delay

With this setting a delay of the printout is set. The delay is specified in the dimension set in the <Basic settings> e.g. in **mm**.

The PrintGo delay defines the distance between the PrintGo signal and the beginning of the printout.

The current delay is shown in the respective input field.

**Figure 141 PrintGo-delay**



### 8.5.2.2 PrintGo-distance

The <PrintGo distance> defines the distance between the printouts. The delay is specified in the dimension set in the <Basic settings> e.g. in **mm**.

The referenc point for the distance measurement is the beginning of the printout.

The current value is shown in the respective input field.

This parameter is important in combination with the <Repetition> parameters.

**Figure 142 PrintGo-distance**



#### ATTENTION

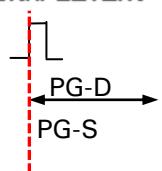
If the PrintGo distance is shorter than the printouts the printouts will be pushed together or overlapping. Additionally an inappropriate PrintGo distance may cause Print distance error messages.

**Example for a wrong PrintGo distance setting:**

Print-Go distance too small      →      SAMPLISAMPLISAMPLETEXT

Print-Go distance correct      →      SAMPLETEXT    SAMPLETEXT    SAMPLETEXT

1. Printout    1. Repetition  
SAMPLETEXT    SAMPLETEXT



PG-S = PrintGo signal

PG-D = PrintGo distance

The PrintGo distance between the first printout and the first repetition is shorter than the printout itself. Therefore the printouts will be pushed together or overlapping.

### 8.5.2.3 PrintGo - Repeat

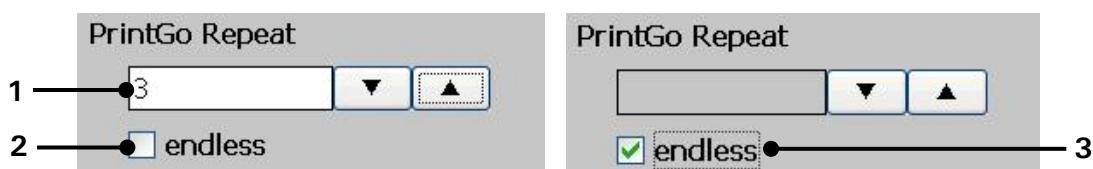
The <PrintGo Repeat> defines the number of print repetitions that follow after a PrintGo signal. Permitted values are 0 – 1000.

- Example:**
- 0 = no repetition (single print)
  - 1 = one repetition (double print)

The number of repetitions currently set is shown in the input field.

A special type of the <PrintGo Repeat> parameter is the <Endless> option (2). With this checkbox activated the printouts after a PrintGo signal will continue until a <PrintStop> signal occurs.

**Figure 143** PrintGo-repetitions



- 1 – Input / Display field <PrintGo-Repeat>      3 – Check box <Endless> active  
2 – Check box <Endless> inactive

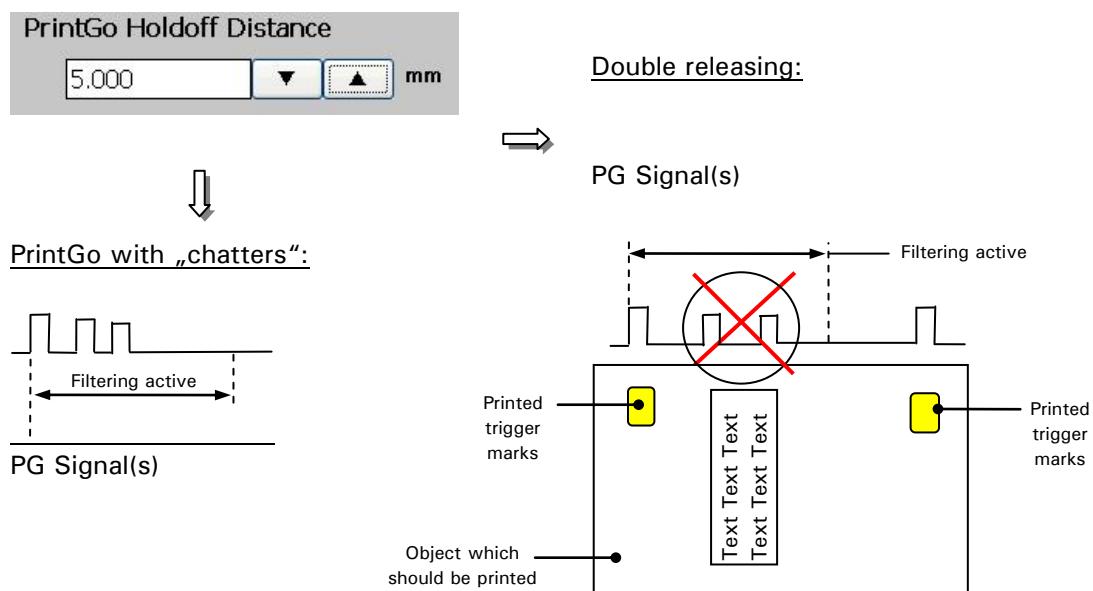
#### 8.5.2.4 PrintGo – Hold off distance

The setting provides a filtering of unrequested PrintGo-signals (e.g. PrintGo with bounces or double releasing). The value defines a length „x“ after the PrintGo-signal in which every further signal will be ignored.

The delay is specified in the dimension set in the <Basic settings> e.g. in mm.

The set value is shown on the accordant display field.

**Figure 144** PrintGo-holdoff distance



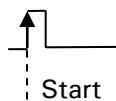
### 8.5.2.5 PrintGo-source - Print start control

In order to control the start of the printout a so called <PrintGo> signal is required. It can be generated internally, or by an extern sensor (e.g. light barrier, product sensor etc.). This sensor is called Print-Go source.

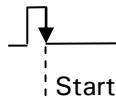
■ **Extern:**

If this function is activated an external sensor has to be connected to the interface X5 of the LEIBINGER JET3up. The print start will happen either with the positive or the negative signal edge. As long as the <PrintGo Repeat> parameter is set to 0 and the <endless> option is not selected each <PrintGo> signal will cause 1 printout.

Positiv edge selected:



Negative edge selected:



**Note:**

The product sensor 24V can be NPN- or PNP-connected.

For details please see chapter **5.5.2 Interface X5 - PrintGo** for details

■ **Internal:**

If this function is activated the printout starts as soon as the green <PrintStart> button on the main window of the printer is activated. With the internal <PrintGo source> selected the settings for the signal edge is greyed out.

**Note:** A connected sensor will not be monitored.

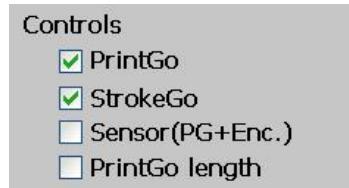
**Figure 145 PrintGo-source settings**



### 8.5.2.6 Controls - Monitoring functions

There are 4 monitoring functions available. Monitoring functions are especially required for high printing speeds.

**Figure 146** Controls - Monitoring functions

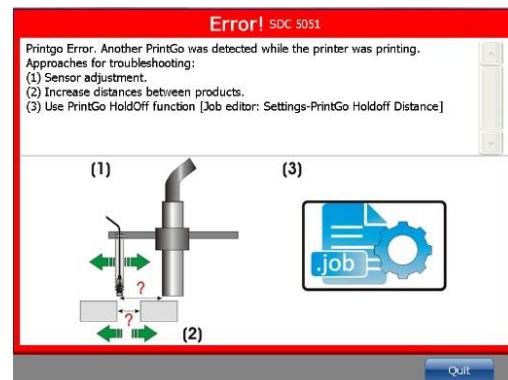


#### 8.5.2.6.1 PrintGo monitoring

With this function activated it is monitored whether each Print-Go signal is processed. If a signal can be not processed, an error message pops up.

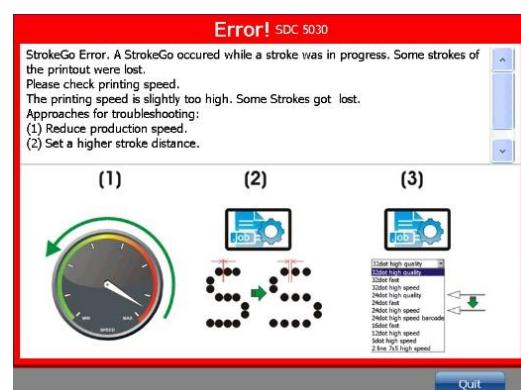
**Example:**

The PrintGo signal starts the printout. If the next PrintGo signal occurs during the printout an error message will pop up.



#### 8.5.2.6.2 StrokeGo monitoring

The signals from an encoder are called <**StrokeGo signals**>. These signals are used for speed measurement in order to control the print speed. A printout consists of a number of continuous vertical movements of the ink jet, the so called <**Strokes**>. With the <**StrokeGo monitoring**> activated the output of the <**Strokes**> is monitored. If the <**StrokeGo-signals**> are generated faster than the printer can produce the <**Strokes**>, an error message will pop up.



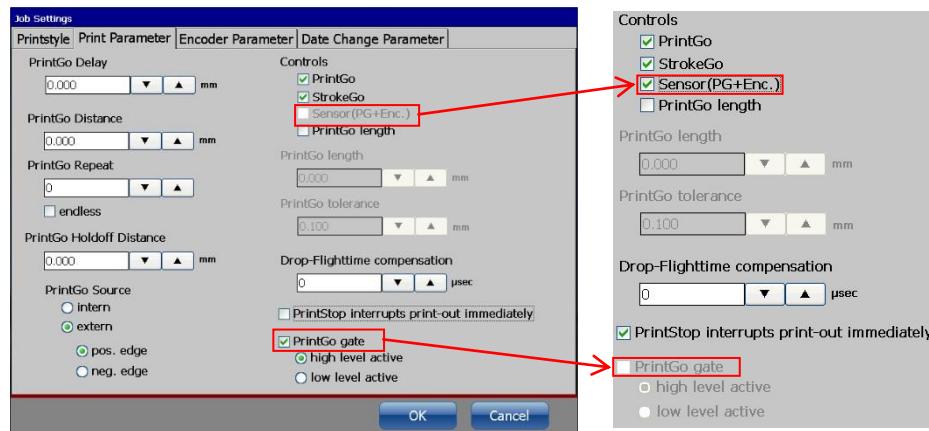
**Example:**

If the production speed and therefore the frequency of the <**StrokeGo signals**> is too high, stroke errors may be caused and the following error message pops up:

### 8.5.2.6.3 Sensor monitoring

With this function the print-control of the PrintGo sensor is complemented with a second sensor. The first sensor delivers the PrintGo signals and the signals of the second sensor are used for double-check. The two signals haven't to be present exactly at the same time, but they have to overlap at any rate. The function is activated by a checkbox on the <PrintGo Parameter> tab.

**Figure 147 Sensor monitoring - Settings**



The second sensor is connected to the PrintGoGate input of the JET3up printer. The PrintGoGate function will not be available if a second sensor is used for the PrintGo monitoring.

With the sensor monitoring activated two further functions will be monitored:

- Monitoring of the StrokeGo signals. These are the signals of a connected encoder.
- Monitoring of the **ready-for-printing** status. If there are PrintGo signals, StrokeGo signals (encoder signals) or signals from the second sensor received it will be verified whether the printer is ready for printing.

With activated sensor monitoring (Sensor (PG + Enc.)) each of the following cases will cause an error message. Figure 148 shows the timing diagrams.

1. Either the PrintGo sensor signal, the signal of the additional sensor or both are missing or have the wrong timing.



**Error 1**

2. There are no encoder signals detected while the printer is ready for printing and PrintGo signals are received as well as signals from the additional sensor.



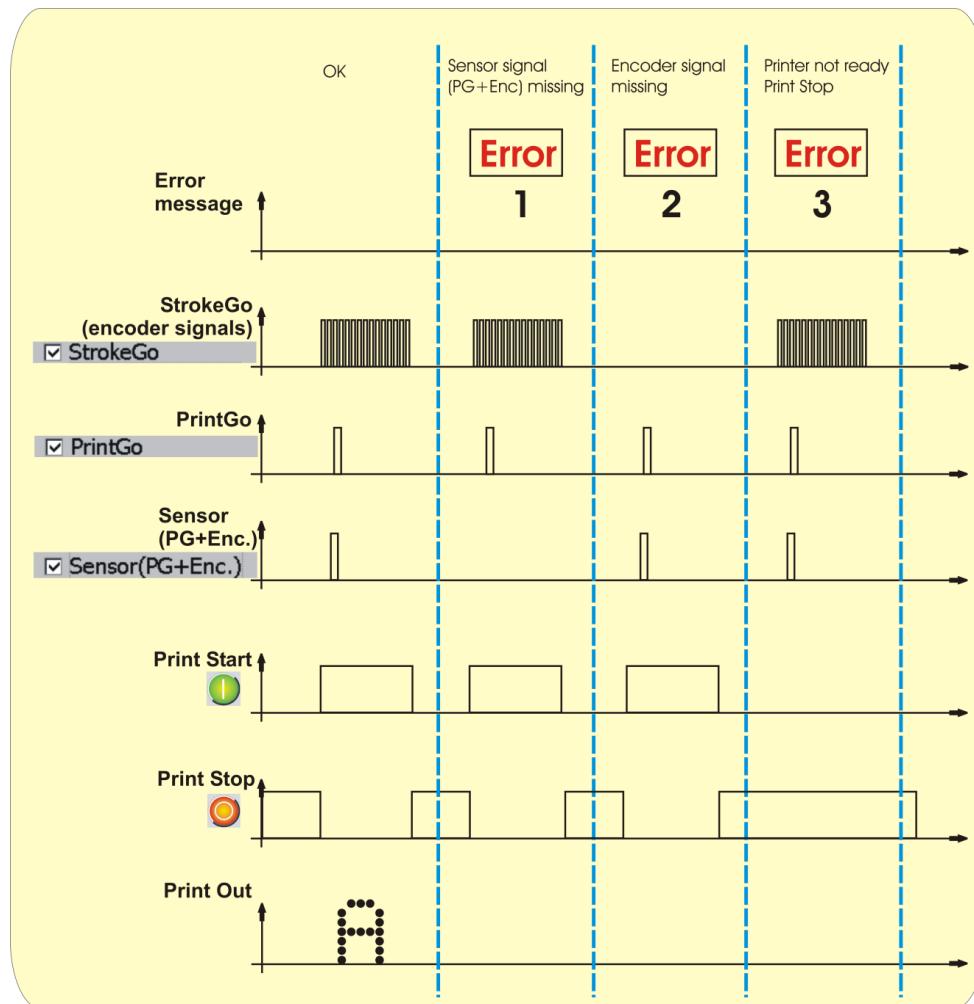
Error 2

3. The printer is not ready for printing (PrintStop button activated) while PrintGo signals, signals from the additional sensor and encoder signals are received.



Error 3

Figure 148 Sensor monitoring - Timing diagram



#### 8.5.2.6.4 Sensor monitoring – PrintGo length

With the <PrintGo length> function the length of the product on which to be printed is monitored.

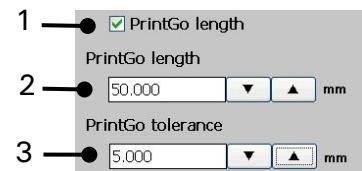
If the measured length is out of tolerance an error message pops up.

The function requires the length of the product and the tolerance as parameters.

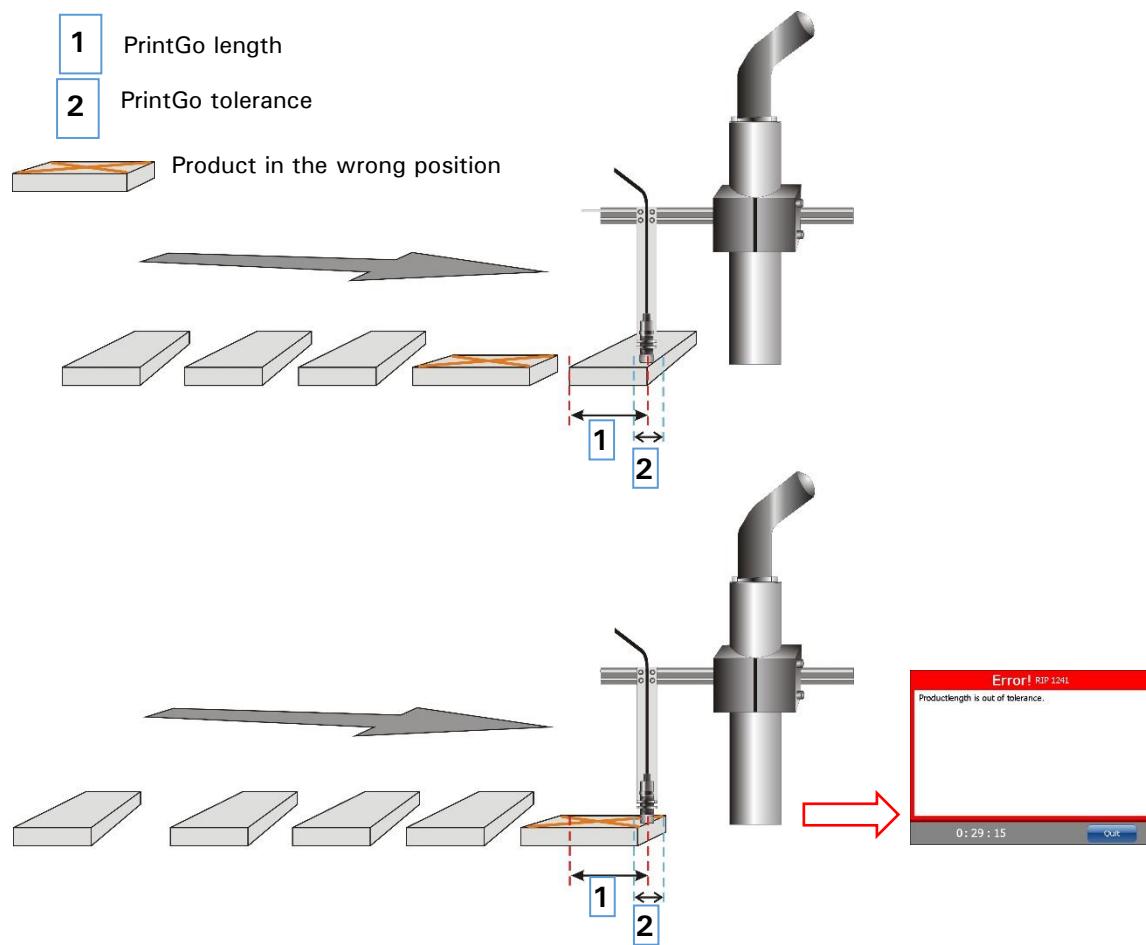
**The tolerance set is always a +/- tolerance!**

**Figure 149 PrintGo length - Settings**

- 1 – <PrintGo length> activation
- 2 – Input field <PrintGo length>
- 3 – Input field <PrintGo length tolerance>



**Figure 150 PrintGo length - Example**



With the <PrintGo length> function the PrintGo sensor does not only control the print start but is used also for the measurement of the length of the product.

If the product is in the wrong printing position the measured length will be out of tolerance and an error message will pop up.

### 8.5.2.7 Drop flight time

With this parameter the timing for the drop charging is adjusted. The input dimension is  $\mu\text{sec}$ .

The current value set is displayed in the input field.

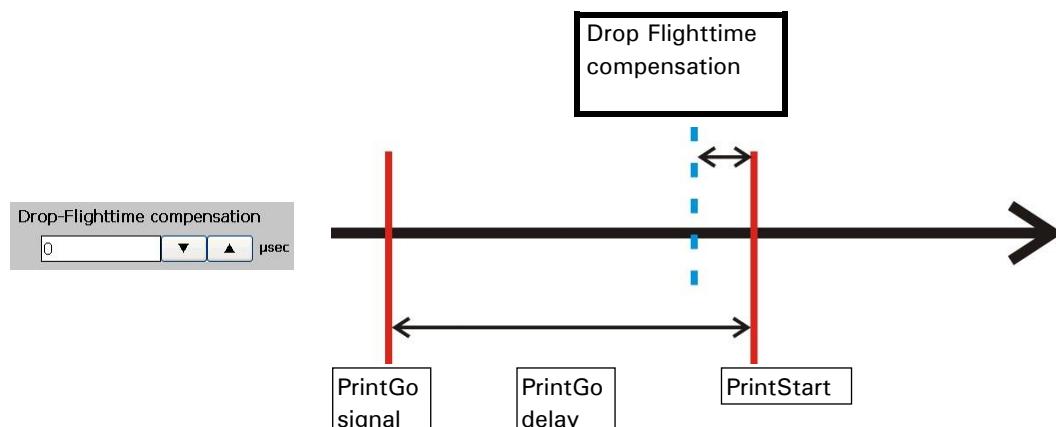
The parameter defines the time by which the ink drops are charged **earlier**. An earlier charging of the ink drops brings some advantages for the positioning of the drops at varying printing speeds.

With the drop flight time setting drop positioning issues caused by highly varying printing speeds can be compensated to a certain degree.

For this a **<PrintGo delay>** setting  $> 0$  is required! The **<PrintGo delay>** is necessary as a kind of buffer for the **<Drop-Flighttime>** set.

This function is only necessary if the printing speed varies in a wide range.

**Figure 151** Setting of drop flight time



The charging of the ink drops starts earlier (blue dotted line).

The drop flight time compensation can be used for the adjustment of the printing position at highly varying printing speeds.

### 8.5.2.8 PrintStop reaction

A **<PrintStop>** can be processed in two ways:

1. The current printout is finished when **<PrintStop>** occurs.
2. The current printout stops immediately with the **<PrintStop>**. Parts of the current print job may not be printed.

<input type="checkbox"/> PrintStop interrupts print-out immediately	<input checked="" type="checkbox"/> PrintStop interrupts print-out immediately
---	--

Immediate <PrintStop> not activated

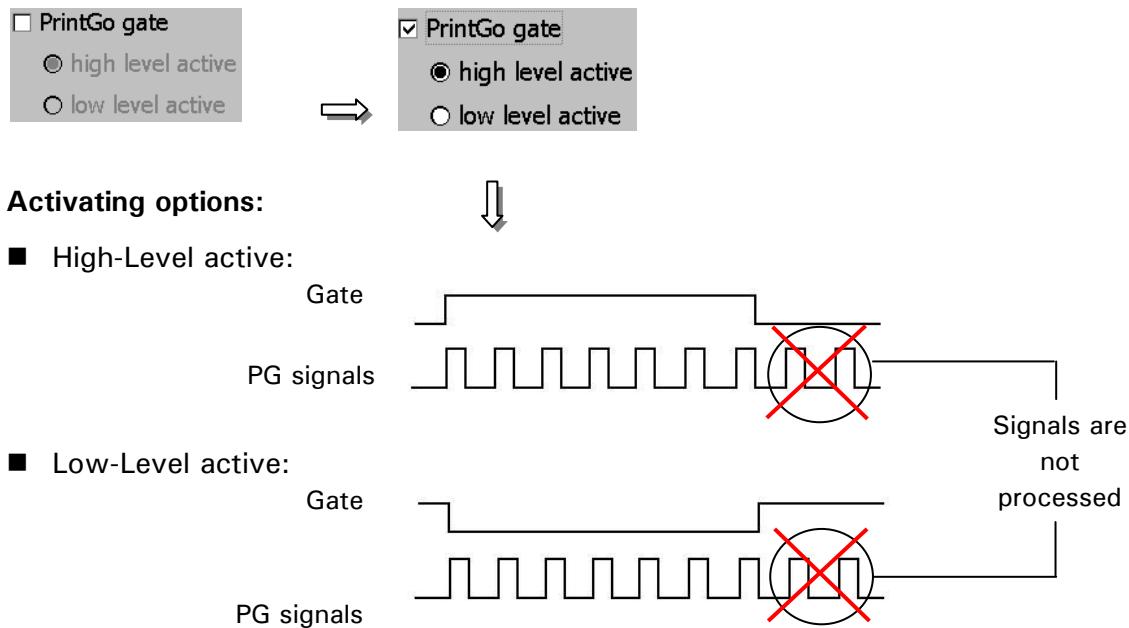
Immediate <PrintStop> activated

### 8.5.2.9 PrintGo-Gate - Print start control

This function offers an additional option to control the print start. With this function enabled the printout starts only as long as the monitored sensor is active during the PrintGo signal.

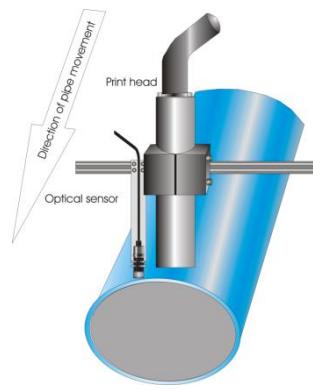
The inputs for the sensor signals are located on the connector of interface X5 of the LEIBINGER JET3up.

**Figure 152 PrintGo-Gate /Print start control**

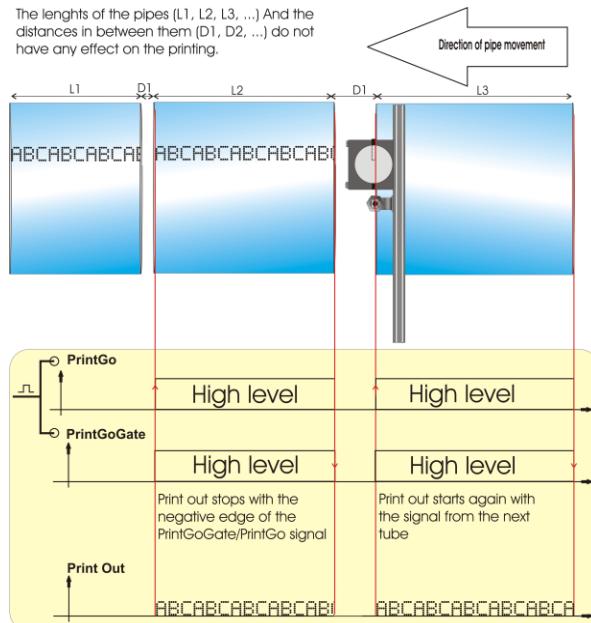


**Example:**

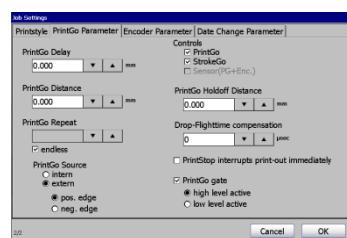
In this example the print shall be carried out on tubes. The printout is an endless print (e.g. Type, date of manufacturing, material etc.) and not each tube has the same length. In addition the distances between the tubes are not always the same. The basic mounting of the sensor and the print head is shown in Picture 11.



**Picture 11 -  
Print head and sensor  
mounting**



**Picture 10 - Timing diagram**



**Picture 12 – Settings**

As shown in Picture 11 the print head and the sensor should be installed in parallel to each other. If the sensor and the print head would be installed in row the stopping of the printout at the end of a tube would be either too early or too late.

The printout shall start with the beginning of each tube and it shall stop at the end of it without printing in the space between the tubes. For this a sensor which recognizes the beginning and the end of a tube is used. The output of the sensor is connected to the PrintGo and the PrintGoGate input of the JET3up printer (see Picture 10). With this design the PrintGo signal together with the PrintGoGate signal starts the printout and with the negative edge received from the sensor at the end of the tube the printout stops.

The signal from the sensor is used for the PrintGo input as well as for the PrintGoGate input. For the PrintGoGate input you need a high level and not only a positive edge as for the PrintGo input. **Therefore it is important that the signal from the Sensor is a signal level and not only a signal edge.**

### 8.5.2.10 Meter Go function

The Meter Go function is a special function for printing length specifications on cables, pipes etc. The function results from several parameter settings.

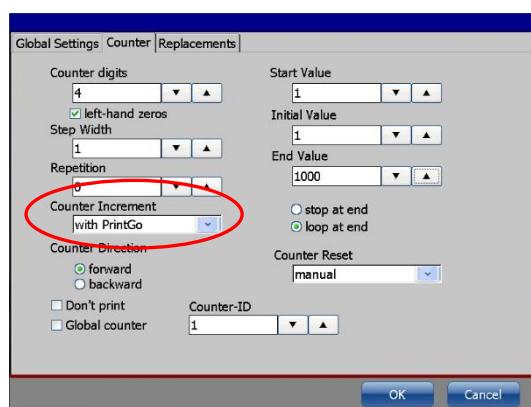
With these settings one can ensure that the meter counter carries on counting even if there are no printouts. The counter works independent from the printout as long as there are encoder signals.

External encoder signals are required for the position and speed measuring. In addition there should be an external PrintGo signal provided in exactly the same distance as the required printout of the length specifications (e.g. after each meter).

It is not recommended to use the Meter-Go function with the internal PrintGo signal.

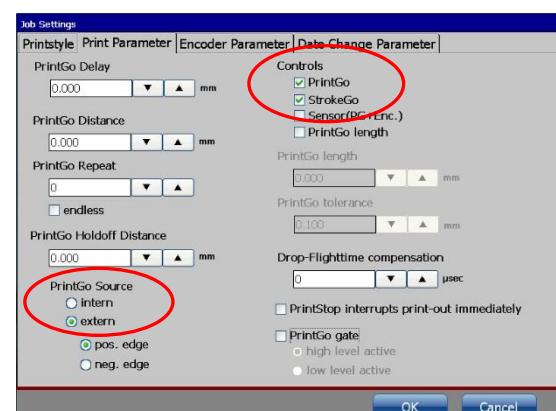
To use the internal PrintGo signal you would have to specify the cable speed. Even the smallest deviation would sum up with each printout and this would lead to a significant deviation between the printed length specifications and the current length of the cable.

**Figure 153 Parameter settings Meter Go function**



**Counter object settings**

The crucial setting for the Meter Go function within the parameters for the counter object is the setting for the **<Counter Increment>**. This value has to be set to **with PrintGo**. Please see example for details.



**Job settings**

For printing length specifications on cables, pipes etc. use the parameters shown above. These settings are true while using an external PrintGo signal. Please see example for details.

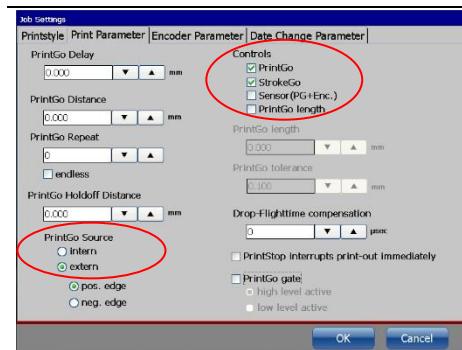
**Example:** Assumptions and pre settings for this example:

The JET3up printer is used for continuously printing on a cable emerging from a cable extruder device. The cable extruder mustn't stop even if the printout fails. After a print interruption the printout should continue with the correct meter number.

For this application an encoder is used for speed measuring and position detection. The printout is carried out each meter and shows the current number of meters.

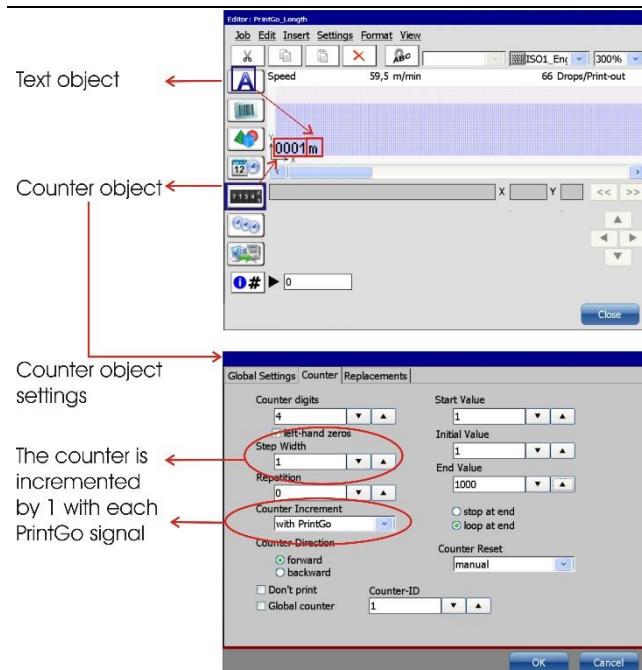
Additionally a length measuring system has to provide a PrintGo signal after each meter.

These settings for the so called "meter counter" are shown in Picture 13.



**Picture 13 - Print parameter for Meter-Go function**

Picture 14 shows the JET3up editor with the counter object and the settings for the counter object in this example. The text object for the letter "m" is just a standard object without any special settings for this example.



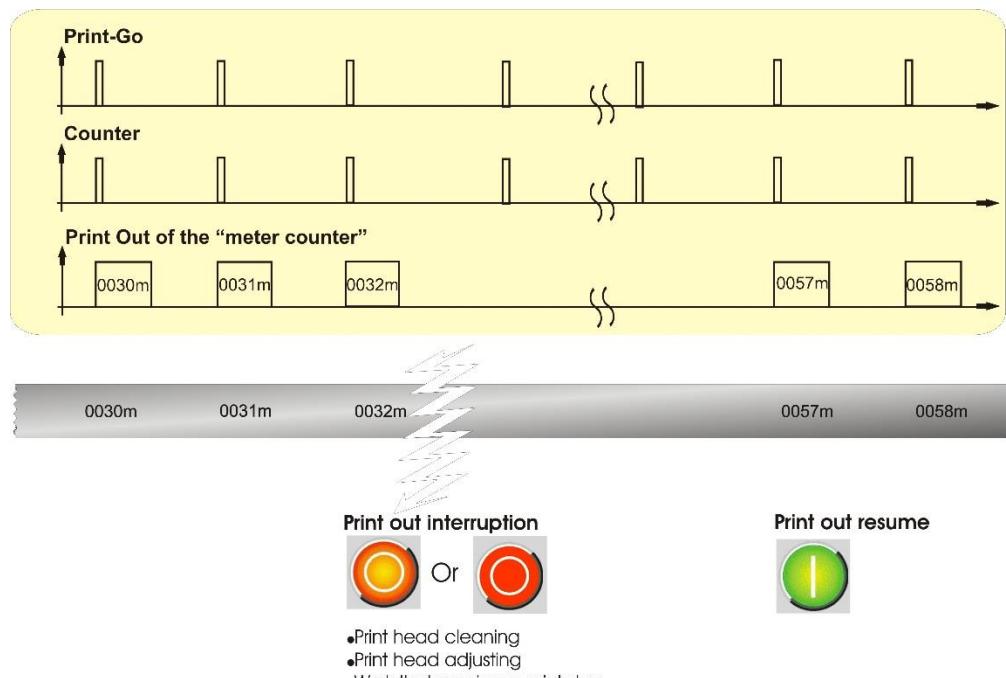
**Picture 14- Settings of the counter object**

Picture 15 shows the function diagram of the example.

After 32 meters the printout stops for e.g. print head cleaning.

Nevertheless the JET3up is still receiving PrintGo signals. Because of the <Counter Increment> setting with PrintGo (see picture 3) these signals can be used to keep the counter updated.

Therefore the counter always has the current meter number no matter whether there are printouts or not. So after the work on the print head the printout can be resumed with the correct meter number.

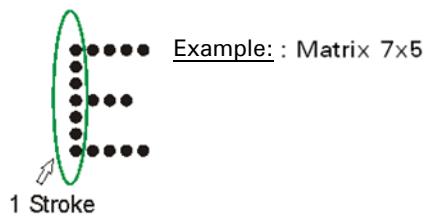


Picture 15 – Example function diagram

### 8.5.3 Encoder parameter

The printout of the LEIBINGER JET3up up is composed of single dots printed in groups of vertical lines. Such a vertical line of dots is called **stroke**. In order to position these strokes a StrokeGo signal is required. The StrokeGo signal determines at which position a stroke is printed.

#### Explanation:



A stroke is a complete dot line in vertical direction (dot height).

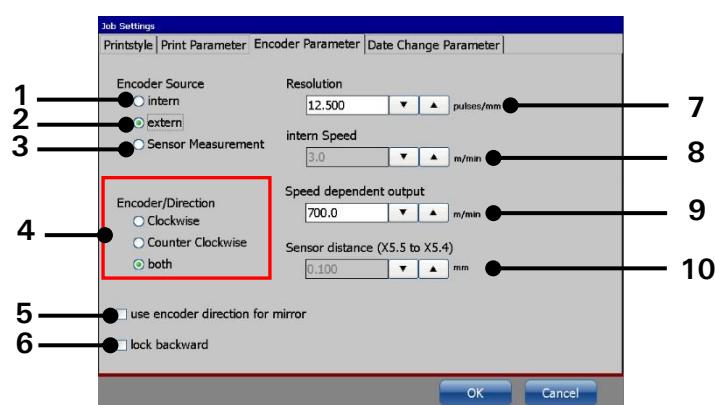
The StrokeGo signals can be generated by an external encoder or based on time measurements via 2 sensor signals. Alternatively the StrokeGo signals can be generated internally by software. If the internal <**StrokeGo-source**> is selected additionally the printing speed has to be defined.

The settings and parameters for all three methods are entered on the <**Encoder Parameter**> tab.

The following parameters and settings are available:

- |                                       |                          |
|---------------------------------------|--------------------------|
| ■ Selection of encoder signal source  | ■ Resolution             |
| ■ Rotating direction                  | ■ Internal speed         |
| ■ Use encoder direction for mirroring | ■ Speed dependent output |
| ■ Lock backward on/off                | ■ Sensor distance        |

**Figure 154 Encoder parameter tab**



- |                                       |                                     |
|---------------------------------------|-------------------------------------|
| 1 – Check box <Encoder source int.>   | 6 – Check box <lock backward>       |
| 2 – Check box <Encoder source ext.>   | 7 – Input field <Resolution>        |
| 3 – Check box <Sensor Measurement>    | 8 – Input field <Internal speed>    |
| 4 – Check boxes <Encoder/Direction>   | 9 – Setting for <Speed dep. output> |
| 5 – Checkbox <Encoder dir. f. mirror> | 10 – Setting for <Sensor distance>  |



### Information

Please see also chapter **12.3 Encoder guidelines and “hot-plugging” of external devices** for details about encoders.

#### 8.5.3.1 Encoder source - StrokeGo-source

There are three options in order to define the <**StrokeGo**> source:

- **Internal:** If this function is activated, the signal is generated by the printer and needs no external encoder device.

Additionally you have to enter the <**Internal speed (intern Speed)**> (3).



### ATTENTION

The internal encoder source is only recommended for constant printing speeds.

You will find further information regarding this topic in the chapter **Internal speed**

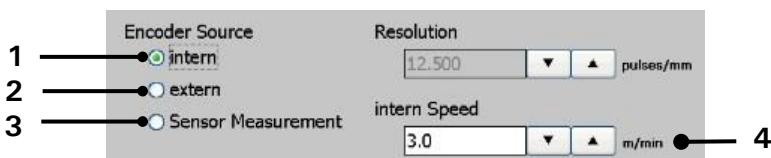
- **External:**

If this function is activated signals from an external encoder (e.g. incremental encoder) are required. The encoder has to be connected to the interface X1 of the LEIBINGER JET3up.

Additionally you have to define the <**Encoder/Direction**> (4) and the <**Resolution**> (5).

- **Sensor measurement:** If this function is activated the JET3up printer expects 2 sensor signals in order to calculate the required printing speed. The <**StrokeGo**> signals are generated on the basis of the calculated speed.

**Figure 155 StrokeGo-source /Encoder source**



1 – Check box <Encoder source int.>

2 – Check box <Encoder source ext.>

3 – Display field <Internal speed>

4 – Check box <Sensor Measurement>

### 8.5.3.2 Rotational direction of the encoder and directional changes

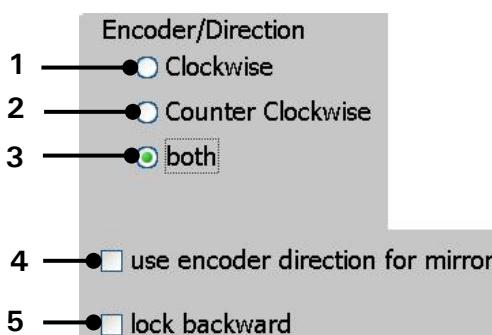
An encoder as StrokeGo source not only provides information about the speed and the position but also about the rotational direction. With the settings for the **<Encoder/Direction>** parameter it can be specified how this information shall be processed.

- **Rotational direction right:** If this check box is activated, only signals from a clockwise rotation of the encoder will be processed.
- **Rotational direction left:** If this check box is activated, only signals from a counter-clockwise rotation of the encoder will be processed.
- **Rotational direction both:** If this check box is activated both rotational directions of the encoder will be processed.

There are two options in order to define how directional changes shall be processed:

- **Use encoder direction for mirror:** with this option activated the printout will be mirrored after a directional change. For technical reasons a backwardward printout is mirrored. With this option activated the normally mirrored printout is mirrored a second time. If this option is activated the **<Lock backward>** option will be greyed out. Additionally this option cannot be activated if the encoder rotational direction is set to **<Clockwise>** or **<Counter Clockwise>**.
- **Lock backward:** with this option activated the position of a directional change will be saved. The printout will not start again until this position is reached again. The printer measures the way of the backward movement and after another directional change it will start the printout again as soon as the position of the first directional change was reached. It is possible to activate this option when the rotational direction is set to **<both>**, although this setting would make no sense.

**Figure 156** Rotational direction / directional changes



1 – Radio button **<Clockwise>**

2 – Radio button **<Counter Clockwise>**

3 – Radio button **<Both>**

4 – Check box **<direction/mirror>**

5 – Check box **<lock backward>**

**Example1****Settings:****PrintGo repeat:** endless**Rotational direction:** clockwise

After a PrintGo signal the printout will start as soon as the StrokeGo signals from the encoder are received; provided that the signals indicate a clockwise rotation (1).

If the rotational direction changes during the printout (2) the reaction depends on the **<lock backward>** option.

**With the <lock backward> option not activated:**

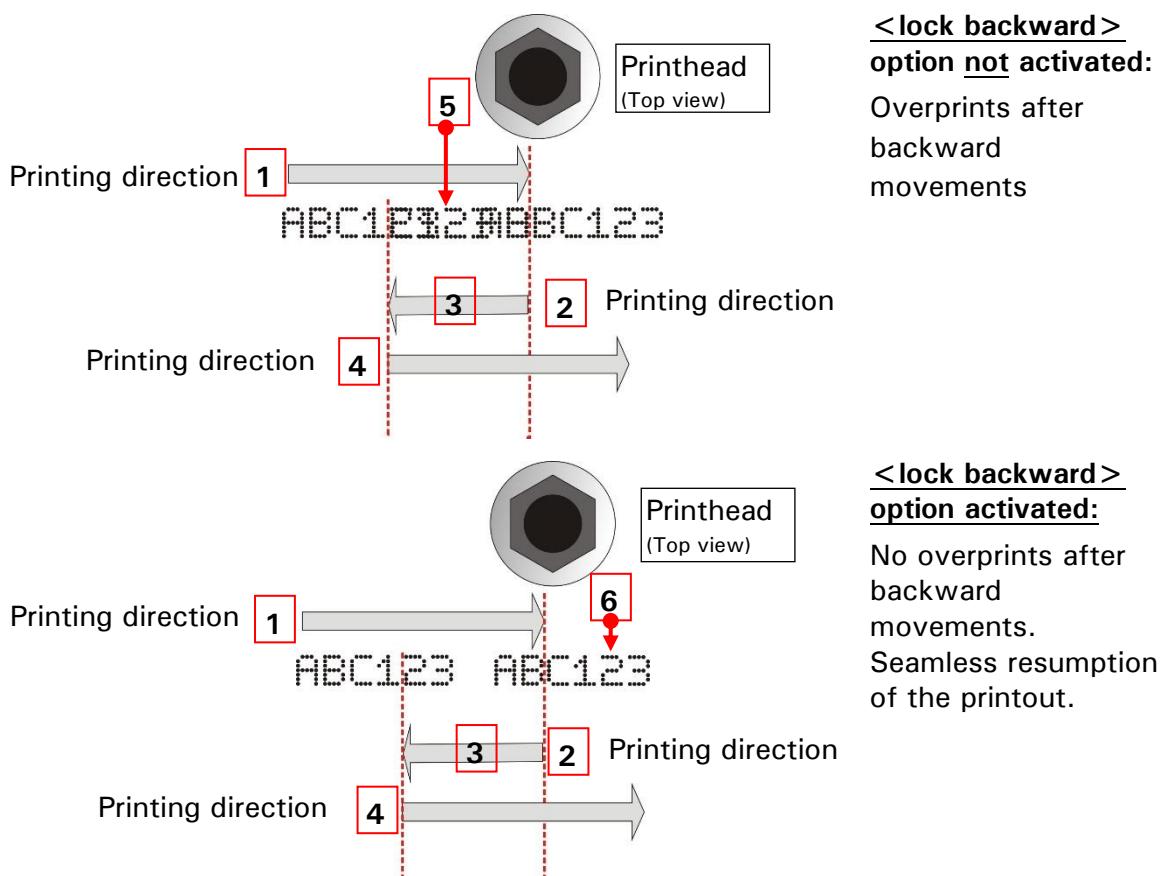
During the counter-clockwise (backward) rotation there will be no printouts (3).

When the rotational direction changes again (4) the printout will start immediately.

Therefore with the **<lock backward>** option **not activated** it may happen that the printout after the directional change overprints (5) the already existing printout.

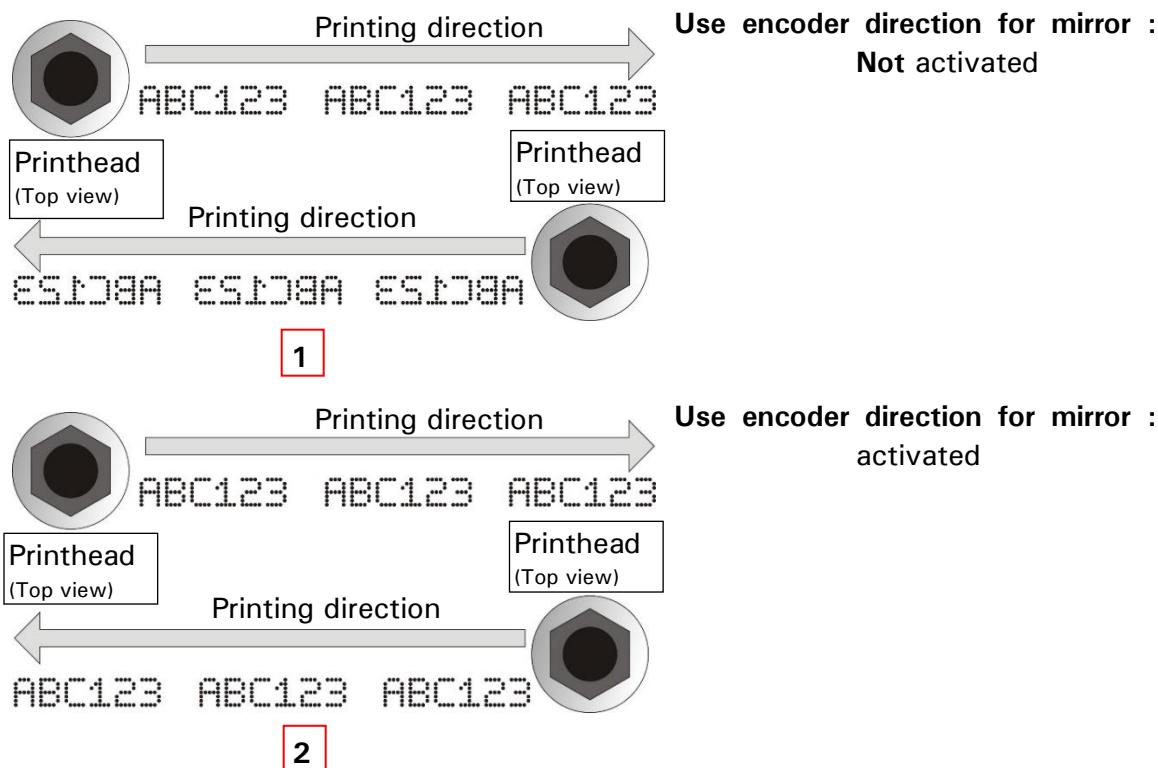
**With the <lock backward> option activated:**

During the counter-clockwise (backward) rotation there will be no printouts. When the rotational direction changes again (4) the printout will not start until the position is reached where it was interrupted. Therefore with the **<lock backward>** option activated a seamless printout is possible (6) even if there may be a backward movement in the production line.



**Example2****Settings:****PrintGo repeat:** endless**Rotational direction:** right**Use encoder direction for mirror:** activated

Normally the printout would be mirrored if the print direction is changed from forward to backward (1). With the option <Use encoder direction for mirror> the printout will be mirrored a second time in order to get a proper printout (2).



### 8.5.3.3 Encoder resolution

The parameter <Resolution> is calculated from the impulses per rotation generated by the encoder used and the length of one rotation. The dimension is pulses/mm.

**Example:** An encoder which generates 10.000 impulses/rotation with a friction wheel and which has a circumference of 200 mm is used.

$$\begin{aligned}\text{Calculation: Resolution} &= \text{Impulses/Rotation : Circumference} \\ &= 10.000 : 200 = 50 \text{ (Pulses/mm)}\end{aligned}$$



#### Important

A wrong setting of the parameter <Resolution> may cause improper print outs.

### 8.5.3.4 Internal speed

With the <Internal encoder source> selected (please see chapter **8.5.3.1 Encoder source - StrokeGo-source** for details) the production speed respective the printing speed has to be set as a parameter. This value is entered directly in the input field / display field <Internal speed>. The dimension is m/min.



#### ATTENTION

A varying production speed cannot be detected with the encoder source <Internal>. Only the <Internal speed> set will be used to calculate the <StrokeGo> signals. Therefor a varying production speed may cause improper print outs:

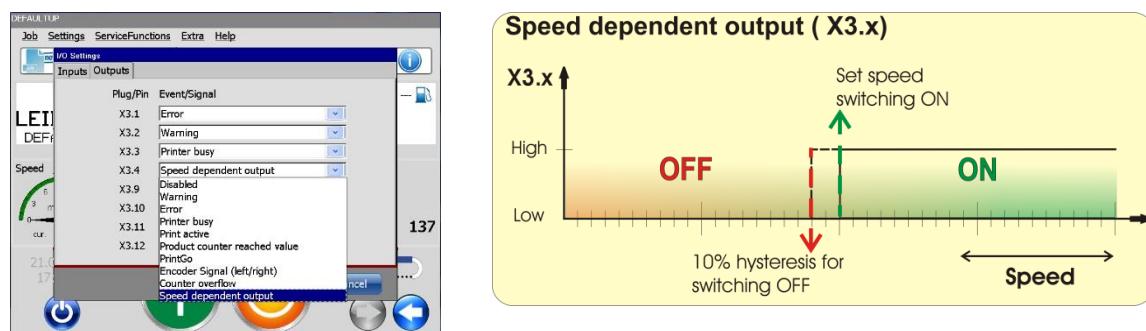
- If the production speed is higher as the value set, the printout will be stretched.
- If the production speed is lower as the value set, the printout will be compressed.

### 8.5.3.5 Speed dependent output

In dependence of a pre-adjusted speed limit, this special output signal switches ON or OFF. The setting for the output can be found in the main window under **Settings** ► **I/O Settings** ► **Outputs**. The speed dependent output can be assigned to any available output.

**Function:** The assigned output switches to high level once the set speed is reached or exceeded. The assigned output switches back to low level when the speed falls 10% below the set speed.

**Figure 157 Speed dependent output – Settings/diagram**

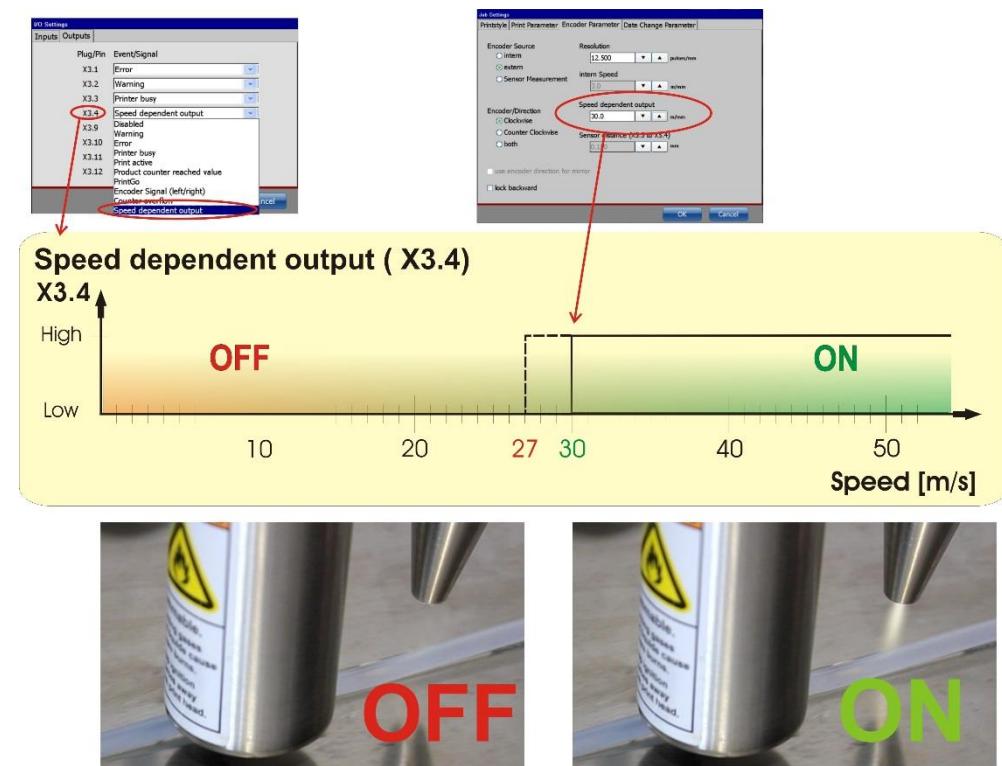


**Assigning the speed dependent output function to an available output**

**Basic function diagram**

Please see example on the next page!

**Example:** This function may be used for Corona / Plasma pre-treatment security. A corona treatment device modifies the surface of materials especially plastic material as a preparation for the ink jet print. The corona treatment and the ink jet print happen on the fly. In case the production line stops or gets too slow there is the danger that the surface of the material can be destroyed by the corona treatment if the device isn't stopped. The stop can be managed by the speed dependent output of the JET3up. In this example the speed is set to 30 m/min. The speed is detected through the encoder signals which are also used for the positioning of the JET3up printout. As soon as the production line reaches or exceeds the set speed the assigned output will switch to a high level. This high level remains as long as the speed doesn't drop below 27 m/min (30 m/min -10%). If the speed drops below the lower limit the output will switch to a low level. The output level is used to control the on/off of the corona treatment electrode.



**Picture 16 – Example corona treatment control with speed dependent output**

### 8.5.3.6 Speed measuring with two sensors

As an alternative to the use of an external encoder or a constant internal speed there is a third option available:

The current production speed can be measured on the basis of the signals from two sensors connected to interface X5. Sensor 1 has to be connected to **X5.5** (PrintGo Gate input) and sensor 2 to **X5.4** (PrintGo input). With this setup **PNP-sensors** are required for both inputs.

**Function** See **Figure 158**

#### Sensor setup:

The two sensors have to be mounted on the production line in a way that they can be activated by the products passing by. For this the two sensors have to be mounted on the same height (1) and at a distance from each other (2). As higher the production (line) speed as larger should be the sensor distance. The maximum distance allowed is 250 mm (3). The distance between the two sensors has to be smaller than the distance between two products (4). As a rule of thumb there must be never more than one product between the 2 sensors! (5)

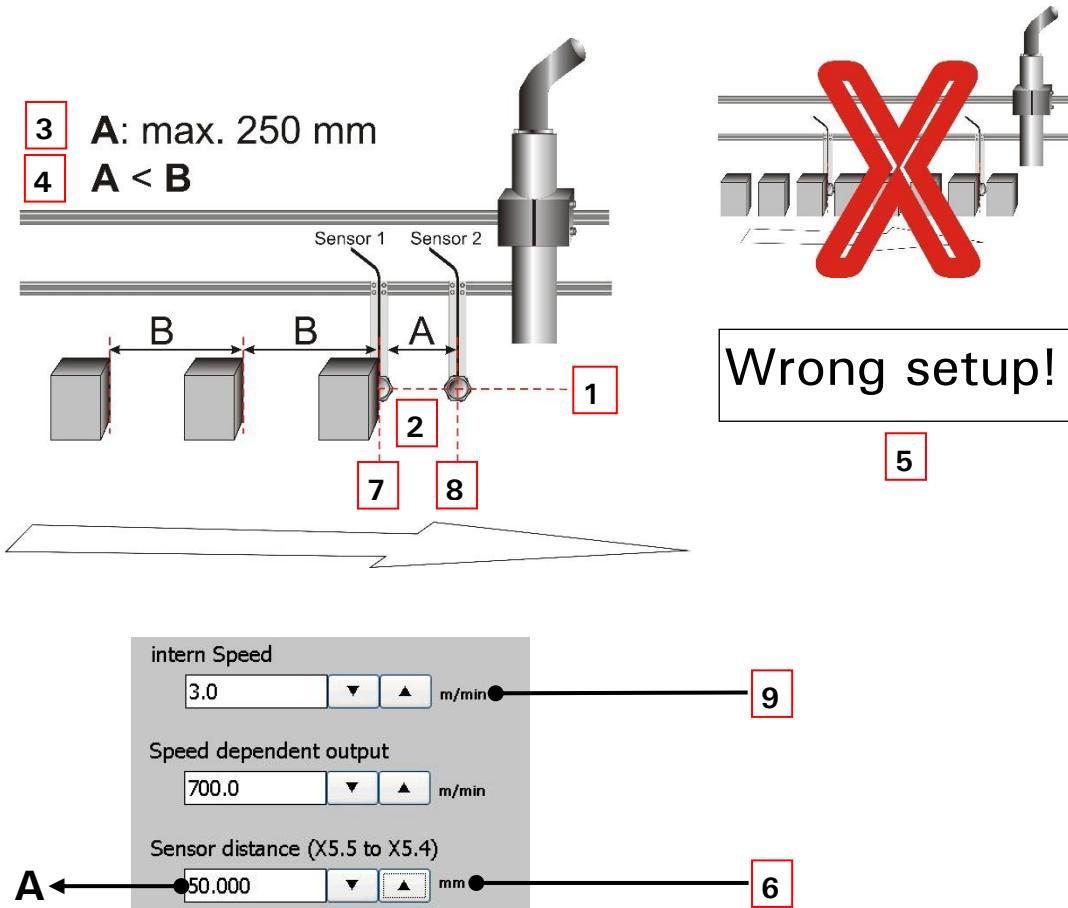
The actual distance has to be measured and entered in the corresponding input field (6).

With a product passing the first sensor (**sensor 1**) the speed measurement starts (7).

The measurement is stopped as soon as the product passes the second sensor (8) (**sensor 2**). This second sensor (8) works also as the <PrintGo> sensor and controls the start of the printout. **It is mandatory that sensor 1 (start sensor for speed measuring) is always mounted before sensor 2 (stop sensor for speed measuring and PrintGo sensor).**

The production speed is calculated from the time measured and the distance entered. Working with short distances it may happen that right after the start of the production line there are no values of the measured speed available. For this case the internal speed set (9) is taken as default.

**Figure 158 Sensor distance – speed and positioning determination with two sensors**



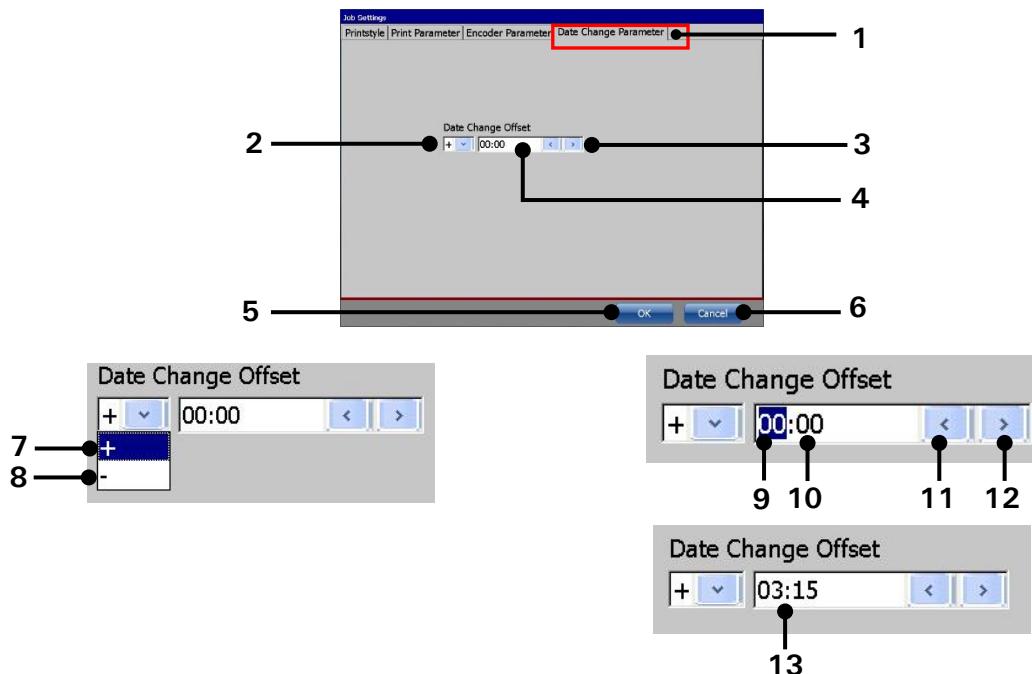
- 1 – Both sensors at the same height
- 2 – Distance between sensors <A>
- 3 – Maximum <Sensor distance>
- 4 – The Distance A (between the 2 sensors) has to be smaller than Distance B (between the products)
- 5 – Wrong setup – more than one product between the 2 sensors
- 6 – Input field <Sensor distance>
- 7 – Sensor 1 – Start measurement – Connected to **X5.5**.
- 8 – Sensor 2 – Stop measurement – Connected to **X5.4**. This sensor works also as PrintGo sensor
- 9 – Input field <intern Speed>

#### 8.5.4 Date change offset

With this function you can shift the date change to an earlier or later point in time.

**Note:** The shifting happens in hours- and minutes. The max. possible offset is +/- 23 hours and 59 minutes.

Figure 159 Date change offset tab



- |                                 |                                    |
|---------------------------------|------------------------------------|
| 1 – <Date change parameter> tab | 8 – Negative <Offset>              |
| 2 – <+/-> drop-down list        | 9 – Offset <Hour block>            |
| 3 – Arrow keys                  | 10 – Offset <Minute block>         |
| 4 – Input field <Offset time>   | 11 – <Decrease>Offset              |
| 5 – <OK> Button                 | 12 – <Increase>Offset              |
| 6 – <Cancel> Button             | 13 – Adjusted <Date change offset> |
| 7 – Positive <Offset>           |                                    |

#### Proceeding:

- Select the <Date change Parameter> tab (1).
- Select in the <+/-> drop-down list (2) the kind of offset. <+> stands for a positive offset (7). The date change is shifted to a later point in time. <-> stands for a negative offset (8). The date change is shifted to an earlier point in time.
- Select the hour (9) or the minute block (10) in the input field (4) for the <Date change offset> (13).
- The <Date change offset> is set with the two arrow keys (3). The left arrow key will decrease the <Offset> the right arrow key will increase the <Offset>.
- All settings are confirmed with the <OK> button (5).
- With the <Cancel> button (6) the tab is closed without saving.

## 8.6 Job editor settings

The drop-down menu <View> provides several options for view settings and the basic settings for the job editor. The following functions are available:

- Enlarge and reduce display size (Zoom in/out)
- Show grid
- Catch active
- Editor Settings

### 1. Editor settings

With the option <Editor Settings> you can set the editor size (width and height of the display area) as well as the grid size.

**Proceeding:**

- Press the button <View> (1) and the option <Editor Settings> (2).
- The window <Editor Settings> (3) is faded in.
- With the **Arrow keys** (4) you can increase or reduce the values of the editor size and the grid size by one step.  
**alternatively**
- Click in the appropriate display field (5) of the value which you would like to change. A Numeric keypad opens for input. Now enter the requested value.
- The button <OK> (6) closes the window



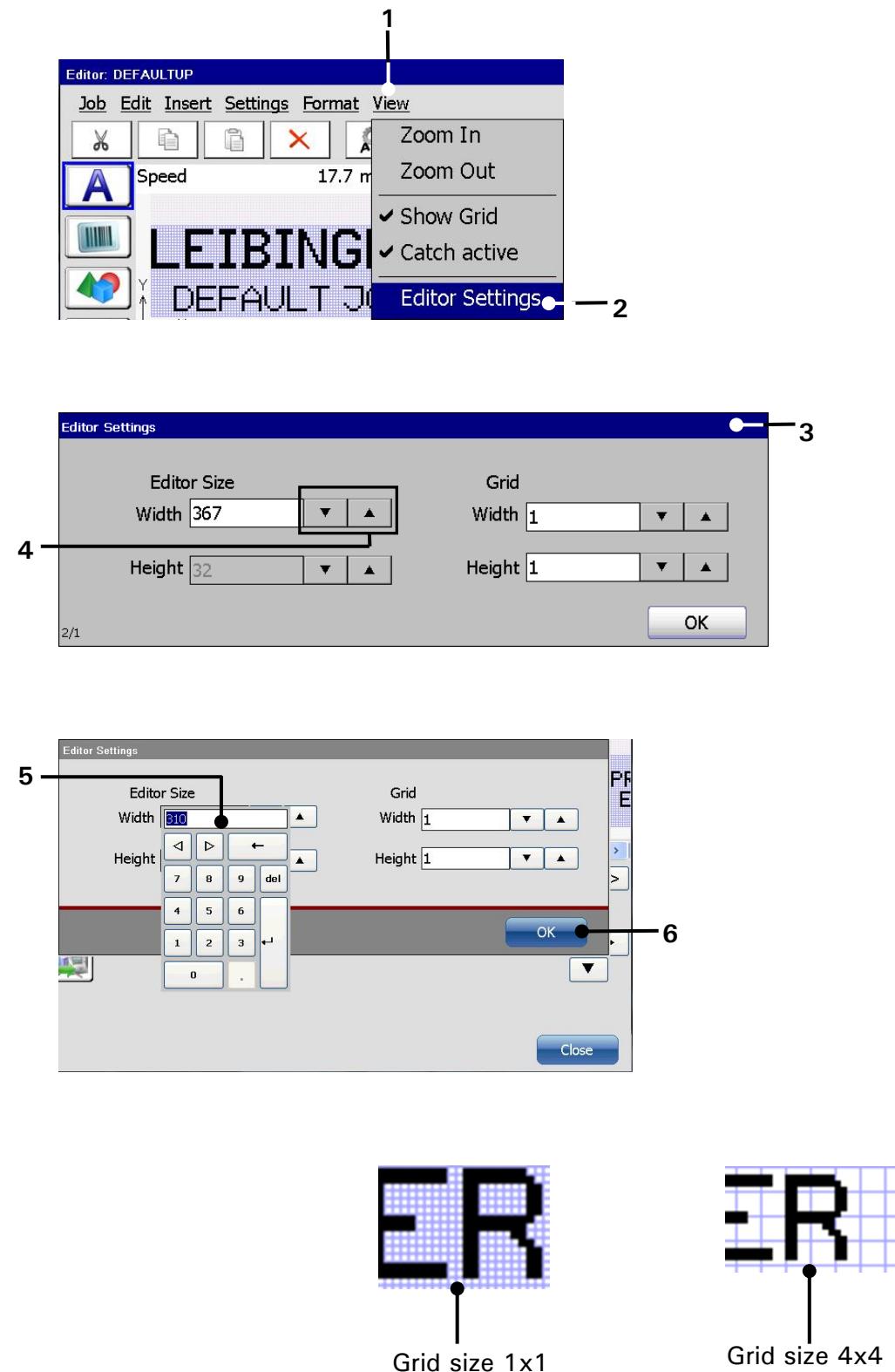
#### INFORMATION

- **Hint:** The editor height is specified and cannot be changed.
- You will find further information regarding the working with Numeric keypads in the chapter **6.4.1 Numeric keypad**

### 2. Snap to grid function

The function enables the easy and exact positioning of an element at the grid. When snapping is enabled objects are always aligned with the grid.

**Figure 160 Jobeditot - Editor settings**



## 8.7 Printing elements

### 8.7.1 Bar codes

Provides the implementation of barcodes and definition of the required barcode parameters.



#### Important

##### Please note!

The LEIBINGER JET3up does not generally carry out any check digit calculations. These have to be carried out external in advance!



#### Important

The JET3up printer checks the correctness of the entered checksum digit for the following bar codes:

- EAN 8
- EAN 13
- UPC8
- UPC12
- GS1

The check routine checks whether the last entered digit of a bar code is a valid check digit.

If the entered number is valid a **green icon** is displayed on the right side of the input field:

If the entered value is not valid a **red icon** is displayed on the right side of the input field:

**This is only for information! Barcodes with an invalid checksum digit will still be printed!**

The check routine does not check the number or the kinds of values entered. If there are too less, too many or the wrong kind of values entered for a certain type of barcode (e.g. only 4 digits for a EAN 13 barcode) there will be no error message but the barcode will be displayed struck through in the preview of the job editor and in the main window of the printer:

### 8.7.1.1 Bar codes: Basics about

#### Code 39:speed

- Alphanumeric code
- Characters from A-Z, figures from 0-9, minus, period, space, dollar, slash, plus percent

#### 2 of 5 interleaved (Code 25):

- Numerical code. Figures from 0-9
- The number of digits has to be even. The JET3up will automatically fill up missing digits with left hand zeros. E.g. 123 -> 0123

#### EAN 8:

- Numerical code. Figures from 0-9
- 8 digit code, last digit as check digit.

#### EAN 13:

- Numerical code. Figures from 0-9
- 13 digit code, last digit as check digit.

#### UPC A12: (US equivalent to EAN13)

- Numerical code. Figures from 0-9
- 12 digit code. First digit as indicator for number system, last digit as check digit.

#### UPC E8: (US equivalent to EAN8)

- Numerical code. Figures from 0-9
- 8-digit code. First digit as indicator for number system, last digit as check digit.

**Code 128B:**

- Subtype of the 128 code; using code set B
- ASCII characters 32 to 127 (0-9, A-Z, a-z)
- Includes special characters FNC 1-4

**Code 128C:**

- Subtype of the 128 code; using code set C
- Especially for numerical purposes
- 00-99 (encodes each two digits with one code) and FNC1
- Because of the two digits coding only an even number of characters is possible.

**GS1 128**

- Subset of the 128 code. Code set A, B or C is selected by the start character.
- Identifies data with FCN1 Application Identifiers (AI)
- ASCII characters 32 to 127 (0-9, A-Z, a-z)
- Formerly known as UCC/EAN-128

**PostNET**

- **Postal Numeric Encoding Technique**
- Bar code used by the United States Postal Service to assist in directing mail.
- The ZIP Code code is encoded in half- and full-height bars
- POSTNET is being replaced by the Intelligent Mail bar code (see USPS 4CB)

**USPS 4CB**

- 4-State Customer Barcode, abbreviated 4CB, 4-CB or USPS4CB
- Intended to provide greater information and functionality than its predecessors PostNET.
- Height-modulated barcode that encodes up to 31 decimal digits of mail-piece data into 65 vertical bars. The code is made up of four distinct symbols.

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**ECC200 square**

- 2-dimensional (2-D) matrix bar code of black and white square "cells"
- The information to be encoded can be text or numeric data
- It can encode characters from the entire ASCII character set
- The code symbols are square with sizes from  $10 \times 10$  to  $32 \times 32$

**ECC200 rectangle**

- Same specifications as the ECC200 square but:
- rectangular with sizes from  $8 \times 18$  to  $16 \times 48$  (even values only)

**GS1-ECC200 square**

- ECC200 code in accordance with the GS-1 standard
- FNC1 application identifier implemented

**GS1-ECC200 rectangle**

- Same specifications as the GS-1 ECC200 square but:
- rectangular with sizes from  $8 \times 18$  to  $16 \times 48$  (even values only)

**PPN-ECC200 square**

- The PPN Code is the machine-readable identification of retail packs with the **Pharmacy Product Number**.
- The ECC200 data matrix code is used for the encoding of the information.

**PPN-ECC200 rectangle**

- Same specifications as the PPN ECC200 square but:
- rectangular with sizes from  $8 \times 18$  to  $16 \times 48$  (even values only)

**QR-Code**

- QR code (**Quick Response Code**) is the trademark of a type of matrix barcode.
- The amount of data that can be stored in the QR code symbol depends on the data type (mode, or character set), version (1, ..., 40, indicating the overall dimensions of the symbol), and error correction level.

**IMPORTANT**

- The JET3up job editor offers the possibility to add the content of each bar code type as plain text.
- Due to technical limits the maximum number of vertical dots is 32. For this the maximum size of data matrix codes is also determined by this limit. Using a rectangle data matrix code may be a work around.

**8.7.1.2 Bar codes: Object creation and properties**

**Please see point 1 of Figure 161**

In the job editor you can create an **<Bar code>** object either with the **<Insert>** drop-down menu (1) or with the direct button (shortcut) for **<Bar codes>** (2).

Both will open the dialog box for the object settings (3).

### 8.7.1.3 Bar codes: Global settings

Please see point 2 of Figure 161

On the tab <Global settings> (4) the following adjustments are provided:

Contrast and orientation of the printed bar code (6), defining the positioning of the object (9) and selecting several options for the print-out (7).



#### INFORMATION

Please see chapter 8.7.1.4.3 Bar code settings: <Inverse> function for details about the <inverse> option (8) in combination with bar codes.

For details about the global settings of an object please see chapter 8.4 Object settings

### 8.7.1.4 Bar codes: Bar code settings

Please see point 3 of Figure 161

The bar code tab (9) offers several options:

The display field <Content> (11) either shows the content of the currently selected bar code object or it allows the entry of data for a newly created bar code object. It is also possible to change the data of an existing bar code object.

For changes or new entries the cursor has to be placed within the display field in order to open a keyboard (12). The drop-down list <Type> shows the available types of bar codes (13). Data entries may be restricted by the type of bar code.

The drop-down list <Textposition> (14) offers several options for displaying the bar code content as plain text. The options offered depend on the selected type of code.

The drop-down list <Font> (15) shows the available fonts for the plain text. Settings may either be confirmed with the <OK> button (18) or discarded with the <Cancel> button (19).



#### INFORMATION

Please see chapter 8.7.1.4.3 Bar code settings: <Inverse> function for details about the <inverse> option (10).

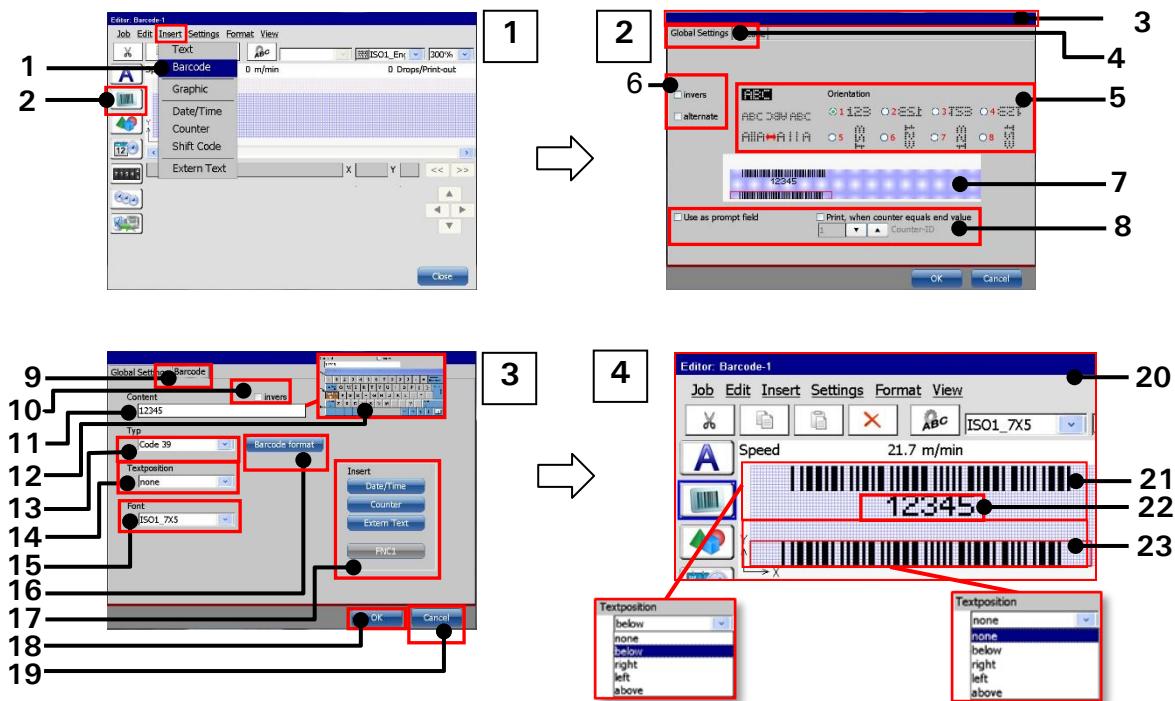
Please see chapter 8.7.1.4.1 Bar code settings: Bar code format for details about the <Barcode Format> option (16).

Please see chapter 8.7.1.4.2 Bar code settings: Insert objects for the <Insert> option (17).

**Please see point 4 of Figure 161**

The result of the settings for the plain text is displayed in the job editor (20). The example shows a job editor preview of two bar codes. Both are code 39 bar codes with the same content. The upper code (21) is with the plain text option and shows the content of the bar code below the code (22). The lower bar code (23) is without the plain text option.

**Figure 161 Bar codes: Object creating and settings**



- 1 – Menu item <Extern Text>
- 2 – Direct button <Barcode>
- 3 – Dialog box <Object settings>
- 4 – Tab <Global settings>
- 5 – <Orientation> options for the bar code object
- 6 – Global <Inverse> option
- 7 – Preview
- 8 – Print options
- 9 – Tab <Barcode>
- 10 – Barcode <Inverse> option.
- 11 – Display /input bar code <Content> input
- 12 – Keyboard for <Content> input

- 13 – Drop-down list bar code <Type>
- 14 – Drop-down list <Textposition>
- 15 – Drop-down list <Font>
- 16 – Button <Barcode Format>
- 17 – Options for inserting objects and functions into the barcode content
- 18 – Button <OK>
- 19 – Button <Cancel>
- 20 – Job editor preview
- 21 – Bar code (code 39) with plain text
- 22 – Plain text of the bar code content. Positioned below the bar code.
- 23 – Bar code (code 39) without plain text



### IMPORTANT

Due to integrated counters and replacements impermissible number of digits or invalid constellations can be caused. These barcodes are displayed as crossed out codes in the job editor and the preview.



Correct EAN13 code with 13 numbers

EAN13 code with only 5 numbers.

Recognized as wrong code and crossed out.

#### 8.7.1.4.1 Bar code settings: Bar code format

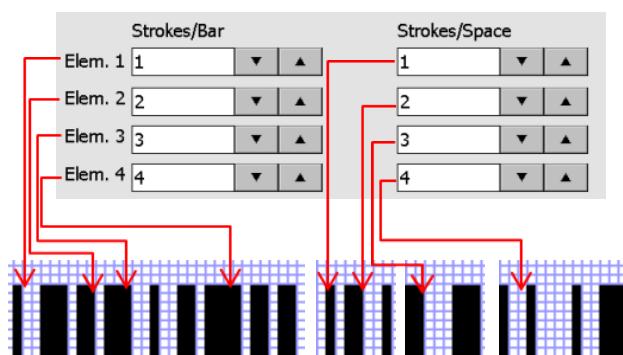
Please see Figure 162

To open the dialog box (3) with the format options for the bar code type selected push the <**Barcode Format**> button (2) on the <**Barcode settings**> tab (1).

1-D bar codes can either have a 2-width-symbology or a many-width-symbology (Symbology: rules about how bars and spaces are structured).

A bar code with a 2-width-symbology uses only two widths for bars and spaces: wide and narrow. The width and spaces of barcodes with a many-width-symbology are all multiples of a basic width called the **module**; most such codes use four widths of 1, 2, 3 and 4 **modules**.

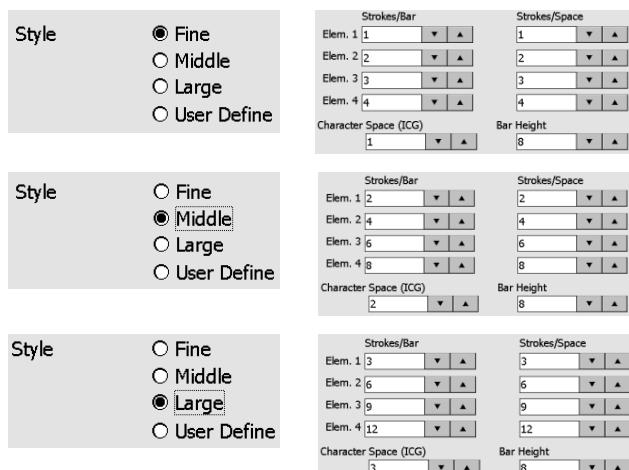
Within the <**Barcode format**> dialog box the bars (4) and spaces (5) are called **Elements (Elem.)**. The elements are defined by the number strokes per bar or per space. A **stroke** is one vertical print movement.



The width of a bar or a space is defined by the number of strokes. For bar codes with a 2-width-symbology only the element 1 and element 2 will be used for the bar code. Settings for element 3 and 4 will be ignored for that kind of bar code.

There are three basic <Styles> and one user defined <Style> available (9). With default settings the bars and spaces become wider with an increasing <Element> number. E.g. with the basic <Style> <Fine> the bars and spaces of <Elem. 1> consist of one stroke and the bars and spaces of <Elem. 4> consist of 4 strokes. Therefore <Elem. 4> has four times the width of <Elem. 1>.

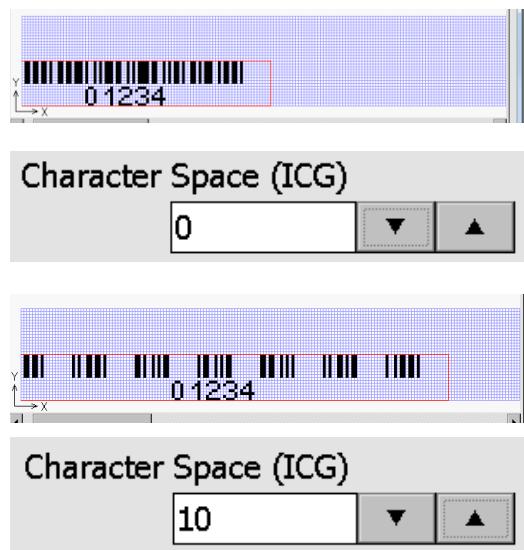
Each style provides different widths.



The <Middle> <Style> has the double width of the <Fine> <Style> and the <Large> <Style> has three times the width of the <Fine> <Style> .

With the <User define> <Style> a customized setting is possible without changing the three pre-sets. When a preset <Style> is changed the <User define> <Style> will be automatically selected.

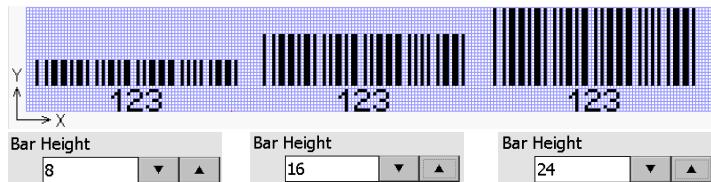
The <Character Space (ICG)> option (7) has only an effect on discrete bar codes like code 39. With discrete barcodes an increase of the <Character Space (ICG)> value will lead to larger spaces between single characters.



With a discrete bar code characters begin and end with a bar. This construction creates spaces between characters that are not part of a character. This inter character gap should be approximately equal to the narrow bar width. Codes with this inter character gap are called discrete since each character is separate and independent from other characters in the same symbol. With a <Character Space (ICG)> of 0 there are no distance between the coded characters. With an <Character Space (ICG)> of 10 all coded characters are clearly separated. The <Character Space (ICG)> value represents the number of dots between each character.

Codes without inter character gaps are called linear codes. Linear codes are those in which characters are grouped, one next to another, in one linear direction. On these codes the <Character Space (ICG)> setting has no effects.

The height of the printout of the selected bar code type is defined with the **<Bar height> (6)** setting. The height is measured in dots. The JET3up printer is able to print up to 32 dots in vertical direction. Therefore **<Bar height>** can be set to a value between 0 and 32.



Bar code type code 39 with different **<Bar height>** settings.

The height of the plain text depends on the selected font. In this example it is a 7x5 font.

Pushing the **<Default Settings>** button (8) will open the **<Barcode Format Default Settings>** dialog box (10). In this dialog box the default settings for the 3 preset **<Styles>** can be adjusted. There is a tab for each **<Style>** (11-13). All changes confirmed with the **<OK>** button will be applied to the **<Style>** settings in the **<Barcode format>** dialog box. The **<Cancel>** button will close the dialog box without changes.

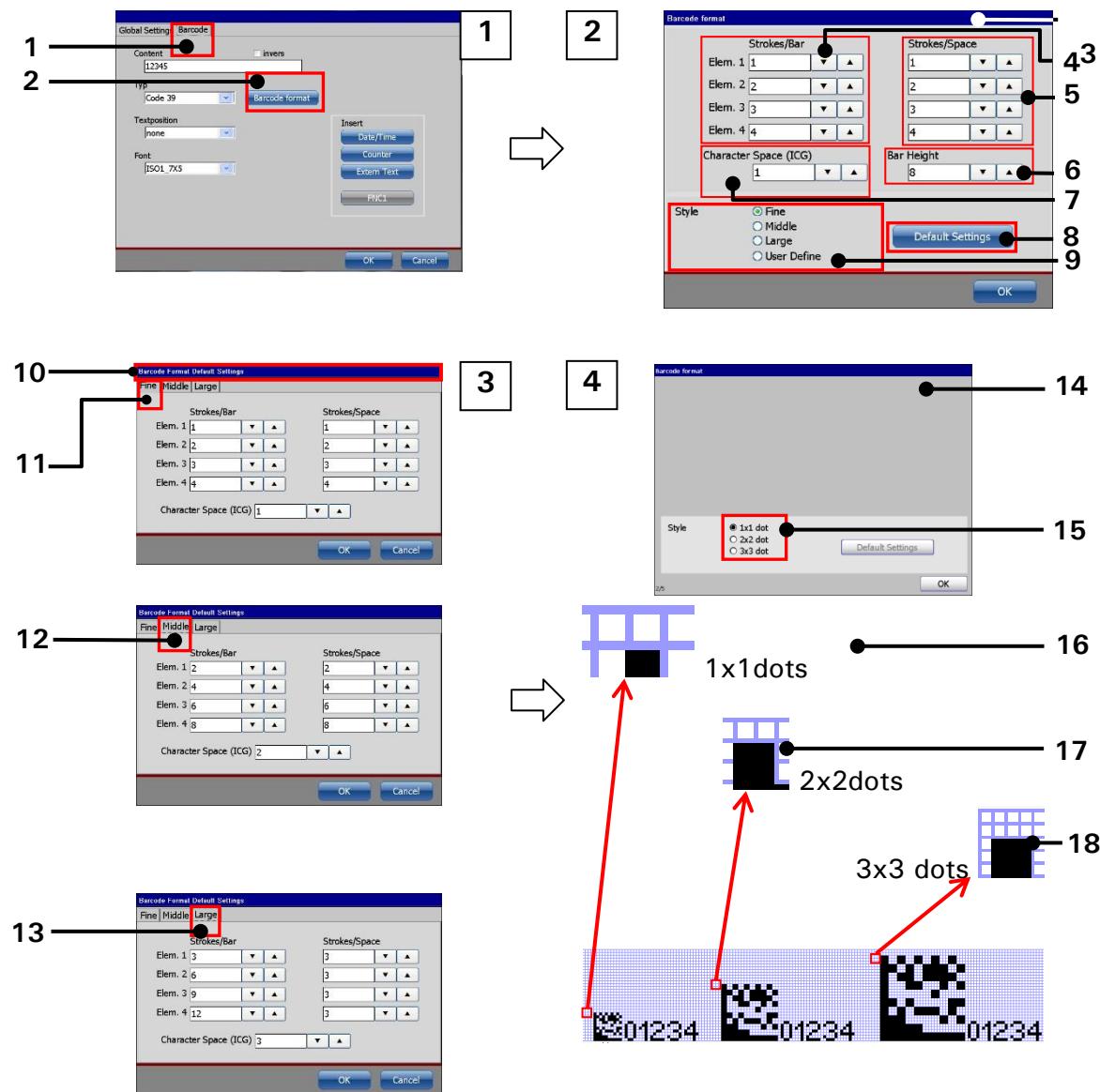
For 2-D bar codes like the ECC200 code the **<Barcode format>** dialog box (14) offers different options. For 2-D bar codes there are 3 **<Styles>** available (15). With the styles the number of printed dots which are used per 2-D code square is defined.

---

**<1x1> <Style>**: one square of the 2-D code is printed with 1 dot (16).

**<2x2> <Style>**: one square of the 2-D code is printed with 4 dots (17).

**<3x3> <Style>**: one square of the 2-D code is printed with 9 dots (18)

**Figure 162 Bar codes: Bar code format**

1 – &lt;Barcode&gt; tab

2 – &lt;Barcode Format&gt; button

3 – Dialog box &lt;Barcode format&gt; for 1-D codes

4 – Bar width settings

5 – Space width settings

6 – &lt;Bar Height&gt; settings

7 – &lt;Character Space (ICG)&gt; settings

8 – &lt;Default Settings&gt; button

9 – &lt;Style&gt; options for 1-D codes

10 – Dialog box &lt;Barcode Format Default Settings&gt;

11 – &lt;Style&gt; settings for Fine

12 – &lt;Style&gt; settings for Middle

13 – &lt;Style&gt; settings for Large

14 – Dialog box &lt;Barcode format&gt; for 2-D codes

15 – &lt;Style&gt; options for 2-D codes

16 – 1x1dot &lt;Style&gt;

17 – 2x2dot &lt;Style&gt;

18 – 3x3dot &lt;Style&gt;

#### 8.7.1.4.2 Bar code settings: Insert objects

##### Please see Figure 163

It is possible to add the content of certain objects and special control characters to a bar code. These objects and special control characters can be added by pushing the respective buttons in the <Insert> section (3) of the <Barcode> tab (1) while the cursor is placed in the <Content> display field (2). There are three kinds of objects for insertion available:

- Date/Time object (4)
- Counter object (5)
- Extern Text object (6)

**Each type of object can only be inserted once!**

Beside these objects for some types of bar codes there are also a button for special control characters available:

- FNC1 (7)
- Field Sep (GS) (8)

The function <FNC1> is a special code used with GS1 bar codes (e.g. GS1-128 code). The function <Field Sep (GS)> is a special code used with PPN bar codes (e.g. PPN-ECC200 square).

These function codes respective special characters can be inserted multiple times. Restrictions due to the specifications of the selected code have to be considered.

It is possible to combine different kind of objects and functions with numerical or alphanumerical content in the <Content> display field.



##### IMPORTANT

Due to integrated counters and replacements impermissible number of digits or invalid constellations can be caused. These barcodes are displayed as crossed out codes in the job editor and the preview.



Correct EAN13 code with 13 numbers

EAN13 code with only 5 numbers.

Recognized as wrong code and crossed out.

##### Date/Time object (4)

Pushing the <Date/Time> button (4) will insert a {t} (11) symbol at the current cursor position within the <Content> display field (2). There will also be displayed two additional tabs on the tab bar of the <Object Settings> dialog box:

### Date/Time tab (10)

On the <Date/Time> tab the content of the placeholder {t} is configured.



#### INFORMATION

For details about configuring date/time objects please see chapter **8.7.2 Date/time** for details.

### Replacements tab (9)

The <Replacement> tab offers options for the replacement of certain elements of the date/time object.



#### INFORMATION

Please see chapter **8.8 Replacements** for details.

### Counter object (5)

Pushing the <Counter> button (5) will insert a {c} (13) symbol at the current cursor position within the <Content> display field (2). There will also be displayed two additional tabs on the tab bar of the <Object Settings> dialog box:

### Counter tab (12)

On the <Counter> tab the content of the placeholder {c} is configured.

### Replacements tab (9)

The <Replacement> tab offers options for the replacement of certain elements of the counter object.



#### INFORMATION

For details about configuring counter objects please see chapter **Counter 8.7.3 Counter** for details.

Please see chapter **8.8 Replacements** for details.



#### IMPORTANT

There will be only one <Replacement> tab be displayed even if there are a <Date/Time> object AND a <Counter> object used in the <Content> display field (2). The settings on the <Replacement> tab will affect the <Date/Time> object as well as the <Counter> object.

### Extern text object (6)

---

Pushing the <Extern Text> button (6) will insert a {e} symbol (15) at the current cursor position within the <Content> display field (2). There will also be displayed an additional tab on the tab bar of the <Object Settings> dialog box:

### Extern text tab (14)

On the <Extern Text> tab the content of the placeholder {e} is configured.



#### INFORMATION

For details about configuring extern text objects please see chapter 8.7.5 Extern Text for details.

---

### FNC1 function (7)

Pushing the <FNC1> button (7) will insert a {f} symbol (16) at the current cursor position within the <Content> display field (2).The function <FNC1> is a special code used with GS1 bar codes .The <FNC1> control character identifies data with Application Identifiers (AI). The <FNC1> control character is followed by an Application Identifier (AI) number which provides a bar code reader with information about the following data. The <FNC1> control character represents the ASCII character 207 (dec.).

#### Example:

Code: [FNC1] 21 12345 [FNC1] 11 090101 17 100101

21: Serial number. The following number is considered as a serial number

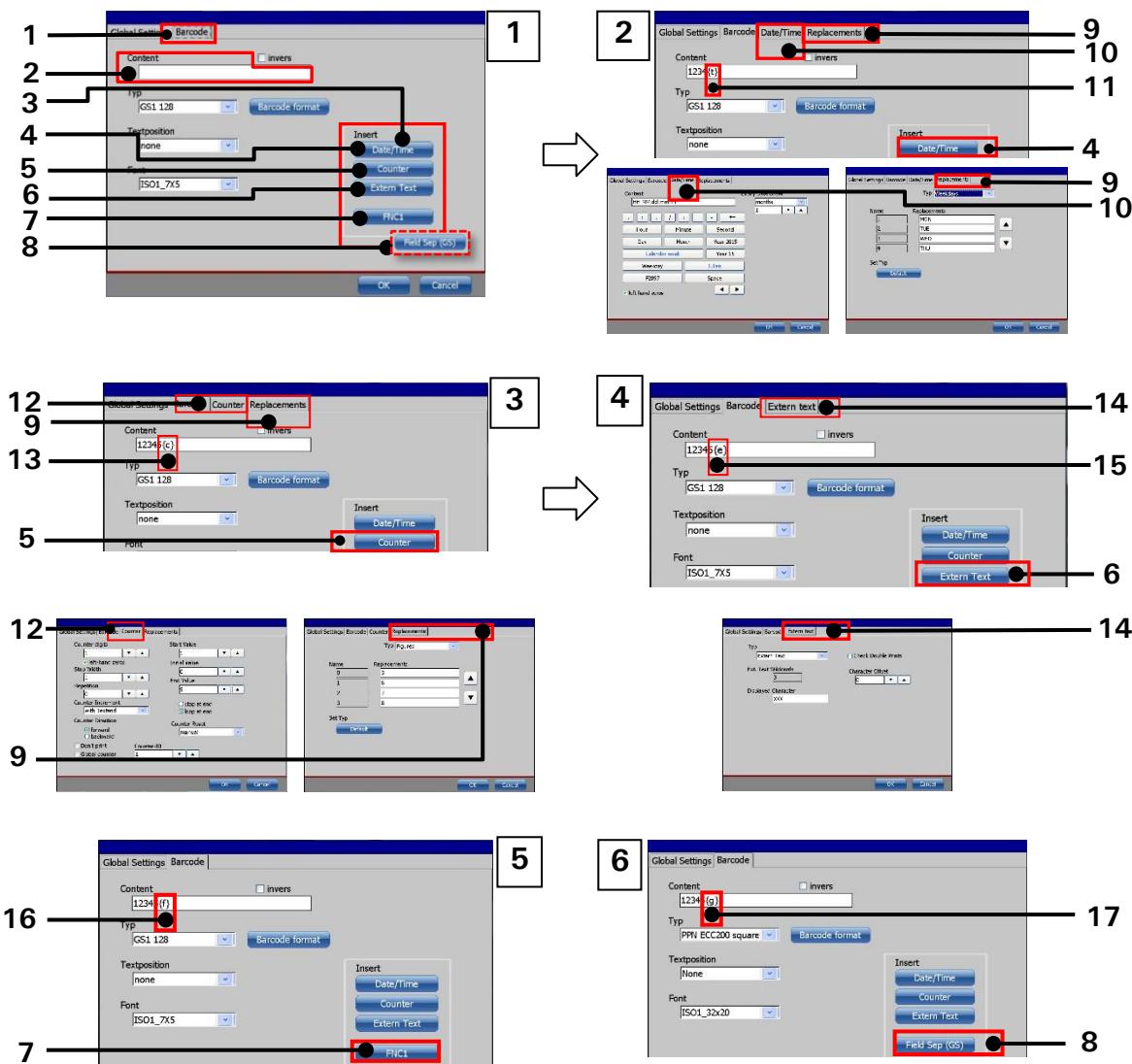
10: Lot number data. The following number is considered as a lot number

---

### Field Sep (GS) (8)

Pushing the <Field Sep (GS)> button (8) will insert a {g} symbol (17) at the current cursor position within the <Content> display field (2).The function <Field Sep (GS)> is a special code used with PPN bar codes.

The PPN (pharmaceutical product number) specifications require a field separator between data elements. Actually the field separator represents the ASCII character 29 (dec.).

**Figure 163 Bar codes: Insert objects**

- 1 – <Bar code> tab
- 2 – <Content> display field
- 3 – <Insert> section
- 4 – <Date/Time> button
- 5 – <Counter> button
- 6 – <Extern Text> button
- 7 – <FNC1> button
- 8 – <Field sep (GS)> button
- 9 – <Replacements> tab

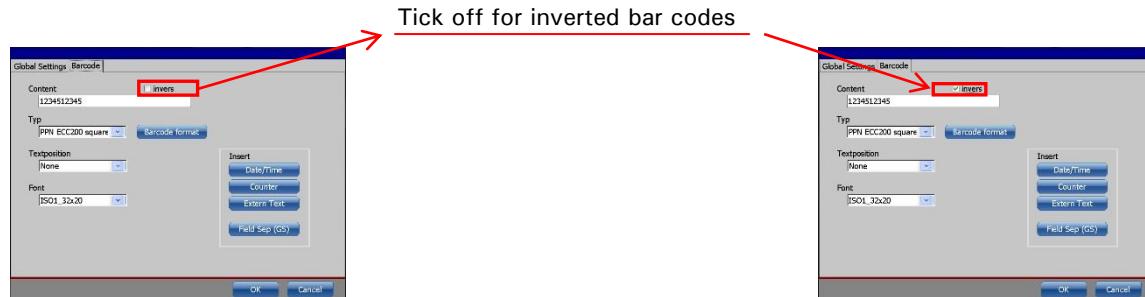
- 10 – <Date/Time> tab
- 11 – {t} symbol for <Date/Time> object
- 12 – <Counter> tab
- 13 – {c} symbol for <Counter> object
- 14 – <Extern Text> tab
- 15 – {e} symbol for <Extern Text> object
- 16 – {f} symbol for <FNC1> character
- 17 – {g} symbol for <Field sep (GS)> character

### 8.7.1.4.3 Bar code settings: <Inverse> function

It is possible to print all kind of barcodes inverted. To change a barcode into an inverted barcode you have to check the respective check box in the barcode menu.

**Figure 164 Inverted bar codes**

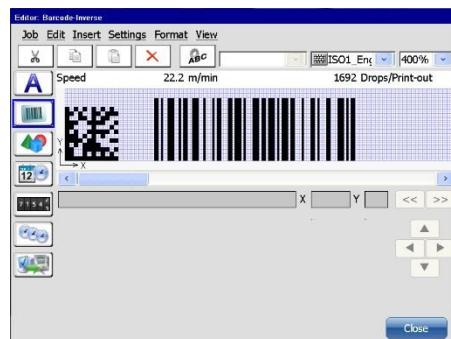
#### Differences between non-inverted and inverted barcode



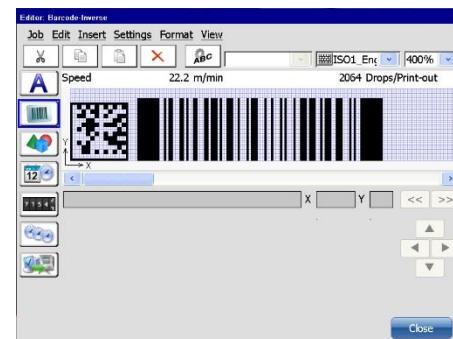
Barcode setting dialog box – “inverse” check box not selected

Barcode setting dialog box – “inverse” check box selected

#### Results with a matrix code and a bar code



Non-inverted barcode in the editor



Inverted barcode in the editor



Non-inverted barcode in the WYSIWYG window



Inverted barcode in the WYSIWYG window

Additionally there is an <Inverse> function available on the <Global settings> tab of the <Object settings> dialog box. Therefore there are 2 <Inverse> functions with 4 possible options.

Global <Inverse>	Bar code <Inverse>	
No	No	Option 1
Yes	No	Option 2
No	Yes	Option 3
Yes	Yes	Option 4

The global <Inverse> function affects the bar code as well as the plain text. The bar code <Inverse> function only affects the bar code.

The following previews show the results of the different settings.

Option 1	
Parameter	Bar code
Settings	39
Content	12345
Invers Global	No
Invers Barcode	No

Option 2	
Parameter	Barcode
Settings	39
Content	12345
Invers Global	Yes
Invers Barcode	No

Option 3	
Parameter	Barcode
Settings	39
Content	12345
Invers Global	No
Invers Barcode	Yes

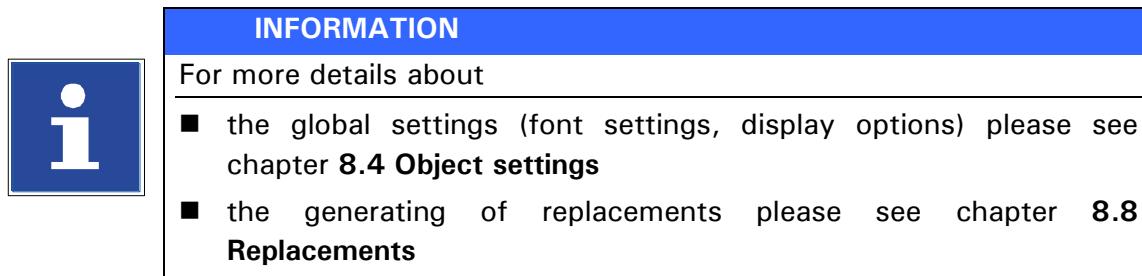
Option 4	
Parameter	Barcode
Settings	39
Content	12345
Invers Global	Yes
Invers Barcode	Yes

Option	Description
1	The bar code and plain text are printed in the color of the ink used
2	The bar code and plain text are printed inverted. They will have the color of the print medium used. The outline of the bar code and the plain text will be printed in the color of the ink used.
3	The bar code is printed inverted. It will have the color of the print medium used. The outline of the bar code and the plain text will be printed in the color of the ink used.
4	The bar code is printed in the color of the ink used (double inverted). The plain text is printed inverted. It will have the color of the print medium used. The outline of the plain text will be printed in the color of the ink used.

### 8.7.2 Date/time object

Provides the implementation of date and time specifications and the settings for the font parameters, the display options and an expiry time.

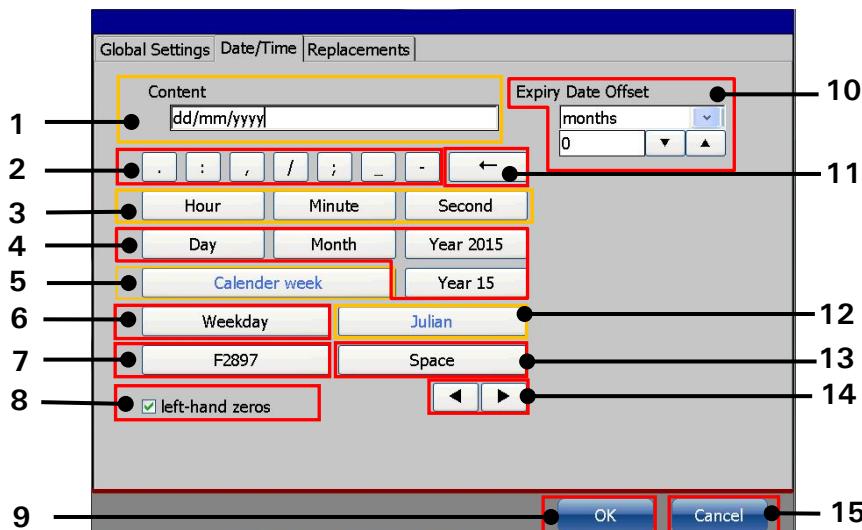
Furthermore it is possible to generate accordant replacements (numbers, letters or designations) for the date- and time values in order to get an operating-specific display or coding of the specifications.



**Note:**

"Expiry time" is the time which elapses until the product cannot be used any-more.

**Figure 165 Date/Time object - settings**



- 1 – Display field <Content>
- 2 – Buttons for <special characters>
- 3 – Buttons for time settings
- 4 – Buttons for date setting
- 5 – Button <Calendar week>
- 6 – Button <Weekday>
- 7 – Button <F2897> code
- 8 – Check box <left-hand zeros>

- 9 – Button <OK>
- 10 – Expiry date settings
- 11 – Button <Backspace>
- 12 – Button <Julian date>
- 13 – Button <Space>
- 14 – Arrow keys <display field>
- 15 – Button <Cancel>

## Description of the date/time settings

The display field (1) shows the content. The content is created with the buttons 2-7 and 12-13. Additionally there are a check box for adjusting the left-hand zeros (8) and control buttons for deleting (11) and the cursor control (14) within the display field (1). All Settings can either be confirmed with the <OK> button or discarded with the <Cancel> button.

### How to set a date/time

Basically there are two options to set a date or a time:

---

- The date/ time is set using the current date/time
- The date/time is set using an offset for an expiry date

With the first option the current date or time will be displayed and printed.

With the second option the current date or time plus the defined offset will be displayed and printed.

The navigation within the display field (1) is carried out with the arrow keys (14). With these buttons you can move the cursor to any position within the display field. Inputs will happen at the cursor position. So it is possible to insert fields or special characters within an already existing set of fields and special characters.

With the <Space> button (13) you can create spaces between fields or special characters. Using the <Backspace> button (11) will delete the field or special character left to the cursor position.

### Time

A time is set by using the buttons for time settings (3). The single fields (hour, minute, second) may be separated using the special characters but that's not stringently required. There are no restrictions regarding the order and the number of the fields and special characters.

E.g. it is possible to create the following time settings:

---

- HH:MM/SS
- HH\_SS
- SS/SS/HH/HH



#### ATTENTION

There is one thing to regard: it is not possible to place two fields of the same kind directly in row. In that case a special character has to be set in between the two fields.

## Date

A calendar date is set by using the date setting buttons (4). For date setting the same is true as for time setting. Because there are no restrictions regarding the content and the order it is also possible to mix date and time like shown in the following examples:

- dd/mm/YY/HH:MM:SS
- dd/mm/HH:MM:SS/yyyy



### ATTENTION

There is an exclusion regarding the number and order of the used fields:

A "year"-field ("Year 2014" or "Year 14") can only be used once within a set of fields and special characters. If a second "year"-field is used it will not be shown in the display and it will not be printed. Also all fields after that second year field neither will be displayed nor printed.

E.g.:

DD:MM:YYYY/hh:mm/~~YYYY:hh:mm:ss~~

The crossed out part will neither be displayed nor printed.

## Special Formats

Beside the buttons for time and calendar date there are several buttons for special date formats available. These special formats can also be mixed with the time and the calendar date fields.

Calendar week    Calendar date dd/mm/yyyy  
09                25/02/2014

The 25<sup>th</sup> February 2014 is in the 9<sup>th</sup> calendar week of the year 2014.

### Calendar week (5)

Displayed as "c" in the display field. The field <Calendar week> shows the calendar week number for the current date.

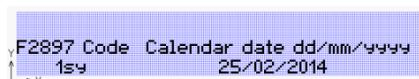
Weekday        Calendar date dd/mm/yyyy  
TUE              25/02/2014

The 25<sup>th</sup> February 2014 is a Thursday.

### Weekday (6)

Displayed as "w" in the display field. The field <Weekday> shows the weekday regarding the current date. The following abbreviations are used:

Monday	MON	Friday	FRI
Tuesday	TUE	Saturday	SAT
Wednesday	WED	Sunday	SUN
Thursday	THU		



F2897 Code Calendar date dd/mm/yyyy  
1sy 25/02/2014

**F2897** is code that shows the current Julian date and the last 2 digits of the current year as a 3 digit alphanumerical expression.

### F2897 (7)

Displayed as "f" in the display field.

The <F2897> function is a special date-coding for US pipe manufacturers. It is a specific US-guideline to convert the 5 digit date code containing the "Julian date" and the last two digits of the year to a just 3 digits long calculated alphanumerical number.



Julian date Calendar date dd/mm/yyyy  
056 25/02/2014

The 25<sup>th</sup> February is the 56<sup>th</sup> day of the year 2014.

### Julian date (12)

Displayed as "j" in the display field.

The <Julian> function shows the day-of-year number for the current date.

## How to set an expiry date

The expiry date is created by an offset on the current date/time. It is possible to choose either days or months for the offset.

### Expiry date – calculated on the basis of days

If the expiry date is calculated in days the result will show the current day or/and time plus the offset. The function will consider the actual number of days of the current month as well as leap years.

### Expiry date – calculated on the basis of months

If months are used for the calculation of the expiry date, the following rules are valid:

If the specific day code does not exist in the month which would be the "expiry month", the expiry date will be shifted into the next month. The number of days the expiry date would be shifted depends on the "missing" days in the month in which the expiry date originally would have been. Please see the examples for details.

#### Example 1:

The day of the production is: 31 August 2012

The expiry date shall be: 6 months

The regular result of the final date would be: 31. February 2013. Due to the fact that this day does not exist, the printer will print: 03. March 2013. In that case 3 days are missing in February.

**Example 2:**

The day of the production is: 31 March 2012

The expiry date shall be: 15 months

The regular result of the final date would be the 31<sup>st</sup> June 2013. Due to the fact that this day not exists, the printer will print 01. July 2013. In that case 1 day is missing in June.

production month	12 months	15 months	18 months
January *	01.2013	04.2013	07.2013
February*	02.2013	05.2013	08.2013
March *	03.2013	06.2013	09.2013
April	04.2013	07.2013	10.2013
Mai *	05.2013	08.2013	11.2013
June	06.2013	09.2013	12.2013
July	07.2013	10.2013	01.2014
August *	08.2013	11.2013	02.2014
September	09.2013	12.2013	03.2014
October *	10.2013	01.2014	04.2014
November *	11.2013	02.2014	05.2014
December *	12.2013	03.2014	06.2014

Production day	12 months	15 months	18 months
31. January		01.05.2013	
29. February	01.03.2013		
31. March		01.07.2013	
31. Mai			01.12.2013
29. August			01.03.2014
30. August			02.03.2014
31. August		01.12.2013	03.03.2014
31. October			01.05.2014
29. November		01.03.2014	
30. November		02.03.2014	
31. December			01.07.2014

### 8.7.2.1 Insert date- and time specifications

Example: To an already existing text object „A“ the current date should be added and printed and to an existing text object „V“ the expiry date as a result of the set expiry time should be added and printed.

Each date should be formatted dd/mm/yyyy (Day/Month/Year) and it should be displayed with left-hand zeros (e.g. 01/01/2014). The print should be a two-line print whereby the “A” and the current date should be printed in the first line and the “V” and the expiry date in the second line.

The set expiry time should be 15 days.

**Approach (part 1)** refers to Figure 166

#### Point 1

- Press the menu item <Insert> (1) and in the drop down menu select the menu item <Date/Time> (2) or the appropriate direct button (3)

#### Point 2

- The dialog box <Global Settings (Date/Time)> is faded in and it shows the first tab <Global Settings>. You can make the requested settings for the font parameters and display options on this tab.



#### INFORMATION

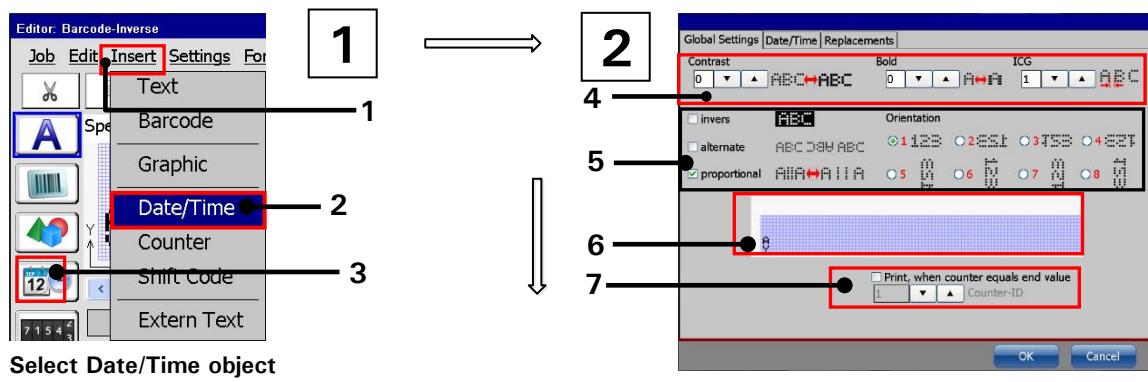
You will find further information in the chapter **8.4 Object settings**

**Note:** For a new object the input fields <Position X/Y> (6) shows automatically the next possible position for the object after an already existing object. The first object within a job will have the position X = 2 and Y = 1. For adjusting the position of a selected object you can use the input fields for the x and y position (6). Inputs can be carried out stepwise with the arrow keys or with the number keypad that shows up by selecting one of the input fields. Please consider that objects can be positioned on top of each another.

Use the editing window to check the correct positions of all objects.

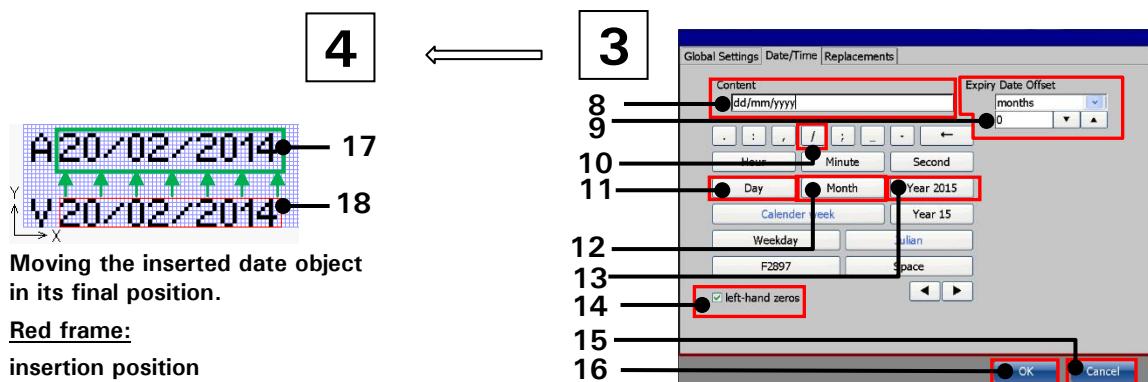
**Figure 166 Print elements (Date/time input (Part 1)**

Example – date settings



Select Date/Time object

Example – Global objects settings



Green frame:  
final position

- |  |  |
|--|--|
| 1 – Menu item <Insert>                   | 10 – Button </>                        |
| 2 – Drop-down menu item <Date/Time>      | 11 – Button <Day>                      |
| 3 – Direct button for <Date/Time> object | 12 – Button <Month>                    |
| 4 – Font Settings                        | 13 – Button <Year 2014>                |
| 5 – Object attributes & orientation      | 14 – Check box <left-hand zeros>       |
| 6 – Preview                              | 15 – Button <Cancel>                   |
| 7 – Counter assignment settings          | 16 – Button <OK>                       |
| 8 – Display field <Content>              | 17 – Final position of the date object |
| 9 – Settings <Expiry date offset>        | 18 – Position of the date object       |

### Point 3

- Now change to the <Date/Time>.
- Press the following buttons (10-13) to create the required date format input:  
„Day“ ► „/“ ► „Month“ ► „/“ ► „Year 2014“  
The display field <Content> (8) shows a preview of the date format.
- Press the button <OK> (16) for confirmation and to close the tab or press the button <Cancel> (15) to leave the tab without saving.
- With the confirmation the date object is inserted into the editing window of the <Job editor> marked with a red object frame.
- Click on an object to select it. A selected object is marked with a red frame.

### Point 4

- Position the date object with the direction buttons of the job editor or use the drag-and-drop function to move the element.

**Approach (part 2) refers to Figure 167**

### Point 1

- Press the menu item <Insert> (1) and in the drop down menu select the menu item <Date/Time> (2) or the appropriate direct button (3).

### Point 2

- The menu <Global Settings (Date/Time)> is faded in. Carry out the requested settings for the font parameters and display options on the <Global Settings> tab.



#### INFORMATION

You will find further information in the chapter **8.4 Object settings**

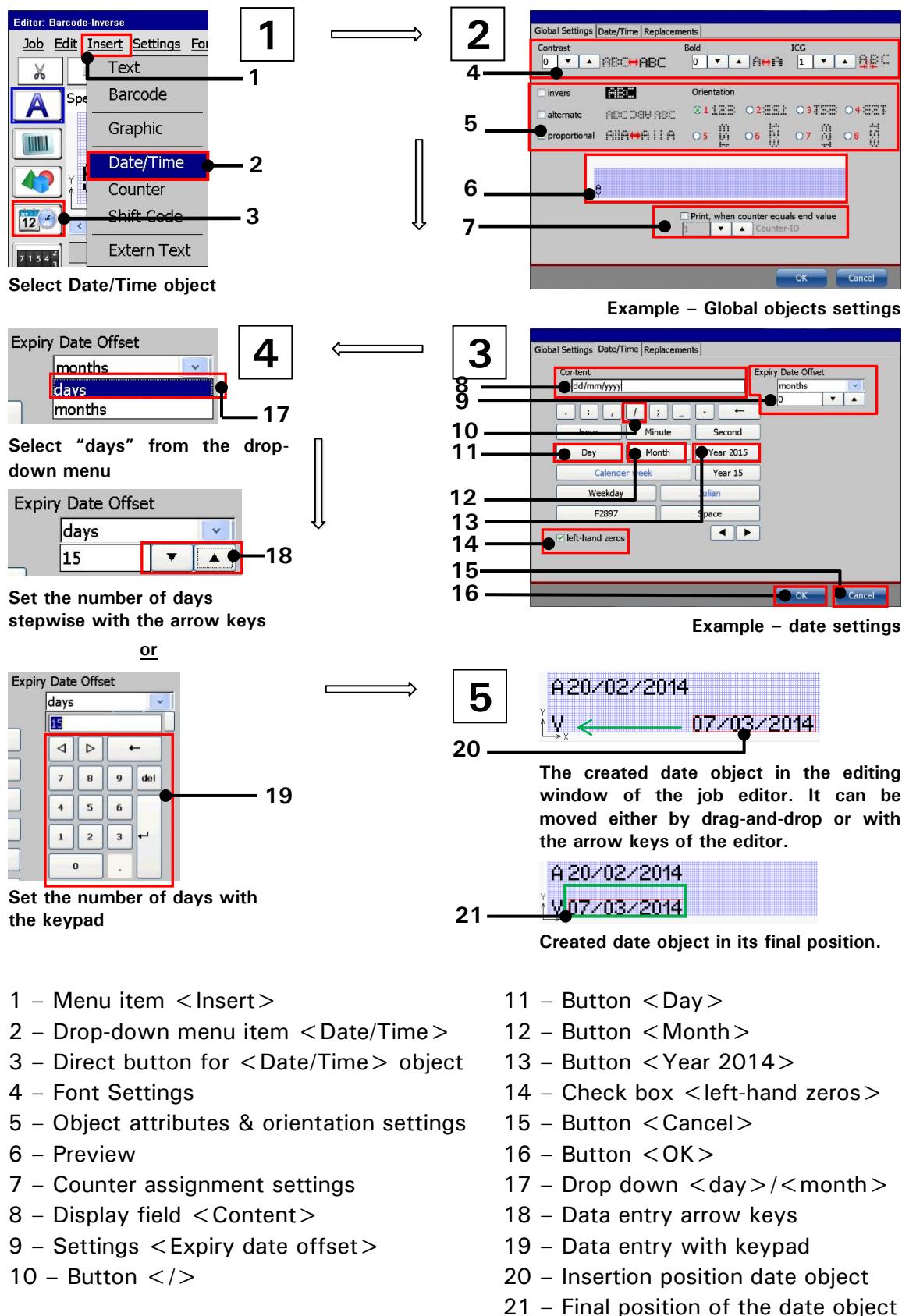
### Point 3

- Now change to the <Date/Time> tab by selecting the corresponding tab caption.
- Press the following buttons (10-13) in the appropriate order to create the required date input:  
„Day“ ► „/“ ► „Month“ ► „/“ ► „Year 2014“

The display field <Content> (8) shows a preview of the formatting.

- Select “days” from the drop-down menu of the <Expiry Date Offset> section (17).

Figure 167 Print elements (Date/time input (Part 2))



#### Point 4

- Set the requested expiry date of 15 days. The setting can be carried out stepwise with the arrow keys (18)  
or  
by clicking in the display field of the <**Expiry Date Offset**> section which will open a number keypad (19) for input.



##### INFORMATION

You will find further information about working with the number keypad in the chapter **6.4.1 Numeric keypad**

- Press the button <**OK**> (16) for confirmation and to close the tab or press the <**Cancel**> button (15) to leave the tab without saving.

#### Point 5

- The expiry date object is inserted to the editing window of the <**Job editor**> marked with a red object frame (20).
- You can select an object by clicking on it. A selected object is marked with a red frame.
- Position the object with the arrow keys of the job editor or use the drag-and-drop function to move the object in its final position (21).

### 8.7.2.2 Carry out replacements

Further more accordant substitutions (numbers, letters or designations) for the date- and time values can be generated on the tab <**Replacements**> to get an operating-specific display or coding of the specifications.



#### INFORMATION

You will find further information regarding the execution of substitutions in the chapter **8.8 Replacements**

### 8.7.3 Counter

Provides bonding of individual programmable counters as well as definition of counter parameters, font parameters and display options.

Further more accordant replacements (number or letters) can be generated to get a operating specific display or coding of the specifications.



#### ATTENTION

**Attention!** Leaving a job, the counter states of job counters are usually not saved, that means if you re/open the job the counter readings will be set to the start value. If the print should be continued with the last counter readings you have to define the respective counter as <**Global counter**>



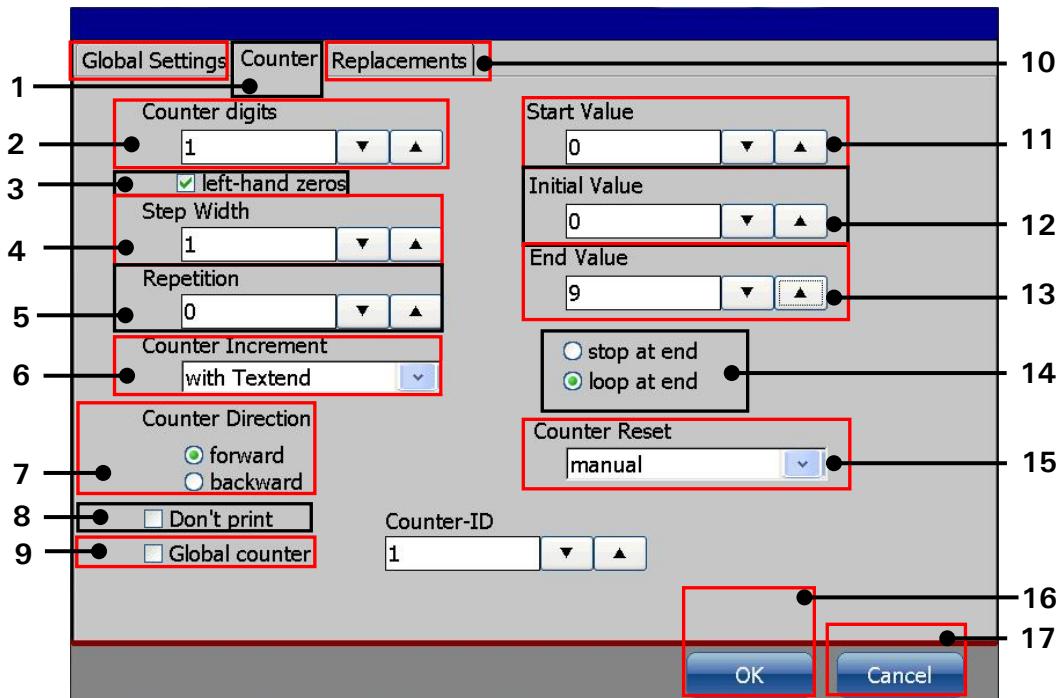
#### INFORMATION

You will find further information also in chapter **8.7.3.1.13 Global counter**

### 8.7.3.1 Counter parameter

On the <Counter> tab the basic counter settings are defined.

**Figure 168 Print elements: counter settings**



- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| 1 – <Counter> tab                    | 10 – Tab bar <Object settings>       |
| 2 – Display field <Counter digits>   | 11 – Display field <Start value>     |
| 3 – Check box <Left hand zeros>      | 12 – Display field <Initial value>   |
| 4 – Display field <Step width>       | 13 – Display field <End value>       |
| 5 – Display field <Repetition>       | 14 – Selection <Counter (Loop/Stop)> |
| 6 – Drop-down list <Count increment> | 15 – Drop-down list <Counter reset>  |
| 7 – Selection <Counter direction>    | 16 – <OK> Button                     |
| 8 – Check box <Don't print>          | 17 – <Cancel> Button                 |
| 9 – Check box <Global counter>       |                                      |

### 8.7.3.1.1 Number of digits

The setting defines the number of digits of the counter. The maximum input is 10 digits. The set value is shown on the accordant display field.

### 8.7.3.1.2 Start value

The setting defines the start value of the counter. The maximum input is 10 digits.

After reaching the end value the counter will be reset to the start value.

The set value is displayed on the accordant display field.

### 8.7.3.1.3 Initialization value

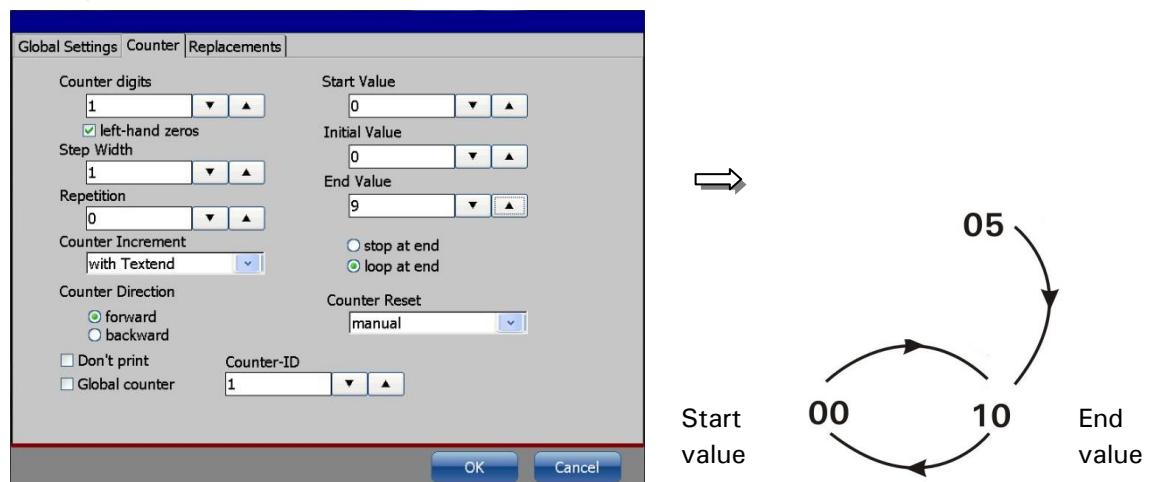
The setting defines the initialization value of the counter. The maximum input is 10 digits.

That means if the job is started or loaded for the first time, it is first counted from the initialization value to the end value. Afterwards it is then always counted from the start value to the end value.

The set value is shown on the accordant display field.

**Figure 169 Counter settings - Initialization value**

Example:



#### 8.7.3.1.4 End value

The setting defines the end value of the counter. The maximum input is 10 digits.

After reaching the end value the counter will be reset to the start value.

The set value is shown on the accordant display field.

#### 8.7.3.1.5 Leading zeros (Left-hand zeros)

With this function the display of the leading zeros of a counter are turned on or off.

**Example:** 4-digits counter

Function	Value	Display
deactivated	1	1
activated	1	0001

#### 8.7.3.1.6 Step width

The setting defines the increasing of the counter between the several prints.

The set value is shown on the accordant display field.

#### 8.7.3.1.7 Repetitions

The setting defines the amount of prints which should be repeated. If no repetition is requested, you have to enter „0“. The counter can print up to 9999998-times repetitive.

**Example:** 0 = no repetition

1 = Every counter value is printed twice consecutively

(1 repetition)

2 = Every counter value is printed triply consecutively

(2 repetitions)

The set value is shown on the accordant display field.

#### 8.7.3.1.8 Counting direction

This setting controls the direction of the counting process.

- **Counting direction forward:** If this check box is activated the counter will be incremented (+).
- **Counting direction backwards:** If this check box is activated, the counter will be decremented (-).

#### 8.7.3.1.9 End value controlLoop/Stop after end value

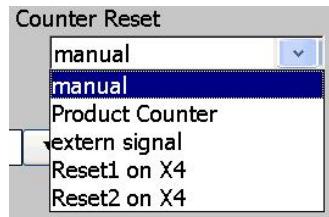
The setting controls the action of the counter by reaching the set end value.

- **Stop at end value:** If this check box is activated, no more counter is displayed after the end value has been reached.
- **Loop after end value:** If this check box is activated the counting process and the print will be started again from the beginning after the end value has been reached.

#### 8.7.3.1.10 Counter reset (methods)

With the Drop-down list <Counter Reset> you can define the reset method of the counter.

**Figure 170 Counter settings (Reset methods)**



- **manual:** The reset happens manually by the operator in the dialog box (Extra ► Product Counter ► Reset all Job Counters)
- **Product Counter:** The reset of the job counter happens with the reset of the production counter. This function is associated with the first product counter. A second product counter would be ignored.
- **extern signal:** The reset happens by an external supplied signal (X4.1 on interface X4. Please see appendix for details).
- **Reset1 on X4:** The reset happens by an external supplied signal on the X4 interface. The actual input has to be assigned in the I/O Settings dialog box (Settings – I/O Settings – Inputs)

- **Reset2 on X4:** The reset happens by an external supplied signal on the X4 interface. The actual input has to be assigned in the I/O Settings dialog box (Settings – I/O Settings – Inputs)
- A counter reset method can be assigned to more than one counter. Therefore it is possible to create “Reset groups”.

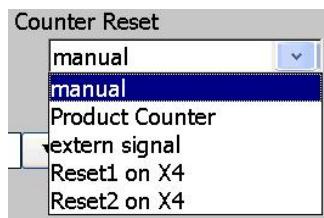
#### **Example for “Reset groups” – 6 defined Counters assigned to three groups**

Counter	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
<b>Reset Assignment</b>	external	external	Reset1 on X4	Reset1 on X4	Reset2 on X4	Reset2 on X4
<b>Pin Assignment X4</b>	X 4.1 fixed		6 available inputs for free assignment		6 available inputs for free assignment	

#### **8.7.3.1.11 Counter increment (methods)**

With the drop-down list <Counter Increment> you can determine the method at which event the counter value should be changed (incremented or decremented).

**Figure 171 Counter settings - Increment methods**

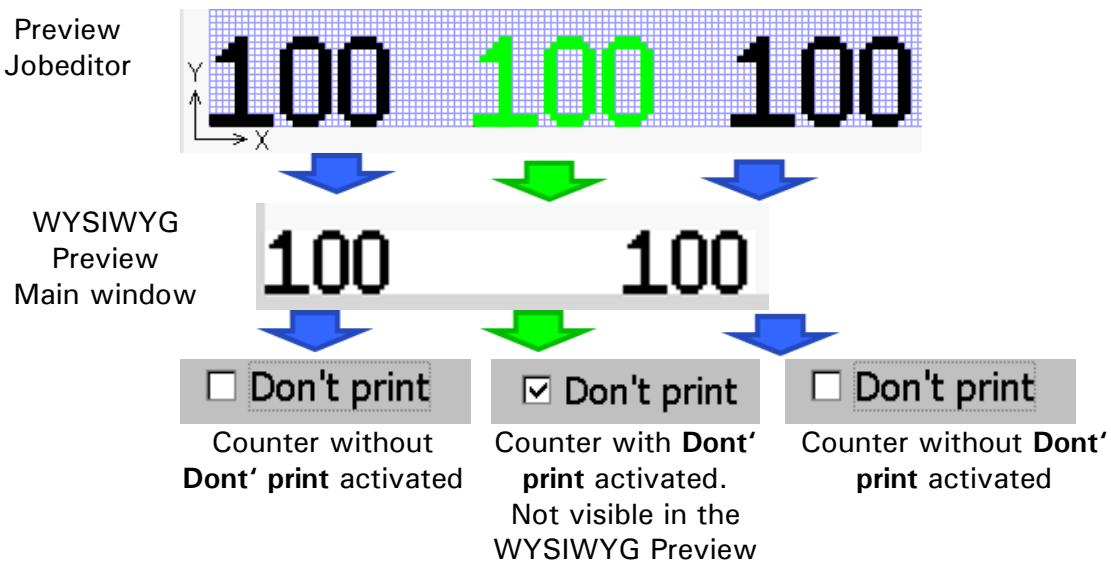
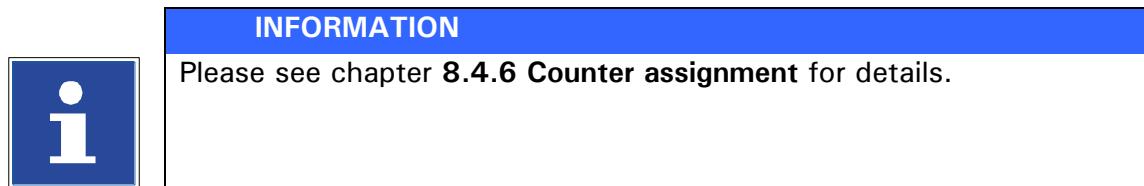


- **with PrintGo:**  
The change in value of the counter happened with each the PrintGo-signal (even, if the printout is stopped and the printer still receives some PrintGos from the sensor or the internal PG source).
- **with printing (text) end:**  
The change in value of the counter happens after the printout was made.
- **Extern (external signal):**  
The change in value happens by an external signal (interface X4).

### 8.7.3.1.12 <Don't print function>

With the check box <**Don't print**> on the <**Counter**> tab selected the counter object will not be printed. The counter will work in the background and the counter object will not be displayed in the WYSIWYG preview of the main window.

In the job editor a <**Don't print**> counter object will be displayed in green colour. In the preview WYSIWYG of the main window it would be not visible. A <**Don't print**> counter object can be used to control the printout of text objects.



### 8.7.3.1.13 Global counter

With the check box <Global counter> on the <Counter> tab selected the counter object will be declared as <Global counter>. Within a print job only one counter can be declared as <Global counter>. The counter reading is stored in a special memory register and it is available in all print jobs.

Therefore it is possible to access the current counter reading from each print job provided in that print job there is one counter declared as <Global counter>.

#### Example

With a <Global counter> it is possible to print consecutive numbers on different products which are imprinted using different print jobs.

#### Basics rules about global counters

1. There can be declared only one counter as global counter within a print job
2. The counter reading can only be set or reset within the job editor. For this the object has to be selected in the job editor in order to call the <Object settings> dialog box.
3. A <Global counter> can be edited during <Print Start> mode (green <Print Start> button is activated) but closing the dialog box will discard all changes. Changes on the <Global counter> settings and counter reading can only be saved during <Print Stop> mode (red <Print Stop> button is activated).

### 8.7.3.2 Carry out replacements

On the tab <Replacements> of the dialog box you can generate accordant replacements (numbers or letters) for the counter values to get an operating specific display or coding of the specifications.



#### INFORMATION

You will find further information regarding the carrying out of substitutions in the chapter **8.8 Replacements**

#### 8.7.4 Shift code

Provides the integration of a text element which is printed in predefined periods (shift times) as well as a definition of the accordant parameters.

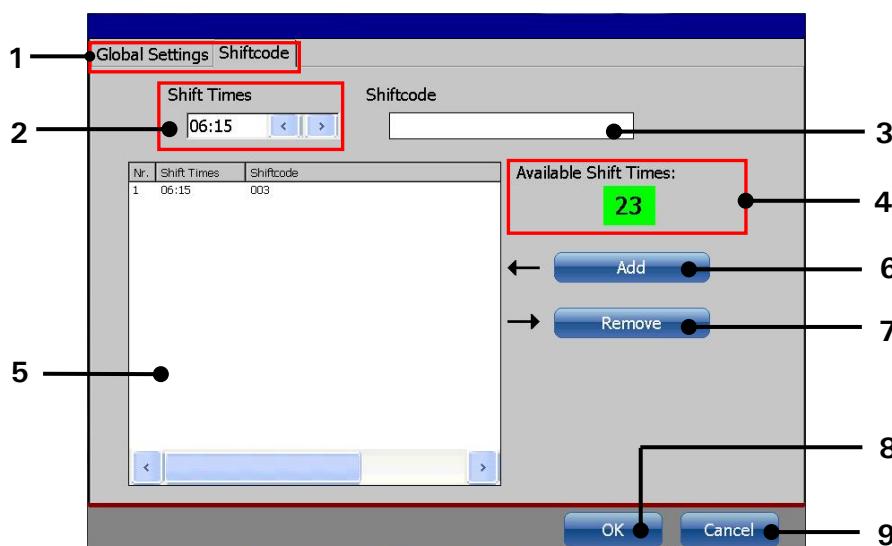
**Note:** The changing text can be also combined with other printing elements which will not change by the predefined periods (only the „shift-defined“ text).

##### 8.7.4.1 „Shift Code“ tab

In the **management window** (5) all defined shift times with the corresponding shift codes are listed. Up to 24 shift codes can be managed.

In the display field **<Shift code management>** (4) the number of shift times still available; i.e. the shift times which can still be defined, is displayed.

**Figure 172 Print elements (Shift code dialog box design)**



- 1 – Tab bar
- 2 – Settings field <Shift times>
- 3 – Settings field <Shiftcode>
- 4 – Display field <Shift code management>
- 5 – Management window

- 6 – <Add> Button
- 7 – <Remove> Button
- 8 – <OK> Button
- 9 – <Cancel> Button

#### 8.7.4.2 Set up shift times and integrate shift codes in print outs

Example:

A shift code should be written additionally to an existing fix text „xxx“.

In the first shift (early shift) at 6.15 am „xxx 001“.

In the second shift (late shift) at 12.15 pm „xxx 002“.

In the third shift (night shift) at 20.15 am „xxx 003“.

**Proceeding:**

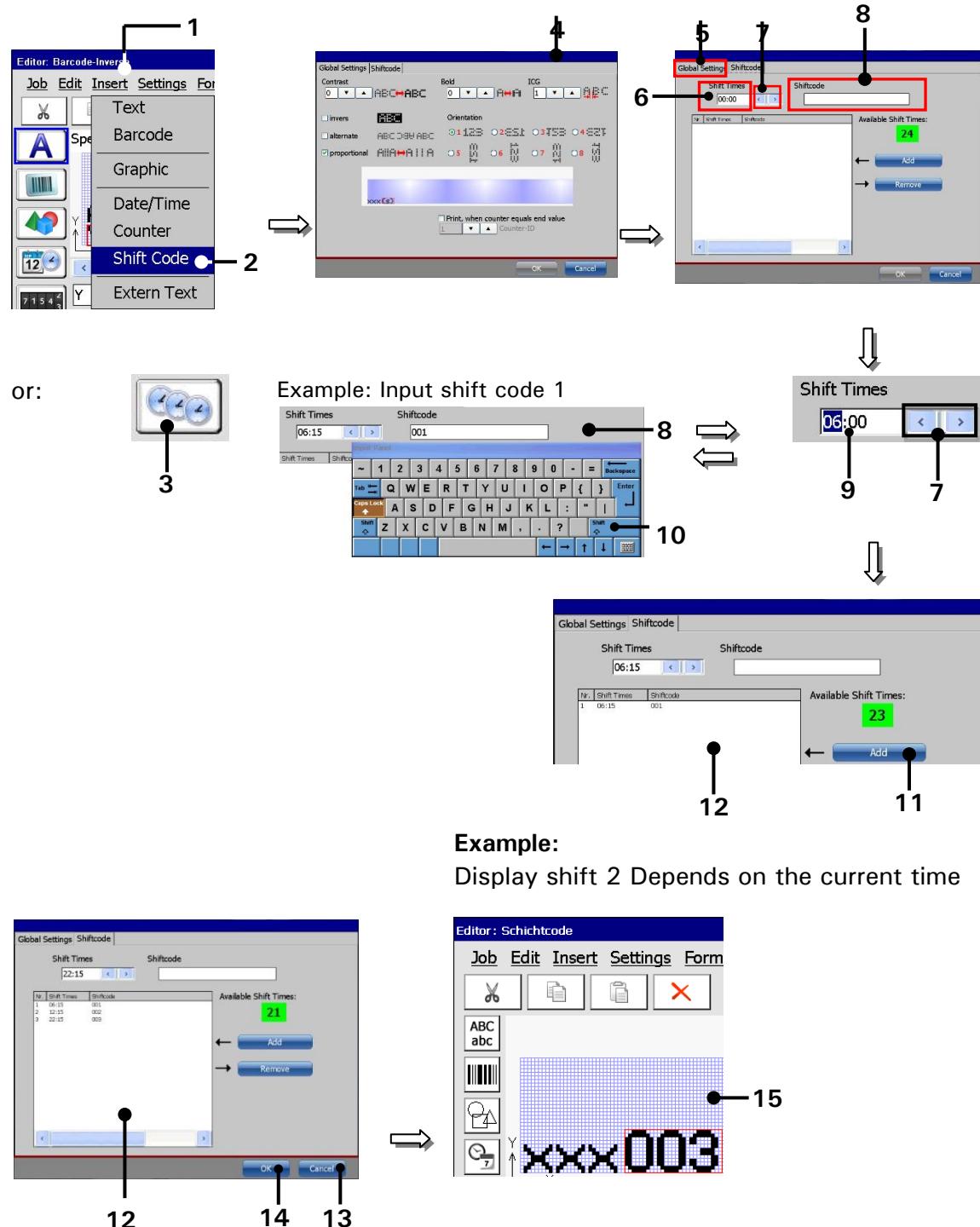
- Press the button <Insert> (1) and the option <Shift Code> (2) or the accordant direct button [icon] (3).
- The dialog box <Object settings (Shift Code)> is faded in.  
On the tab <Global Settings> (4) carry out the requested settings for the font parameters and display options. You will find further information in the chapter **8.4 Object settings**
- Now change to the tab <Shift Code> (5). The selection of the tab happens by clicking on the tab bar.
- Now mark in the setting field <Shift Times> (6) the hour- or minute block to change the values. With the accordant <Arrow keys> (7) you can increase or reduce the values of the marked block (9).
- Now click in the input field <Shiftcode> (8). A keyboard field pops up for input. Now enter „001“.
- Press the button <Enter ↲> (10) of the keyboard field. The entered characters are taken over and are displayed in the setting field.



#### INFORMATION

You will find further information about the usage of the keyboard in chapter **6.4.2 Keyboard**

- Now press the button <Add> (11). The settings that have been made are transferred to the list of shift codes (12).

**Figure 173 Print elements - Shift code set up**

- 1 – Drop-down menu <Insert>
- 2 – Option <Shift Code>
- 3 – Direct button (Shortcut)
- 4 – <Global Settings> Tab
- 5 – <Shift Code> Tab
- 6 – Input <Shift Times>
- 7 – Arrow keys
- 8 – Input field <Shiftcode>

- 9 – Selected (marked) time block
- 10 – <Enter> Button
- 11 – <Add> Button
- 12 – List of shift codes
- 13 – <Cancel> Button
- 14 – <OK> Button
- 15 – <Job editor>

- Carry out the inputs („002“ and „003“) accordingly for the further shift codes.
- Press the button <OK> (14) to take over the input and to close the dialog box or press the button <Cancel> (13) to leave the dialog box without saving the inputs to take over the input and to close the dialog box.
- In the dialog box <Jobeditor> (16) the fix text followed by the applied shift code are displayed.

**Note:**

Displayed is the shift code which is currently valid (as in the example the night shift „003“).

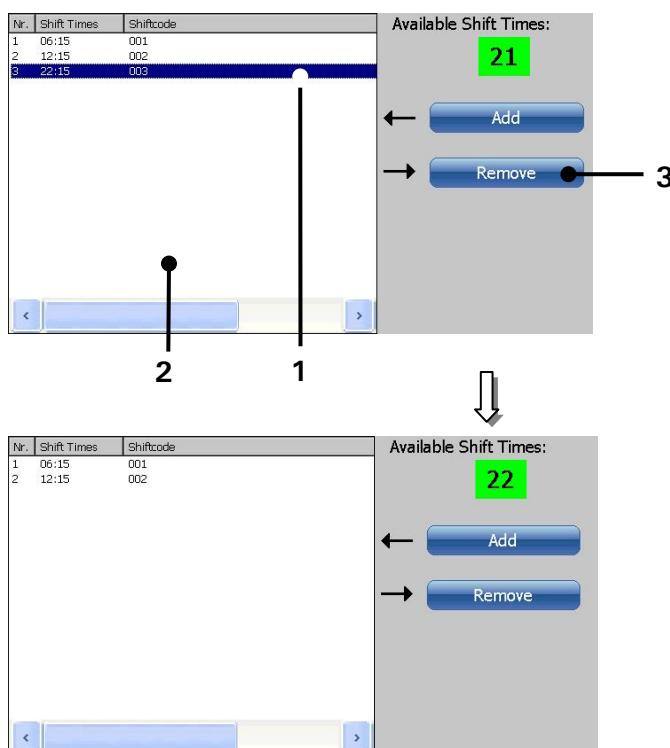
#### 8.7.4.3 Remove shift times

Shift times that are no longer needed can be removed.

**Proceeding:**

- Mark the shift time to be deleted (1) on the list of shift codes (2).
- Press the button <Remove> (3). The shift time is deleted.

**Figure 174 Print elements –Remove shift code)**



1 – Marked shift time

2 – List of shift codes

3 – Button <Remove>

### 8.7.5 Extern Text

With the **<Extern Text>** object it is possible to use external text files as a data source for the print-out. There are three options for using the external data:

1. A fixed length character string shall be transferred either via a RS232 or Ethernet connection. For this requirement you can use the function **<Extern Text fixed length>**.
2. A variable length character string shall be transferred either via a RS232 or Ethernet connection. For this requirement you can use the function **<Extern Text variable length>**.
3. The data is read from an.txt file saved on an external storage. This can either be an USB stick or an SD card. This function is called **<Mailing>**.

#### Requirements **<Extern Text>** – fixed and variable length

- You have to set the interface parameters in the interface dialog box.
- To use the **<Extern Text>** function you will have to create an extern text object. The parameters for the object are set in the **<Extern Text>** dialog box. For an **<Extern Text>** object with a fixed-length character string you will have to define the number and the characters for the wildcards and an optional offset. For an **<Extern Text>** object with a variable-length string you will have to define additionally a **<Start symbol>** and **<End symbol>**.

You can send the serial data either via a RS232 or an Ethernet connection.



#### INFORMATION

Please see chapters **5.5.1 Ethernet-connection** and **5.5.6 Interface X2 - Serial interface** for details.

The data can be transferred with any terminal software e.g. like Hyperteminal.

You have to make sure that the parameters in the terminal software correspond with the parameter set for the JET3up.

#### Shoot & Print

Alternatively the data can be sent with a bar code scanner connected to the RS232 interface. The data is coded as bar code, read with a bar code scanner and finally sent to the printer through the RS 232 interface. Working with this method avoids errors by wrong data input. Suitable bar code scanners are optionally available.

**For this option a bar code scanner with serial interface is required!**

**A bar code scanner with a USB interface (HID device) cannot be used in combination with the **<Extern Text for serial interface>**.**

### Interface settings

With the JET3up interface setting <Extern Text for serial interface> and <Extern Text for Ethernet interface> the JET3up printer does not expect any control characters. Each character sent will be interpreted as data. This will also be true for control characters like <line feed>, <form feed> or <carriage return>.

There is an exception for the <Extern Text variable length> function. With this function you can set control characters that mask the transferred string by defining a <Start symbol> and a <End symbol>.

### Requirements <Mailing>

- For the <Mailing> function you will have to set the parameters for the external data source.
- To use the <Mailing> function you will have to create an <Extern Text> object. The parameters for the object are set in the <Extern Text> dialog box. You can define which field of a data set should be assigned to the object and you can set wildcards for this field.



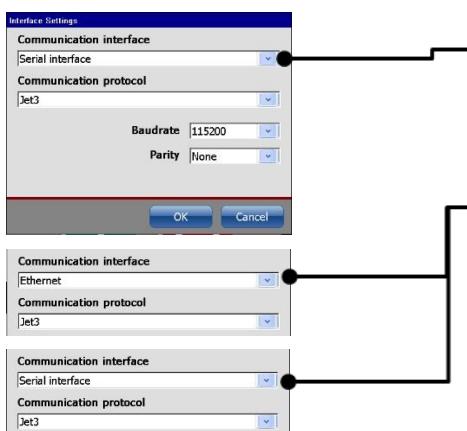
#### INFORMATION

The JET3up printer also offers the possibility of controlling print job selection and printout using a special script language. Data and commands can be sent by modem, Ethernet or RS 232 interface using a terminal software.

#### Shoot & Print

Data and commands can also be coded as bar codes and transferred with a bar code scanner connected to serial interface to the JET3up printer.

**For this option a bar code scanner with serial interface is required!**  
**A bar code scanner with a USB interface (HID device) cannot be used in combination with the script language.**



Interface for Shoot & Print using a bar code scanner with serial interface

Available serial interfaces for using the JET3 script language

Regarding the JET3up script language and the possibilities of Shoot & Print detailed documentation is available separately.

### 8.7.5.1 Extern Text: fixed length

#### 8.7.5.1.1 Extern Text: fixed length – Interface settings

**See figure 175**

Open the dialog box for the interface settings from the main window of the printer:

<Extra> - <Interface setting> (1).

The dialog box (2) for the interface settings offers several options. First you can choose the <Communication Interface> (3) and the <Communication Protocol> (4). The displayed options depend on the selected type of connection. E.g. the serial interface offers input fields for the baud rate (5) and the parity settings (6).

##### Extern Text for serial interface

After the communication type <Serial interface> (7) and the communication protocol <Extern Text> (8) are selected you can choose the baud rate (9) and the kind of parity (10) from a drop-down lists. With the <OK> button all settings are saved and the dialog box is closed. With the <Cancel> button all changes are discarded and the dialog box is closed without saving.

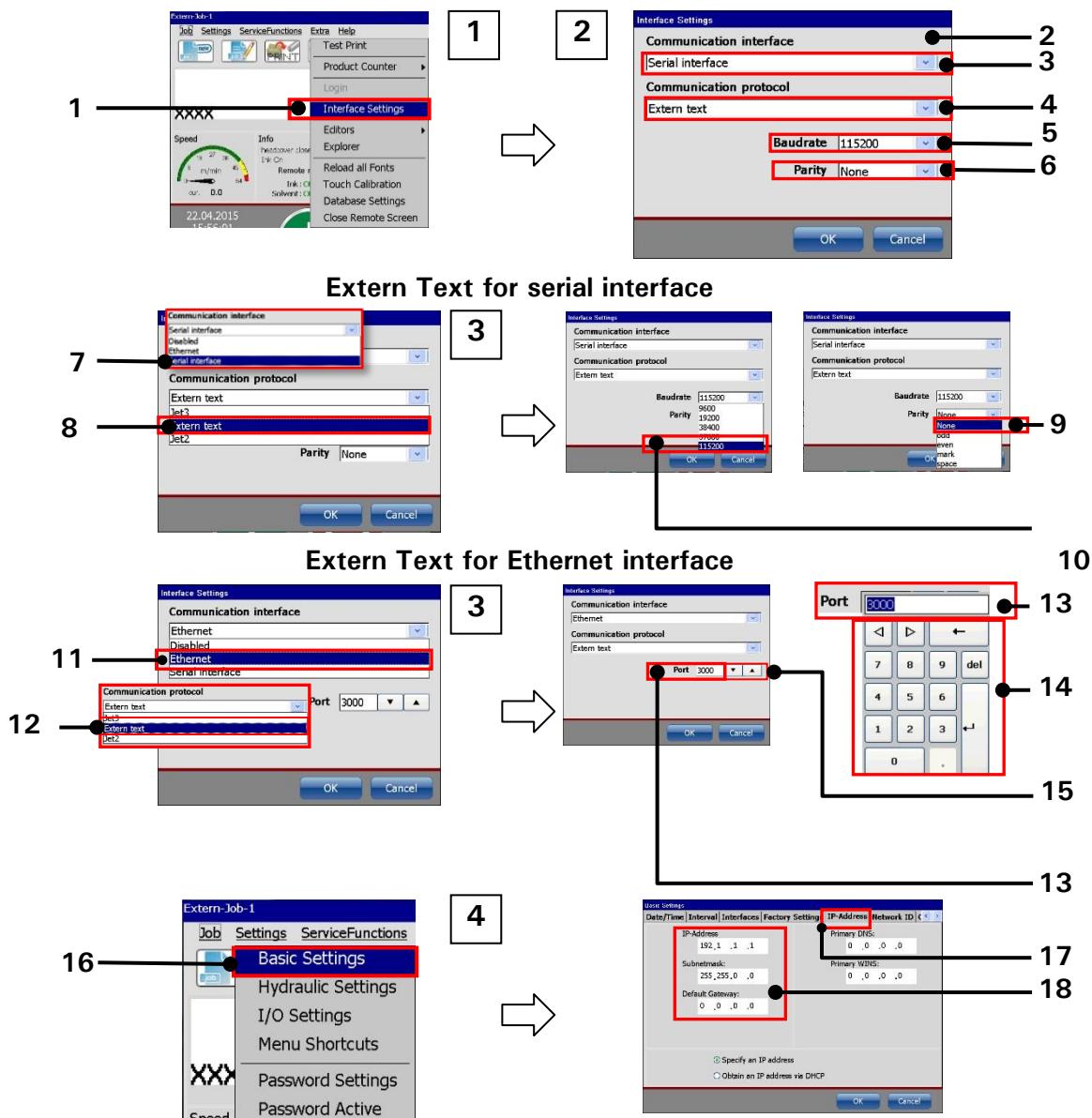
##### Extern Text for Ethernet interface

After the communication type <Ethernet> (11) and the communication protocol <Extern Text> (12) is selected you can set the <Port> number (13) for the connection. Clicking in the input field (13) will open a numeric keypad (14) for inputs. Alternatively you can use the arrow keys of the display field (15). You can save all settings and close the dialog box with the <OK> button. The <Cancel> button will discard all changes and close the dialog box without saving. If you use the Ethernet interface you will have to make sure that the IP-address settings of the printer are correct. For this you will have to open the respective dialog box from the main window of the printer (16):

<Settings>-<Basic Settings>-<IP-Address> (17, 18)

The tab shows the current settings (18). You will have to make sure that the IP addresses of the printer and of the device used for the connection (e.g. Notebook) are within the same logical address space respective within the same network.

Figure 175 Extern Text – Interface settings



- 1 – Menu item <Interface Settings>
- 2 – Dialog box <Interface Settings>
- 3 – Drop-down list <Communication Interface>
- 4 – Drop-down list <Communication Protocol>
- 5 – Drop-down list <Baud rate>
- 6 – Drop-down list <Parity>
- 7 – Selected communication interface <serial interface>
- 8 – Selected communication protocol <Extern text>
- 9 – Selection <Parity>

- 10 – Selection <Baud rate>
- 11 – Selected communication interface <Ethernet interface>
- 12 – Selected communication protocol <Extern text>
- 13 – Input field <Port> number
- 14 – Numeric keypad
- 15 – Arrow keys <Port> number
- 16 – Option <Basic settings>
- 17 – Tab <IP-Address>
- 18 – <IP address settings>

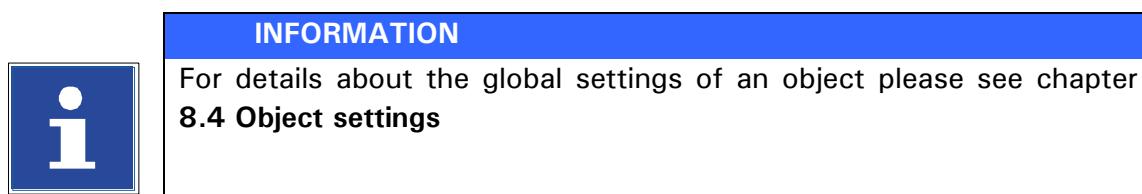
### 8.7.5.1.2 Extern Text: fixed length – Object creation and properties

#### See figure 176

In the job editor you can create an <Extern Text> object either with the <Insert> drop-down menu (1) or with the direct button (shortcut) for <Extern Text> (2).

This will open the dialog box for the object settings (3).

On the tab <Global settings> (4) you can enter the font settings (5), select font options (6) or define the positioning of the object (7).



On the tab <Extern Text> you can choose the type of the extern text. The following description refers to the option <Extern Text: fixed length> (9). The <Extern Text: variable length> and the <Mailing> options are described separately.

The type <Extern Text: fixed length> offers several options:

- Settings for double prints (11)
- Settings for wildcards (10)
- Settings for an offset (12)

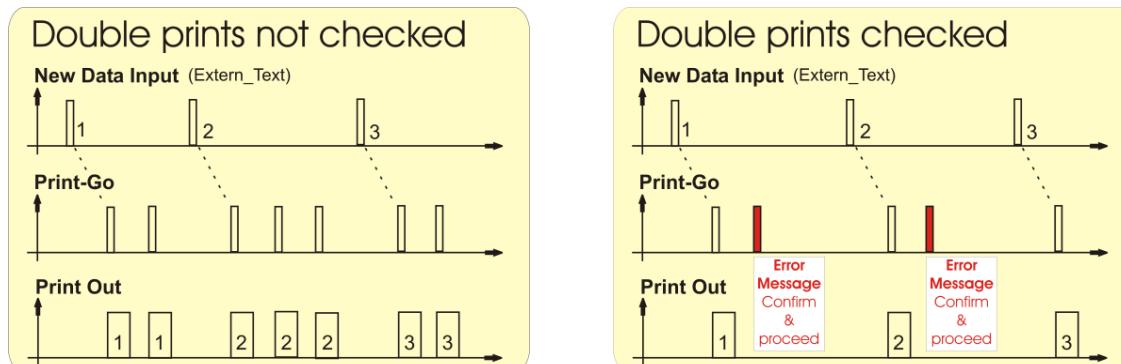
#### Setting for double prints

With the check box checked off (11) each received character string will only be printed once. In case there is another PrintGo signal received before any new data were received the printer will switch to <Print Stop>: the green <Print Start> button switches off and the red <Print Stop> button switches on. Additionally a message box is displayed:



You will have to confirm the error message and restart the print-out again by pressing the green <Print Start> button.

### Example: diagrams with and without double prints checked



With double prints not checked there will be a printout with each PrintGo signal. Therefore a received character string may be printed more than once.

With double prints checked there will be only one print-out with each PrintGo signal. If a second PrintGo signal occurs before new data were received will an error message will be displayed. Therefore a received character string is always printed once only.

### Wildcards

There is an indicator which shows the current number of wildcards (15) and a display field for inputs (16). When you place the Cursor in the display field a keyboard for inputs will open (17). Changing the number and kind of the wildcard character (19) will be immediately shown by the indicator (18). In the job editor the defined <Wildcards> are shown as content of the <Extern text: fixed length> object (26).

Wildcards for an <Extern Text:fixed length> object have two functions:

1. The characters of the set wildcards represent the first character string that will be displayed on the WYSIWYG display and printed. They will then be replaced by the first received data.
2. Wildcards define together with the character offset the length of the input buffer and therefore the number of characters to be considered.

### Character offset

With the character offset (12) (abbreviated: OS) you can define how many characters from the left side of the received character string will be ignored. Together with the <Wildcards> the <Character offset> defines the length of the input buffer. You can set the character offset either with the arrow keys of the display field (20) or with a numeric keypad (21) displayed when placing the cursor in the display field.

**Example for <Character offset> and <Wildcards>:****Set wildcards:**

X	X	X						
---	---	---	--	--	--	--	--	--

**Set offset:****3****Display in the print preview of the main window as long as there were no data received:****XXX****Received data:**

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

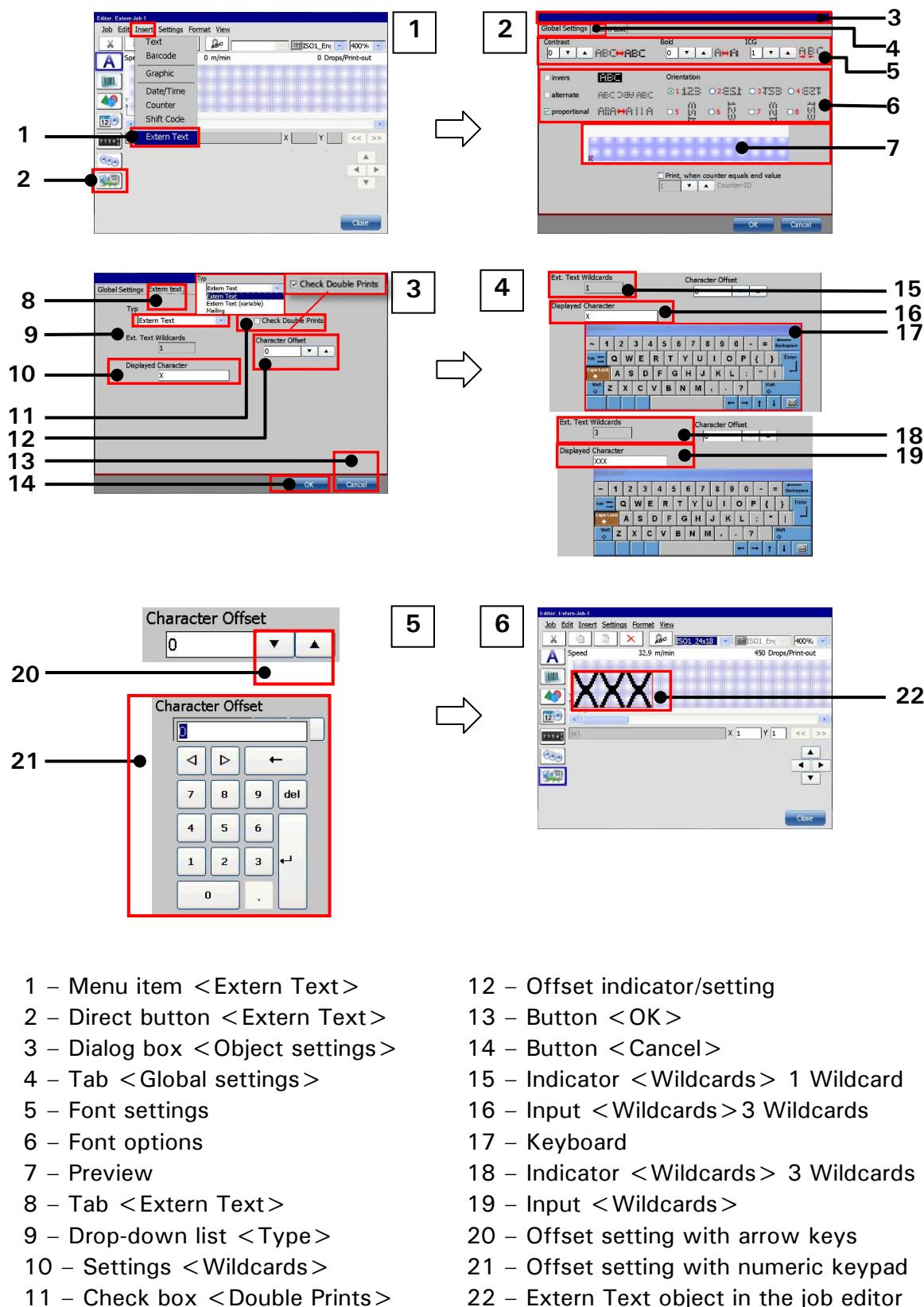
**Used data (regarding the offset (O) and the wildcards (W)):**

4 (O)	2 (O)	3 (O)	4 (W)	5 (W)	6 (W)	7 (W)	8 (W)
-------	-------	-------	-------	-------	-------	-------	-------

**Display of the received data in the print preview of the main window:****456****Result:**

Due to the set offset the first 3 characters of the received character string will not be used. Due to the wildcards only the first 4 characters of the remaining character string are used.

Figure 176 Extern Text fixed length – Object settings



### 8.7.5.1.3 Extern Text: fixed length – Printout/Deleting the input buffer

There can be up to 32 <**Extern Text**> objects within a print job. For each object you can define the number of wildcards and the offset separately.

But nevertheless all <**Extern Text**> objects within a print job will process the same received character string. It is just a matter of the wildcard and the offset settings which part of the received character string is used by the <**Extern Text: Fixed length**> object.

The received serial data are stored in an input buffer. The size of this buffer is defined the <**Extern Text: fixed length**> object that have the largest sum from wildcards and offset.

**If you like to use more than one <Extern Text: fixed length> object in a print job it is mandatory that the transferred string is always of the same length.**

**Example print-out:**

This example is based on a print job with three <Extern Text: fixed length> objects. Each object has different settings for wildcards and offset (abbreviated: OS). The character string **12ab345** shall be transmitted. The settings for each <Extern Text: fixed length> object look as follows:

---

**Object 1:**

Wildcards:	X	1 wildcard
Offset:	0	0 offset
Sum of wildcards and offset:	1	

**Object 2:**

Wildcards:	YY	2 wildcard
Offset:	1	1 offset
Sum of wildcards and offset:	3	

**Object 3:**

Wildcards:	ZZZ	3 wildcard
Offset:	3	3 offset
Sum of wildcards and offset:	6	

The input buffer in this example has the length of 6 characters because the largest sum of wildcards and offset is 6.

Beside the input buffer there is also a display buffer. The content of the display buffer is what you see in the print preview of the main window of the JET3up printer.

---

**There are three rules regarding the input and the display buffer:**

1. The input buffer has to be completely filled before its content is transferred to the display buffer.
2. The print-out always reflects the content of the display buffer (what you see is what you get printed).
3. The input buffer is emptied as soon as its content is transferred to the display buffer.

The current display buffer will be printed with each PrintGo signal received unless you have selected the <Check Double Prints> option.

With the <Check Double Prints> option activated you will receive an error message when a PrintGo signal occurs before a new character string was received. So it is granted that each character string is only printed once.

The following tables show the data transmission, the buffer content and the print-out. It also shows how the settings for the wildcards and the offset affect the displayed characters and therefor the print-out.

The external data can be sent with any terminal software like e.g. Hyperterminal. You have to make sure that the serial interface parameters of the terminal software correspond with the parameters of the JET3up interface.

### Deleting the input buffer

The current content of the input buffer can be deleted at any time. For this you can use the respective option in the Drop-down menu <Extra>:

<Extra>-<Production counter>-<ExternText Delete extern text memory>



**Deleting the input buffer**

After the input buffer was deleted it has to be filled up again completely with data. Only then the data will be transferred to the display buffer in order to be printed.

## Tables for the example

Buffer position	1	2	3	4	5	6	Shifting direction	Data	Nr
Display buffer	X	Y	Y	Z	Z	Z			1
Input buffer						1	←	1	2
Display buffer	X	Y	Y	Z	Z	Z			3
Input buffer					1	a	←	a	4
Display buffer	X	Y	Y	Z	Z	Z			5
Input buffer				1	a	b	←	b	6
Display buffer	X	Y	Y	Z	Z	Z			7
Input buffer			1	a	b	4	←	4	8
Display buffer	X	Y	Y	Z	Z	Z			9
Input buffer		1	a	b	4	5	←	5	10
Display buffer	X	Y	Y	Z	Z	Z			11
Input buffer	1	a	b	4	5	6	←	6	12
Display buffer	1	a	b	4	5	6			13
Input buffer									14
Object 1 param.	X								15
Display Object 1	1								16
Object 2 param.	OS	Y	Y						17
Display Object 2		a	b						18
Object 3 param.	OS	OS	OS	Z	Z	Z			19
Display Object 3				4	5	6			20

The following table shows the explanations for each step and setting.

No.	Explanation
1	Before the first data are received the set wildcards represent the first display buffer content. This would also be the first print-out as soon as a PrintGo signal will be received.
2	The character string <b>1ab456</b> is sent to the printer starting with the character <b>1</b> .
3, 5, 7, 9, 11	The display buffer remains the same because the input buffer is not filled up completely.
4, 6, 8, 10	The characters <b>a</b> , <b>b</b> , <b>4</b> and <b>5</b> are sent.
12	The character <b>6</b> is sent. With that character the input buffer is completely filled.
13	With the input buffer filled up completely the content is transferred to the display buffer.
14	The input buffer is emptied after the transfer in the last step. <b>This state can also be set with the &lt;Deleting ExternText memory&gt; command.</b>
15	Parameters object 1: 1 wildcard ( <b>X</b> ) and 0 offset
16	Display content for object 1: the first character of the display buffer.
17	Parameters object 2: 2 wildcards ( <b>YY</b> ) and 1 offset ( <b>OS</b> )
18	Display content for object 1: the second and the third character of the display buffer
19	Parameters object 3: 3 wildcards ( <b>ZZZ</b> ) and 3 offset ( <b>OS</b> )
20	Display content object 3: the fourth, fifth and sixth character of the display buffer.

### 8.7.5.2 Extern Text: variable length

#### 8.7.5.2.1 Extern Text: variable length – Interface settings

The interface settings for an extern text of variable length are the same as for the extern text with fixed length.



#### INFORMATION

Please see chapter **8.7.5.1.1 Extern Text: fixed length – Interface settings**

#### 8.7.5.2.2 Extern Text: variable length – Object creation and properties

##### See figure 177

In the job editor you can create an <Extern Text> object either with the <Insert> drop-down menu (1) or with the direct button (shortcut) for <Extern Text> (2).

This will open the dialog box for the object settings (3).

On the tab <Global settings> (4) you can enter the font settings (5), select font options (6) or define the positioning of the object (7).



#### INFORMATION

For details about the global settings of an object please see chapter **8.4 Object settings**

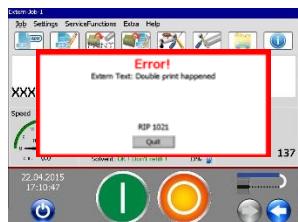
On the tab <Extern Text> you can choose the type of the extern text. The following description refers to the option <Extern Text: variable length> (9). The <Extern Text: fixed length> and the <Mailing> options are described separately.

The type <Extern Text: variable length> offers several options:

- Settings for double prints (10)
- Settings for start and end of text symbols (13-16)
- Settings for wildcards (11)
- Settings for an offset (12)

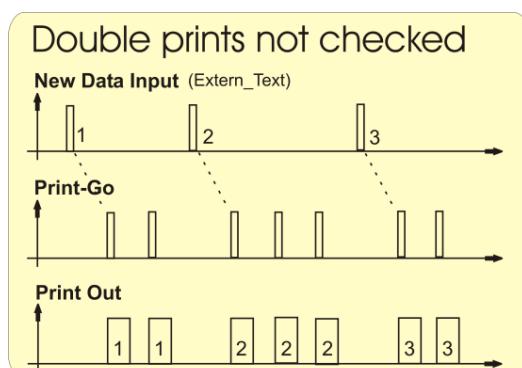
### **Setting for double prints**

With the check box checked off (10) each received character string will only be printed once. In case there is another PrintGo signal received before any new data were received the printer will switch to <Print Stop>: the green <Print Start> button switches off and the red <Print Stop> button switches on. Additionally a message box is displayed:

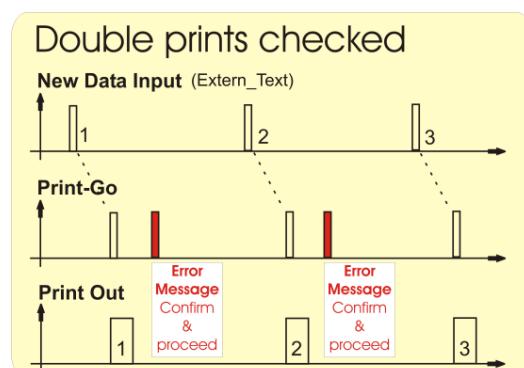


You will have to confirm the error message and restart the print-out again by pressing the green <Print Start> button.

### **Example: diagrams with and without double prints checked**



With double prints not checked there will be a printout with each PrintGo signal. Therefore a received character string may be printed more than once.



With double prints checked there will be only one print-out with each PrintGo signal. If a second PrintGo signal occurs before new data were received will an error message will be displayed. Therefore a received character string is always printed once only.

### **<Start symbol> and <End symbol>**

Using a <Start symbol> and a <End symbol> allows masking a received character string whereby the character string can be of variable length within the set limits.

A <Start symbol> is defined with the decimal value of an ASCII character. You can use a value between 1 and 255 (13). The selected character will be shown to the right of the arrow keys of the display field (14).

A <End symbol> (15) is defined with the decimal value of an ASCII character. You can use number between 1 and 255. The selected character will be shown to the right of the arrow keys of the display field (16).

All characters following the <**Start symbol**> in the transmitted string will be written into the input buffer until a <**End symbol**> is received. If another <**Start symbol**> is received before the <**End symbol**> was received the current input buffer content will be discarded and the filling of the buffer will start again.

The number of characters between a <**Start symbol**> and a <**End symbol**> may be shorter than the number of characters defined by the <**Wildcards**> parameter. In that case the input buffer is only filled with the relevant characters. If the number of characters exceeds the number defined by the <**Wildcards**> before the <**End symbol**> is received only the number of characters that are equivalent with the size of the input buffer will be taken into account. In that case the input buffer is filled with the first received characters up to the number defined by the size of the input buffer.

## Wildcards

There is an indicator which shows the current number of wildcards (**19**) and a display field for inputs (**20**). When you place the cursor in the display field a keyboard for data inputs is displayed (**21**). In the event of modifications of the number or the kind of the wildcard character (**23**) the indicator (**22**) will be updated immediately. In the job editor the defined **<Wildcards>** are shown as content of the **<Extern text: variable length>** object (**26**).

Wildcards for an **<Extern Text:variable length>** object have two functions:

1. The characters of the set wildcards represent the first character string that will be displayed on the WYSIWYG display and printed. They will then be replaced by the first received data.
2. Wildcards, together with the character offset, define the length of the input buffer and therefore the maximum number of characters to be considered. If there are more characters between the **<Start symbol>** and the **<End symbol>** than limited by the **<Wildcards>** settings only the defined number of characters following the **<Start symbol>** will be used.

## Character offset

With the character offset (**24**) you can define how many characters from the left side of the received string will be ignored. You can set the character offset either with the arrow keys of the display field (**24**) or with the numeric keypad (**25**) displayed when placing the cursor in the display field.

**Example <Start symbol>, <End symbol>, <Wildcards>, <Character offset>:**

Set start symbol: 65 = A

Set end symbol: 66 = B

Set wildcards: Displayed text: Wildcards = 9 characters = 9 wildcards

Set offset: 3

Display in the print preview of the main window as long as there were no data received :

## Wildcards

Received data:

a	b	c	A	d	e	f	g	h	i	j	k	B	I	m	n
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Used data (with due regard to the Start symbol (A), the End symbol (B), the offset (O) and the wildcards (W)):

a-(A)	b-(A)	c-(A)	A	d (O)	e (O)	f (O)	g (W)	h (W)	i (W)	j(W)	k (W)	B	I (B)	m (B)	n (B)
-------	-------	-------	---	-------	-------	-------	-------	-------	-------	------	-------	---	-------	-------	-------

Display of the received data in the print preview of the main window:

**ghijk**

Result:

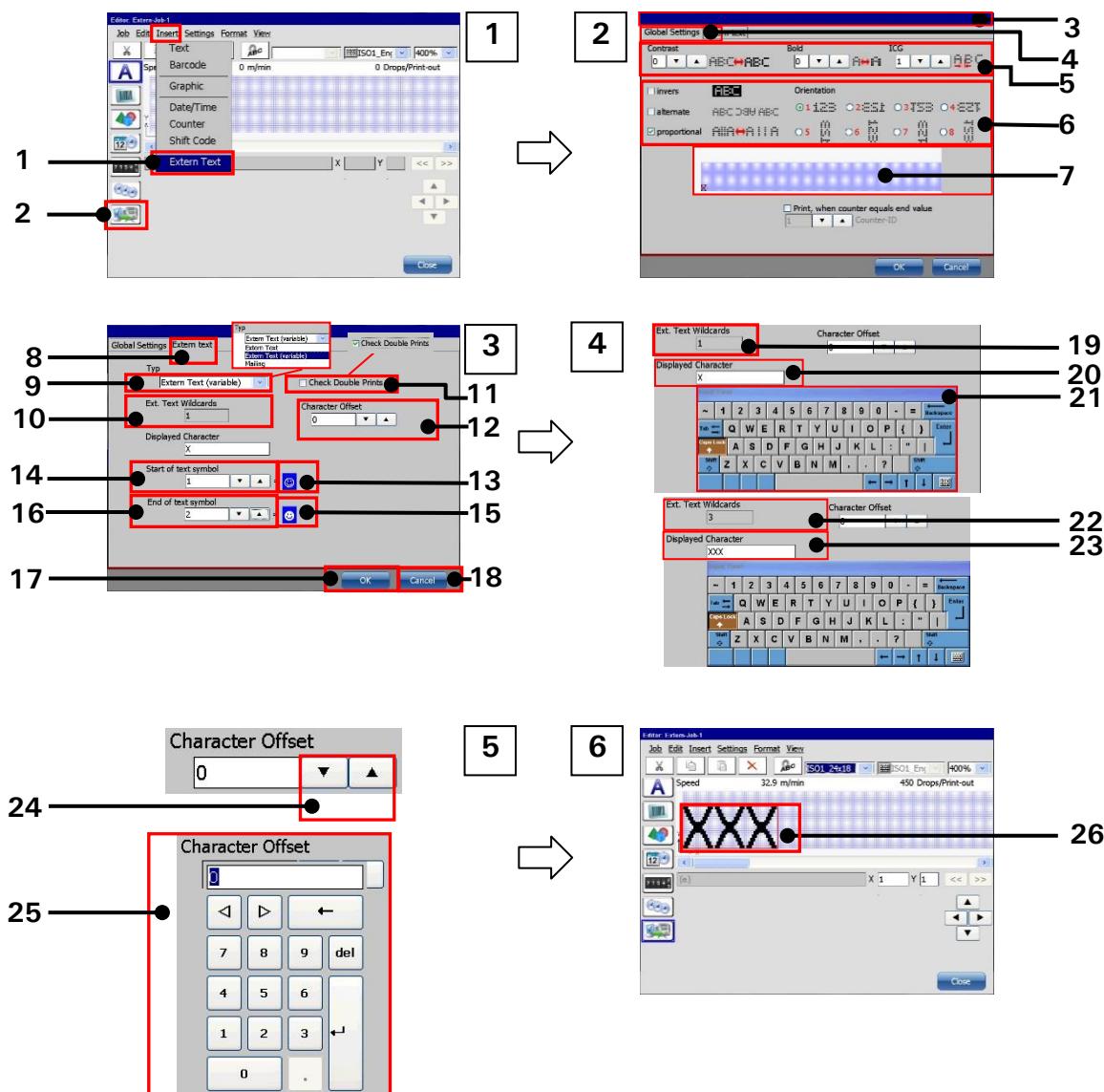
Due to the **<Start symbol> A** the input buffer is filled starting with the transmitted character **A**.

Due to the set **<Offset>** the first 3 characters of the received data are not used.

Due to the **<Wildcards>** only the first 9 characters of the remaining data are used.

Due to the **<End symbol> B** only all characters up to the **B** are used.

Figure 177 Extern Text variable length – Object settings



1 – Menu item &lt;Extern Text&gt;

2 – Direct button <Extern Text>  
3 – Dialog box <Object settings>

4 – Tab &lt;Global settings&gt;

5 – Font settings

6 – Font option

7 – Preview

8 – Tab &lt;Extern Text&gt;

9 – Drop-down list &lt;Type&gt;

10 – Settings &lt;Wildcards&gt;

11 – Check box &lt;Double Prints&gt;

12 – Offset indicator/setting

13 – Dec. ASCII val. &lt;Start symbol&gt;

14 – Respective character to the decimal ASCII value of the &lt;Start symbol&gt;

15 – Decimal ASCII value &lt;End symbol&gt;

14 – Respective character to the decimal ASCII value of the &lt;Start symbol&gt;

17 – Button &lt;OK&gt;

18 – Button &lt;Cancel&gt;

19 – Indicator &lt;Wildcards&gt; 1 Wildcard

20 – Input &lt;Wildcards&gt; 3 Wildcards

21 – Keyboard

22 – Indicator &lt;Wildcards&gt; 3 Wildcards

23 – Input &lt;Wildcards&gt;

24 – Offset setting with arrow keys

25 – Offset setting with numeric keypad

26 – Extern Text object in the job editor

### 8.7.5.2.3 Extern Text: variable length – Printout/Deleting the input buffer

There can be up to 32 <**Extern Text**> objects within a print job. For each object you can define the number of wildcards and the offset separately. But nevertheless all <**Extern Text**> objects within a print job will process the same received character string. It is just a matter of the <**Start symbol**>, <**End symbol**>, the <**Wildcards**> and the <**Offset**> settings which part of the received character string is used by the <**Extern Text: variable length**> object.

The received serial data are stored in an input buffer. The size of this buffer is defined by the <**Extern Text: variable length**> object that have the largest sum from wildcards and offset.

**There are 2 basic rules for using more than one <Extern Text: variable length> object in a print job:**

1. Basically it is possible to use different <**Start symbols**> and <**End symbols**> for each <**Extern Text: variable length**> object created. However this wouldn't be advisable because only <**Start symbol**> and <**End symbol**> of the last created <**Extern Text: variable length**> object will be used. If the object is deleted, the <**Start symbol**> and <**End symbol**> of the object created before the delete object will be used and so on. Therefore it is **highly recommended** using the same <**Start symbol**> and <**End symbol**> for all <**Extern Text: variable length**> objects within the same print job.
2. Using within the same print job several <**Extern Text: variable length**> objects which have all the same <**Start symbol**> and <**End symbol**> offers the possibility of controlling the content to be used of a character string by wildcards and offset for each object separately.

#### Example print-out:

The example is a print job with three <**Extern Text: variable length**> objects. Each object has different settings for wildcards and offset. The <**Start symbol**> and <**End symbol**> shall be the same for all three objects. The character string **xxxGabc123456Sxxx** shall be transmitted.

---

The settings for each <**Extern Text: variable length**> object looks as follows:

#### Object 1:

Wildcards:	XXXXXXX	7 wildcards
Offset:	2	2 offset
Sum of wildcards and offset:	9	
Start symbol:	G	
End symbol:	S	

Object 2:

Wildcards:	YYYYY	5 wildcards
Offset:	1	1 offset
Sum of wildcards and offset:	6	
Start symbol:	G	
End symbol:	S	

Object 3:

Wildcards:	ZZZ	3 wildcards
Offset:	6	6 offset
Sum of wildcards and offset:	9	
Start symbol:	G	
End symbol:	S	

The input buffer in this example has the size of 9 characters because the largest sum of wildcards and offset is 9.

Beside the input buffer there is also a display buffer. The content of the display buffer is what you see in the print preview of the main window of the JET3up printer.

There are the following rules regarding the input and the display buffer:

1. The filling of the input buffer starts with each <**Start symbol**> received.
2. The filling of the input buffer stops with the first respective <**End symbol**> received.
3. If the number of the characters received between <**Start symbol**> and <**End symbol**> exceeds the size of the input buffer all excess characters will be discarded.
4. If the number of the received characters between <**Start symbol**> and <**End symbol**> is smaller than the size of the input buffer the input buffer will only be filled with the received characters.
5. With a valid <**End symbol**> received the current content of the input buffer is transferred to the display buffer.
6. The print-out always reflects the content of the display buffer (what you see is what you get printed).
7. The input buffer is emptied as soon as its content is transferred to the display buffer. The filling starts again with the next <**Start symbol**> received.

The current display buffer will be printed with each PrintGo signal received unless you have selected the <Check Double Prints> option.

With the <Check Double Prints> option activated you will receive an error message when a PrintGo signal occurs before a new character string was received. So it is granted that each character string is only printed once.

The following tables show the data transmission, the buffer contents and the print-outs. They also show how the settings for the <wildcards> and the <offset> affect the displayed characters and therefor the print-out.

The external data can be sent with any terminal software like e.g. Hyperterminal. You have to make sure that the serial interface parameters of the terminal software correspond with the parameters of the JET3up interface.

### **Deleting the input buffer**

The current content of the input buffer can be deleted at any time. For this you can use the respective option in the drop-down menu <Extra>:

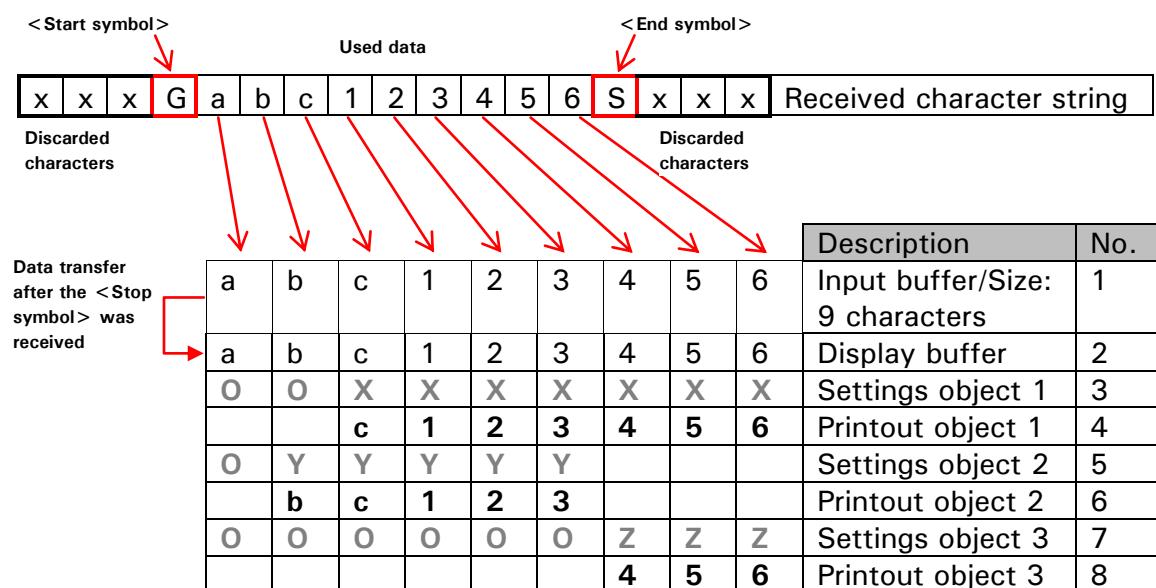
<Extra>-<Production counter>-<ExternText Delete extern text memory>



**Deleting the input buffer**

After the input buffer was deleted it has to be filled up again completely with data. Only then the data will be transferred to the display buffer in order to be printed.

### Tables for the example



The following table shows the explanations for each step and setting.

No.	Explanation
1	The filling of the input buffer starts with the receiving of the <b>&lt;Start symbol&gt;</b> G.
2	As soon as the <b>&lt;End symbol&gt;</b> S is received the data stored in the input buffer is transferred to the display buffer.
3	Settings for object 1: 2 Offset and 7 wildcards X.
4	WYSIWYG display content and printout of object 1.
5	Settings for object 2: 1 Offset and 5 wildcards Y.
6	WYSIWYG display content and printout of object 2.
7	Settings for object 3: 6 Offset and 3 wildcards Z.
8	WYSIWYG display content and printout of object 3.

### 8.7.5.3 Extern Text Mailing

#### 8.7.5.3.1 Extern Text Mailing – Creating a data file

##### See figure 178

To create a data file for the <Mailing> function the JET3up\_Mailing-File-Converter software application is needed. This software application standardizes \*.txt formatted files and converts them into \*.ljd formatted data files for the JET3up printer.

You can create the source file either with spread sheet software (1) or a text editor (2). The file needs a .txt file extension (3). The text file with the data has to be of a special format. Each line of the file holds one data set (4) and the fields of each data set (5) are separated by tabs (6).

This source file has to be standardized for JET3up Printer using the JET3up\_Mailing-File-Converter software application (7). Firstly you have to open the text file with the converter software (8). The software provides information about the data structure of the source file like the number of the records (9), the number of the fields (10) within a record and the length of each field (11). Pressing the <Standardize> button (12) will start the converting process. You can finish the software without saving by pressing the <Close> button (13). You will have to save the converted file on an USB stick. During the saving procedure the software offers several options for adjustments (14).

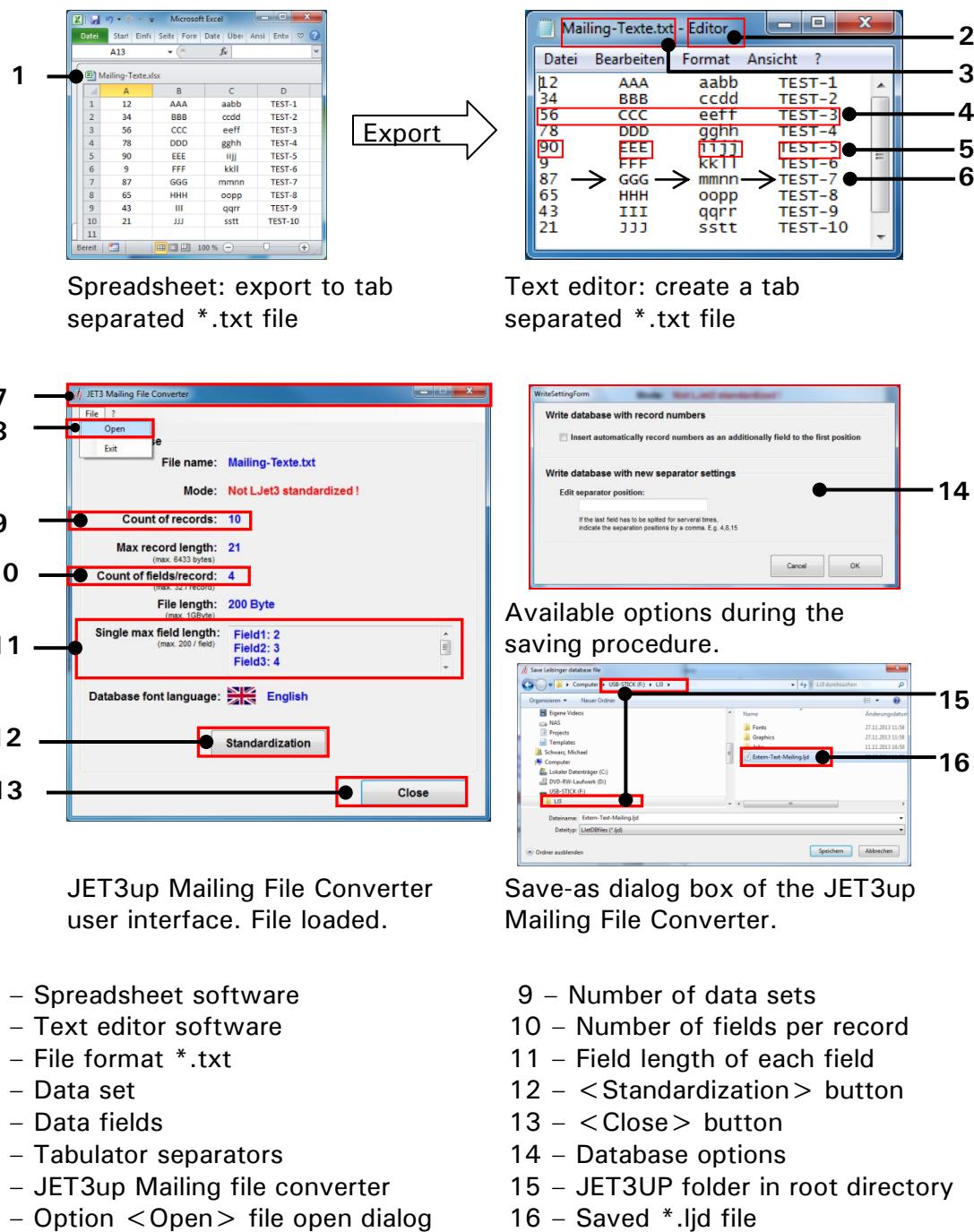


##### INFORMATION

Please see the manual of the software application for further details.

You will need an USB stick with a folder named JET3UP in the root directory (15). If this folder does not already exist you will have to create one. The standardized \*.ljd file has to be saved in that folder (16).

**Figure 178 Extern Text Mailing – Creating a data file**



- 1 – Spreadsheet software
- 2 – Text editor software
- 3 – File format \*.txt
- 4 – Data set
- 5 – Data fields
- 6 – Tabulator separators
- 7 – JET3up Mailing file converter
- 8 – Option <Open> file open dialog

- 9 – Number of data sets
- 10 – Number of fields per record
- 11 – Field length of each field
- 12 – <Standardization> button
- 13 – <Close> button
- 14 – Database options
- 15 – JET3UP folder in root directory
- 16 – Saved \*.ljd file

### 8.7.5.3.2 Extern Text Mailing – Database settings

#### See figure 179

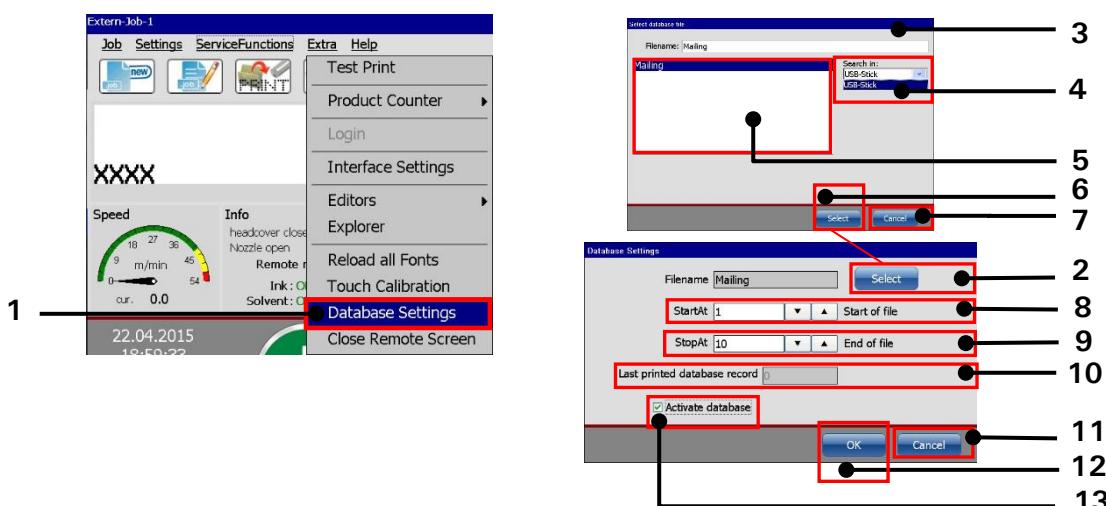
Firstly you have to connect the USB stick to the USB port of the JET3up printer. In the next step you will have to set the parameter for the database. The database settings are an option of the <Extra> drop-down menu (1).

Pressing the <Select> button of the dialog box (2) will open an <Open File> dialog box (3). Selecting “USB” from the drop-down list (4) will show the \*.ljd files on the USB stick (5).

Choose the requested file and confirm with the <Select> button (7). You can leave this dialog box without any changes by pressing the <Cancel> button (6). Now some basic information of the loaded data file is shown in the database settings dialog box. There are display fields which show the number of the first (8) and the last record (9) and the number of the last printed record (10).

You will have to check off the check box <Activate database> (13) before you can leave the dialog box with the <OK> button (12) to confirm the settings. You can leave the dialog box without changes by pressing the <Cancel> button (11).

**Figure 179 Extern Text Mailing – Database settings**



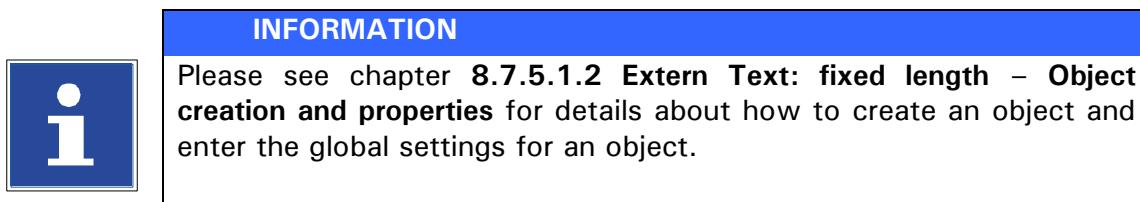
- 1 – Option <Database Settings>
- 2 – <Select> button
- 3 – <Open File> dialog box
- 4 – Drop-down menu file source
- 5 – File list
- 6 – <Cancel> button
- 7 – <Select> button

- 8 – Number of first data set
- 9 – Number of last data set
- 10 – Number of last printed data set
- 11 – <Cancel> button
- 12 – <OK> button
- 13 – Check box <Activate database>

### 8.7.5.3.3 Extern Text Mailing – Object creation and properties

See figure 180

Basically a <Mailing> object is a special kind of <Extern Text> object.



To create a <Mailing> object you will have to select this option in the <Object settings> dialog box on the <Extern Text> tab (1). After selecting the <Mailing> option (6) from the drop-down list <Type> the <Mailing object> parameters are shown on the tab.

#### Wildcards

There is a display field which shows the current number of wildcards (3). This parameter can either be changed by using the arrow keys (7) or with the numeric keypad that will be displayed when you click in the display field (3).

Wildcards are used to determine the number of characters from the content of the defined field (5) that shall be used. The used character (e.g. "X") will be displayed in the editor as long as there are no data loaded from the data file. As soon as the first data set is loaded from the data file the wildcard characters will be replaced by these data.

#### Example <Wildcards> :

Set wildcards:

X			
---	--	--	--

Display in the print preview of the main window as long as there were no data loaded:

X

Data in field 1

A	B	C	D
---	---	---	---

Display of the loaded data in the print preview of the main window:

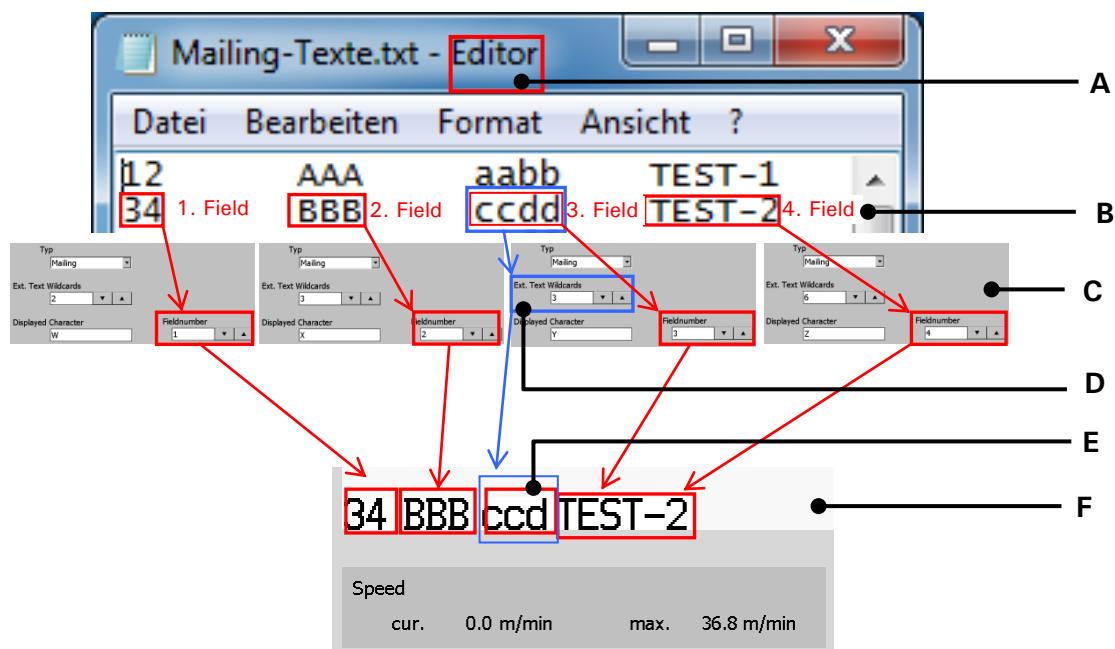
A

Result

Due to the set wildcards only the first characters of the data in field 1 are took into account.

#### Fieldnumber

With the parameter <Fieldnumber> (5) you assign the data field to the <Mailing> object. The current content of the specified data field will be printed. You can enter the parameter either with the arrow keys (8) or the numeric keypad (9) which is displayed when you click in the display field.

Example <Fieldnumber>

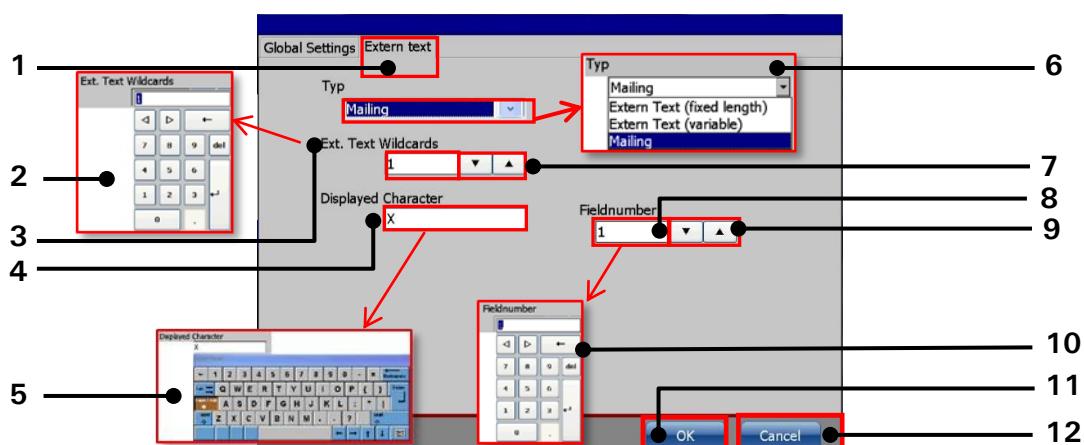
A – Text editor with \*.txt file  
B – Data set with four fields

C – Field assignment to <Mail> objects

D – Three wildcards for a field with four characters  
E – Assigned <Mail> object shows only the first three characters because of the set wildcards for this object

F – JET3up print preview showing four <Mail> objects

Figure 180 Extern Text Mailing – Mailing object settings



- 1 – Tab <Extern Text>  
2 – Number keypad <Wildcards>  
3 – Display field < Wildcards >  
4 – Display field <Displayed Character>  
5 – Keyboard <Displayed Character>  
6 – Drop down list <Typ>

- 7 – Arrow keys <Wildcards>  
8 – Display field <Field number>  
9 – Arrow keys <Field number>  
10 – Number keypad <Field number>  
11 – <OK> button  
12 – <Cancel> button

#### 8.7.5.3.4 Mailing – Printout

##### See figure 181

If there are <Mailing> objects in the current print job you will see the placeholders in the print preview of the main window (1) as long as there was no print-out. If you press the green <Print Start> button (2) the database settings dialog box will be displayed (3).

You can identify the data set the last print-out made was from (6) and you can set from which data sets shall be printed by defining the first record to be printed (4) and the last one (5).

It is possible to print fields from already printed data sets once again. That means the setting in the <StartAt> display field (4) do not depend on the <Last printed database record> (5).

You can confirm the settings by pressing the <OK> button (8). Pressing the <Cancel> button (7) will close the dialog box without any changes and the red <Print Stop> button (9) will remain switched on.

If the settings are confirmed the dialog box will close and the <Print Start> button will switch on (11). You will see the content of the fields of the first data set selected for print-out in the print preview of the main window (10). With the next PrintGo signal the first data set will be printed. With each following PrintGo signal the respectively next data set is printed.

Which field of a data set is printed has to be defined in the object settings of the <Mailing> object. Each field to be printed has to be assigned to a <Mailing> Object. You can only assign one file of a data set to one <Mailing> object. With the parameter <Wildcard> you can define how many character of one field shall be used. The parameter indicates the number of used characters on the basis of a left-to right reading direction.



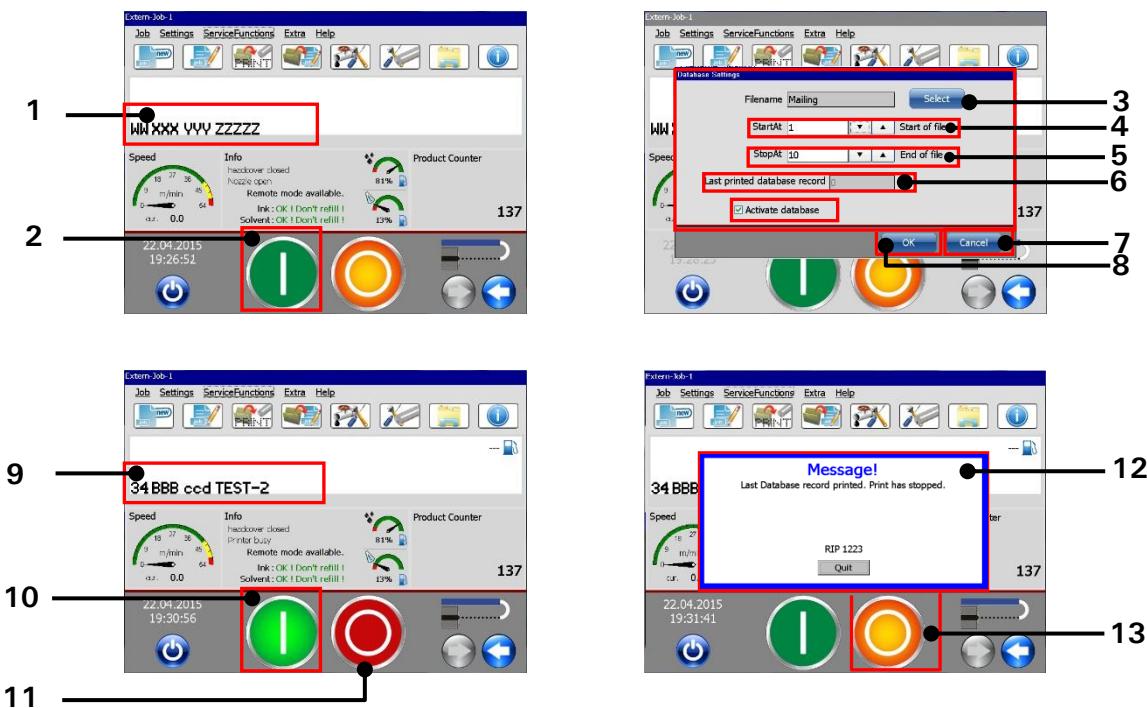
##### INFORMATION

With the <Wildcard> settings. See <Example – Field number> and **Figure 179** for details.

If a PrintGo signal is received after the last data set was printed an error message will be displayed (12). The message has to be confirmed and the printer is set to <Print Stop> (9).

For a new printing sequence you will have to press the green <Print Start> (2) button again and specify the data sets to be printed.

Figure 181 Extern Text Mailing – Printout



- 1 – <Wildcards> for <Mailing> objects
- 2 – <Print start> button not activated
- 3 – <Data base settings> dialog box
- 4 – Number of first data set
- 5 – Number of last data set
- 6 – Number of last printed data set
- 7 – <Cancel> button

- 8 – <OK> button
- 9 – Preview of the used data fields
- 10 – Activated <Print start> button
- 11 – <Print stop> button
- 12 – Message box <Last database record printed>
- 13 – Activated <Print stop> button

## 8.8 Replacements

The **<Replacements>** function LEIBINGER JET3up offers the possibility to exchange date- and time specifications as well as counters by replacements (figures, letters or designations). Thereby you can get an application-specific display or coding of the information. The definitions of the replacements are carried out on the respective **<Replacements>** tab of the corresponding dialog box. The available options on the tab depend on the kind of printing element to be replaced.



### INFORMATION

Replacements can be carried out for date and time specifications as well as for counters or counters which are integrated in barcodes. The settings are only valid for the selected printing element! Therefore it is possible to apply different replacements to different counters or time/date objects within a job.

- On the drop down list **<Type>** (1) you can select the element type for which replacements should be generated.
- Depending on the selected print object there are different kinds of element types available (2).
- In the display fields **<Replacement>** (2) the defined replacements are displayed for the selected element type.
- Using the **<Scroll>** buttons (3) you can scroll through the display fields **<Replacements>**.
- On left side there is the list with the original settings for the selected element type (5).
- With the button **<Default>** (6) you can reset the definitions of the replacements to the standard values.

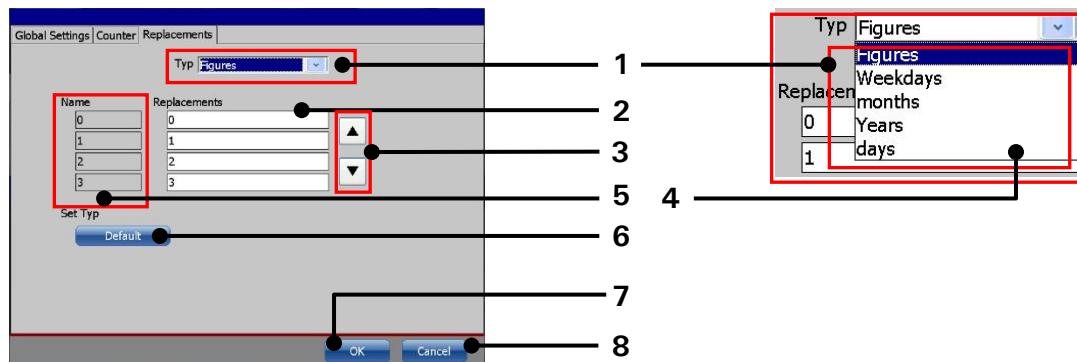


### IMPORTANT

The resetting of the replacements has only effects on the selected printing element!  
The replacement function is always active and therefore the default settings are active as long as there are no customized settings! E.g. the default replacement setting for the <Months> element is 1=01, 2=02, 3=03, 4=04 etc. That means that checking off the <left-hand-zeros> check box in the date/time tab of the objects settings wouldn't have an effect on the display of the <Months> element as long as the replacement settings weren't changed to 1=1, 2=2, 3=3, 4=4 etc.

- With the button <OK> (7) you can confirm changes and close the dialog box.
- The button <Cancel> (8) closes the dialog box without saving changes.

**Figure 182 Job editor (tab replacements)**



- 1 – Drop-down list <Type>  
2 – Display fields <Replacement>  
3 – <Scroll> Buttons  
4 – Available types

- 5 – Original setting  
6 – <Default> Button  
7 – <OK> Button  
8 – <Cancel> Button

### 8.8.1 Carry out replacements

**Proceeding:**

Example 1:

The default month specifications of a date object  
(1 = 01; 2 = 02, ... 7 = 07, etc.)  
should be replaced by short names (1 = JAN, 2=FEBR ... 7=JUL....).

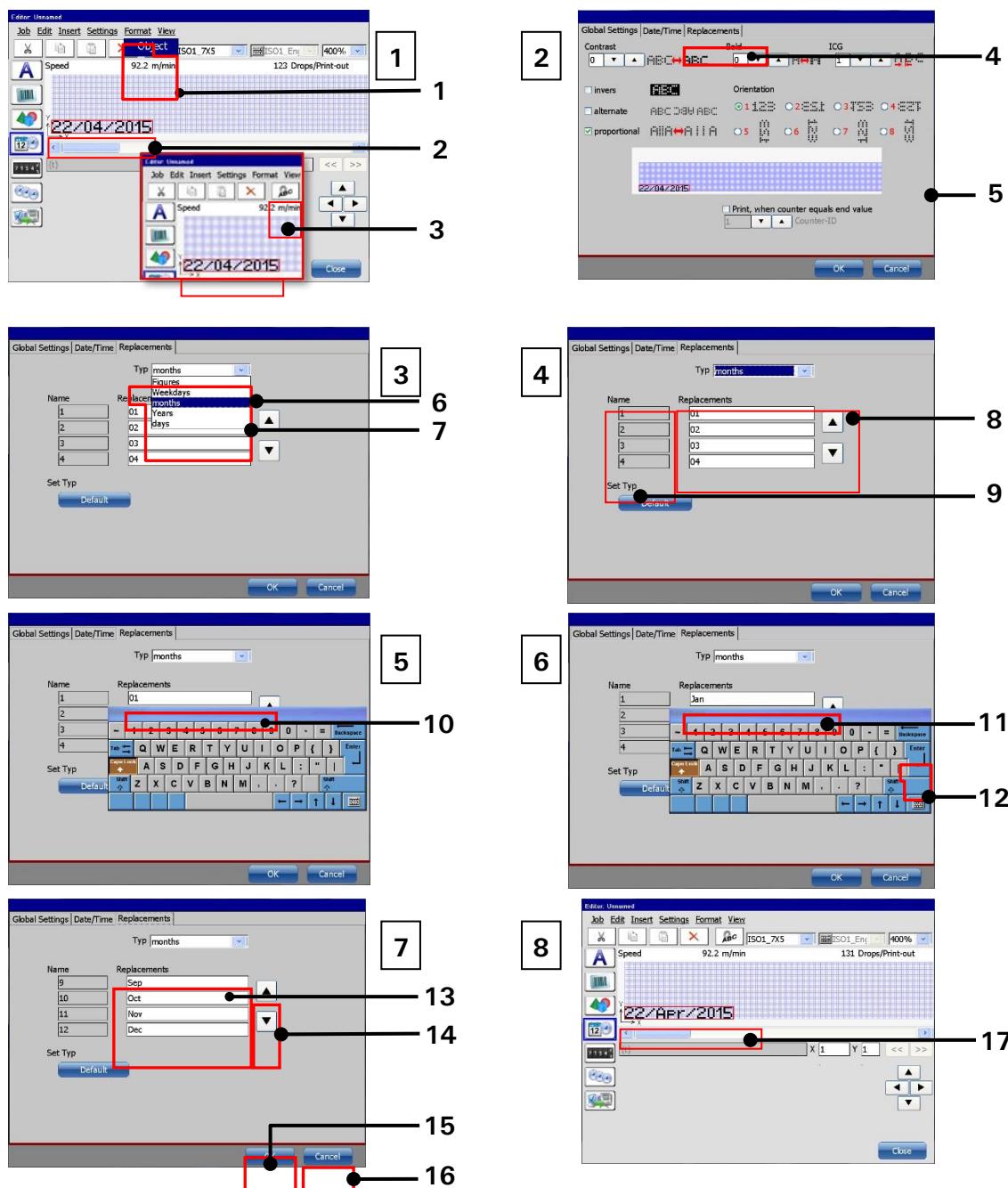
- Select the date object in the editing window of the job editor (2).
- First select <**Format**> (1) from the menu bar and then <**Object**> (2) from the drop down menu. Alternatively you can use the respective direct button (3) to open the object settings dialog box.
- The dialog box <**Object Settings (Date/Time)**> (5) opens.
- Select the <**Replacements**> tab (4)
- Select the element type „Months“ (7) from the <**Type**> drop down list (6).
- Each element in the <**Name**> list (9) has a corresponding input field in the <**Replacement**> field list (8). By setting the cursor into one of the input fields a virtual keyboard opens (10). Enter the required replacements for each element (1 = JAN, 2 = FEBR.....7 = JUL....etc.) (11).
- Confirm each input with the <**Enter**> button (12) of the keyboard.
- Fill-in each required replacement in the <**Replacements**> field list (13). Run through the list by using the scroll buttons (14).
- Confirm all changes and close the dialog box with the <**OK**> button (15). Use the <**Cancel**> button (16) to leave the dialog box without saving.
- All changes are displayed in the editing window of the <**Job editor**> (17).



#### INFORMATION

You will find further information about the usage of the keyboard in chapter **6.4.2 Keyboard**

Figure 183 Job editor: Carry out replacements - Example 1



- 1 – Menu item <Format>-<Object>  
 2 – Original date object  
 3 – Direct button <Object settings>  
 4 – Tab <Replacements>  
 5 – Dialog box <Object settings>  
 6 – Drop down list <Type>  
 7 – List item <Months>  
 8 – Setting fields <Replacement>  
 9 – Original element designations

- 10 – Open keyboard  
 11 – Change settings  
 12 – Confirm settings with <Enter>  
 13 – Filled-in replacement fields  
 14 – Use scroll buttons  
 15 – Button <OK>  
 16 – Button <Cancel>  
 17 – Changed date object

**Proceeding:****Example 2:**

The actual counter reading of a counter object should be replaced with code. For this each figure of the counter reading is replaced by another figure. The following table shows the coding and an example.

**Code Table**

Orig. figure	Coded figure	Orig. figure	Coded figure
1	0	6	5
2	9	7	4
3	8	8	3
4	7	9	2
5	6	0	1

**Examples**

Orig. figure	1587			
Coding		1	=	0
		5	=	6
		8	=	3
		7	=	4
Coded figure				0634

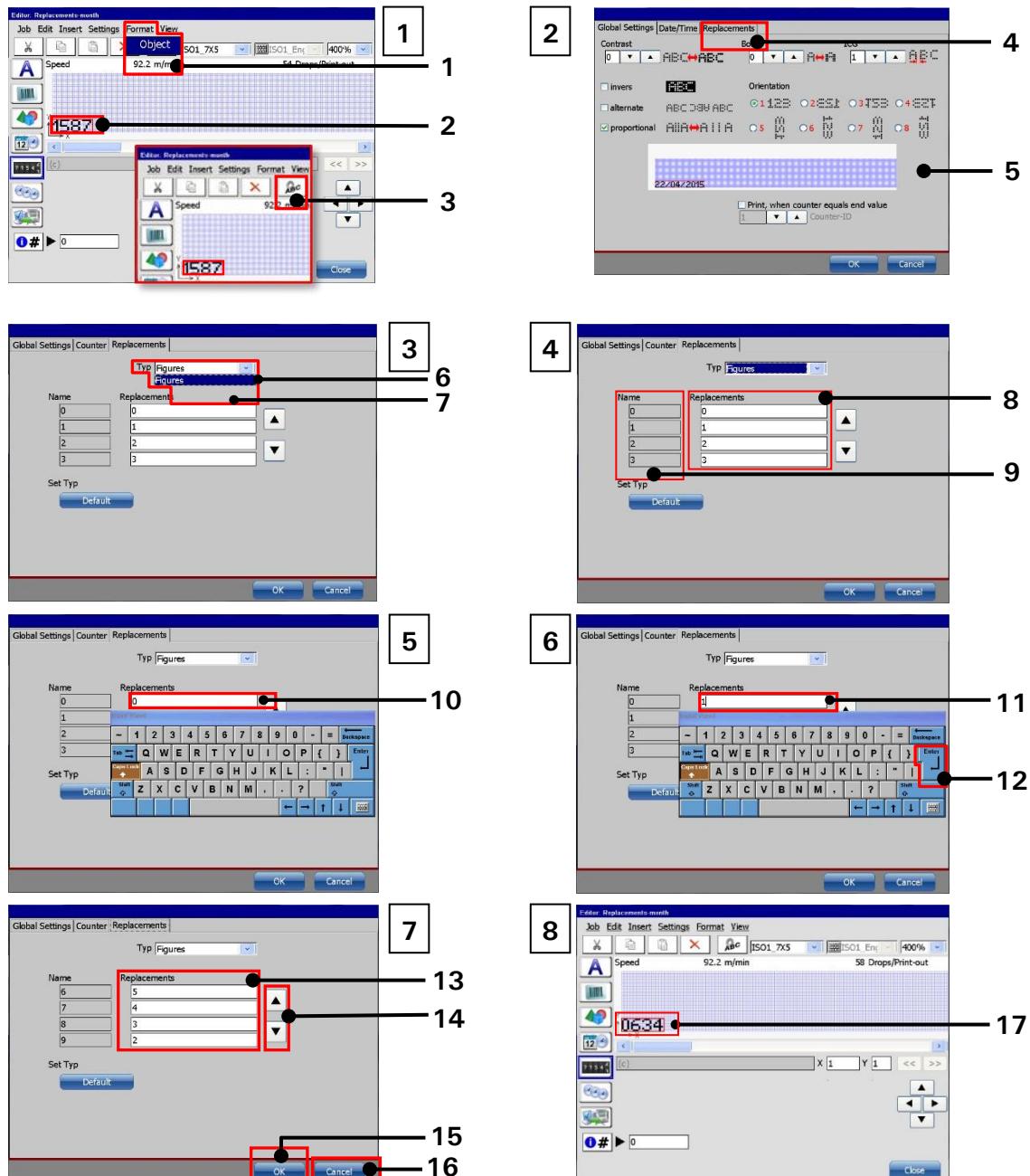
- Select the counter object in the editing window of the job editor (2).
- First select <Format> (1) from the menu bar and then <Object> (2) from the drop down menu. Alternatively you can use the respective direct button (3) to open the object settings dialog box.
- The dialog box <Object Settings (Date/Time)> (5) opens.
- Select the <Replacements> tab (4)
- Select the element type „Figures“ (7) from the <Type> drop down list (6).
- Each element in the <Name> list (9) has a corresponding input field in the <Replacement> field list (8). By setting the cursor into one of the input fields a virtual keyboard opens (10). Enter the required replacements for each element (1 = 0, 2 = 9....7 = 4....etc.) (11).
- Confirm each input with the <Enter> button (12) of the keyboard.
- Fill-in each required replacement in the <Replacement> field list (13). Run through the list by using the scroll buttons (14).
- Confirm all changes and close the dialog box with the <OK> button (15). Use the <Cancel> button (16) to leave the dialog box without saving.
- All changes are displayed in the editing window of the <Job editor> (17).

**INFORMATION**

You will find further information about the usage of the keyboard in chapter **6.4.2 Keyboard**



**Figure 184 Job editor: Carry out replacements – Example 2**



- 1 – Menu item <Format>-<Object>
- 2 – Original counter object
- 3 – Direct button <Object settings>
- 4 – Tab <Replacements>
- 5 – Dialog box <Object settings>
- 6 – Drop down list <Type>
- 7 – List item <Figures>
- 8 – Setting fields <Replacement>
- 9 – Original element designations

- 10 – Open keyboard
- 11 – Change settings
- 12 – Confirm settings with <Enter>
- 13 – Filled-in replacement fields
- 14 – Use scroll buttons
- 15 – Button <OK>
- 16 – Button <Cancel>
- 17 – Changed counter object

## 9 Malfunctioning/Trouble shooting

### 9.1 General

The error diagnosis provides a useful tool for the operating staff for removing minor defects. In case these measures do not lead to an appropriate result please contact the service department or a service technician of your dealer.



WARNING
<b>Dangerous material in the machine!</b>
<ul style="list-style-type: none"><li>■ Danger of serious damage through burns, skin irritation and poisoning!</li><li>■ Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!</li></ul>

### 9.2 Display of device messages

The LEIBINGER JET3up generates two kinds of device messages.

The **warning messages** and the **error messages**.

#### Warning messages:

Shows a critical device condition which requires an intervention of the operating staff in the foreseeable future. Warning messages are e.g. refill messages.

The messages are displayed with the text „Warning“ and an orange frame. It contains a warning text in clear text, the necessary operator action and if necessary the display of the remaining <balance time> (2) until the condition causes a shutdown.

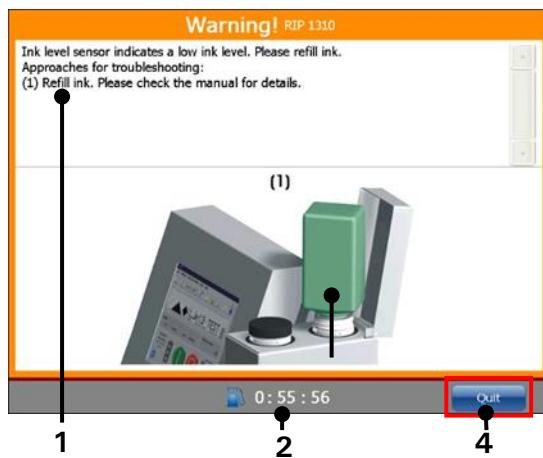
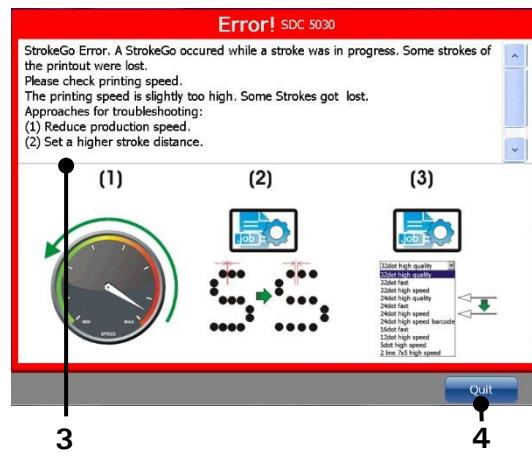
The confirmation of the message happens by pressing the button <Quit> .

#### Error messages:

Shows a condition which requires an immediate intervention of the operating staff.

The messages are displayed with the text „error“ and with a red frame. It contains an error text in clear text and a possible troubleshooting.

The confirmation of the message happens by pressing the button <Quit> .

**Figure 185 Device messages****Warning messages****Error messages****9.3 Error messages**

Error messages do not only indicate an error. In many cases they also offer hints for troubleshooting. Each error message can be identified by an error number. The error number is important in case the service company has to be contacted.

A list with all error messages is available on request. Please contact your LEIBINGER dealer for details.

## 10 Setting-up/Maintenance

### 10.1 Refilling of ink and solvent –TAG handling

#### 10.1.1 Safety information



##### WARNING

###### Danger of explosion!

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!

The operator can carry out a discharge either by the direct touching of the JET3UP-cabinet or by standing with the appropriate ESD-shoes on an grounded surface!



##### WARNING

###### Dangerous material in the machine!

- Danger of serious damage through burns, skin irritation and poisoning!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

The storage containers for ink and solvent are installed beneath the cover flap of the refill unit (see illustration below).

The two reservoir tanks are monitored by level sensors. They are always unpressurized and can be opened in every device condition – also during the production.

The reservoir tanks and the sealing cap are color-coded and labelled to avoid any mistakes in filling. Additionally the sealing caps are marked with the ink-no. or solvent-no. which are admissible for the device.

For correct handling the LEIBINGER re-filling system allows an odor- and splash free refilling of the consumables.



#### ATTENTION

**The reservoir tanks should be not overfilled, that means a re-filling should be only carried out if a certain message has been generated by the printer!**



#### WARNING

**Risk of fire and injury! Absolutely observe!**

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!
- Highly flammable! Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!
- Always statically discharge the printer and yourself before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment and stand on a grounded surface wearing ESD shoes during filling!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!



#### ATTENTION

**The sealing of the refill bottle should be not opened!**

### 10.1.2 TAG-reader

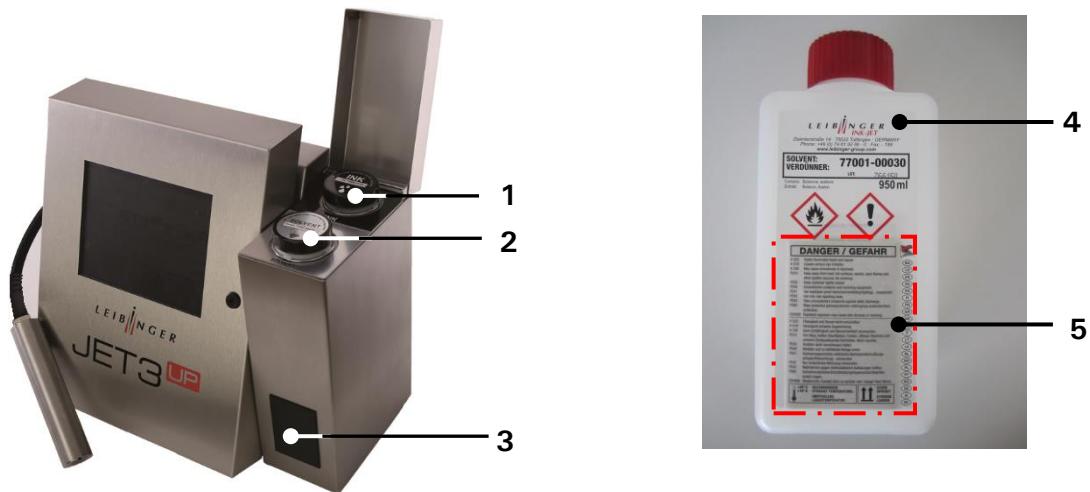
The TAG-reader of the Leibinger JET3up printer guarantees a faultless function with regard to the correct usage of ink and solvent.

The TAG-reader makes sure that only ink and solvent is used that is approved by LEIBINGER.

With each refill the TAG of the ink or solvent bottle is checked for a valid TAG. If no valid TAG is activated during the refill the printer will shut down to stand-by mode. Each TAG can be activated only once.

	Information
	A TAG is electronically readable label which holds coded information. The information is readable with TAG reader. The coded information is read out wireless by radio.

Figure 186



- 1 – Reservoir tank „Ink“
- 2 – Reservoir tank „Solvent“
- 3 – TAG reader

- 4 – Refilling bottle
- 5 – TAG area on the refill bottle

#### 10.1.2.1 Execution of the TAG-activation and refilling



##### Attention

The reservoir tanks mustn't be refilled without respective messages from the printer.  
A too early refilling bears the risk of overfilling and spillage of ink or solvent!

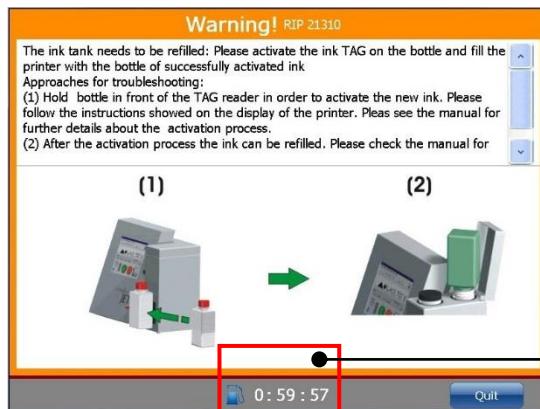
When you ignore this message the printer will shut down after the time indicated.

**Information**

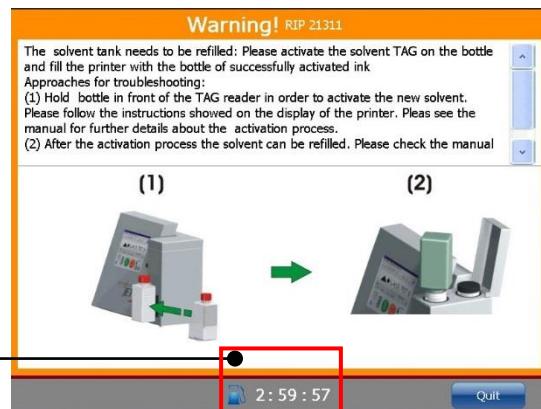

**Hints**  
 Ink and solvent numbers shown in the following illustrations are only examples and may vary depending on the type of printer.

### 1. Refilling messages for an empty ink and solvent reservoir tank.

#### Ink



#### Solvent

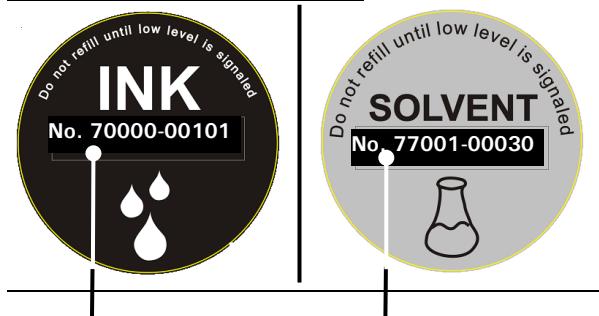


1 – Remaining term until safety shut down in hh:mm:ss

The maximum remaining term for ink is 1 hour and for solvent 3 hours. After this term the printer shuts down automatically and is put into standby mode. This shall prevent ingress of air into the hydraulic system caused by the lack of ink or solvent. Although it is possible to restart the printer from this mode it will be shut down again if no refill is carried out.

2. Firstly it has to be ensured that only compatible ink or solvent is used for refills. The ID-number of the ink respective the solvent that can be used for refills are printed on the respective cap of the reservoir tank and they are also listed in the <Info> dialog box of the printer on page one.

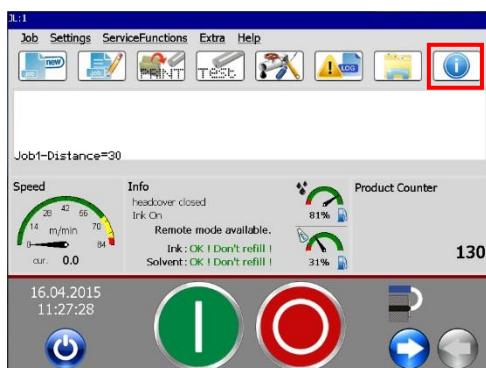
#### Marking of reservoir tanks



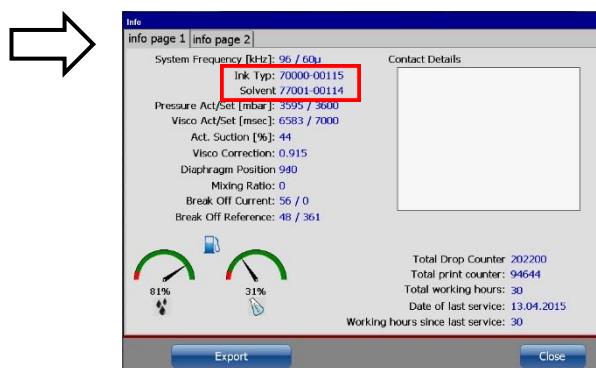
Example: Marking of the admissible ink

Example: Marking of the admissible solvent

### Open <Info> pages



### Check types of ink and solvent



3. The TAG reader can be used in order to check whether a suitable ink or solvent is used. Place the bottle in with the (risk) label right in front of the TAG-reader.

### Check types of ink and solvent with the TAG reader of the JET3up

Ink



Solvent

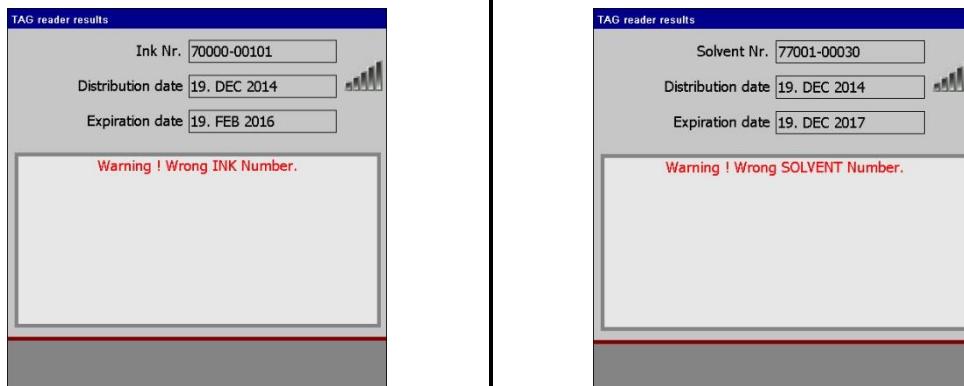


The scanned information will be shown on the touch display.

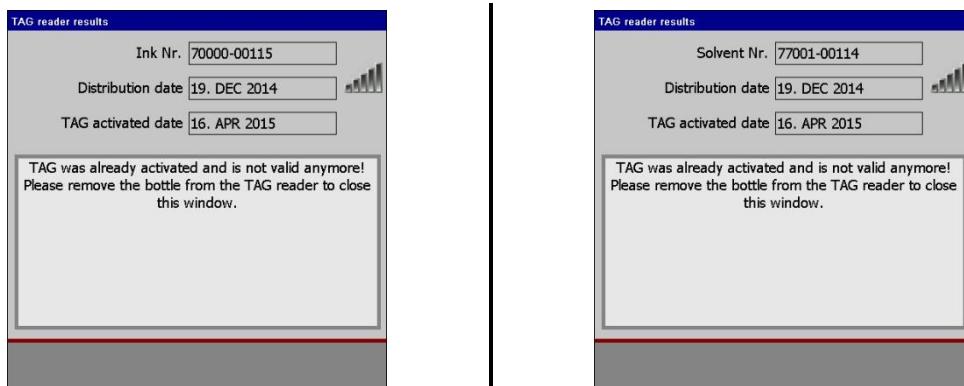
The following messages are possible:

- wrong ink or solvent type
- already activated bottle
- right ink or solvent type and not activated
- Shelf-life is expired

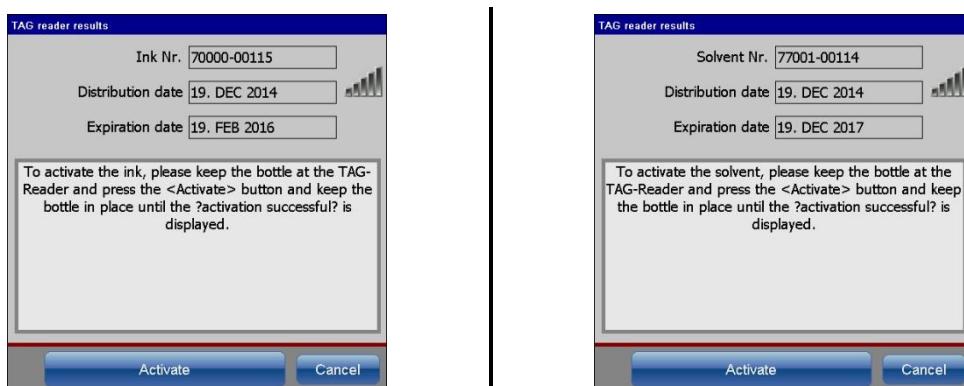
4. If a wrong ink or solvent type was recognized by the TAG reader this ink or solvent mustn't be used for refilling. The printer displays one of the following messages:



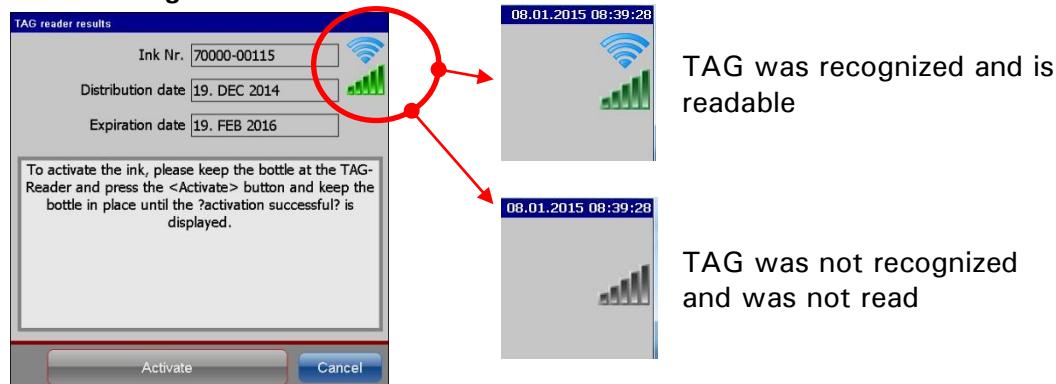
5. A TAG can only be activated once. In case a bottle already activated is recognized by the TAG reader a respective message pops up:



6. If you place a compatible and not activated bottle in front of the TAG-reader a message with instructions for the activation procedure pops up. Follow the instructions:

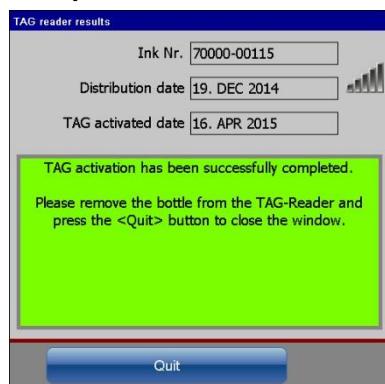


7. During the activation process the bottle has to be kept permanently in front of the TAG reader! The readability is indicated by symbols located in the upper right corner of the dialog box.

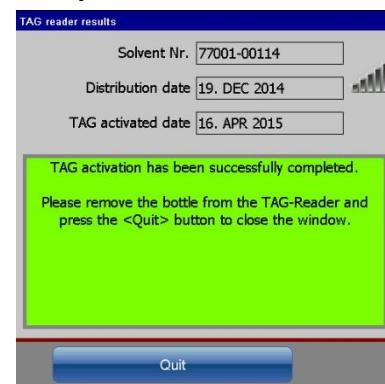


8. If the activation was successful the following dialog boxes will be displayed:

Successfully activated ink



Successfully activated solvent

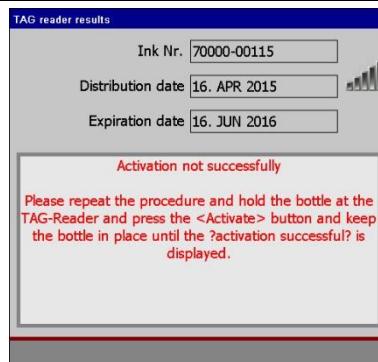


### Attention

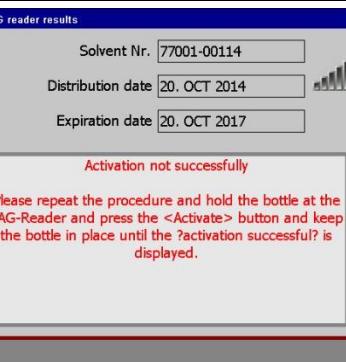
In case a TAG is removed from the TAG reader during the activation process an error message may be displayed:



#### Ink TAG activation not successful:



#### Solvent TAG activation not successful:



**It is possible that a TAG may be damaged by a failed activation and therefore it is not recognized by the TAG reader anymore.  
In that case please contact your LEIBINGER dealer.**

9. If the ink or solvent type is compatible and the bottle was successfully activated the filling can be carried out as described in the following steps.



#### Caution

**Inflammable (Risk of fire)!**  
**Combustible gases and liquids cause serious burns.**  
**Sources of ignition must be kept away from the device!**



#### Attention

Before the filling process a static discharge is **mandatory!** For this you have to touch the cabinet of the printer directly or you can wear ESD shoes and make sure you stand on an a floor grounded before and during the filling procedure!

The sealing of the refill bottle **should be not opened!**

Now open the red cap of the ink or solvent bottle but do not pull off or damage the seal!

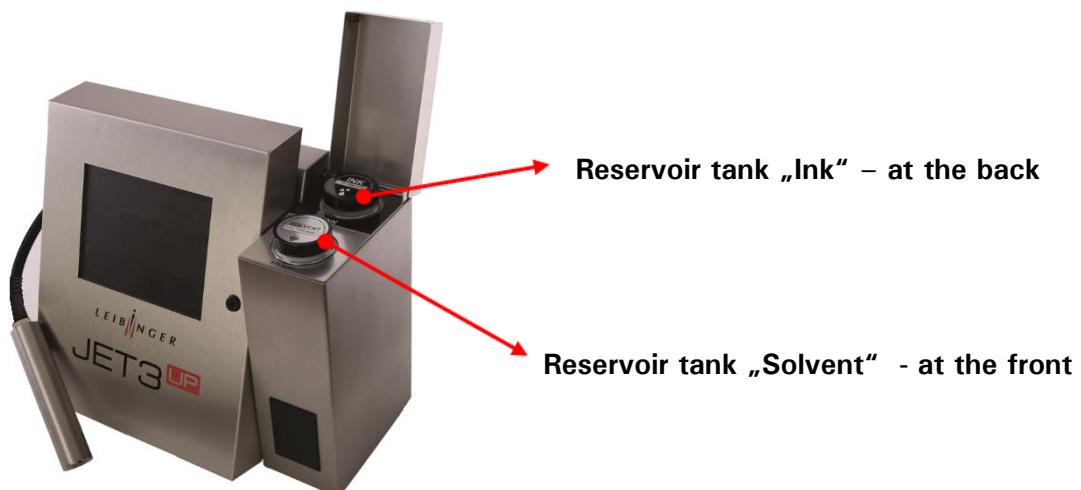


**Siegel nicht aufreisen!**  
**Do not pull off the seal!**

10. Fill up ink or solvent depending on the shown refilling message.

**ATTENTION!** Please make sure that the ink and the solvent are filled in the correct tanks! Check the caption of the tank caps before filling!

#### Positions of the ink and solvent tanks



**Example: Solvent refill bottle in screwed on position**



Screw the still sealed re-fill bottle on the corresponding reservoir tank. The seal of the bottle will be breached while the bottle is screwed on the tank, the closing valve of the tank will open automatically and the reservoir tank is filled up. Do not remove the re-filling bottle until it is complete empty. When the printer gives you a refilling message the reservoir tank is empty so that a complete bottle can be filled in. Twist off the empty re-filling bottle. The closing valve of the corresponding reservoir tank will be closed automatically. Finally screw up the cap of the reservoir tank as well as the empty refill bottle carefully.



**Attention**

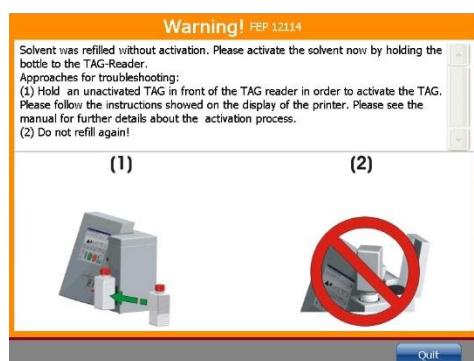
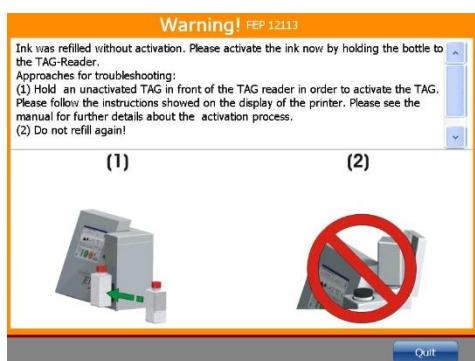
**Important hints!**

**Do not dispose** the empty bottles **before** you have activated the ink or the solvent!

After filling the reservoir tanks as well as the empty refill bottles, they have to be closed carefully again.

You have absolutely to fill in the complete bottle because the bottle will be devaluated and can be not activated anymore!

11. When you refilled the reservoir tanks without the activation of an ink or a solvent after a little while one or both of the following message will be displayed. One is requested to carry out the TAG-activation of the refilled ink or solvent afterwards.



12. Carry out the TAG activation as described in points 3. to 9.

### 10.1.3 Daily servicing work

The daily servicing work includes the checking of the print head and in particular of the deflector unit, the charging electrode as well as of the guides for dirt. If necessary the components must be cleaned as described in the chapter **Cleaning**.

### 10.1.4 Weekly servicing work

The weekly servicing work includes the checking of the spindles and of the guides of the nozzle seal for dirt. If necessary the components must be cleaned as described in the chapter **Cleaning**.



#### SERVICE WORK

This work must only be carried out by trained personnel or by Leibinger service technicians!

### 10.1.5 Annual servicing work

The manufacturer recommends a regular servicing interval of 6–12 months.



#### SERVICE WORK

This work must only be carried out by trained personnel or by Leibinger service technicians!

### 10.1.6 Spare parts and wear and tear parts

It is strongly recommended using only genuine LEIBINGER spare parts and wearing parts. Only by this a safe and accurate operation is ensured. LEIBINGER offers a wide range of spare parts and wear and tear parts. Please ask your local LEIBINGER dealer for details.

**Using third party parts may affect the warranty!**



#### Information

##### **Spare parts:**

A spare part is an interchangeable part that is kept in an inventory and used for the repair or replacement of failed units.

##### **Wear and tear parts:**

Wear and tear parts underlie damages that naturally and inevitably occurs as a result of normal wear or aging.

**A spare part may also be a wear and tear part!**

**10.1.7 Other servicing work****10.1.7.1 Replacement of the battery****DANGER****Dangerous voltage!**

Contact causes serious damage through an electric shock! Disconnect the device from the mains supply prior to opening. Remove mains plug!

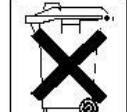
**CAUTION – RISK OF EXPLOSION**

Risk of explosion in the event of incorrect replacement of the battery. Replace only with an identical battery or with an equal value battery type in accordance with the recommendations of the manufacturer! The instructions of the battery manufacturer must be observed when disposing of the battery!

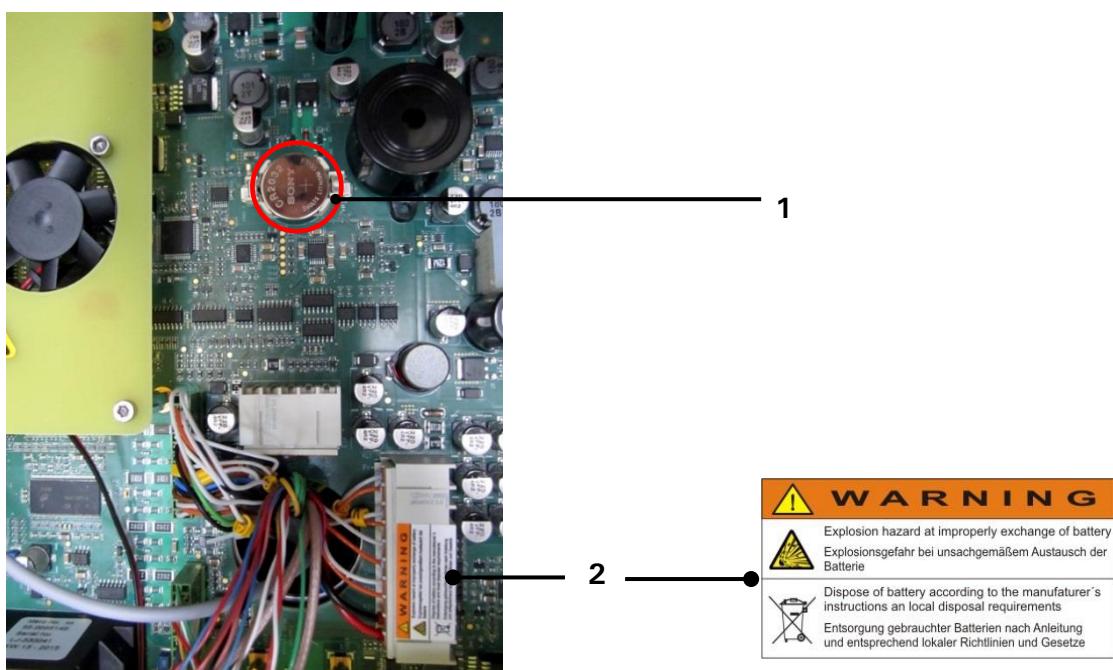
**REPLACEMENT OF BATTERY**

This work must only be carried out by trained personnel or by Leibinger service technicians!

The battery is situated in the electronics housing on the controller board. If necessary the battery must be replaced. For the change of the battery you have to observe the following **safety- and disposal instructions** as well as the **disposal directions** and the **disposal directions of the battery manufacturer**!

<b>Safety- and disposal instructions</b>		
1.	Please only replace with the same battery or with a comparable type of battery according to the recommendation of the manufacturer!	Danger of explosion
2.	Pay attention to the correct polarity (+/-)!	
3.	Do not throw battery into fire!	
4.	Do not load battery again!	
5.	Do not use conductive tools to change the battery!	Danger of short circuit
6.	Do not open battery!	
7.	Do not dispose battery in the household garbage!	 Li

**Figure 187 Replacement of the battery**



1 – Battery, lithium, 3 VDC (E55-005320K)

2 – Safety indication

#### 10.1.7.2 Pressure regulator valve

This pressure regulator valve is part of the external print head ventilation which is available as an option.

Resulting condensate must be emptied at regular intervals and the cartridge cleaned.

## 10.2 Cleaning

### 10.2.1 Cleaning the print head



#### DANGER

##### Dangerous voltage!

After opening the headcover and intentional power-up of the safety contact of the head cover some parts are voltage-carrying. Contact may cause serious damage! Work on voltage-carrying parts must be carried out by service technicians approved by LEIBINGER.



#### WARNING

##### Risk of fire and injury!

- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!
- Upon contact the contents causes skin irritation. Protective equipment is necessary!
- Read the safety data sheets and the personal protective equipment rules and regulations!

The print head must be checked daily and cleaned in the event of recognizable dirt through penetrating dust or ink. In this respect high release of solvent vapors should be avoided through the economical use of Leibinger solvent (corresponding to the Leibinger ink). This is achieved through applying the Leibinger solvent to fluff-free paper with the spray bottle and wiping off the parts to be cleaned with this. Direct spraying off of the print head with solvent should only be carried out with very major dirt and should be limited to the front part of the print head. Following intensive cleaning the nozzle seal must be lubricated with a commercially available oil (spindle and guide). **Oil must not get into the gutter (back absorption)!** Solvent dropping down must be collected using a solvent resistant metal vessel and disposed of properly.



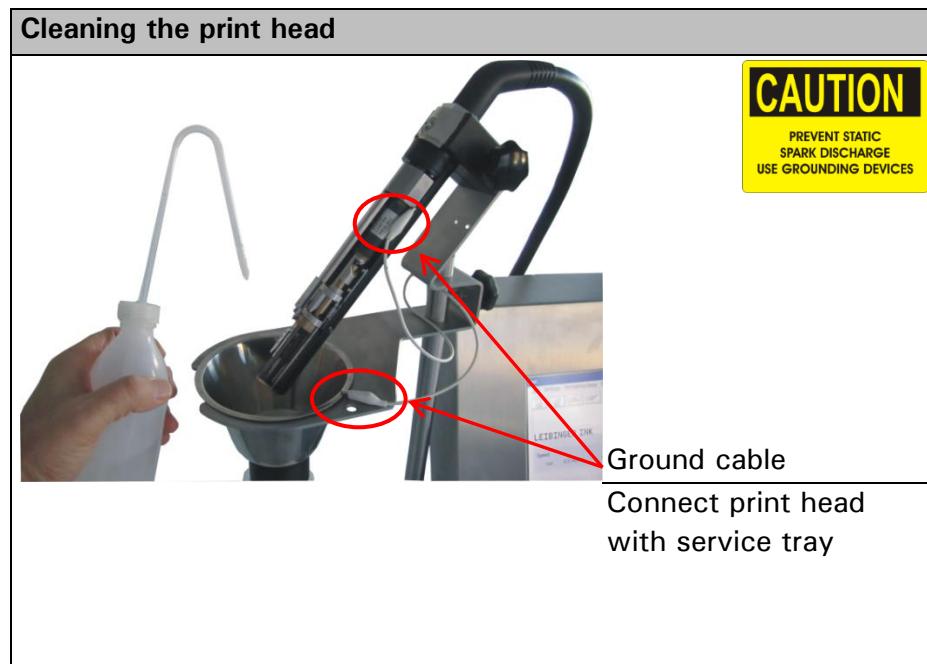
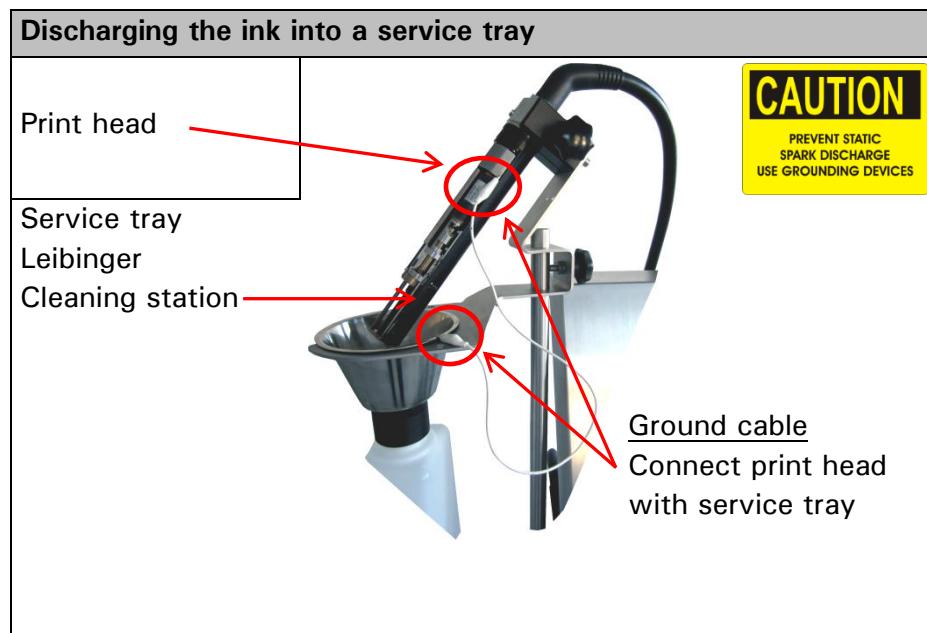
#### SERVICE WORK

This work must only be carried out by trained personnel or by Leibinger service technicians!

### 10.2.2 Grounding regulation for print head cleaning

For technical reasons the ink of a continuous ink jet printer is charged with high voltage during the printing process. In case of inappropriate handling the static charged ink may be an ignition source. In combination with flammable ink and solvent this could pose a fire or explosion hazard.

Without any safety measures the ink in the service tray may be charged up during cleaning work. In order to avoid this critical situation the print head and the service tray have to be connected with a ground cable. In case of using a service tray made of plastic material it would be possible to place a metal foil in the service tray and connect the ground cable to that foil.



## 11 Taking out of operation/Dismantling

### 11.1 Taking out of operation

The ink and solvent which still remains in the high performance printer have to be removed. For this a special draining routine is available.

#### INFORMATION



You will find further information regarding the procedure of draining in the **service documentation**.



#### WARNING



#### Dangerous material in the machine!

Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

Now the high performance printer has to be turned off and disconnected from the mains supply. Further more you have to disconnect possible connected additional devices. You will find the capabilities of connecting on the back side of the device.

**You have to follow the instructions of the several devices!**

Finally you have to cleanse the device of dirt, ink rests etc. as described in the chapter **Cleaning**.

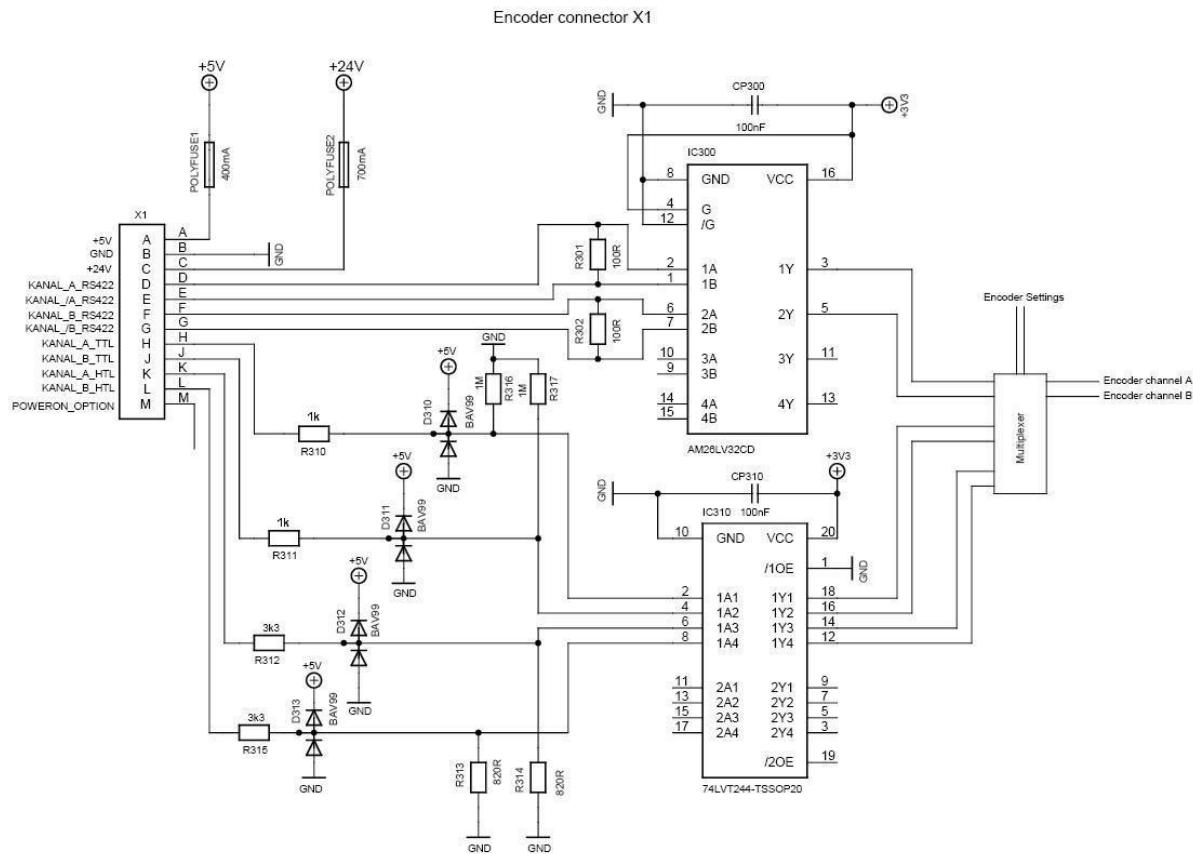
### 11.2 Dismantling/Disposal

The LEIBINGER JET3up has been developed and built with materials that ensure problem-free dismantling and disposal. When dismantling, the information in the **service documentation** as well as the respective country specific disposal regulations (e.g. for inks and solvents) must be taken into consideration

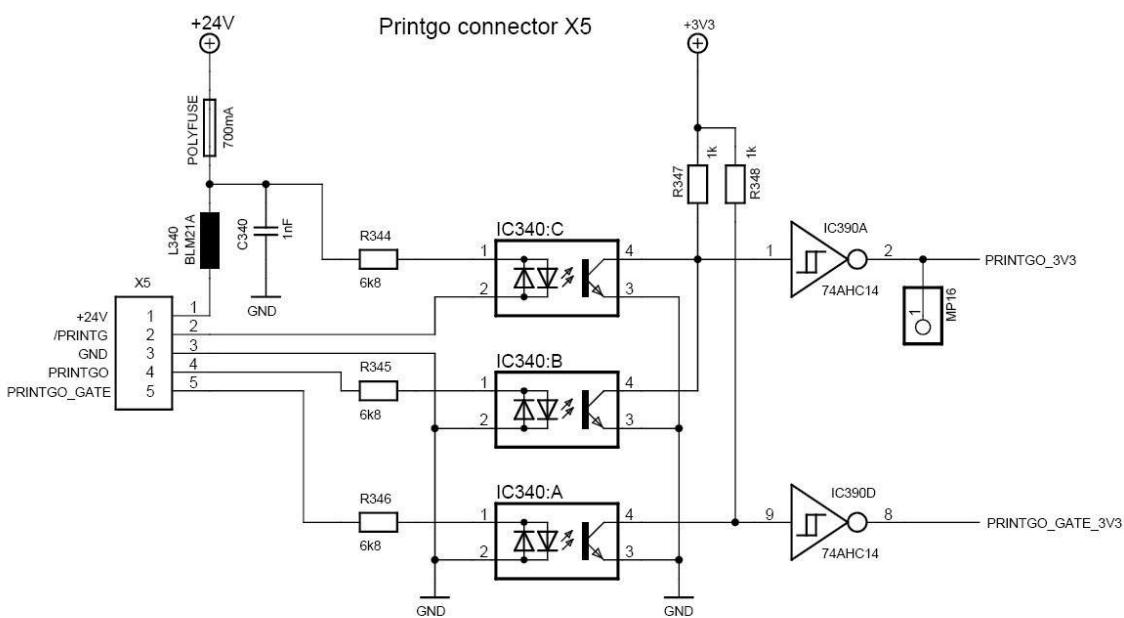
## 12 Appendix

### 12.1 Circuit diagrams of the interfaces

#### Interface X1 (Encoder)

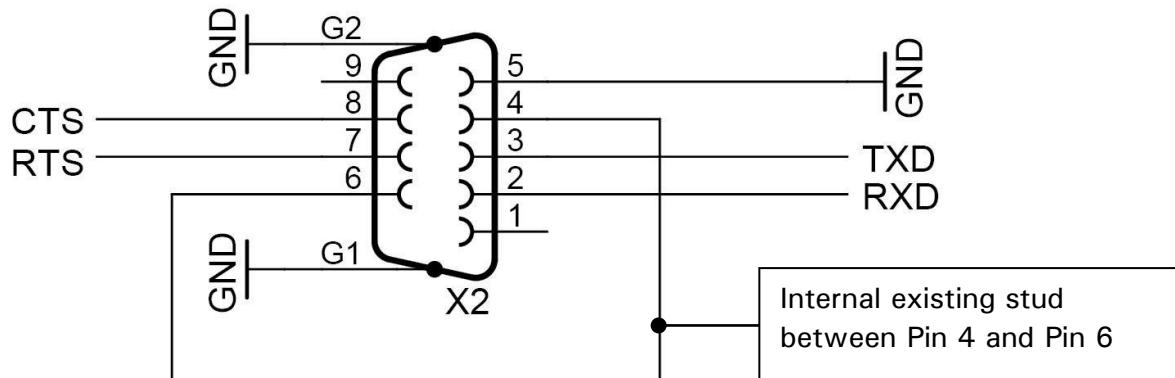
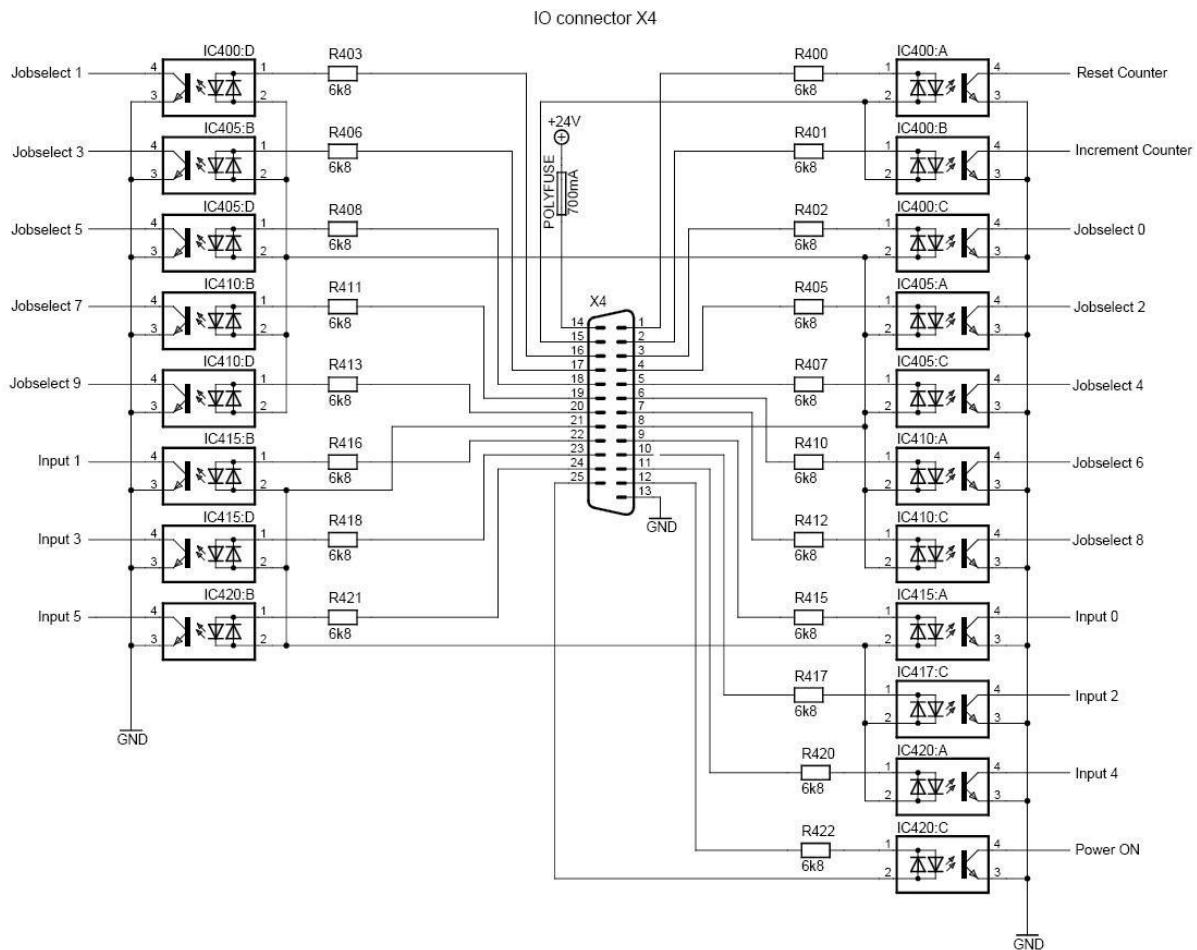


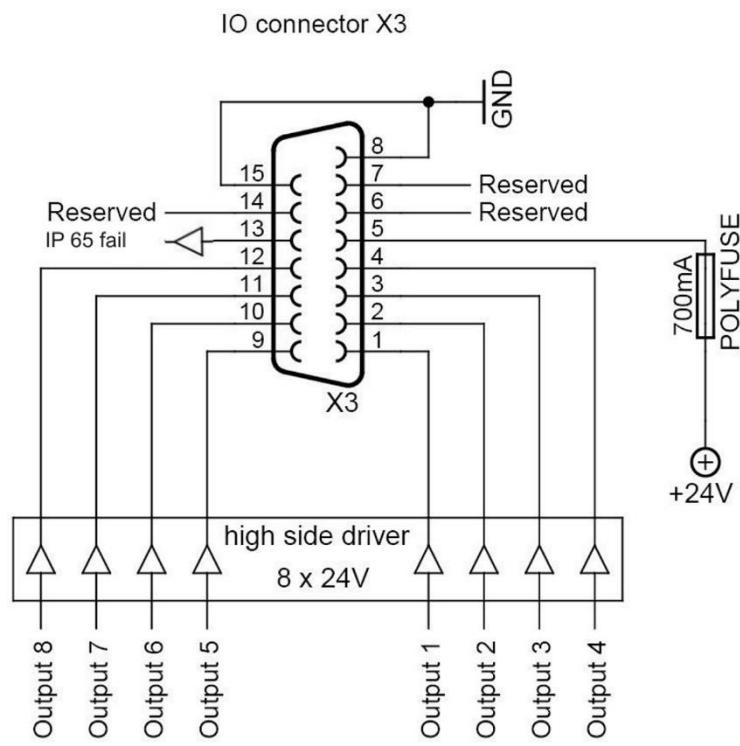
#### Interface X5 (PrintGo)



**Interface X2 (RS232 – Serial Interface)**

RS232 Connector X2

**Interface X4 (Digital inputs)**

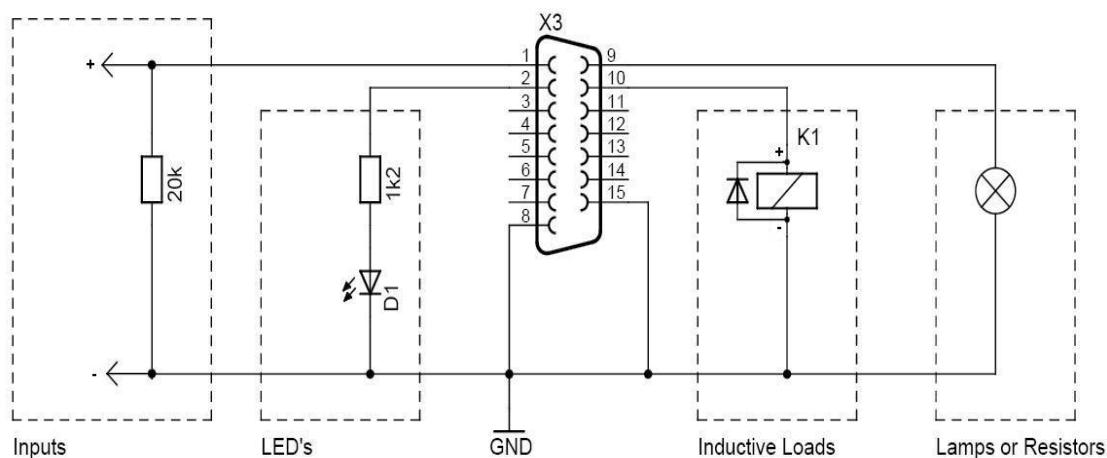
**Interface X3 (Outputs)**

## 12.2 Connection examples for the interfaces

The wiring examples which are described in the following are only for support. Other combinations, actuators, sensors and switching elements are of course possible and cannot be described completely here.

For the connection please pay attention to the specifications which are described for the plug assignment!

### 12.2.1 Interface X 3 - Outputs



The described examples are possible at all 8 outputs.

#### Inputs:

Is used when a printer-output is connected to an input of a external logic (e.g. PLC). Due to the high resistance of the low level signal of the output driver, a 20kOhm Pull-down resistor is recommended.

The resistor can be dropped if the following input wiring has already an accordant low input resistance.

#### LED's:

LED can be connected by a series resistance. (as in the example for a LED with  $U_F = 2V$  and  $I_{nominal} = 20mA$ )

#### Inductive Loads:

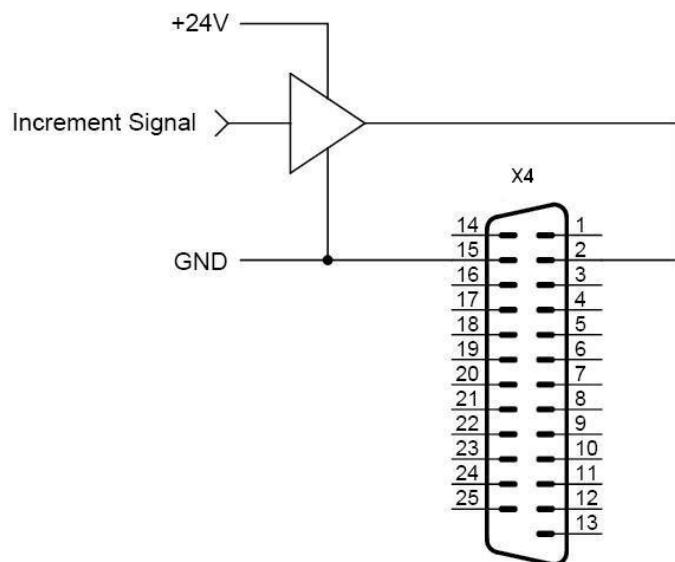
For the usage of inductive loads (relay, motors etc.) a parallel-diode is provided to avoid a turning-off peak.

#### Lamps or Resistors:

Lamps or other resistor loads can be directly connected to the output, but the sum of the output loads should not be higher than 700 mA (in sum of all outputs together).

## 12.2.2 Interface X 4 - Inputs

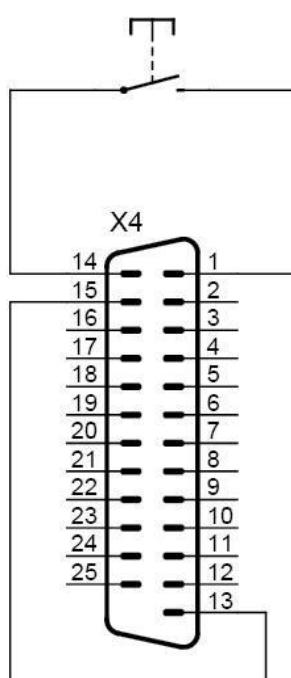
### 12.2.2.1 Increment Counter Signal (PIN )



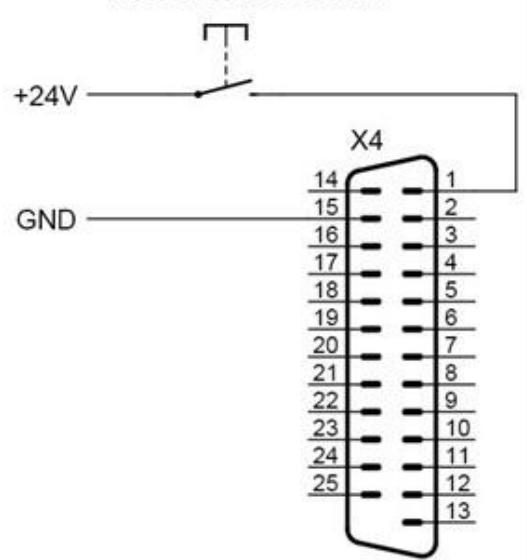
Mechanical switch or relay contacts are improper for the counter input because bounce processes at the switching contacts can cause faulty countings.

### 12.2.2.2 Reset Counter Signal - Example with pushbutton

Reset Counter Button



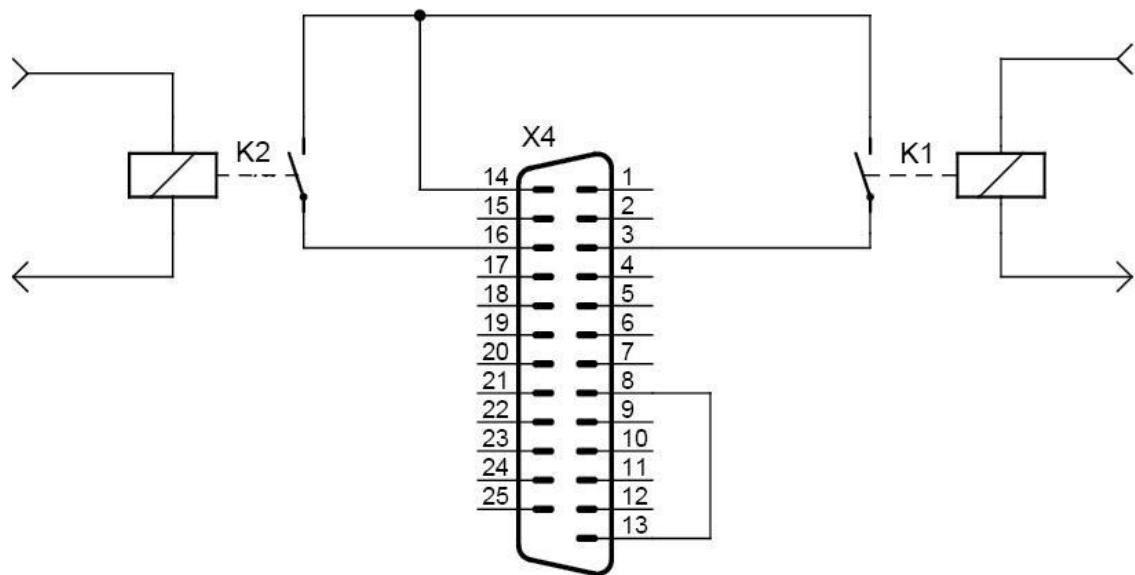
Reset Counter Button



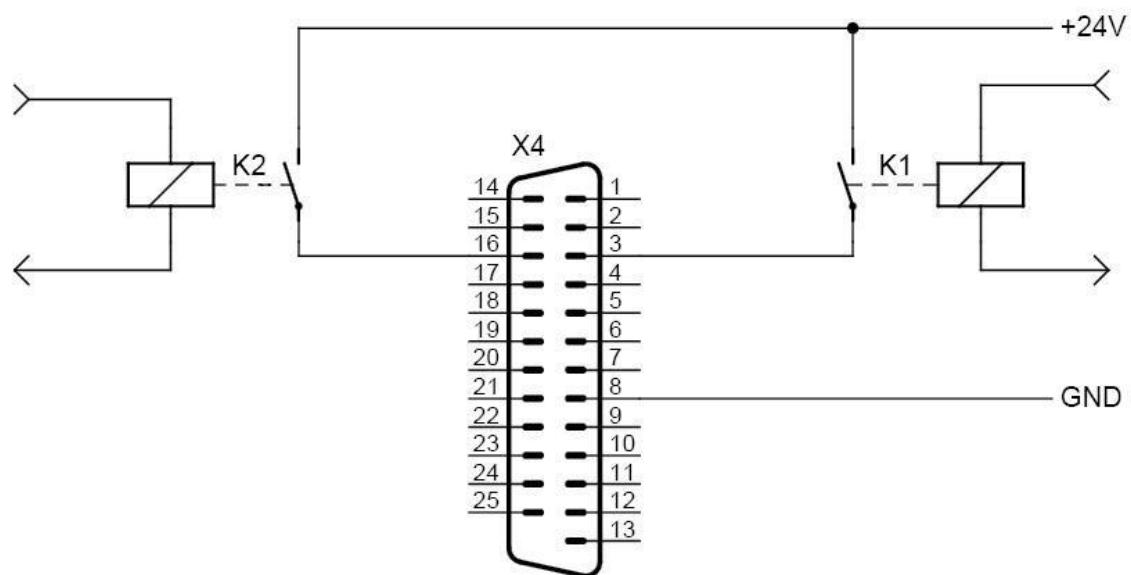
With internal supply

With external supply

### 12.2.2.3 Jobselect Input - Example with relay contacts



With internal supply

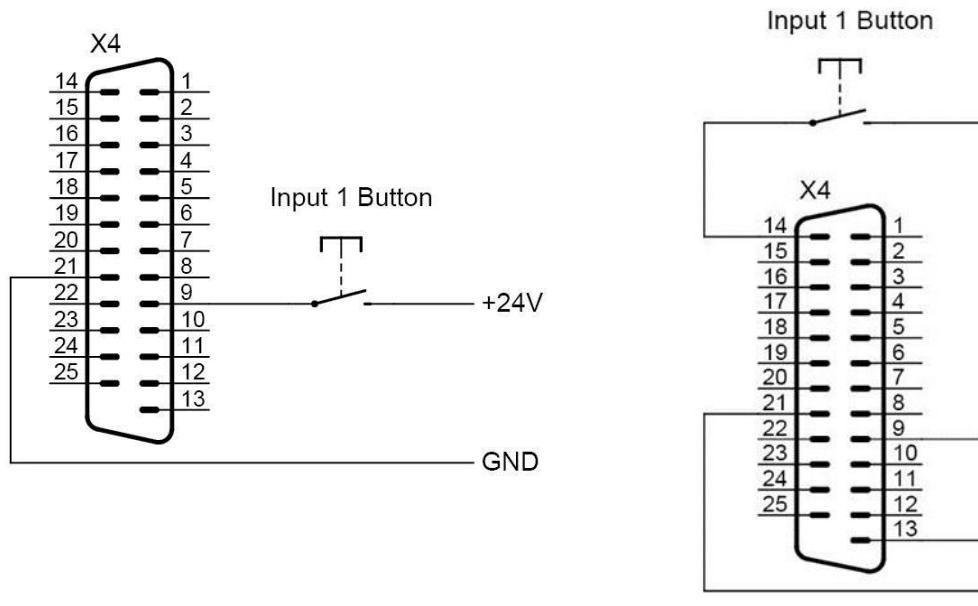


With external supply

**Note:**

Only Jobselect 0 and 1 are displayed. The same connection-schema is also possible for Jobselect 2 up to 9.

#### 12.2.2.4 Inputs - Example with pushbutton

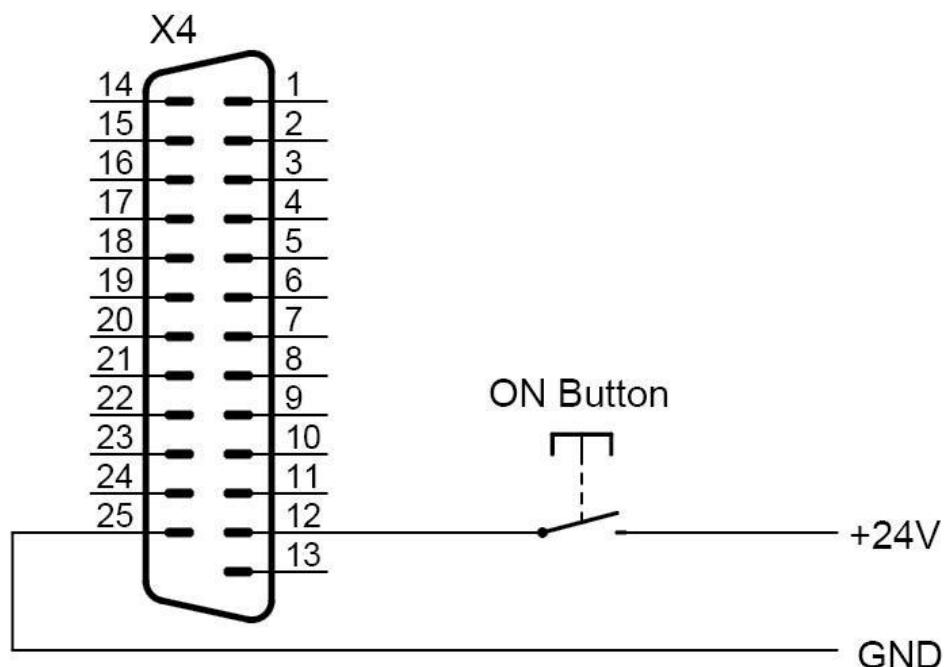


With internal supply

With external supply

**Note:** Only input 1 is displayed, the same goes also for input 2 up to 6

#### 12.2.2.5 ON Input - Example with pushbutton



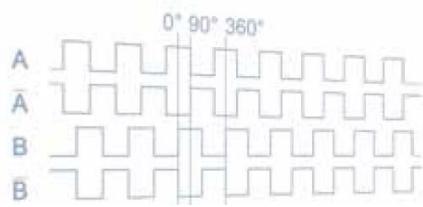
**Note:**

A switching option which works with the internal 24V supply (Pin 14) is not possible because it is not available at the plug in the OFF-status of the printer.

### 12.3 Encoder guidelines and “hot-plugging” of external devices

Encoders (also called incremental encoder) are used for the dynamic capture of angles of shafts or to measure distances and speed information.

They are based on a technology which converts mechanical movements like rotation or linear movement to electrical digital signals. In combination with measurement wheels or gear racks, encoders can be also used to measure linear movements as e.g. distances.



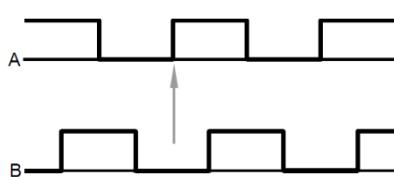
#### Types of encoders:

Regarding the different internal technology of the encoders, they are distinguished into two different principles:

- **Incremental encoders:** ⇒ supply simple “endless” square wave signals
- **Absolut encoder:** ⇒ supply digital signals on several data output lines  
(parallel signal output) ⇒ this encoder type cannot be used!!!

#### Direction of rotation:

Typically encoders are supplying two output signals which are shifted 90°.



Just with this two shifted signals a so-called „direction detection“ can be realized. Due to the analysis of the phase position of signal „A“ and the phase position of signal “B” the electronic can detect if the encoder turns forward or backwards.

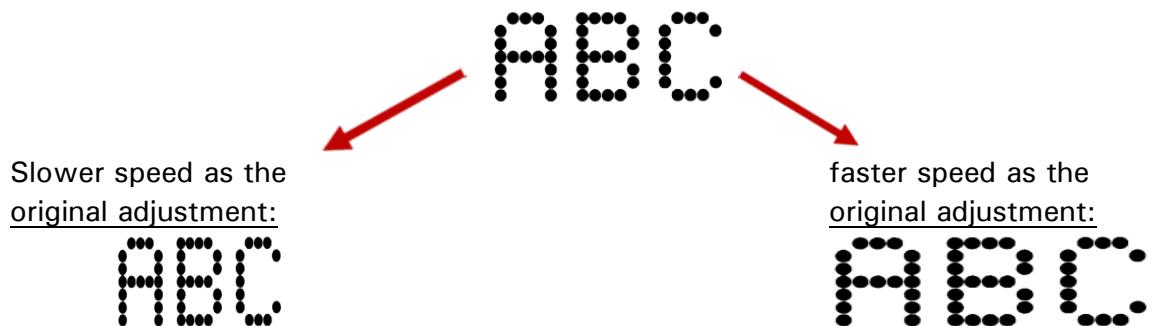
#### Control of print width:

With the help of the encoder signals the printer gets information about the distance and the speed of the current production and is therefore able to regulate an accurate print width of the printout.

Just due the permanent and current measurement of the encoder, a steady print width can be ensured even at varying speeds of the production line.

If an „internal clock“ (internal encoder) is used, there will appear deviations in the print width if the speed of the product would vary!

Original print adjustment of the „print width“:



**Therefore we recommend always using an encoder to ensure an accurate and stable print width even at varying speeds!**

Resolution:

---

The precise the resolution of the encoder (amount of impulses per revolution), the precise and in finer steps the position of the printout can be adjusted.

Besides print-width regulation of the printer is also depending about the resolution of the encoder. If the resolution of the encoder signal would be too small there are just „gradually“ and no finer adjustments possible.

Example:

If an encoder is used with 5000Imp/r and a measurement wheel with a circumference of 200mm, the following resolution will be achieved:

$$5000 \text{ Impulses: } 200\text{mm} = 25 \text{ Impulses/mm}$$

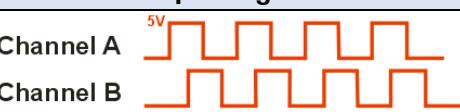
**Generally the resolution should have at least 10 pulses/mm to achieve a good precision and fine adjustment of all print parameters!**

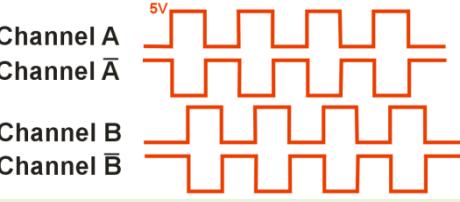
**Higher resolutions as 50 impulses/mm will not bring any advantages or a higher accurate precision of the printer!**

**Interfaces:**

The output signals (interfaces) of encoders are offered in different standards:

Typ	Output Signals	Technologie
<b>HTL</b>	Channel A 24V  Channel B	24 Volt
<ul style="list-style-type: none"> <li>• two output signal =&gt; „A“ and „B“</li> <li>• isn't qualified for longer cable distances (maximum 10m)</li> <li>• in spite of the higher signal level a very good “noise immunity” as with the interface type RS422 cannot be achieved!</li> </ul>		

Typ	Output Signals	Technologie
<b>TTL</b>	Channel A 5V  Channel B	5 Volt
<ul style="list-style-type: none"> <li>• two output signals =&gt; „A“ und „B“</li> <li>• not qualified for longer cable distances (max. 6m)</li> <li>• <b>is quite „noise sensitive“ and therefore almost not qualified for the industrial environment and applications.</b></li> </ul>		

Typ	Output Signals	Technologie
<b>RS422 (TTL)</b>	Channel A 5V  Channel B Channel $\bar{A}$ Channel $\bar{B}$	5 Volt
<ul style="list-style-type: none"> <li>• four output signals =&gt; „A“, „/A“, „B“ und „/B“</li> <li>• <b>due to the inverted signals a very high „noise immunity“ can be realized. Injected „noise signals“ on long cable lengths almost didn't show any negative effect.</b></li> <li>• <b>even qualified for longer cables over 10m. But the “voltage drop“ of the complete cable length must be checked and judged.</b></li> </ul>		

**ATTENTION****Please note!**

For each interface, in general just shielded and grounded cables shall be used to reduce any „noise influence“ as much as possible.

Besides the encoder signal cable should not be installed in closer neighborhood with cables which transmits high frequencies or high energies. Please avoid to use any unnecessary long cable lengths and keep in mind: the shorter, the better!

**Connection of external devices on the printer:**

To protect the encoder and of course in a particular way the controller board of the printer, it is not allowed to plug and un-plug the connectors as long as the printer is switched on and connected to the main power supply.

**ATTENTION**

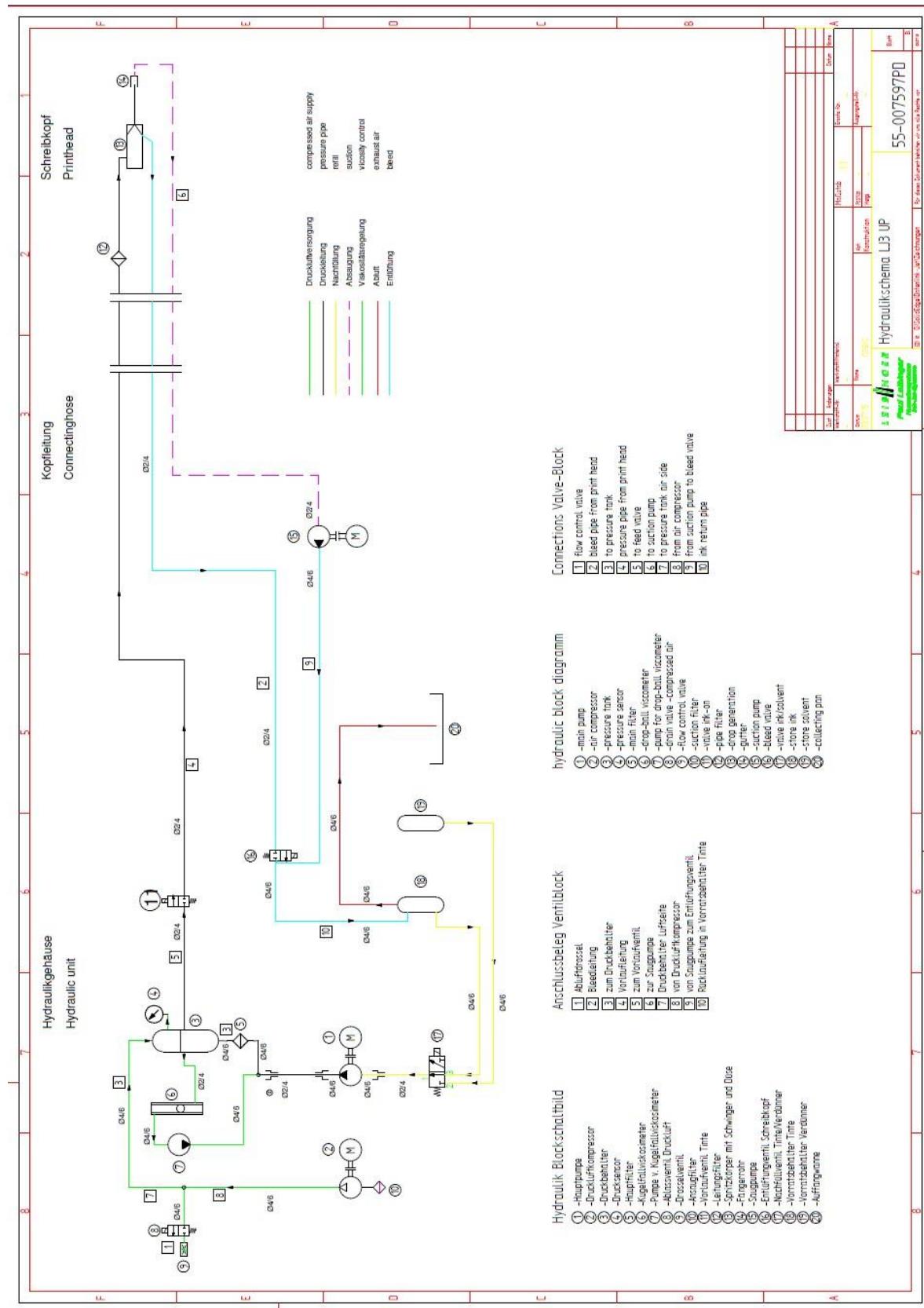
This rule is also valid for all other external connected signals or devices like e.g. PrintGo-sensor, input-signals, output-signals, Ethernet interface and so on.

**Therefore we want to point out, that the plugging of any connectors while the printer is connected to the mains, can cause serious damages of the external devices and also of the printer controller itself.**

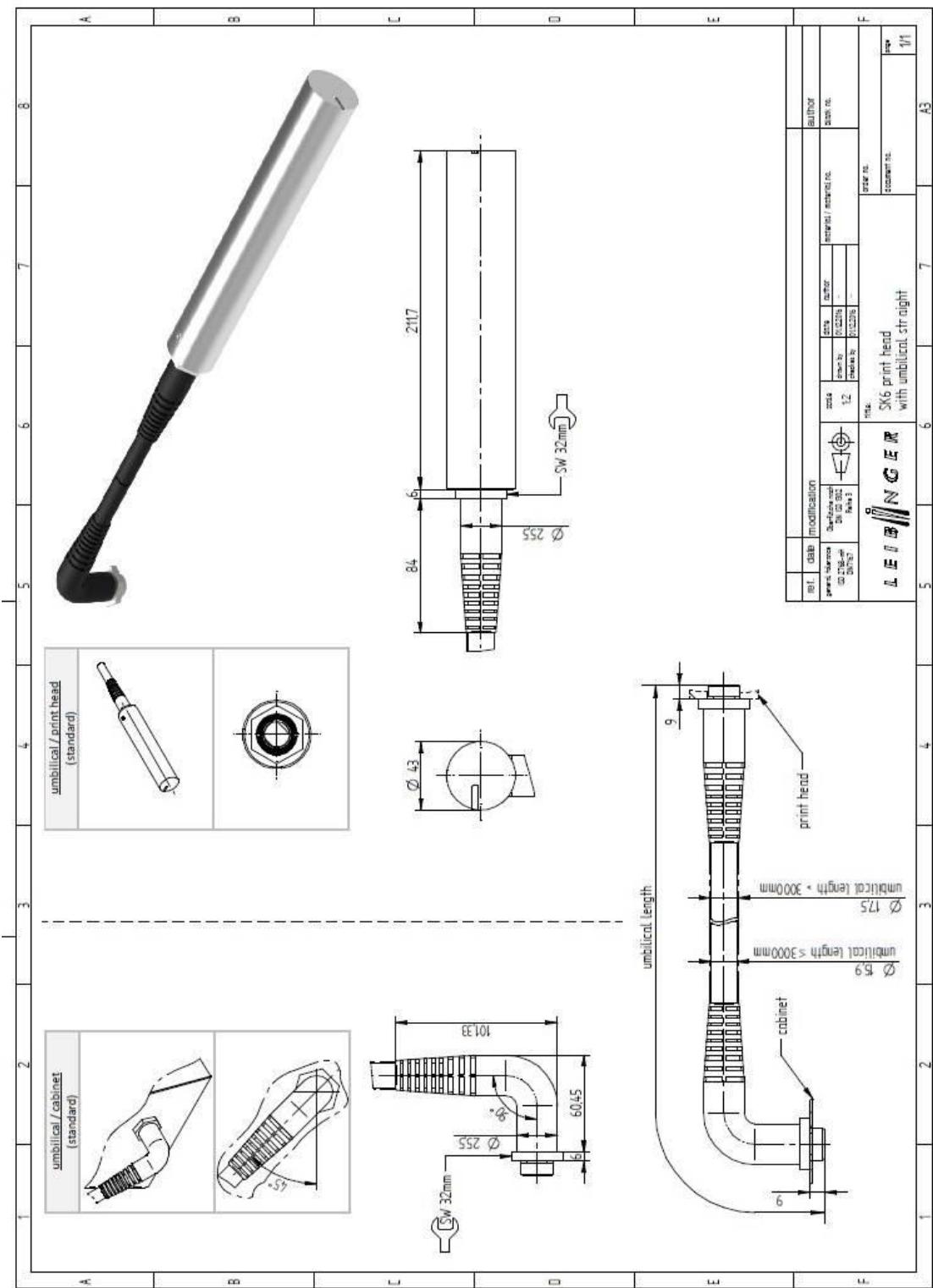
**Therefore we strictly recommend to shut-down the printer and disconnect it from the mains, before plug and unplug any connectors.**

## 12.4 Technical drawings

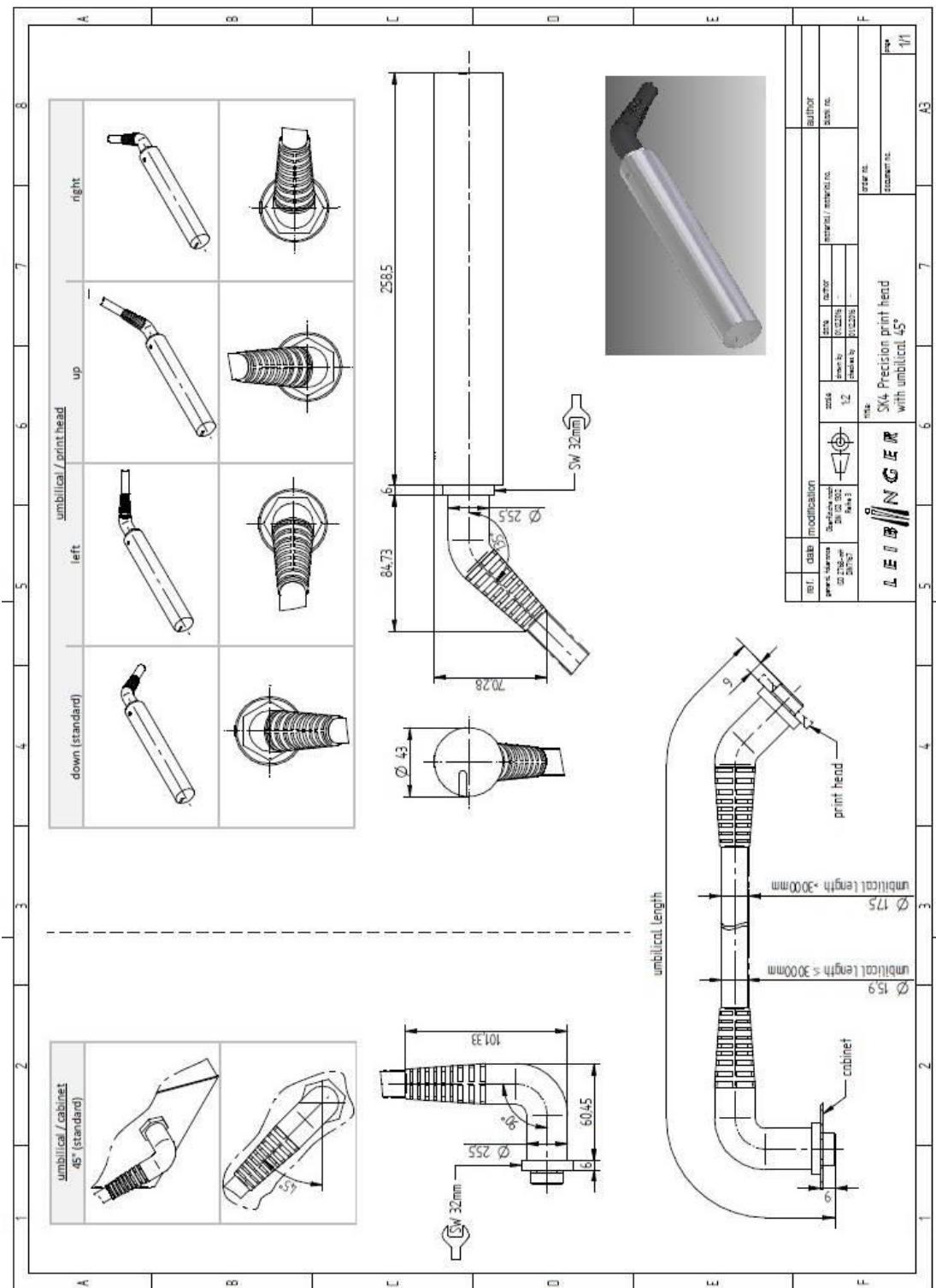
### 12.4.1 Hydraulic diagram JET 3up



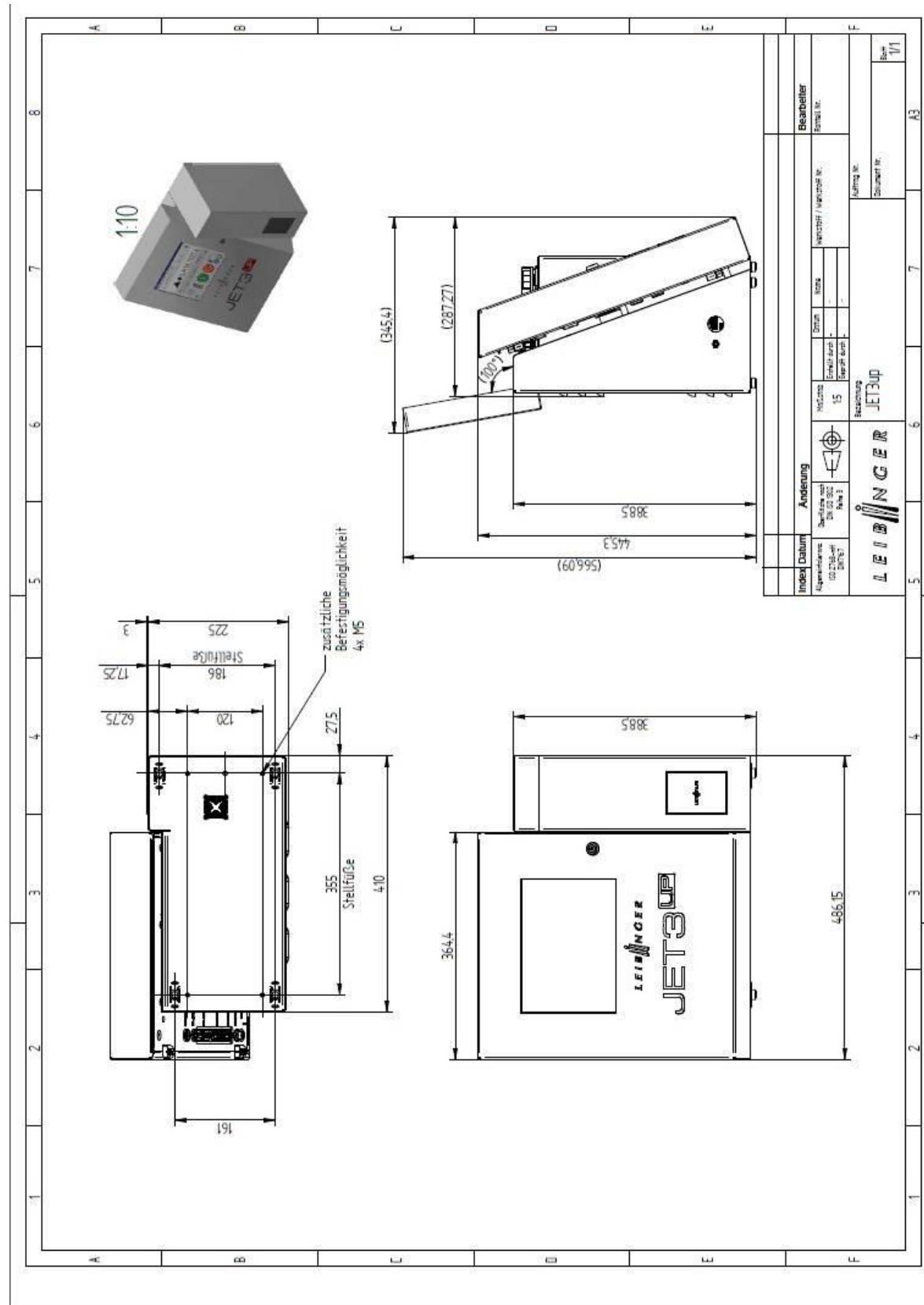
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### **12.4.3 Print head SK 4 - Option**



#### **12.4.4 Cabinet LJ**



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