

DE **Betriebsanleitung** / EN **Operating instructions**



MFS-V3

DE **Service Software**
EN **Service software**



EN English Translation of the original operating instructions

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1	Identification	EN-3	10	Job mode (MFS-V3 only)	EN-33
			10.1	Normal control	EN-33
2	Areas of application	EN-3	10.2	Job selection	EN-33
3	System requirements	EN-3	10.3	Job file editor settings (MFS-V3 only)	EN-34
4	Connecting the eBOX to a PC	EN-4	10.4	Job list eBOX settings (MFS-V3 only)	EN-38
			10.5	Job window (MFS-V3 only)	EN-41
5	Installing the software	EN-5	10.6	Job window edit mode (MFS-V3 only)	EN-43
5.1	Software installation settings for Windows 7	EN-8	11	Monitoring mode	EN-44
5.2	Software installation settings for Windows XP	EN-10	11.1	Closing the Monitoring window	EN-45
6	Configuring the driver	EN-12	12	System Information	EN-46
7	Starting the software	EN-14	13	Diagnosis	EN-49
8	User levels/user rights	EN-15	13.1	Checking the measuring wheel	EN-52
			13.2	Workflow	EN-53
9	Setting up the software	EN-16	14	Warnings and error messages (status)	EN-55
9.1	Device type settings	EN-16	15	Releasing the user levels and rights	EN-58
9.2	Connection type settings	EN-16			
9.3	Ethernet IP address (only in connection with Profinet-controlled MFS-V2 systems)	EN-17			
9.4	Ethernet option with the device type MFS-V3	EN-17			
9.5	CAN bus (only in conjunction with MF control)	EN-18			
9.6	Testing the connection	EN-18			
9.7	Channel visualisation monitoring settings, user level 1	EN-19			
9.8	Channel visualisation monitoring settings, user level 2	EN-20			
9.9	Drive, gear reduction, encoder and measuring wheel monitoring settings, user level 2	EN-24			
9.10	Start/stop trigger monitoring settings, user level 2	EN-25			
9.11	Log file path monitoring settings, user level 2	EN-26			
9.12	Process data display settings, user level 2	EN-27			
9.13	Signal description IO settings, user level 2	EN-28			
9.14	Signal description Dig IO settings, user level 2	EN-30			
9.15	Device type settings	EN-31			
9.15.1	eBOX (MFS-V3 only)	EN-31			
9.16	Service interval settings (MFS-V3 only)	EN-32			

1 Identification

These printed instructions provide support with the installation, configuration and setup of the service software for master feeder systems.

The latest version can be downloaded from our FTP server: 94.137.159.242

User: binzel_mfs

Password: download

• Please use a suitable FTP client.		
• Enter these details and click 'Connect'.	FTP server	94.137.159.242
	User	binzel_mfs
	Password	download

2 Areas of application

The visualisation and monitoring of processes and equipment in the welding and brazing industry is becoming increasingly important. This software acts as a visualisation and analysis system for all process parameters and data relevant to the master feeder systems MFS-V2 and MFS-V3.

Data is requested and graphically displayed via the Ethernet and USB interfaces.

The software offers the following functions:

- Visualisation of actual values
- Visualisation of eBOX inputs and outputs
- Component and seam-specific archiving of the actual values for the process
- Visualisation of target values
- Threshold value monitoring and display
- Nonconformity and event logs
- Data export to Microsoft Excel
- Diagnosis
- Presentation of maintenance intervals or messages
- Job functionality for up to 64 jobs (MFS-V3 only)

This software is a useful tool for documenting process parameters in areas where process results must be precisely reproduced. During operation, the software detects when threshold values have been exceeded and displays this on the screen.

Recording and displaying data during process optimisation helps to set up a system during maintenance and servicing. For example, the values displayed can be used to determine whether drive components need to be cleaned or whether resistors are impeding wire feeding from the wire feed roll.

3 System requirements

PC (laptop) with processor	At least Pentium III (500 MHz)
Main memory	At least 64 MB RAM
Memory requirement	100 MB min.
Operating system	Microsoft Windows - Windows 7 - XP

NOTICE

- The software can be used on all of the listed operating systems.
- Administrator rights are required.

Software	Microsoft Excel (for importing CSV files)
Connection	At least one free USB interface or Ethernet port
eBOX MFS-V2	Firmware version 6.5 or above
eBOX MFS-V3	Firmware version 5.0 or above

4 Connecting the eBOX to a PC

NOTICE

- The following steps must only be completed by qualified personnel (in Germany, see TRBS 1203).
- Observe the safety regulations in the operating instructions for the individual components.
- Note that, with older MFS V2 eBOXes, there is a risk of identifying the service interface incorrectly on the hand-held unit.
- eBOXes with a serial number < E0051 are not suitable for this software and may damage the hardware (USB converter).

There are three ways of establishing a connection between the eBOX and a PC:

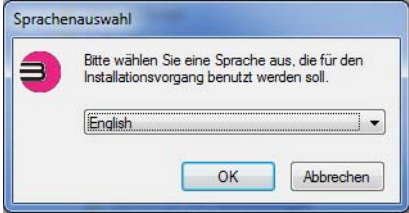

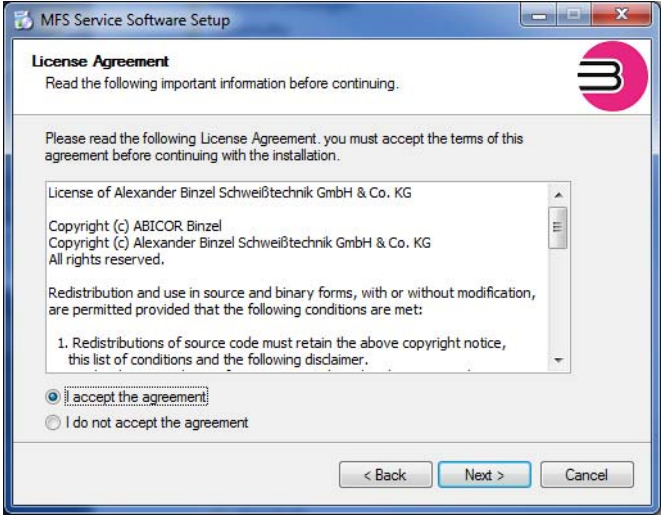
- 1** USB/RS converter (881.3220.1) required (eBOX MFS-V2 only)
 - Switch off the eBOX and disconnect it from the mains.
 - Connect the RS interface converter to the SERVICE connection bush on the eBOX.
 - Connect the converter to the PC via a USB port.
 - Connect the eBOX to the mains power supply.
 - Switch on the eBOX.
- 2** Connection via Ethernet (eBOX MFS-V3 and eBOX MFS-V2 with Profinet only)
 - Switch on the eBOX.
 - Establish a connection between the eBOX and PC using an Ethernet patch cable.
 - Connect to the mains.
- 3** Connection via CAN (eBOX MFS-V3 with hand terminal MF control only)
 - Connect the MF control to the eBOX (X10 hand terminal).
 - Switch on the eBOX.

The MF control comes with Windows 7 Embedded and boots as soon as the eBOX is switched on.

NOTICE

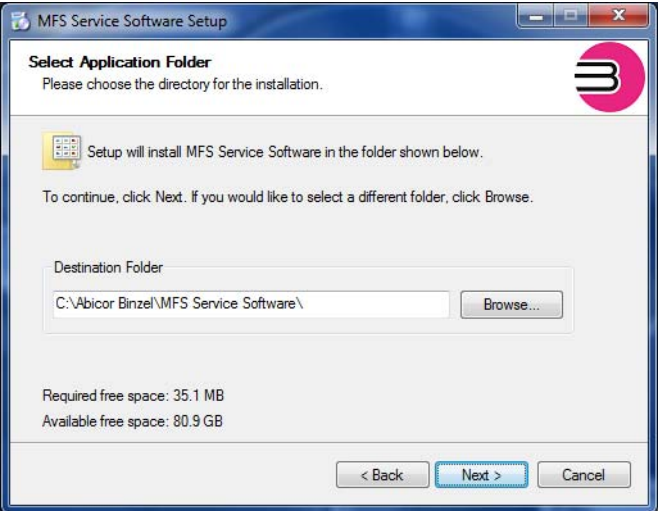
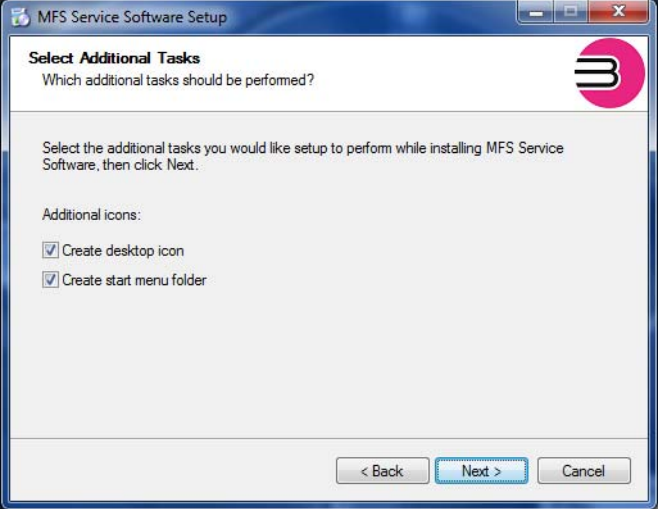
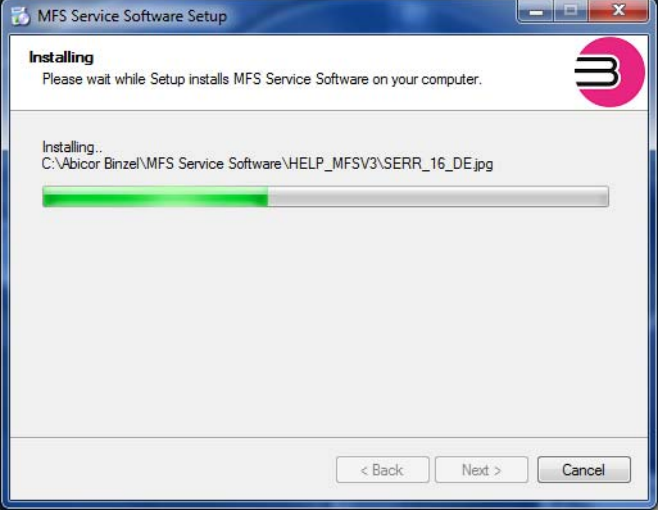
- To prevent data losses, always properly shut down the MF control operating system before disconnecting the X10 plug or switching off the eBOX.



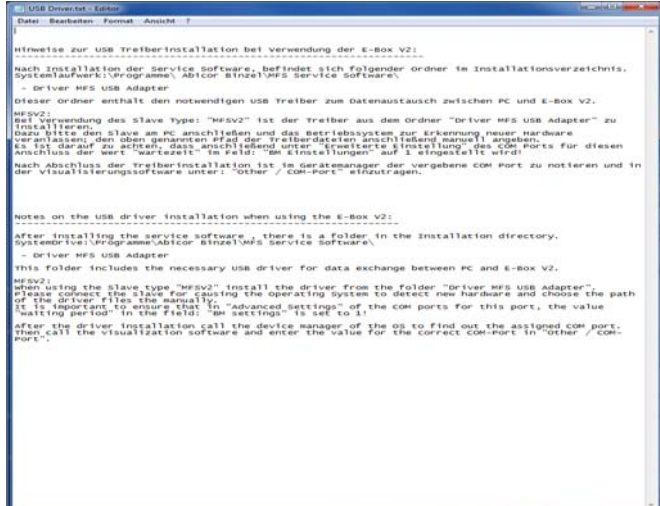
5 Installing the software

Description	Screenshot
<ul style="list-style-type: none">Start the file using 'Abicor_Binzel_Service_Software_Setup.exe'.	
<ul style="list-style-type: none">Select a language.	
<ul style="list-style-type: none">Click 'Next'.	
<ul style="list-style-type: none">Accept the terms of the license agreement and click 'Next'.	

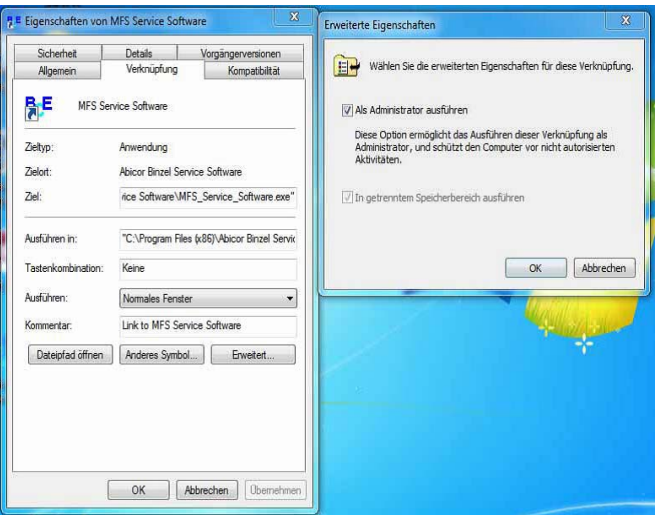
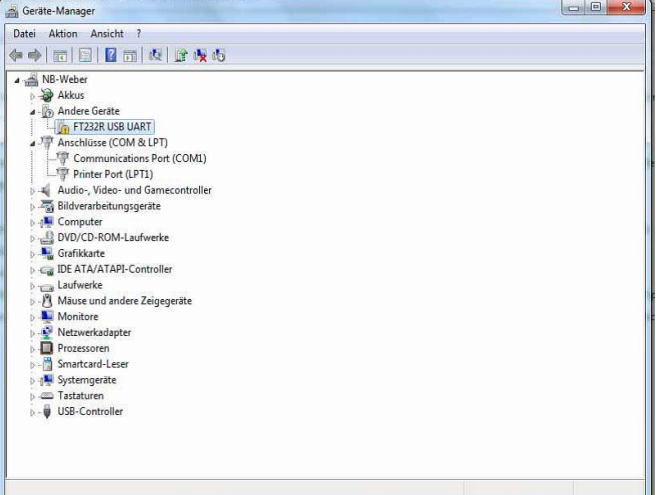
NOTICE

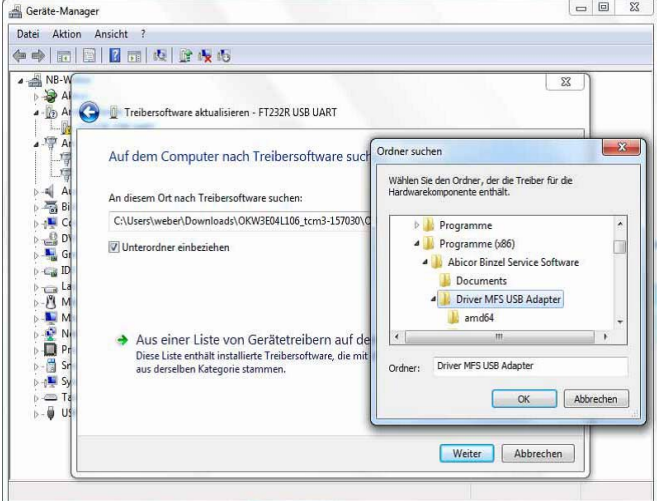

- The software settings and user data are stored in the user directory as they do not require administrator rights.

Description	Screenshot
<p>The target directory is displayed. Click 'Next'.</p> <p>On Windows XP systems, the data is stored at the following path: C:\Documents and Settings\All Users\Application Data\MFS_SERVICE_SOFTWARE_DATA</p> <p>On Windows 7 systems, the data is stored at the following path: C:\ProgramData\MFS_SERVICE_SOFTWARE_DATA</p>	
<ul style="list-style-type: none"> You are asked whether a desktop icon should be created and the program should be added to the Start menu. Click 'Next'. 	
<p>The software is installed.</p>	




Description	Screenshot
<ul style="list-style-type: none"> You can choose if the software should be started after completion. Click 'Finish'. 	
<p>The software installation is now complete. The shortcut to the start file appears on the desktop.</p>	
<p>Once installation is complete, a text file with notes on the USB driver installation appears. This driver is only required if an eBOX V2 is connected via a USB converter. This file can also be opened via the entry in the Start menu.</p>	

5.1 Software installation settings for Windows 7

Description	Screenshot
<ul style="list-style-type: none"> Right-click the software icon on your desktop. Click: Settings/Properties/Advanced. Select the 'Run as administrator' checkbox. Click 'OK'. 	
<ul style="list-style-type: none"> Connect the USB converter and cable (eBOX MFS-V2 only). 	
<ul style="list-style-type: none"> Connect the D-sub cable from the converter to the X49 serial interface in the direction of the eBOX as well as the USB cable to the PC. 	
<ul style="list-style-type: none"> Connect to the Ethernet (eBOX MFS-V3 or MFS-V2 with Profinet only). 	
<ul style="list-style-type: none"> Insert the D-sub cable from the converter into the USB interface. The device manager indicates whether hardware has been detected. 	

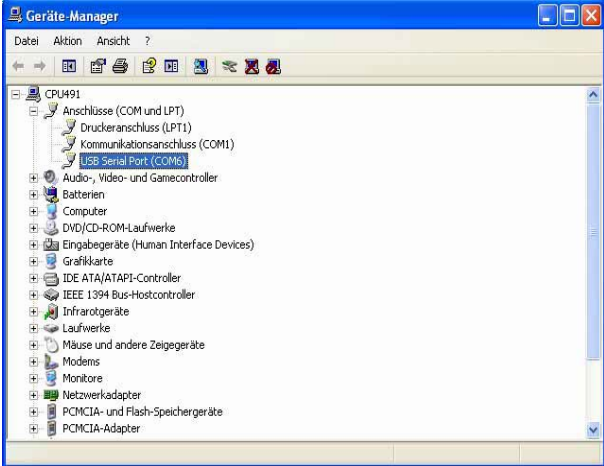
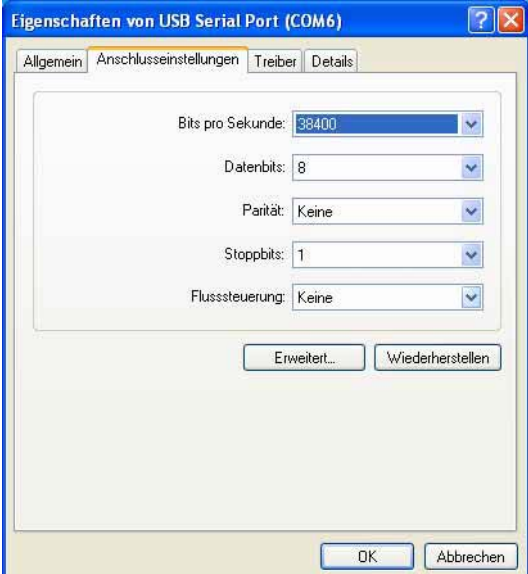

Description	Screenshot
<ul style="list-style-type: none">If the hardware has not been detected, re-install the driver manually. The driver file is located in the installation directory that was either adopted from the default settings or defined manually.	
Example	
<p>Successful installation of the driver software and automatic detection of COM3.</p>	

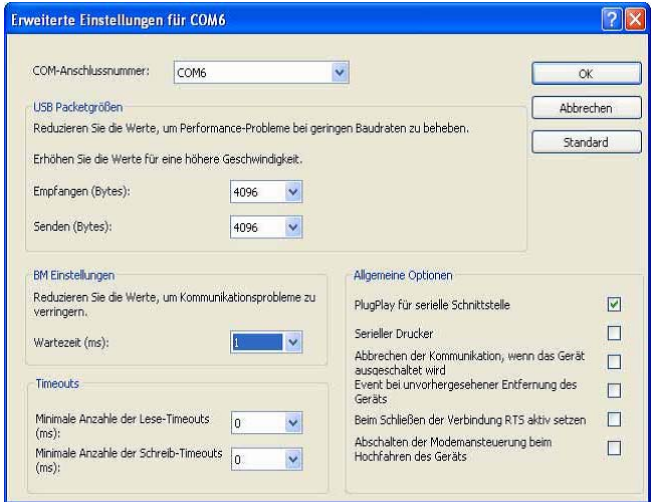
5.2 Software installation settings for Windows XP

Description	Screenshot
<ul style="list-style-type: none"> Connect the USB converter. The wizard for finding new hardware appears. 	
<ul style="list-style-type: none"> Select: 'No, not this time' and click 'Next'. 	
<ul style="list-style-type: none"> Select the path shown. 	
<ul style="list-style-type: none"> Confirm by clicking 'OK'. 	

Description	Screenshot
<ul style="list-style-type: none">Click 'Next' and confirm all of the following windows with 'Next' or 'Finish'.	

6 Configuring the driver

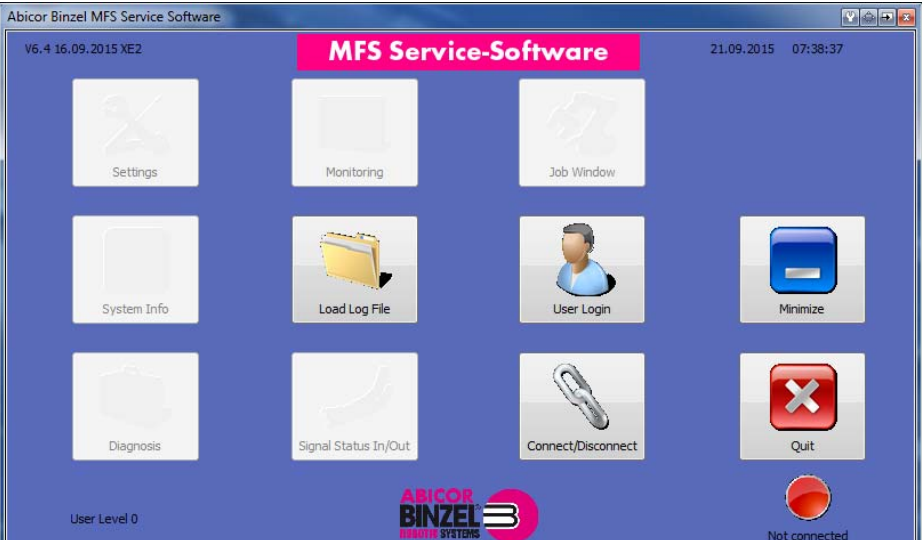
Description	Screenshot
<ul style="list-style-type: none"> Open the device manager via the control panel. 	
<ul style="list-style-type: none"> Double-click the relevant USB port to configure the connection settings. Click the 'Port Settings' tab and enter 38400 in the 'Bits per second' field. 	
<ul style="list-style-type: none"> Select the path shown. 	
<ul style="list-style-type: none"> Leave the other settings unchanged and click 'Advanced'. 	

Description	Screenshot
<ul style="list-style-type: none">• Use the 'COM port number' field to select the appropriate COM port (between 1 and 8).• Enter 1 in the 'Latency (ms)' field and confirm all windows by clicking 'OK'.	

7 Starting the software

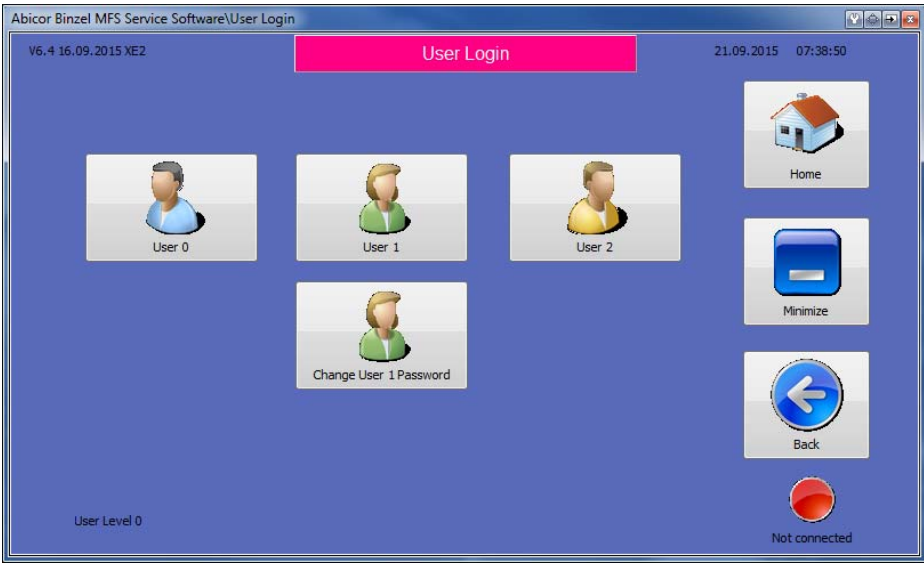
NOTICE

- You require administrator rights to start the software.

Description	Screenshot
<ul style="list-style-type: none"> After starting the software, this window appears. 	

8 User levels/user rights

NOTICE
<ul style="list-style-type: none">The software has three user levels.

Description	Screenshot
User level 0 is freely accessible to all users. User level 1 is password protected. User level 2 is password protected and is used for configuration purposes by qualified personnel.	
User level 0	The software always starts in level 0 mode. At this level, it is only possible to start existing visualisation configurations or open existing log files. The Settings menu is hidden and it is not possible to create, load, change or save setups.
User level 1	A password is required to access level 1. The initial password is 'BiVisu' and can be changed at any time. The default password for level 1 can be reset by entering 'RESETPW' in the level 2 field. In level 1 mode, setup files can be loaded but not modified or saved.
User level 2	In level 2 mode, all settings and parameters can be configured without any restrictions. This level is only intended for use by qualified personnel. The password for this level is 'MASTER' and should only be given to qualified or trained specialists.

Further information about the options offered by the individual user levels plus more detailed explanations of these can be found in the 'User levels and rights' section of this manual.

⇒ 15 Releasing the user levels and rights on page EN-58

9 Setting up the software

The following basic settings are required to properly operate the software. Please note the user levels required to configure these.

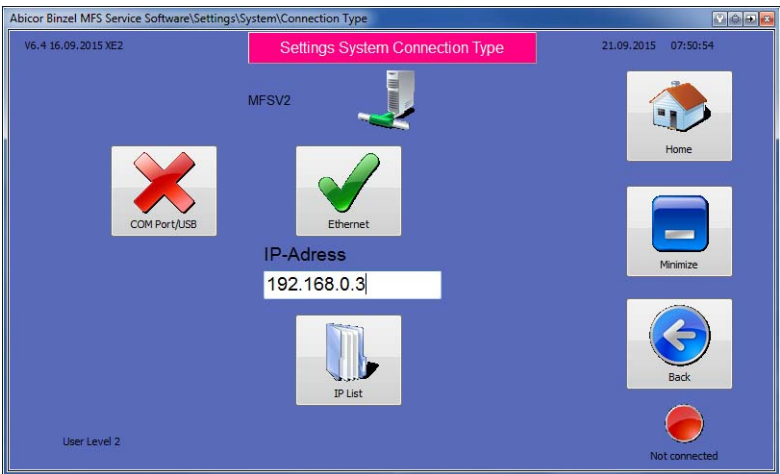
9.1 Device type settings

Description	Screenshot
<ul style="list-style-type: none"> Select the applicable system: MFS-V2 or MFS-V3. 	

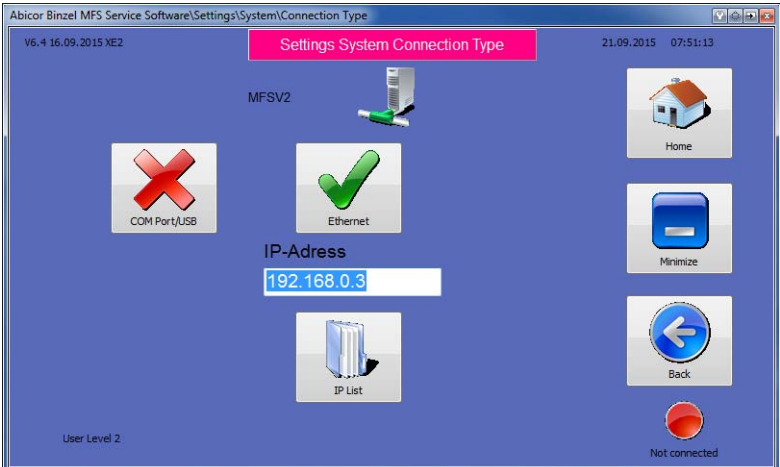
9.2 Connection type settings

Description	Screenshot
<ul style="list-style-type: none"> Select the applicable connection type. Only possible if the device type is set to MFS-V2. 	
<p>COM port/USB</p> <ul style="list-style-type: none"> Configure the COM port as per the settings in the device manager. <p>⇒ 6 Configuring the driver on page EN-12</p>	

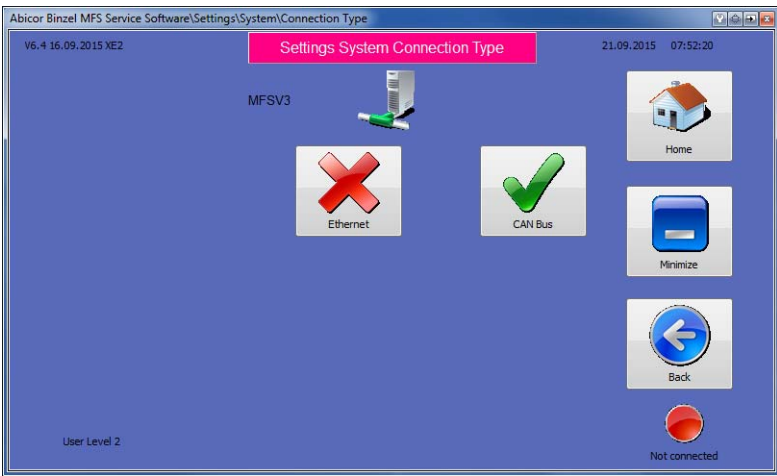
9.3 Ethernet IP address (only in connection with Profinet-controlled MFS-V2 systems)

Description	Screenshot
<ul style="list-style-type: none"> Ensure that the IP addresses of the PC and the eBOX are set correctly. Disable DHCP (automatically obtain IP address) and enter a fixed IP address (e.g. 192.168.0.3). The first three digits of the IP address have to be the same. 	


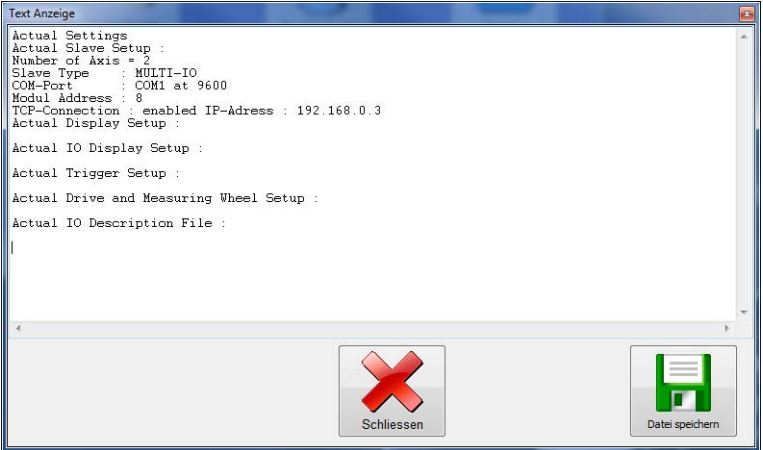




9.4 Ethernet option with the device type MFS-V3

Description	Screenshot
<ul style="list-style-type: none"> Ensure that the IP addresses of the PC and the eBOX are set correctly. Disable DHCP (see above – automatically obtain IP address) and enter a fixed IP address (e.g. 192.168.0.3). The first three digits of the IP address have to be the same. <p>The default IP address on delivery is: 192.168.0.3</p>	

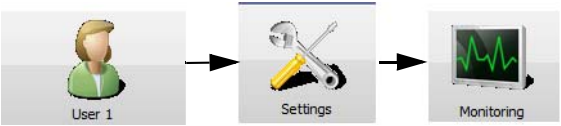
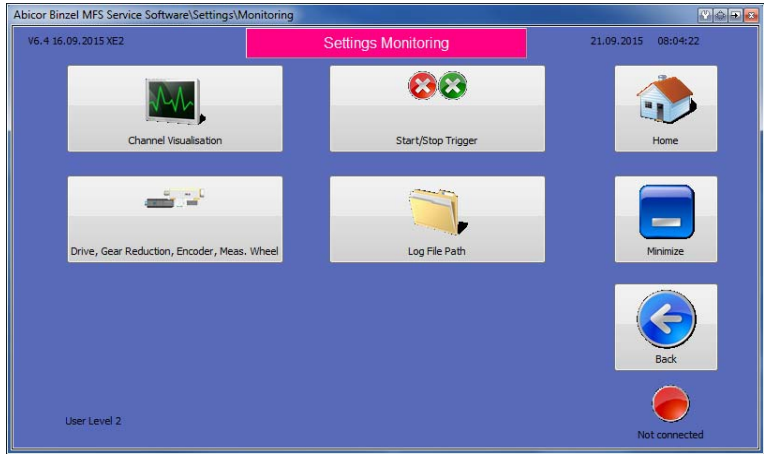
9.5 CAN bus (only in conjunction with MF control)

Description	Screenshot
<ul style="list-style-type: none"> Only select the CAN bus interface if using the MF control. 	

9.6 Testing the connection

Description	Screenshot
<ul style="list-style-type: none"> Click the button. 	
Following a successful connection, this screen is displayed.	
The connection status information is displayed at the bottom right of every screen.	<div> <div> Connection enabled  </div> <div> Connection disabled  </div> </div>
If no connection is established, re-check all connection settings as necessary and ensure that the connection cables are properly inserted.	
Possible error messages	<div>   </div>



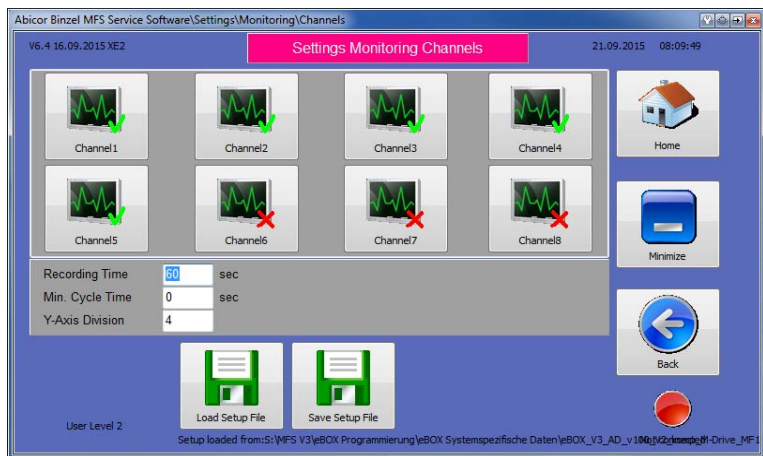
9.7 Channel visualisation monitoring settings, user level 1


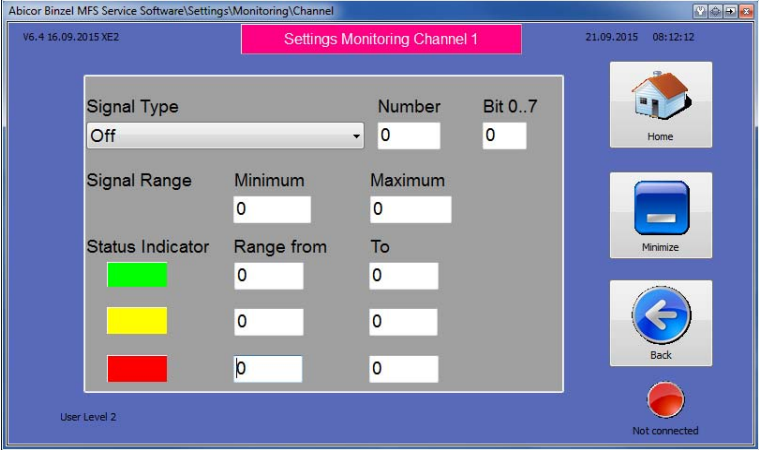
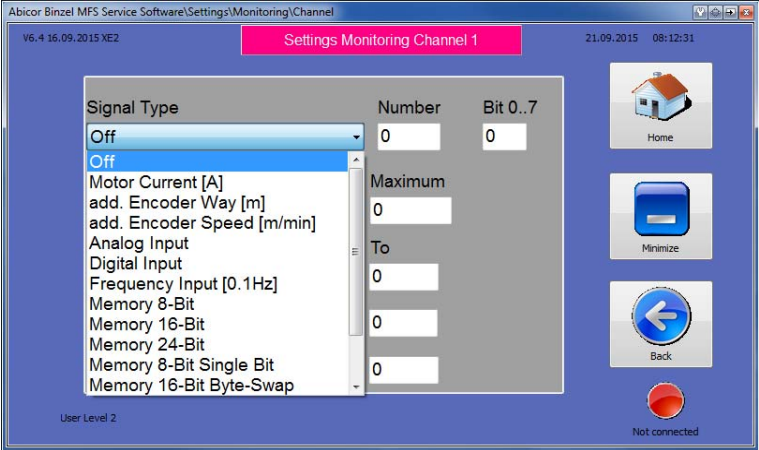
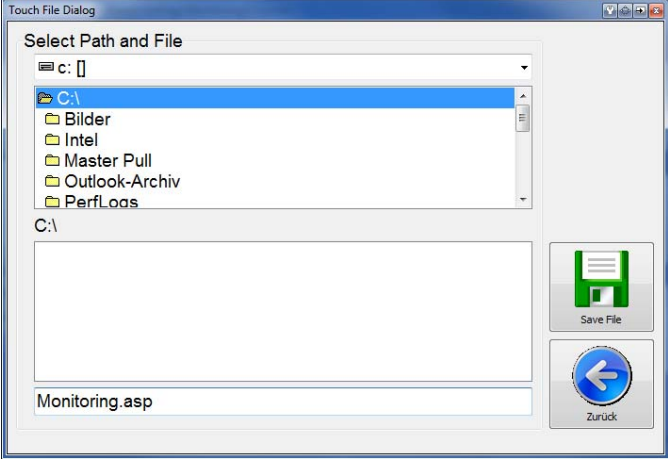
Description	Screenshot
	
In user level 1 mode, only pre-configured setup files can be read by selecting 'Load Setup File'. It is not possible to modify existing configurations or create new setup files.	
Channel Visualisation	Specifies the number of channels displayed in the Monitoring window as well as their settings.
Drive, Gear Reduction, Encoder, Meas. Wheel	Used to set the parameters for the master drive.
Start/Stop Trigger	Stipulates the signal used to start/stop recording log files.
Abicor Binzel provides ready-made records.	

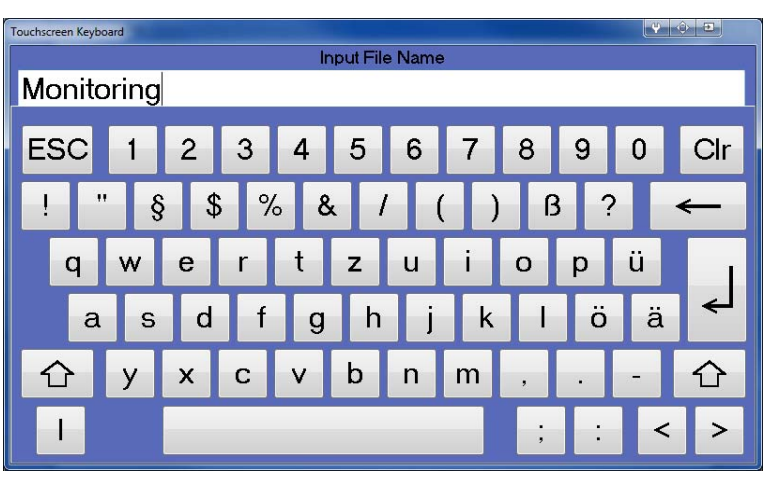
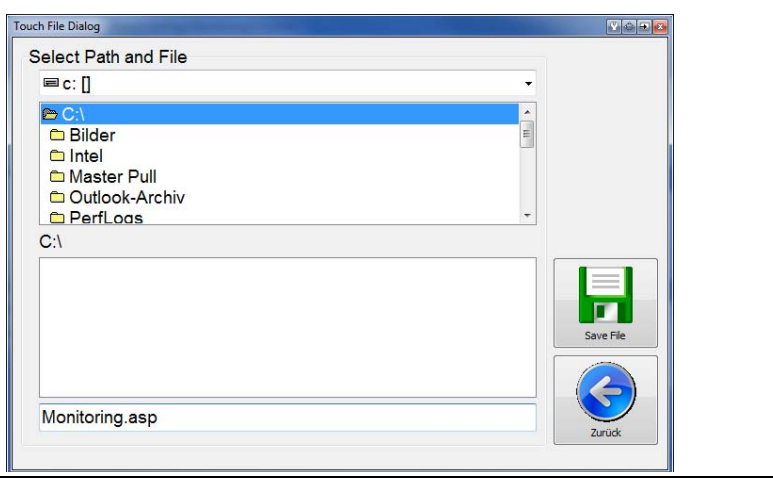
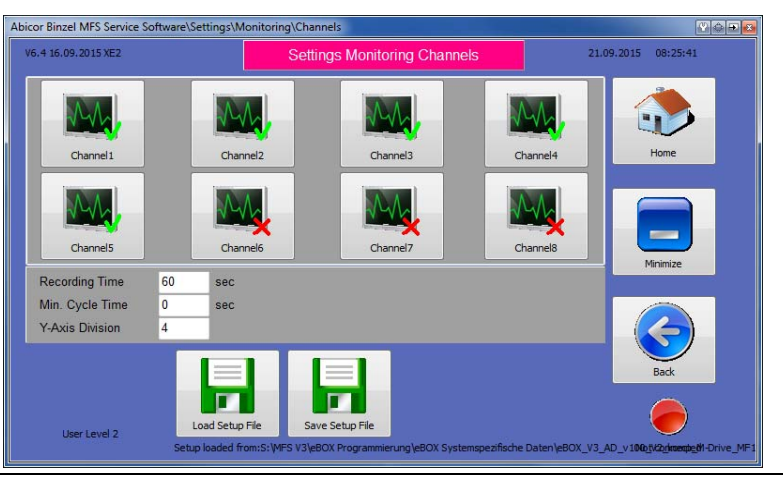
9.8 Channel visualisation monitoring settings, user level 2

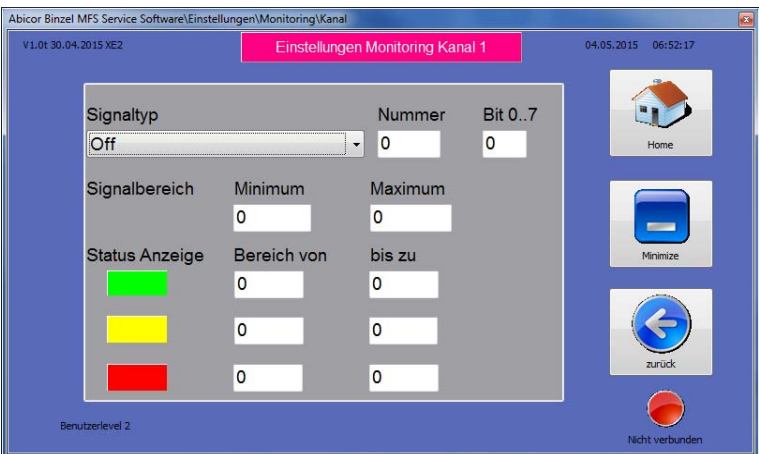
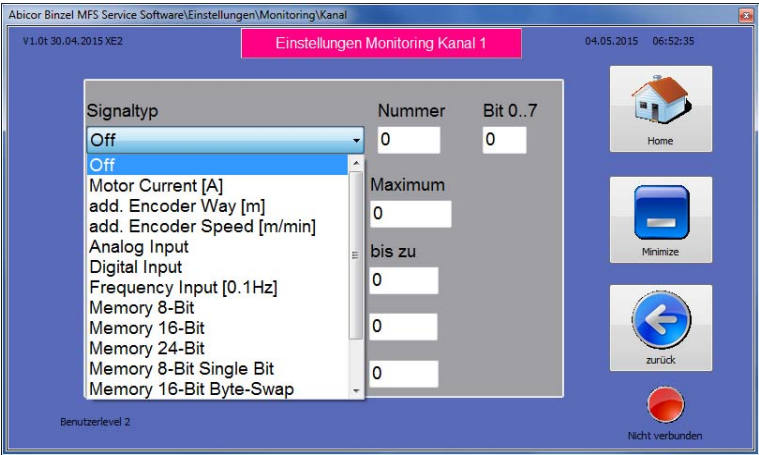
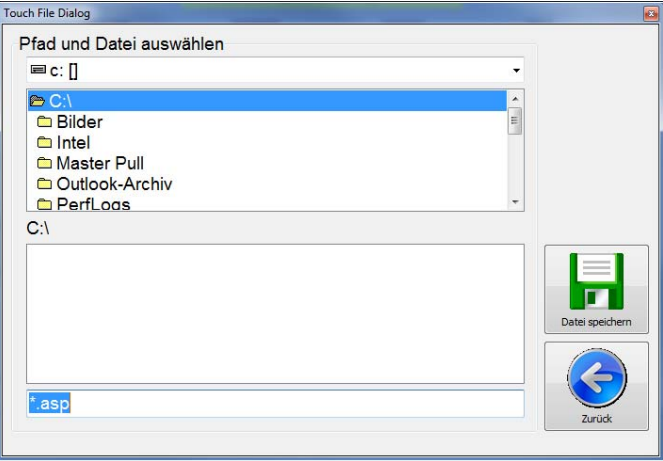
NOTICE

- Setup files for monitoring purposes should only be created by qualified or trained specialists.
- Save all entries/changes made. Otherwise, these will be lost.



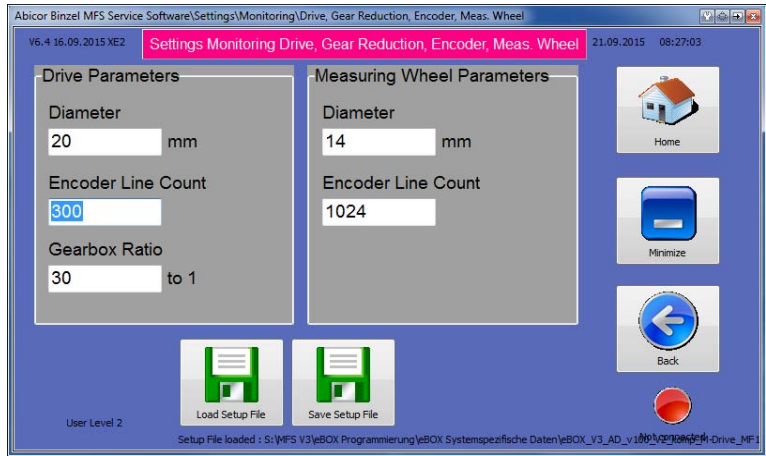
Description	Screenshot
	
	
<p>In user level 2 mode, pre-configured setup files can be read by selecting 'Load Setup File'.</p> <p>It is possible to modify existing configurations or create new setup files.</p> <p>Eight user-defined channels are available. The motor current, amount of wire, actual wire speed, analog and digital inputs, frequency inputs and all register values can be selected.</p> <p>The configured settings are only applied once they have been saved using the parameter 'Save Setup File'.</p>	
<p>It is also necessary to adjust the value in the 'Recording Time' field to the length of the welding or brazing process. For example, if a wire feed duration of 26 seconds is required for a task, it is useful to set the value to 30 seconds so that the graphs are not displayed for an unnecessarily lengthy amount of time.</p> <p>The 'Min. Cycle Time' field stipulates the number of seconds after which a record should be saved as a log file. This is useful, for example, if the wire cutters are briefly started between the main cycles but this should not be logged.</p> <p>The 'Y-Axis Division' field specifies the number of vertical graphical divisions.</p>	

Description	Screenshot
	
Set the signal type and value ranges.	
	
<ul style="list-style-type: none">Save the setup file.	

Description	Screenshot
<ul style="list-style-type: none"> Enter the file name – the file extension is automatically added. 	
<ul style="list-style-type: none"> Select a directory. 	
<p>Once a setup file has been loaded, the enabled channels are indicated by a green check mark and the disabled ones by a red cross.</p> <p>The currently loaded setup file is displayed below the channels.</p>	

<p>Description</p> <p>Set the signal type and value ranges.</p>	<p>Screenshot</p> 
	
<ul style="list-style-type: none">• Save the setup file.	


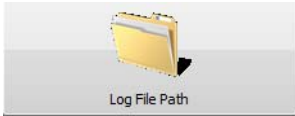
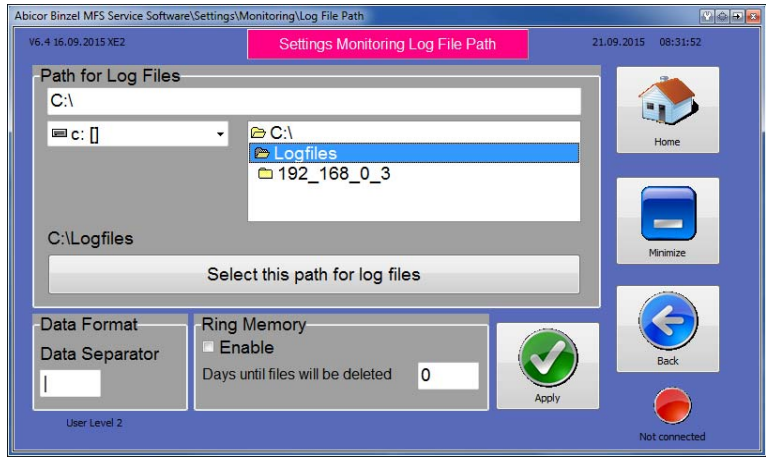
9.9 Drive, gear reduction, encoder and measuring wheel monitoring settings, user level 2

Description	Screenshot
	
	
This area is used to set the parameters for the front drive.	
Drive Parameters	
Diameter	The wire feed roll diameter in mm
Encoder Line Count	Resolution of the motor encoder
Gearbox Ratio	Gearbox reduction ratio
Measuring Wheel Parameters	
Diameter	Diameter of the wire actual value encoder's measuring roll in mm
Encoder Line Count	Resolution of the measuring encoder


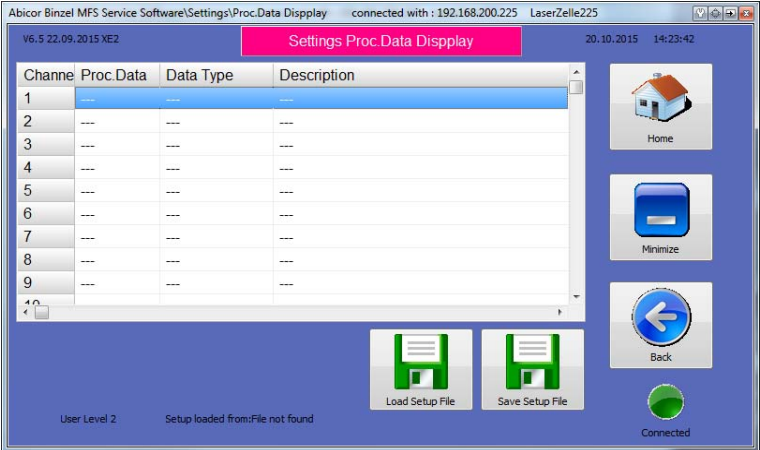
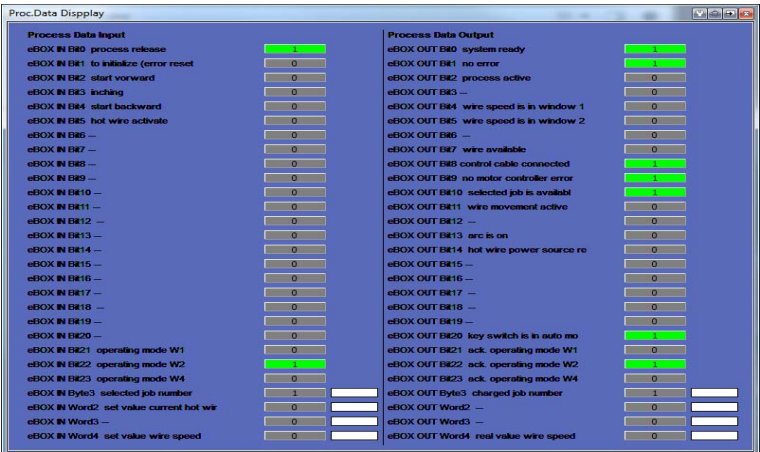
9.10 Start/stop trigger monitoring settings, user level 2

Description	Screenshot
Example: Start Trigger	
Signal Type	Field bus Input
Number	0
Bit 0...7	Only relevant for single bit queries
Trigger Comparison	Increasing flank
Trigger Value	1
Trigger Delay [ms]	0 (Recording starts from the trigger once the specified delay period has passed)
Stop Trigger	
Signal Type	Field bus Input
Number	0
Bit 0...7	Only relevant for single bit queries
Trigger Comparison	Declining flank
Trigger Value	0
Trigger Delay [ms]	150 (Recording stops from the trigger once the specified delay period has passed)


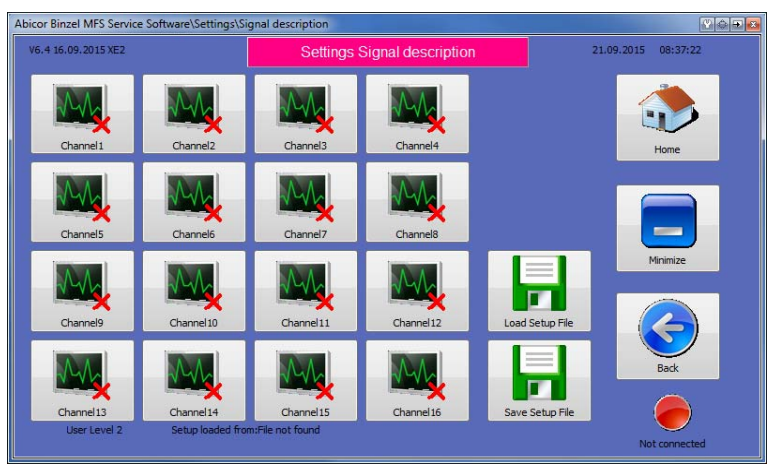

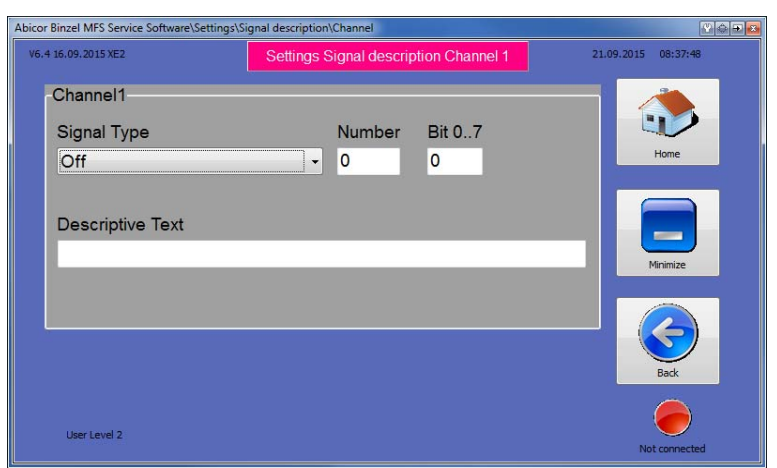
9.11 Log file path monitoring settings, user level 2

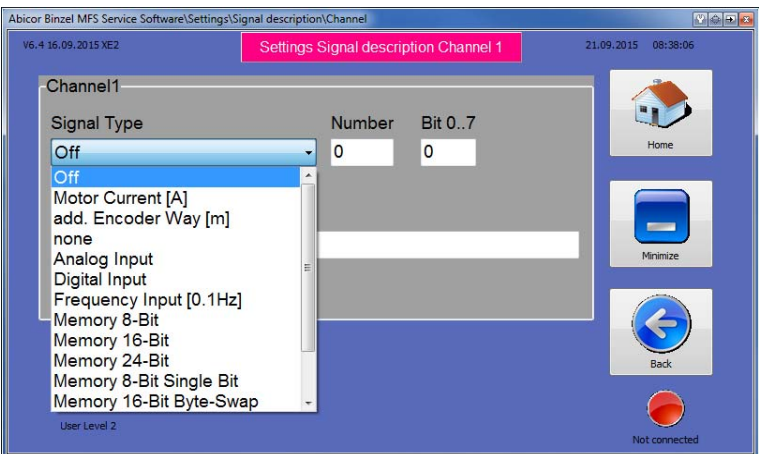
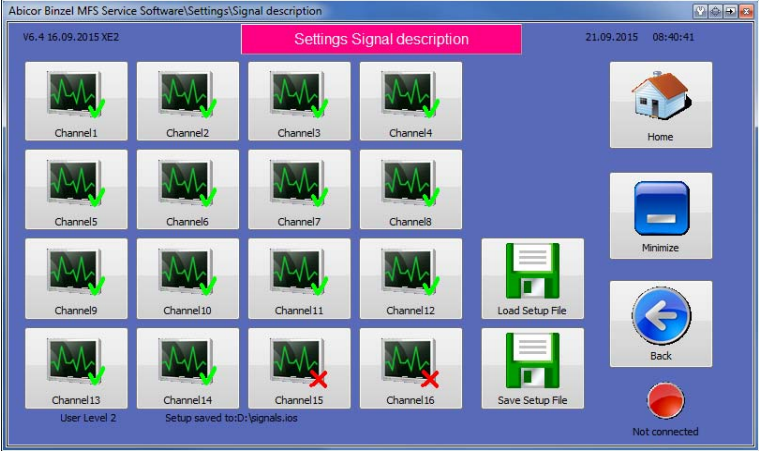
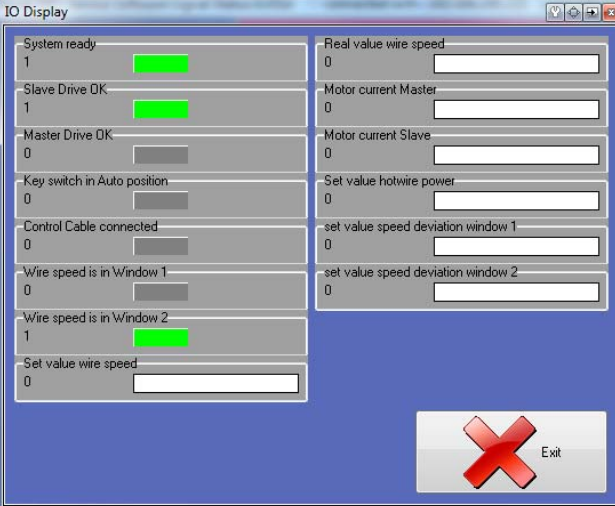
Description	Screenshot
	
	
	
Path for Log Files	<p>This window is used to set the path for saving log files. Select a folder path previously created in Windows and click 'Select this path for log files'.</p> <p>If Ethernet communication takes place, a subfolder is automatically generated with the corresponding IP address in the path defined above.</p>
Data Format	Stipulates the separator used for the CSV file to be created.
Ring buffer	If the ring buffer is enabled, all log data older than the specified number of days is deleted.
<ul style="list-style-type: none"> Click 'Apply' to save all the settings. 	

9.12 Process data display settings, user level 2


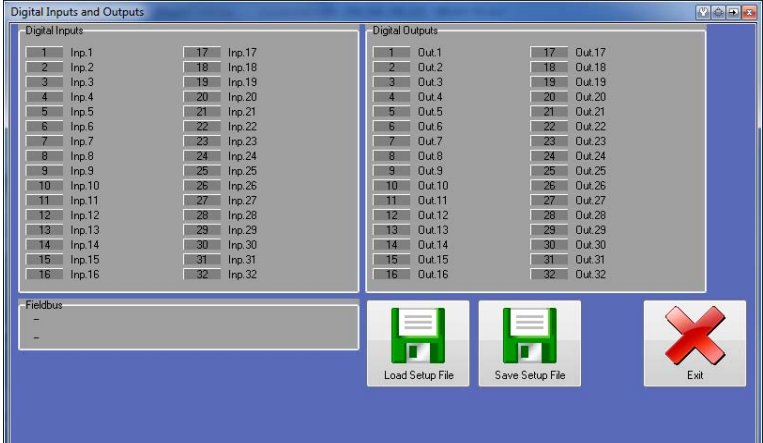
Beschreibung	Dislayanzeige
	
<p>The process data display is used to visualise the bus data for systems controlled using the field bus. A total of 64 channels are available for input and output data. This makes it possible to display the full bus mapping of the I/O data.</p> <p>Click the 'Load Setup File' button to read the preconfigured setup files.</p>	
<p>Example of the process data display</p>	

9.13 Signal description IO settings, user level 2

Description	Screenshot
	
	
16 user-defined channels are available. These can be displayed from the Monitoring window as a bar chart or status indicator (green/grey – true/false) by clicking the I/O Window button.	
<ul style="list-style-type: none"> Click the 'Load Setup File' button to load a preconfigured file. 	
	
A unique signal name should be entered in the 'Descriptive Text' field.	

<p>Description</p> <p>All entries/changes to the settings must subsequently be saved as the configured settings are otherwise lost.</p>	<p>Screenshot</p> 
<p>Once a setup file has been loaded, the enabled channels are indicated by a green check mark and the disabled ones by a red cross.</p> <p>The currently loaded setup file is displayed below the channels.</p>	
<p>Example of the IO Display</p>	

9.14 Signal description Dig IO settings, user level 2

Description	Screenshot
	
<p>The hardware's digital I/Os are displayed in this window.</p> <p>You can click to assign a user-defined name to each I/O.</p> <p>This window can later be displayed from the Monitoring window as a green/grey (true/false) status indicator by clicking the Digital I/Os button.</p> <p>Field bus activities can also be detected in OUT and IN.</p>	

9.15 Device type settings

9.15.1 eBOX (MFS-V3 only)

NOTICE

- An active connection to the eBOX is required for these settings.
⇒ 9.6 Testing the connection on page EN-18

Description	Screenshot
<p>The 'Max. hot wire current' field is used to set the maximum hot wire current for the power source used with a current of 10 VDC at the power source's analog input.</p> <p>If a connected wire end sensor is used, a check box can be selected to visually represent the wire end sensor in the Job Window.</p> <p>If the wire buffer function is enabled, after stopping the process the wire is pressed through the rear drive into the cable assembly to ensure that there is always sufficient wire buffer in the wire guide when starting a process.</p> <p>The wire is pressed into the cable assembly at a constant speed until the power set for the rear motor is reached.</p>	
When the 'Monitoring welding voltage' checkbox is enabled, the system switches off if the specified value is exceeded.	
The wire feed-in rate can be set to between 0.1 and 10 m/min.	
The acceleration time of the wire feed-in rate can be set to between 0.5 and 5 seconds.	
<ul style="list-style-type: none">Click 'Apply' to save all the settings.	

9.16 Service interval settings (MFS-V3 only)

NOTICE

- An active connection to the eBOX is required for these settings.
⇒ 9.6 Testing the connection on page EN-18

Description	Screenshot
Up to 4 interval messages can be generated and displayed in the software as visual message windows. This is useful for scheduled system maintenance intervals. The following statuses can be queried:	
Operating Hours [h]	Duration for which the eBOX has been switched on since the last reset
Delivery Time [h]	Duration of the actual eBOX wire feed process since the last reset
Cycles	Number of eBOX start/stop cycles completed since the last reset
Delivery amount [m]	Amount of eBOX wire used since the last reset
Default	A value of 0 – 1000 can be entered
Current	Shows the currently set values
Reset	Currently set values can be reset to zero
On/Off	Messages can be enabled or disabled
Edit	The text in messages can be freely entered. Maximum 80 characters

10 Job mode (MFS-V3 only)

The MFS-V3 system can be used in 2 operating modes (field bus systems only).

- Normal control
- Job selection

10.1 Normal control

In normal control mode, all values and signals are specified via the bus interface. The wire is fed forwards or backwards in speed mode. The wire feed speed is determined by a target setting (bus data word). It is not possible to use a positioning mode in this mode. In the case of hot wire applications, the hot wire current is also specified via a target setting (bus data word).

10.2 Job selection


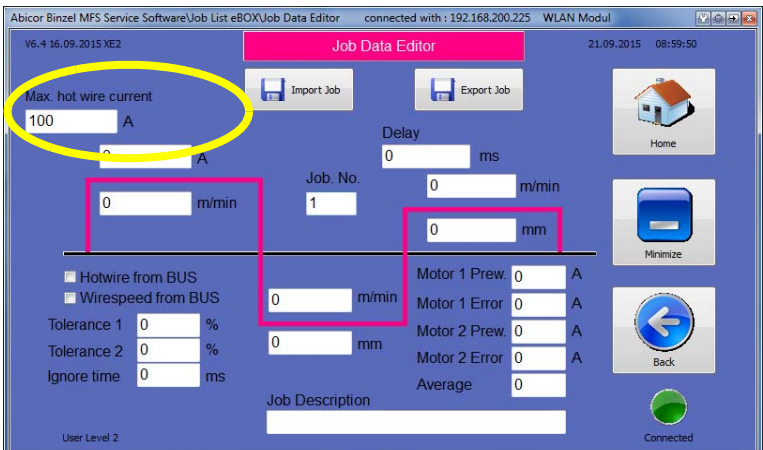
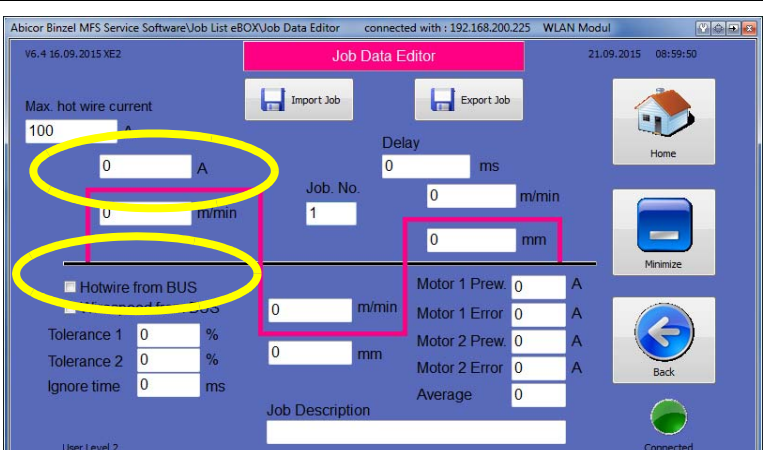
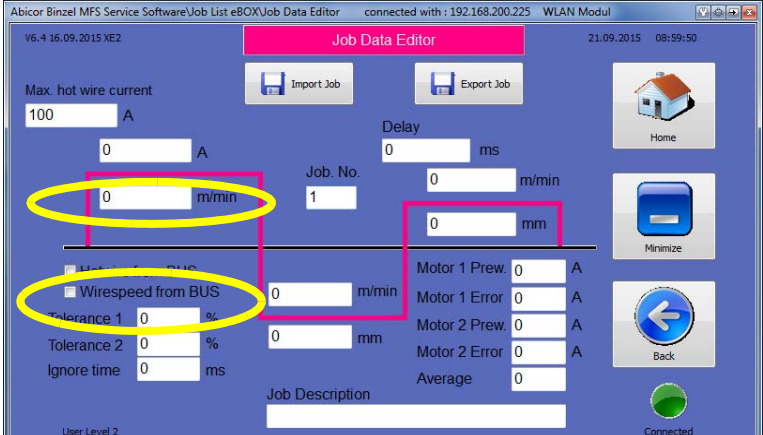
The job selection mode makes it possible to save preconfigured jobs in the eBOX MFS-V3 for appropriate welding and brazing tasks. During the process, these jobs are then loaded via a bit pattern (bus interface).

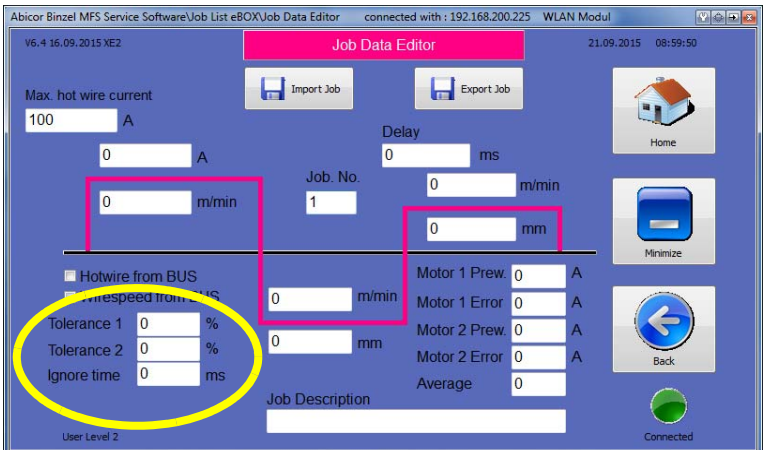
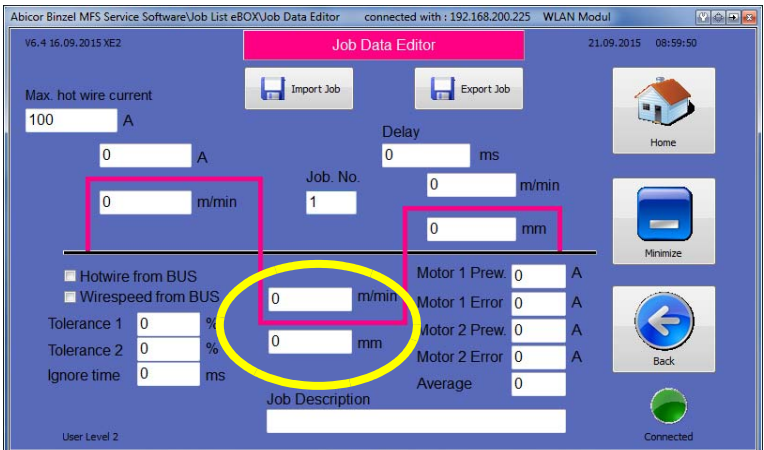
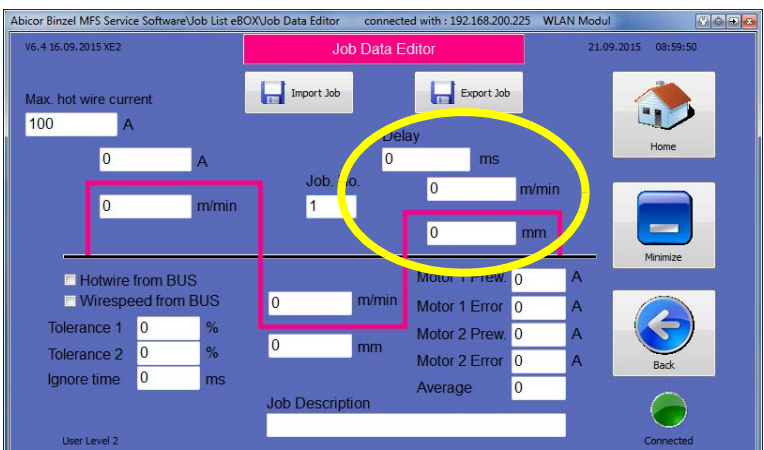
The jobs must be created with the service software, v6.0 or above. A maximum of 64 jobs is possible.

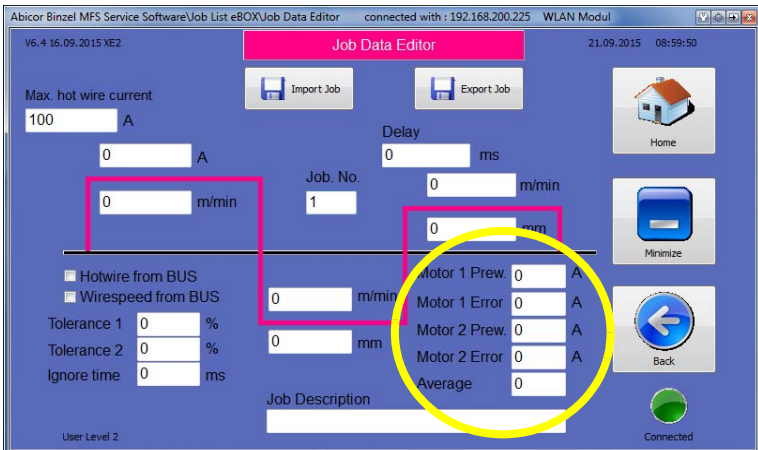
The following parameters can be specified and saved in the job:

- Max. hot wire current [A] (power source)
- Target value for the hot wire current variable via bus or fixed in job
- Target value for the wire speed variable via bus or fixed in job
- Tolerance of two wire windows in percent
- Backwards positioning
- Forwards positioning
- Delay between backwards and forwards positioning
- Motor current limits for pre-warning and errors in relation to both drives
- Job number
- Job description

10.3 Job file editor settings (MFS-V3 only)


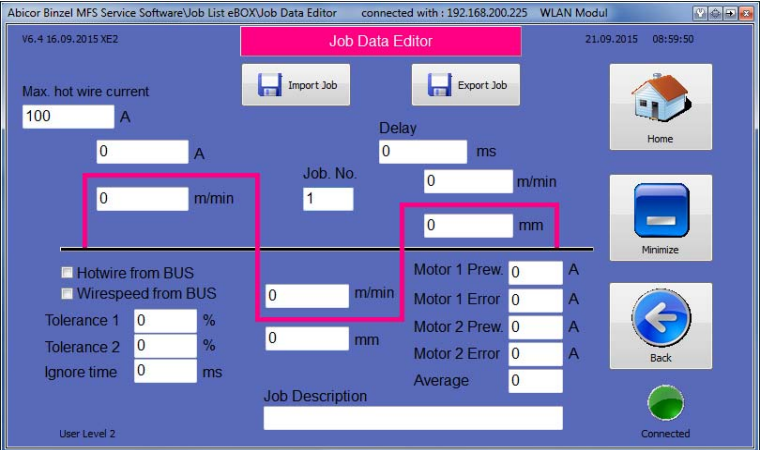
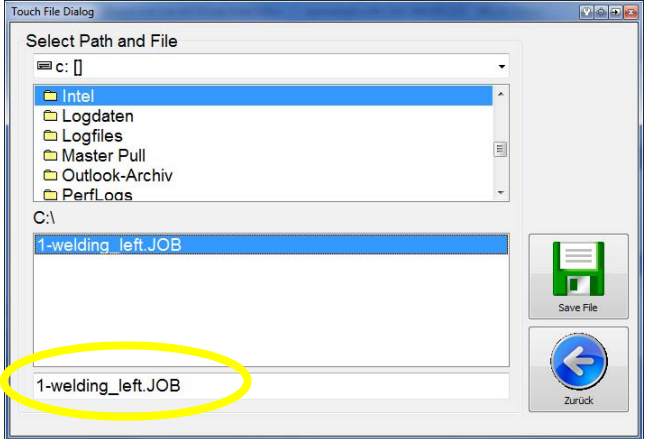
Description	Screenshot
	 <pre> graph LR User2[User 2] --> Settings[Settings] Settings --> JobFileEditor[Job File Editor] </pre>
Max. hot wire current [A] power source	
<p>The power source receives an analog target value (0...10 VDC) for the hot wire current from the eBOX.</p> <p>This screen is used to set the maximum hot wire current for the power source used.</p> <p>That is, 0...10 VDC on the power source's analog input then equates to a hot wire current of 0... max. A.</p>	
Target value for the hot wire current variable via bus or fixed in job	
<p>If the hot wire current should be saved in the job, the value [A] for the hot wire current is entered.</p> <p>If the hot wire current in this job is variably specified via a bus, the 'Hot Wire from Bus' field is selected.</p>	
<p>If the wire speed should be saved in the job, the value [m/min] for the wire speed is entered.</p> <p>If the wire speed in this job is variably specified via a bus, the 'Wire Speed from Bus' field is selected.</p>	

Description	Screenshot
<p>Tolerance of two wire windows in percent</p> <p>Two tolerance values can be specified for the deviation of the wire actual value from the target value. If the upper or lower tolerance limits are exceeded, a warning is emitted. To suppress a warning message during the acceleration phase, an Ignore time [ms] should be specified that is greater than the system's acceleration time constant.</p>	 <p>The screenshot shows the 'Job Data Editor' window. The 'Tolerance 1' and 'Tolerance 2' fields are highlighted with a yellow circle. The 'Ignore time' field is highlighted with a pink rectangle. The 'Wirespeed from BUS' checkbox is also highlighted with a pink rectangle.</p>
<p>Backwards positioning</p> <p>Automatic wire retraction can be configured. This positioning occurs as soon as the wire feed start signal drops on the end of the seam. The wire speed can be set to between 0 and 10 m/min and the positioning route to between 0 and 20 mm.</p>	 <p>The screenshot shows the 'Job Data Editor' window. The 'Wirespeed from BUS' checkbox is highlighted with a yellow circle. The 'Wirespeed from BUS' and 'Positioning route' fields are highlighted with a pink rectangle.</p>
<p>Forwards and backwards positioning plus delay between backwards and forwards positioning</p> <p>An automatic wire feed can be configured to follow the wire retraction process. This positioning occurs as soon as the wire retraction positioning is complete and the specified delay [ms] has passed. The wire speed can be set to between 0 and 10 m/min and the positioning route to between 0 and 20 mm.</p>	 <p>The screenshot shows the 'Job Data Editor' window. The 'Delay' field is highlighted with a yellow circle. The 'Wirespeed from BUS' and 'Positioning route' fields are highlighted with a pink rectangle.</p>

Description	Screenshot	
Motor current limits for pre-warning and errors in relation to both drives		
<p>Limits for triggering motor current pre-warning and error messages can be specified for each drive.</p> <p>If these limits are exceeded, a warning message is emitted in the case of the pre-warning and an error message in the event of an error. In the event of an error, the system switches off and both drives stop. The system is released again through the acknowledgement or initialisation of the eBOX once the error has been eliminated.</p> <p>The value range for the motor current is based on the maximum for the end level in the axis controller. The values entered here should correspond to the motor used.</p>		
Motor 1 Prew.	Rear drive value range for pre-warning	0 - 7 [A]
Motor 1 Error	Rear drive value range for error	0 - 7 [A]
Motor 2 Prew.	Front drive value range for pre-warning	0 - 7 [A]
Motor 2 Error	Front drive value range for error	0 - 7 [A]
Average	Average formation for hiding current spikes	2 - 16
Gliding average formation		
<p>To suppress warning and error messages caused by current spikes, e.g. during the acceleration phase, a value should be specified for the gliding average formation. This parameter specifies the number of values used to determine the average. The smaller the value, the less weight readings near to the average carry. The higher the value, the slower the average follows spikes in the readings.</p>		

NOTICE


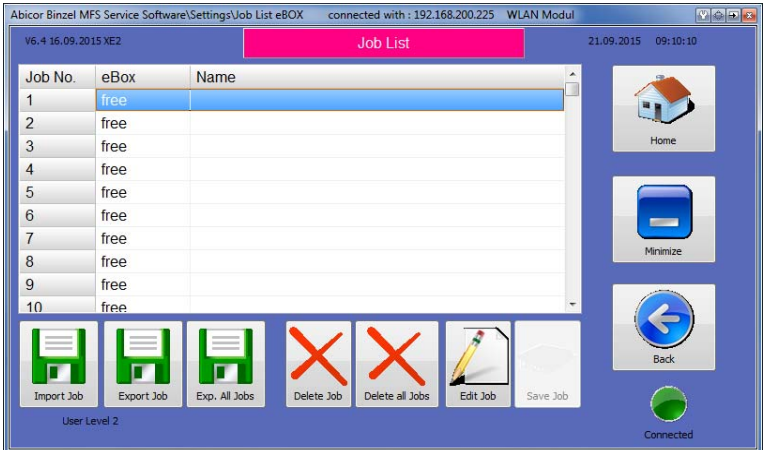
- Ensure that the value for the pre-warning is lower than that for the error.
- All values for motor current monitoring must be calculated and adjusted on the basis of the entire system as each system has different coefficients of friction and therefore different resultant motor currents.

Description	Screenshot
<p>Job number and job description</p> <p>A job number between 1 and 64 is specified in the 'Job No.' field.</p> <p>A job description can be entered in the 'Job Description' field with a maximum of 16 characters.</p>	
<p>Example</p> <p>The job can be saved by clicking the 'Export Job' button.</p>	
<p>The specified file name already contains the job number and description.</p>	

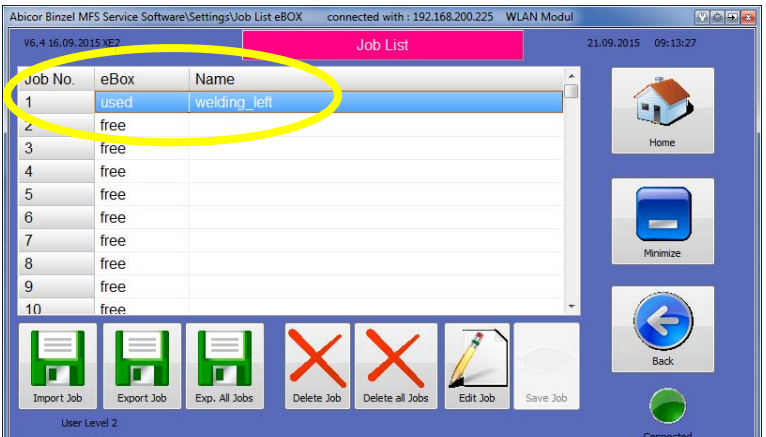
10.4 Job list eBOX settings (MFS-V3 only)

NOTICE

- An active connection to the eBOX is required for these settings.
- ⇒ 9.6 Testing the connection on page EN-18

Description	Screenshot
	
Click the 'Job List eBOX' button to display all of the memory locations for jobs on the eBOX in a list from 1 - 64.	
Import Job	Use the 'Import Job' button to transfer jobs previously created in the job file editor to the eBOX and save them. It is sensible to save the job to the memory location with the same job number as the file name.
Export Job	Use the 'Export Job' button to read and externally save a selected job that has been saved on the eBOX.
Export All Jobs	Use the 'Exp. All Jobs' button to read and externally save all jobs that have been saved on the eBOX.
Delete Job	Use the 'Delete Job' button to delete a selected job that has been saved on the eBOX.
Delete all Jobs	Use the 'Delete All Jobs' button to delete all the jobs that have been saved on the eBOX.
Edit Job	Use the 'Edit Job' button to edit and re-save a selected job that has been saved on the eBOX.


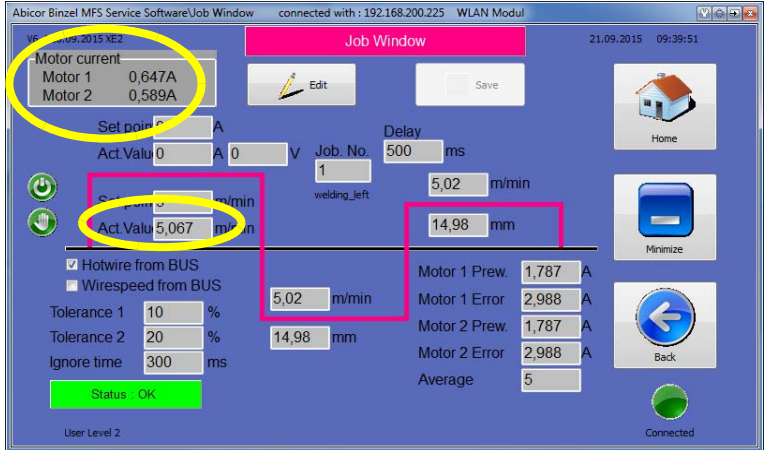




Description	Screenshot
Example: Import Job	
<ul style="list-style-type: none">Click the 'Import Job' button.	
<ul style="list-style-type: none">Select the desired job (multiple selection possible).Click the 'Open File' button.	
<p>A query appears to ask if the job should be saved to the currently selected memory location 0 (Job List eBOX).</p> <p>Yes: the job '1-roof_seam_left.JOB' is saved to memory location 0 on the eBOX (not recommended).</p> <p>No: the job '1-roof_seam_left.JOB' is saved to memory location 1 on the eBOX, as per the job number.</p> <ul style="list-style-type: none">In this case, select No.	

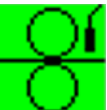


Description	Screenshot																																	
Memory location 1 is then labelled as 'used'.	 <p>The screenshot displays the 'Job List' window of the Abicor Binzel MFS Service Software. The window title bar indicates the software version (V6.4 16.09.2015 XE2) and the connection status (connected with: 192.168.200.225 WLAN Modul). The main area contains a table with the following data:</p> <table><tr><th>Job No.</th><th>eBox</th><th>Name</th></tr><tr><td>1</td><td>used</td><td>welding_left</td></tr><tr><td>2</td><td>free</td><td></td></tr><tr><td>3</td><td>free</td><td></td></tr><tr><td>4</td><td>free</td><td></td></tr><tr><td>5</td><td>free</td><td></td></tr><tr><td>6</td><td>free</td><td></td></tr><tr><td>7</td><td>free</td><td></td></tr><tr><td>8</td><td>free</td><td></td></tr><tr><td>9</td><td>free</td><td></td></tr><tr><td>10</td><td>free</td><td></td></tr></table> <p>The table is highlighted with a yellow circle. Below the table, there are several icons for job management: Import Job, Export Job, Exp. All Jobs, Delete Job, Delete all Jobs, Edit Job, and Save Job. On the right side, there are navigation buttons: Home, Minimize, Back, and a 'Connected' status indicator.</p>	Job No.	eBox	Name	1	used	welding_left	2	free		3	free		4	free		5	free		6	free		7	free		8	free		9	free		10	free	
Job No.	eBox	Name																																
1	used	welding_left																																
2	free																																	
3	free																																	
4	free																																	
5	free																																	
6	free																																	
7	free																																	
8	free																																	
9	free																																	
10	free																																	

10.5 Job window (MFS-V3 only)

NOTICE



- An active connection to the eBOX is required for these settings.
⇒ 9.6 Testing the connection on page EN-18

Description	Screenshot
	
	
<p>All parameters for the currently loaded job are displayed in the job window. The present motor currents and wire actual value are also displayed.</p> <p>The present hot wire values, motor currents and wire actual value are also displayed.</p>	
The status 'red' indicates that no process is currently active.	
The status 'green' indicates that a process is currently active.	
The red hand indicates that the eBOX's key switch is set to Service.	
The green hand indicates that the eBOX's key switch is set to Auto.	

Description	Screenshot
If the wire end sensor has been previously enabled in the device settings, the following icon additionally appears:	
Green indicates that wire is available.	
Red indicates that no wire is available.	
<p>The status field indicates whether the system is ready for operation, is emitting a warning or has an error.</p> <p>All warnings and error messages are described in a later section.</p>	

10.6 Job window edit mode (MFS-V3 only)

NOTICE
<ul style="list-style-type: none">An active connection to the eBOX is required for these settings. ⇒ 9.6 Testing the connection on page EN-18

Description	Screenshot
	
In user level 2 mode, the 'Edit/View' button can be used to switch between the view only and edit modes in order to change parameters. This can also be done while a process is running. The change can only be saved while there is no process running. To do this, click 'Save'.	

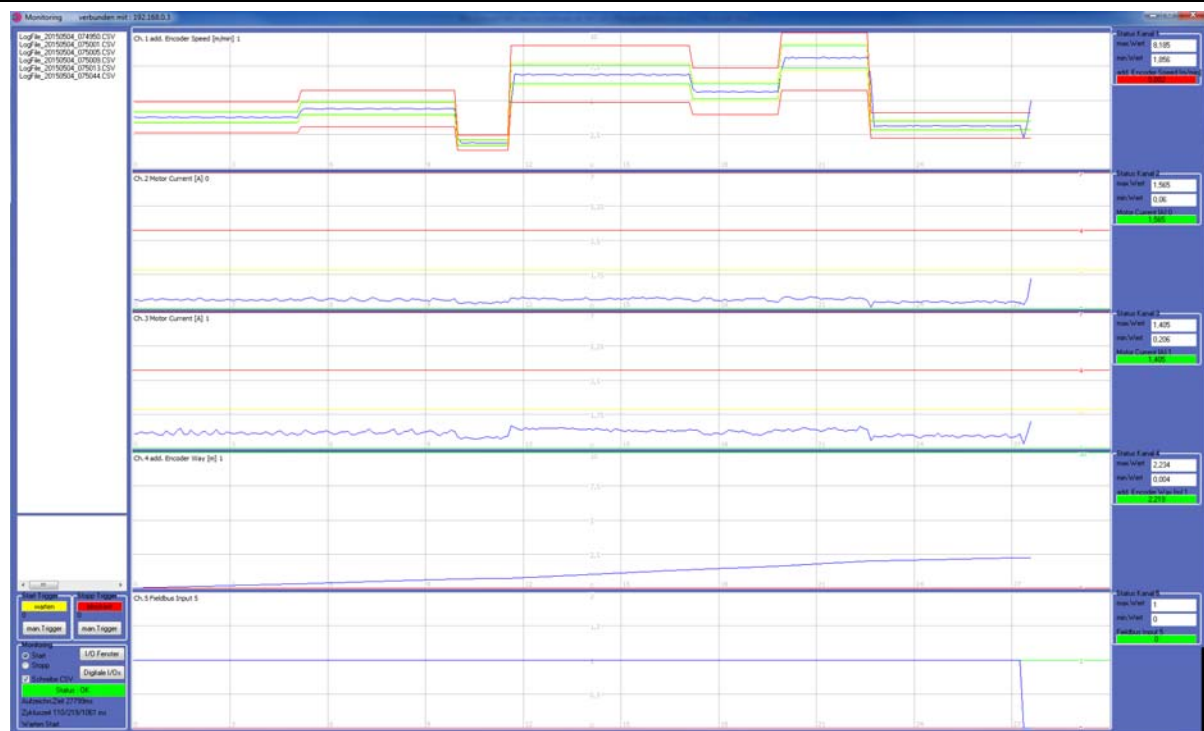
11 Monitoring mode

NOTICE

- An active connection to the eBOX is required for these settings.
- ⇒ 9.6 Testing the connection on page EN-18

Description	Screenshot

Example

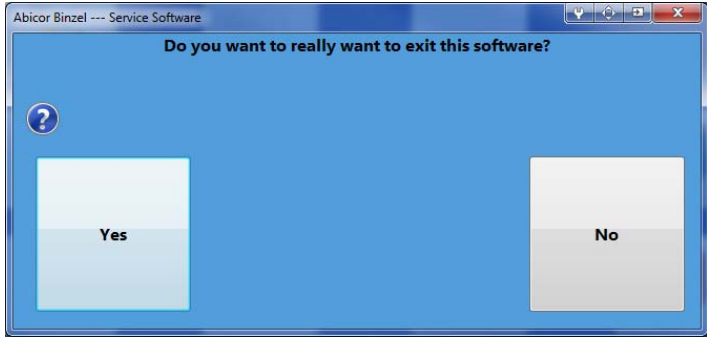
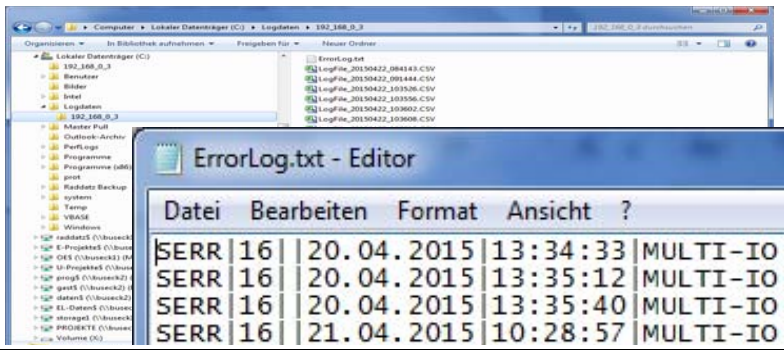


Channel 1	Wire actual value
Channel 2	Motor current rear drive
Channel 3	Motor current front drive
Channel 4	Used data volume
Channel 5	Start signal

The Monitoring window is divided into several sections.

Top left	History list of the log files. These are stored here successively and can be loaded for viewing by double-clicking them. All log files are stored as CSV files at the path specified in the settings.
Centre left	History list of the warnings and errors. These are stored here successively and can be viewed more closely or removed from the list by right-clicking them. All messages are permanently stored in an 'ErrorLog.txt' file at the specified log path. If the list is cleared in the Monitoring window, this is entered in the 'ErrorLog.txt' file using the entry 'ACK' plus a time stamp.
Bottom left	Status indicator for the start/stop trigger, start/stop visualisation, recording/cycle time and warning and error statuses.
Middle	Time diagram for displaying the channels. Up to 8 channels can be included.

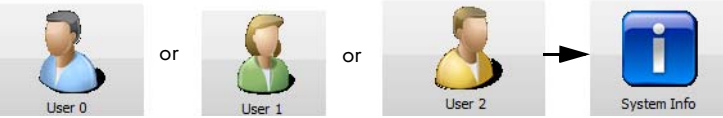
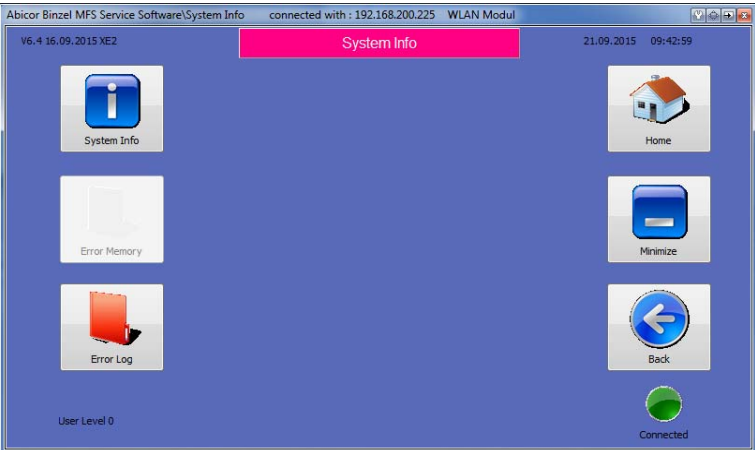
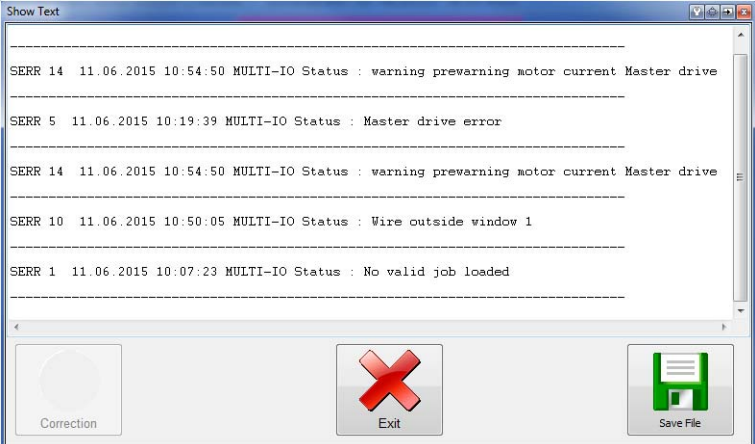
11.1 Closing the Monitoring window

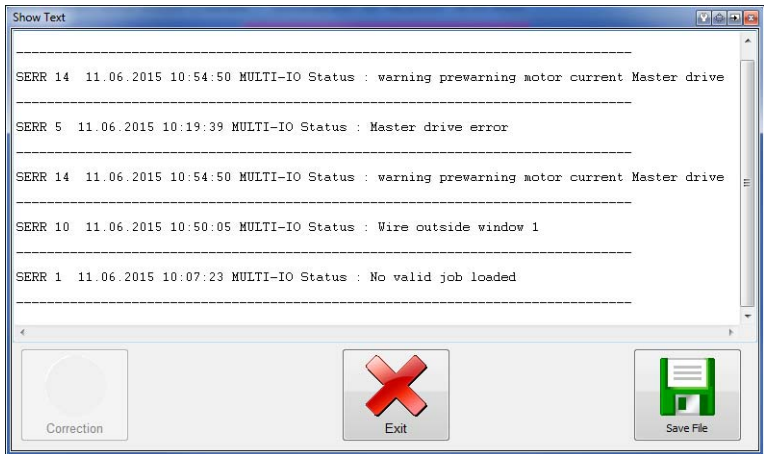
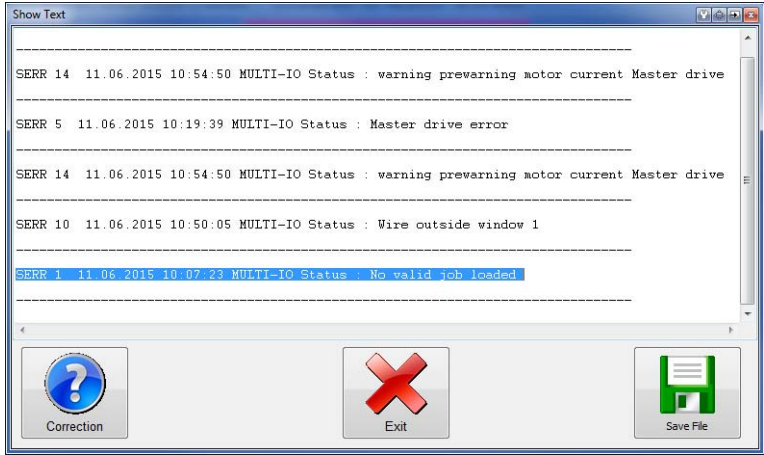
Description	Screenshot																														
The Monitoring window can be minimised at the top right or closed completely by clicking the Monitoring window itself.																															
Example for log data																															
All entries are given a date and a time stamp.	 <table><tr><th></th><th>Datei</th><th>Bearbeiten</th><th>Format</th><th>Ansicht</th><th>?</th></tr><tr><td>SERR</td><td>16</td><td>20.04.2015</td><td>13:34:33</td><td>MULTI-IO</td><td></td></tr><tr><td>SERR</td><td>16</td><td>20.04.2015</td><td>13:35:12</td><td>MULTI-IO</td><td></td></tr><tr><td>SERR</td><td>16</td><td>20.04.2015</td><td>13:35:40</td><td>MULTI-IO</td><td></td></tr><tr><td>SERR</td><td>16</td><td>21.04.2015</td><td>10:28:57</td><td>MULTI-IO</td><td></td></tr></table>		Datei	Bearbeiten	Format	Ansicht	?	SERR	16	20.04.2015	13:34:33	MULTI-IO		SERR	16	20.04.2015	13:35:12	MULTI-IO		SERR	16	20.04.2015	13:35:40	MULTI-IO		SERR	16	21.04.2015	10:28:57	MULTI-IO	
	Datei	Bearbeiten	Format	Ansicht	?																										
SERR	16	20.04.2015	13:34:33	MULTI-IO																											
SERR	16	20.04.2015	13:35:12	MULTI-IO																											
SERR	16	20.04.2015	13:35:40	MULTI-IO																											
SERR	16	21.04.2015	10:28:57	MULTI-IO																											

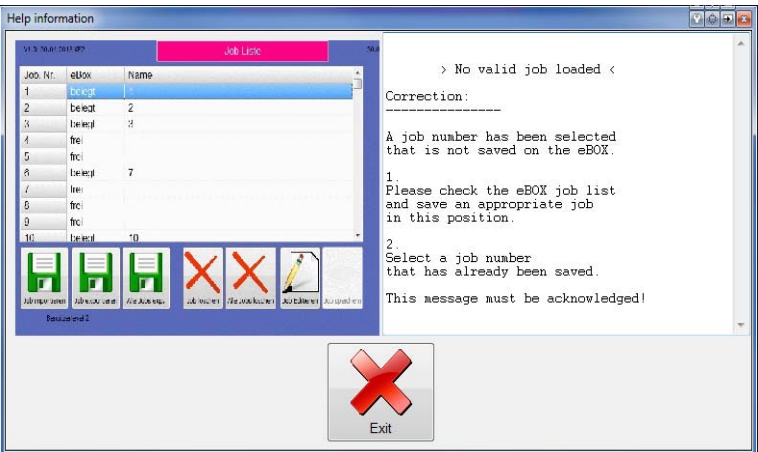
12 System Information

NOTICE

- An active connection to the eBOX is required for these settings.
- ⇒ 9.6 Testing the connection on page EN-18


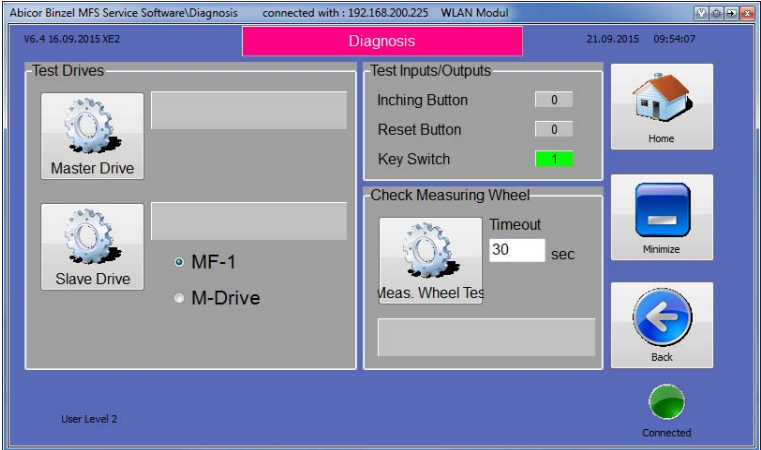
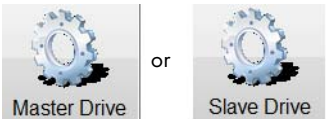
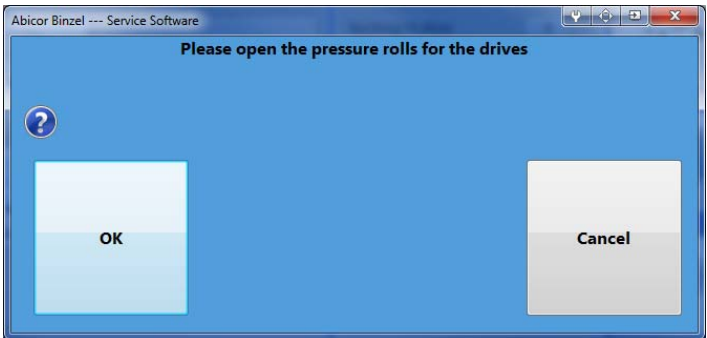
Description	Screenshot
<p>Click the 'System Info' button to view the eBOX's current configuration.</p> <p>The 'Error Memory' button is only visible in user level 2 mode and is for servicing work by Abicor Binzel.</p> <p>Click the 'Error Log' button to view the content of the 'ErrorLog.txt' file located in the log path.</p>	 
Example	
	

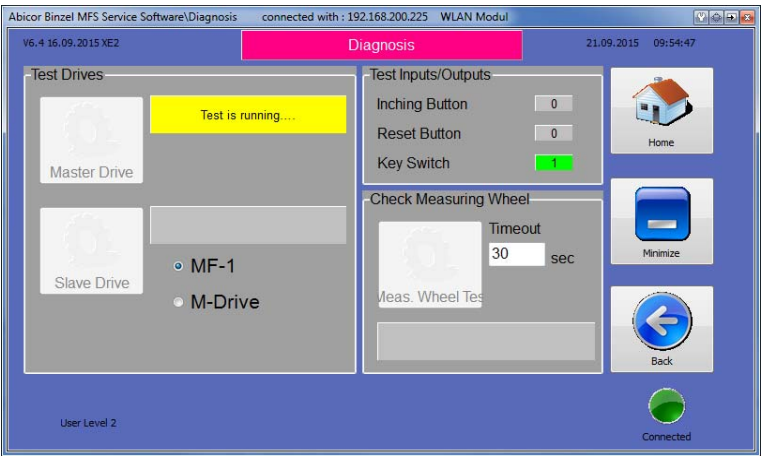
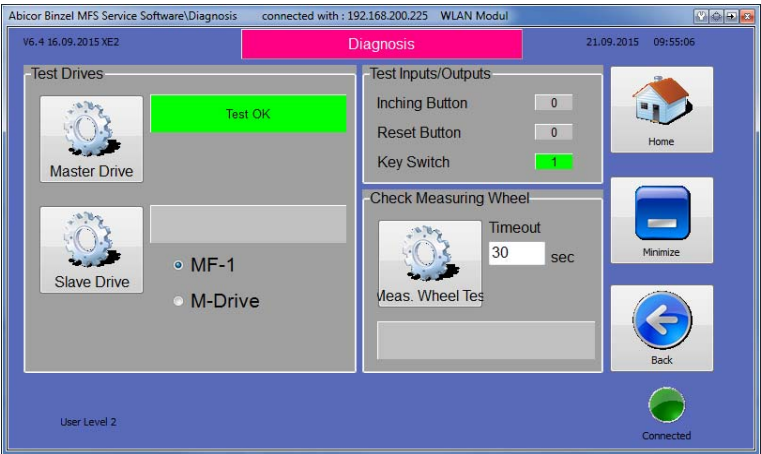
Description	Screenshot
System information	
Slave Type	Main printed circuit board multi-IO (here MFS-V3), address, IP address
TCP Connected	TCP connection enabled
Firmware MultiIO	Firmware status of the main printed circuit board
Firmware MultiIO-ADDA	Firmware status of the internal ADDA controller
Firmware MIOACHSCO	Firmware status of the axis controller printed circuit board
Stand-Alone Software	Currently loaded user program
Mapping File	Currently loaded bus mapping
System RTC	Current system time
Working counter	Current number of operating hours
Anybus-Module	Currently installed field bus module
The system information can be exported as a text file by clicking 'Save File'.	
Example of an error log	
<p>The error log displays all previous warning, nonconformity and error messages.</p> <p>The error log can be exported as a text file by clicking 'Save File'.</p>	
<p>Correction information can be displayed.</p> <p>To view this, select the applicable error entry and then click the 'Correction' button.</p>	

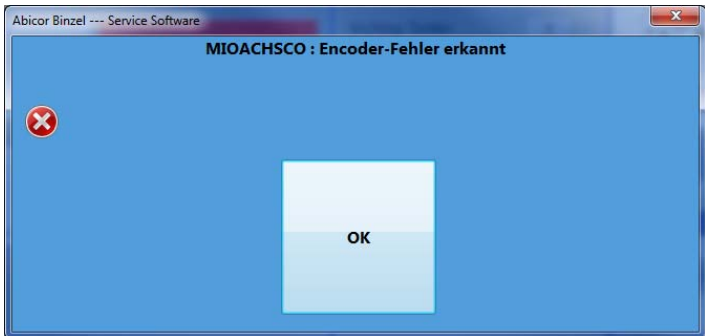
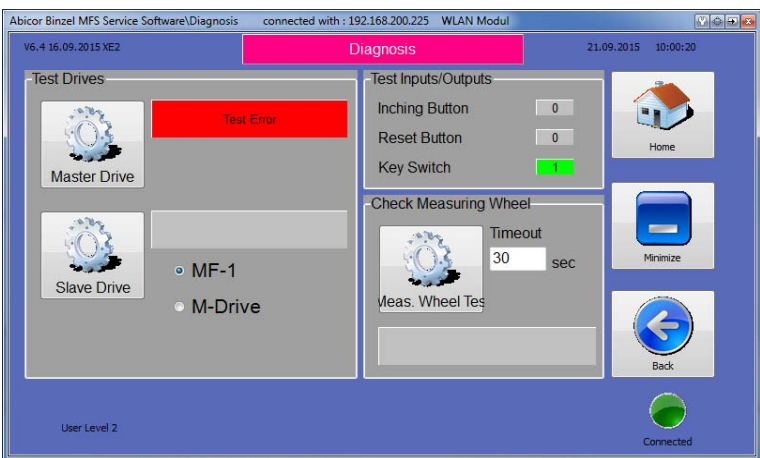
Description	Screenshot
<p>A window opens with descriptions of how to correct the error and an appropriate photo.</p> <p>Click to zoom in on the photo or to close it again.</p>	 <p>Help information</p> <p>> No valid job loaded <</p> <p>Correction:</p> <p>A job number has been selected that is not saved on the eBOX.</p> <p>1. Please check the eBOX job list and save an appropriate job in this position.</p> <p>2. Select a job number that has already been saved.</p> <p>This message must be acknowledged!</p> <p>Exit</p>

13 Diagnosis

NOTICE
<ul style="list-style-type: none">An active connection to the eBOX is required for these settings. ⇒ 9.6 Testing the connection on page EN-18

Description	Screenshot
	
<p>The diagnosis mode can be used to check if the drives, wire actual value encoder, inching button, reset button and key switch are functioning correctly.</p> <p>The functional checks can only be selected in diagnosis mode if there is no active process.</p> <p>Furthermore, it is not possible to conduct a process start while diagnosis mode is enabled; the system reports 'System not ready'.</p>	
Testing drives	
	
<ul style="list-style-type: none">With the wire inserted, open the rocker arms on the pressure rolls on the drive!	


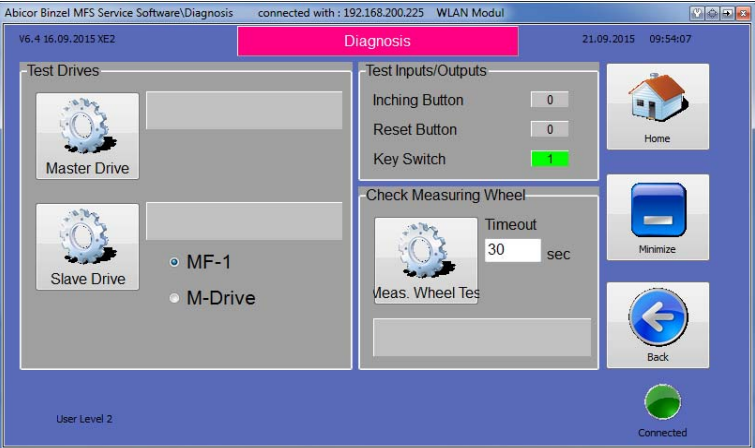
Description	Screenshot
<p>The test run starts. The drive moves forwards at a predefined speed for approx. 6 seconds. During this time, a check is conducted to see if the drives' control encoder increments are correct. (Target/actual comparison)</p>	 <p>The screenshot shows the 'Diagnosis' window of the Abicor Binzel MFS Service Software. The window title is 'Abicor Binzel MFS Service Software\Diagnosis' and it shows it is connected to '192.168.200.225 WLAN Modul'. The version is 'V6.4 16.09.2015 XE2' and the date/time is '21.09.2015 09:54:47'. The 'Test Drives' section shows 'Master Drive' and 'Slave Drive' with a 'Test is running ...' message. The 'Test Inputs/Outputs' section shows 'Inching Button' (0), 'Reset Button' (0), and 'Key Switch' (green). The 'Check Measuring Wheel' section shows a 'Timeout' of 30 sec and 'Meas. Wheel Test'. The 'User Level 2' is indicated at the bottom left, and 'Connected' is shown at the bottom right.</p>
<p>At the end of a successful test run, the message 'Test OK' appears.</p> <p>When running a test on the rear slave drive, it is also possible to choose whether this is an MF1 drive or an M-Drive. This setting should be accurate as different drive parameters are used for the different drives.</p>	 <p>The screenshot shows the 'Diagnosis' window after a successful test run. The 'Test Drives' section now shows 'Test OK' in green. The 'Test Inputs/Outputs' section remains the same. The 'Check Measuring Wheel' section shows a 'Timeout' of 30 sec and 'Meas. Wheel Test'. The 'User Level 2' is indicated at the bottom left, and 'Connected' is shown at the bottom right.</p>

Description	Screenshot
Testing drives in the event of nonconformities	
<p>This message is displayed if a test is unsuccessful.</p>	
Possible causes	
Control lead not connected	Drive's encoder defective
Motor current too high ($> 7\text{ A}$)	Control lead defective
Drive mechanically blocked	Motor/encoder signals lost along the entire signal flow
Drive motor defective	Connector in the eBOX not correctly inserted
eBOX axis controller printed circuit board faulty	
<p>At the end of an unsuccessful test run, the message 'Test Error' appears.</p>	

13.1 Checking the measuring wheel

NOTICE

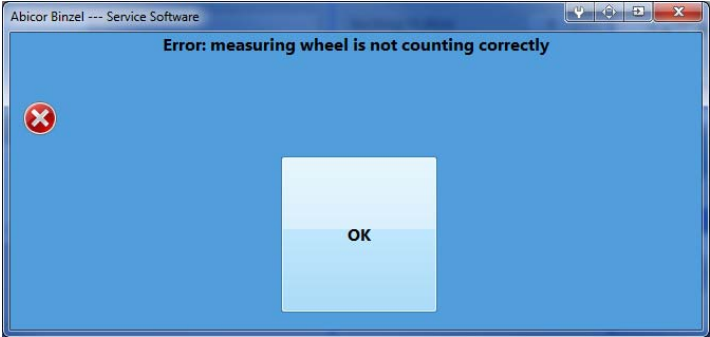
- Use two people to conduct this test.

Description	Screenshot
<p>The measuring wheel test checks if the wire actual value encoder is functioning correctly.</p>	 <p>Meas. Wheel Test</p>
<p>This is the additional encoder on the front MF1 drive. This additional encoder has no influence on regulating the system speed. The wire actual value encoder transmits the wire speed actually measured on the wire.</p> <p>As the wire actual value encoder is generally mounted on the front drive in a position near the process, in the case of a system installed in the welding cell, it is useful to set a timeout period that gives the user enough time to manually move the measuring roll on the front drive after starting the test. If the measuring roll is not moved as intended in the specified period, the diagnosis software reports a nonconformity.</p>	

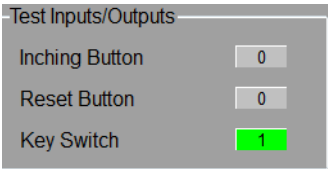
13.2 Workflow

Description	Screenshot
<ul style="list-style-type: none">Set a timeout period.Start the test.	
<ul style="list-style-type: none">Manually turn the measuring wheel clockwise.The expired timeout period is displayed.Turn the measuring wheel anticlockwise.	
The test has been successfully completed within the timeout period.	

Description	Screenshot
Possible causes	
Control lead not connected	Control lead defective
Signals lost along the entire signal flow	Switch/button faulty
Connector in the eBOX not correctly inserted	eBOX multibus IO printed circuit board faulty

Description	Screenshot
Check the measuring wheel in the event of a nonconformity	
This message is displayed if a test is unsuccessful.	

Possible causes	
Measuring wheel not moved within the timeout period	Control lead not connected
Control lead defective	Actual value encoder signals lost along the entire signal flow
Actual value encoder defective	Connector in the eBOX not correctly inserted
eBOX multibus IO printed circuit board faulty	

Testing the inputs/outputs	
By pressing or switching the applicable elements, the correct function is displayed through incremental values and signalling. If the test is not successful, no green status indicator appears.	

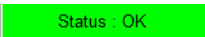
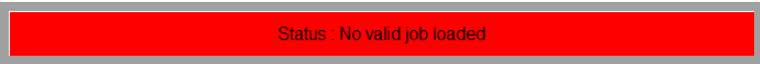


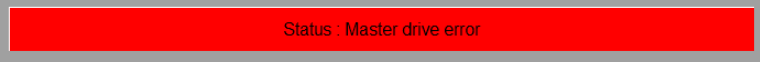
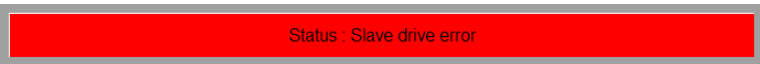
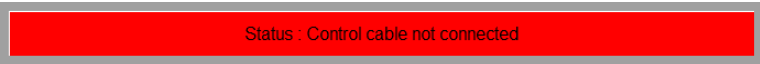

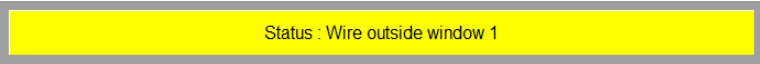
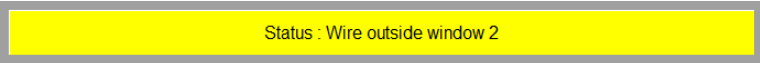
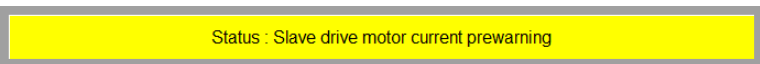
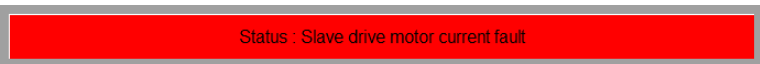
Possible causes	
Control lead not connected	Control lead defective
Signals lost along the entire signal flow	Switch/button faulty
Connector in the eBOX not correctly inserted	eBOX multibus IO printed circuit board faulty


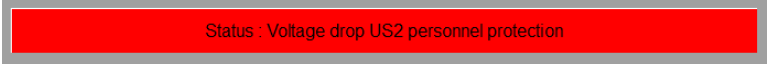
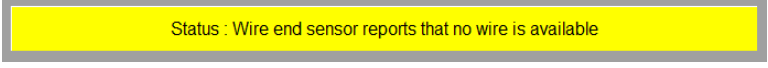
14 Warnings and error messages (status)

Description	Screenshot
Presentation of the messages	
All warnings and error messages are only logged and displayed in the case of active communication and an active 'Job Window' or 'Monitoring Window'.	
The visual indication is provided by means of a banner located above the 'Job Window' or 'Monitoring Window'.	
Warnings are indicated in yellow.	Error messages are indicated in red.

Example of a job warning window	











Example of an error in the Monitoring window	


Description	Screenshot
Presentation of the messages	
All warnings and error messages are only logged and displayed in the case of active communication and an active 'Job Window' or 'Monitoring Window'.	
The visual indication is provided by means of a banner located above the 'Job Window' or 'Monitoring Window'.	
- Warnings are indicated in yellow.	- Error messages are indicated in red.
Message list	
Depending on the system configuration, the following warnings and error messages can occur.	
There is no nonconformity and the system is ready for operation.	
The eBOX reports that the selected job does not exist. A job is classed as valid as soon as it has been stored on the eBOX regardless of the parameter values. As soon as a job memory location is deleted on the eBOX, the memory location is classed as invalid.	
The key switch on the eBOX was switched from 'Auto' to 'Service' during the active process.	
The process was started despite the key switch on the eBOX being set to 'Service'.	
The M-Drive's protection cover is not closed on systems with an M-Drive.	
The motor output stage for the master drive is reporting an error due to an excess current or the overheating of the motor output stage.	
The motor output stage for the slave drive is reporting an error due to an excess current or the overheating of the motor output stage.	
The fact that the control lead for the drive is not properly connected to the eBOX is reported on systems without an M-Drive.	
The process was started without a defined system mode (see bit pattern for the operating mode).	
The wire actual value is outside the specified permissible deviation in window 1.	
The wire actual value is outside the specified permissible deviation in window 2.	
The rear drive's motor current exceeds the value specified for the pre-warning in the job.	
The rear drive's motor current exceeds the value specified for the error in the job. The system switches off with an error message.	
The front drive's motor current exceeds the value specified for the pre-warning in the job.	


Description	Screenshot
The front drive's motor current exceeds the value specified for the error in the job. The system switches off with an error message.	
The system reports a drop in the external US2 voltage (protective door open). Only for AIDA-compliant systems.	
The system reports that no wire is available while the wire end sensor is enabled.	

15 Releasing the user levels and rights

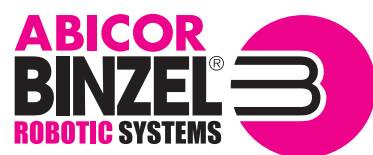
All entries with the following sign require active communication with the eBOX.

Description	Screenshot
All entries with this sign require active communication with the eBOX.	
User level 0	
Options at this level	
	<ul style="list-style-type: none"> — Load Log File — User Login — Connect/Disconnect Communication — System Information  <ul style="list-style-type: none"> — System Information  — Error Log  — Monitoring  — Signal Status In/Out  <ul style="list-style-type: none"> — IO Display  — Digital Display  — Job Window without edit function (MFS-V3 only) 

Description	Screenshot
User level 1	
Options at this level	
	<ul style="list-style-type: none"> — Load Log File — User Login — Connect/Disconnect Communication — Settings <ul style="list-style-type: none"> — System <ul style="list-style-type: none"> — Language <ul style="list-style-type: none"> — System Language Settings — Monitoring <ul style="list-style-type: none"> — Channel Visualisation (setup files can only be loaded) — Start/Stop Trigger (setup files can only be loaded) — Drive, Gear Reduction, Encoder, Meas. Wheel (setup files can only be loaded) — Job List eBOX without edit function (MFS-V3 only) ↔ — Service Intervals without edit function (MFS-V3 only) ↔ — Job File Editor (jobs can be created with the import and export function) — Signal description IO and Dig. IO (setup files can only be loaded) — System Information ↔ — System Information ↔ — Error Log ↔ — Diagnosis ↔ — Monitoring ↔ — Signal Status In/Out ↔ — IO Display ↔ — Dig. IO Display ↔ — Job Window without edit function (MFS-V3 only) ↔

Description	Screenshot
User level 2	 <p>User 2</p>
Options at this level	
	<ul style="list-style-type: none"> — Load Log File — User Login — Connect/Disconnect Communication — Settings <ul style="list-style-type: none"> — System <ul style="list-style-type: none"> — Language — System Language Settings — Date Time — IP address ↔ — Device Type <ul style="list-style-type: none"> — Device Setup ↔ — Connection Type — Job List eBOX with import, export and edit functions (MFS-V3 only) ↔ — Service Intervals with edit function (MFS-V3 only) ↔ — Monitoring <ul style="list-style-type: none"> — Channel Visualisation (setup files can be created, loaded and saved) — Start/Stop Trigger (setup files can be created, loaded and saved) — Drive, Gear Reduction, Encoder, Meas. Wheel (setup files can be created, loaded and saved) — Log File Path (select memory location for log data) — Job File Editor (jobs can be created with the import and export function) — Signal description IO and Dig. IO (setup files can be created, loaded and saved) — System Information ↔ <ul style="list-style-type: none"> — System Information ↔ — Error Log ↔ — Diagnosis ↔ — Monitoring ↔ — Signal Status In/Out ↔ <ul style="list-style-type: none"> — IO Display ↔ — Dig. IO Display ↔ — Job Window with edit function (MFS-V3 only) ↔

Notes



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