User Manual

SensorX 502 System

Document Number: 150612ENG-9
Revision:
Language: ENG
Date: 24 September 2020
Machine Code: GR6522, GR6534

Marel Iceland ehf
Austurhraun 9
IS-210 Gardabaer
Iceland
+354 563 8000
www.marel.com

This user manual is the original English language instructions.

Change history

Version	Release date	Changes
2		New version.
2	12. June 2015	Machine code added, revised numbers for the conveyor belt.
2	3. December 2015	New numbers in the parts list.
2	22. January 2016	Added accessories chapter for incline/decline unit for SmartSort. Also new images in the Introduction and the Safety Instruction chapters.
2	18. February 2016	New electrical drawings.
2	17. March 2016	New electrical drawings.
2	6. June 2016	New electrical drawings.
2	22. March 2017	New electrical drawings.
2	29. 6. June 2016	Extensive updates, new images and part numbers. Changes in the text.
2	22. March 2017	New electrical drawings.
2	17. May 2019	New numbers in the parts list.
2	8. July 2020	Parts lists removed.
	24. September 2020	New electrical drawings.

For more information about Marel and our products, go to www.marel.com.

STANDARD SAFETY AND WARNING NOTICE FOR ALL MAREL EQUIPMENT

All persons involved in the use and/or installation of this machinery should be aware of the following instructions.
Failure to follow these instructions or other safety instructions in the manual voids all warranties and may result in malfunction of the machinery, property damage, serious personal injury, or death.

WARNING

The installation and use of this product must comply with all applicable national, state, and local codes.
Turn the electrical power off when working on the machinery. Turn the main electrical breaker, located on the electrical cabinet, to the OFF position and lock the breaker with a padlock.
Electrical installations and repairs must be performed by a licensed electrician, in accordance with manufacturer's specifications and national and local electrical codes.
Operating the machinery without the supplied guards or covers installed is a misuse of the machinery and can cause a personal hazard.

Do Not
work on any moving parts of the machinery, such as belts, motors, belt tension adjusters, or rollers, without first disconnecting the electrical power and closing the main air supply valve. Otherwise, a serious personal injury or death may result.

Do Not
work on electrical or air cabinets without first disconnecting the electrical power, or a serious personal injury or death may result.

Do Not
make any changes to the emergency stop buttons.

Additional Safety Information
- Keep long hair tied back and covered.
- Avoid wearing loose clothing, jewelry, or accessories near moving machine parts. This includes ties, shirtsleeves, rings, watches, and other loose fitting items.
- Disengage the machinery to avoid moving parts when cleaning and lubricating bearings.
- Avoid moving parts when lubricating with hand-sprayed lubricants.
- Never work without another person in the vicinity.
- Wear safety glasses when doing the following:
  - using a hammer to drive pins, riveting, staking, etc.
  - drilling, grinding, etc.
  - using spring hooks or attached springs.
  - soldering, cutting wire, removing steel bands, etc.
  - cleaning parts with solvents, spray, or cleaners.
- After cleaning or maintenance, reinstall all safety devices such as guards, shields, signs, and grounding wires.
- Wear ear protection when exposed to noise exceeding 90 dB, such as when using a grinder, band saw or hammer.
- Lift items with a straight back, and push up with your leg muscles, to prevent back strain. Do not lift any equipment or parts weighing more than 30 kg (60 lb.) without assistance.
- Use only FDA or USDA approved solvents, grease or oils.

Contents

Introduction

About This Manual

The *SensorX 502 System,User Manual* is intended to assist you in operating and maintaining the Marel SensorX 502 System.

SensorX 502 System are only sold and used in combination with SensorX, the Marel X-ray product inspection machine.

The manual is divided into the following main chapters:

- Introduction
- Installation
- Safety Instructions
- Operation
- Maintenance
- Cleaning
- Parts Lists – mechanical parts lists
- Electrical diagrams

	REMARK
	Before you start working on your SensorX 502 System, make sure you read and understand the warnings and the warranty agreement.

	REMARK
	Images may differ slightly from customer's end product.

Improvements and Customer Support

You can help improve this manual and the equipment you purchased. If you find errors in the manual, please let us know. You can contact us at: Marel Iceland ehf, Austurhraun 9, IS-210 Gardabaer, Iceland; phone (+354) 563-8000, fax (+354) 563-8001, attn. Documentation & Localization, email: documentation@marel.com.

For customer support please contact your local Marel service partner.
For details see www.marel.com or Marel's Service Department, email: service@marel.com.

Warranty Information

For specific warranty information, please consult the written contract of the purchase.

	NOTICE
	Marel Iceland ehf does not warrant any equipment that has not been used according to specifications.

About the SensorX 502 System

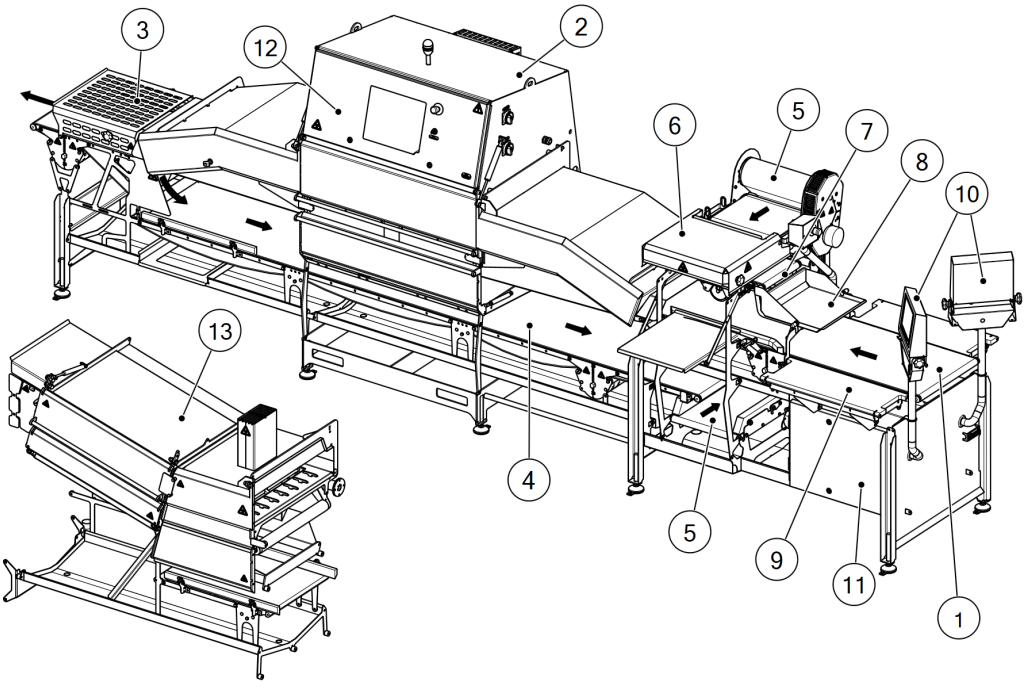


Figure 1 SensorX 502 system

Table 1 SensorX 502

1	Infeed conveyor	**8**	Product tray
2	SensorX X-ray inspection unit	**9**	Rework Station
3	Outfeed conveyor and reject	**10**	Rework terminal (optional)
4	Return conveyor	**11**	Electrical cabinet for the system

5	Elevating conveyor	**12**	Electrical cabinet inside the X-ray inspection unit
6	Overflow conveyor (optional)	**13**	SmartSort connection module (accessories)
7	Product tray conveyor		

Main Features and Naming Conventions

The SensorX 502 system consists of a number of standard modules which are combined with the SensorX 502 machine. Table 2 shows an overview of these modules. See also Figure 1 and Table 1 for reference.

Table 2 Main features

Module:		**Definition:**
4	Return conveyor	The conveyor underneath the SensorX machine which brings rejected material back to the infeed.
5	Elevating conveyor	Transfers material from the return conveyor up to the product bin on the rework station.
9	Rework station	Where operators remove bones from the product.
10	Rework terminal	Also called **QC terminal** or **QC station**. Part of the rework station in some configurations.
1	Infeed conveyor	The conveyor which brings the product to the SensorX machine.
6	Overflow	If products have accumulated at the rework station, the module directs the overflow out through the overflow gate.

Operation

1. The operator or a infeed system feeds product on the infeed conveyor.
2. SensorX scans the product for bone and other hard contaminants.
3. The contaminant free products are then transported to the outfeed conveyor from where it goes to further processing.
   If a contaminant is detected or the product is partially outside the scan area, then the product is rejected with the reject mechanism.
4. The rejected product then travels on the return conveyor to the elevating conveyor and then to the rework station, which is located on the infeed side of the SensorX inspection unit.
5. After the contaminant has been removed at the rework station, the product is sent back to the infeed conveyor to be scanned a second time by the SensorX. This is to verify that the operator succeeded in removing the contaminant.

About SensorX X-ray Inspection Unit

SensorX x-ray inpection unit uses X-ray technology to automatically detect foreign bodies in food products, and measure CL and weight.

When the SensorX x-ray inspection unit is installed, as part of a processing line, X-ray images of individual pieces and information on their bone content may be forwarded to a separate flowline.

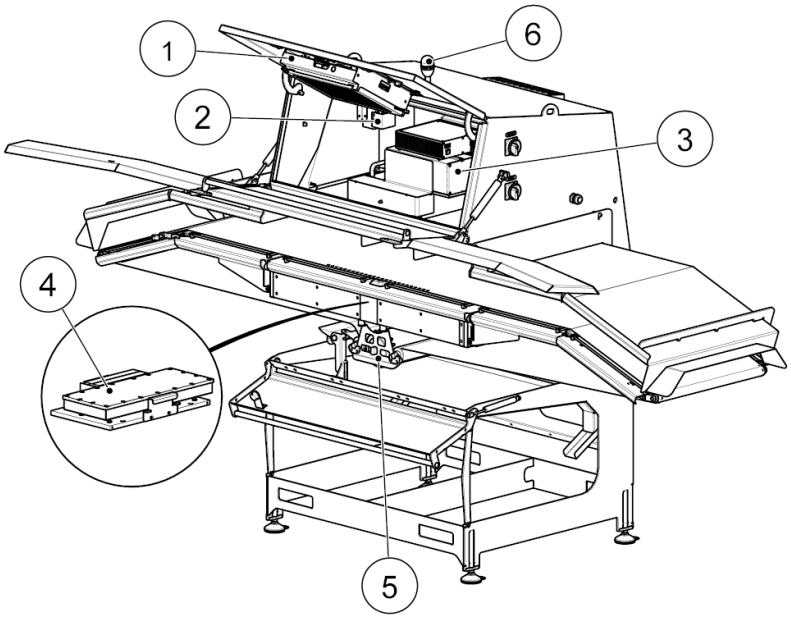


Figure 2 SensorX x-ray inspection unit

Table 3 SensorX x-ray inspection unit main parts

1	Front panel with computer	**4**	X-ray detector
2	Dehumidification unit	**5**	Motor
3	X-ray generator assembly	**6**	X-ray notification light (on the indicator beacon)

Technical Specifications

Table 4 Technical data for the SensorX 502 System

Belt speed	0.46 m/sec (102 feet/minute) for infeed and outfeed conveyors. Other conveyors may have slower speed settings depending on operational mode.
Power supply voltage	3×400V + N + PE or 3×(208-230V) + PE
Power usage	See rating plate

Frequency	50/60 Hz
Residual current circuit breaker	Type B, 500 mA
Dimensions	Variable × 1080 mm × 1930 mm (L x W x H) (Variable x 43 in x 76 in)
Belt width/length **Infeed belt** **Outfeed belt** **Return belt** **Elevating belt** **X-Ray belt**	 Width 508 mm (20 in), length 5.6 m (220 in) Width 2 x 254 mm (2 x 10 in), length 2 m (79 in) Width 508 mm (20 in) length 7.5 m (296 in) Width 406 mm (16 in) length 6.8 m (268 in) Width 590 mm (20 in) length 6.4 m (252 in)
Weight	Approx. 700 kg (1544 lbs)
Noise level	<75 dB (A)
X-ray potential	80kV
X-ray current	10mA
X-ray duty cycle	100%
Belt speed **Infeed belt**	 0.05 – 0,2 m/s (10- 39,4 ft/min)
Power supply voltage	Single phase 230 Vac + N + PE or 3×400V + N + PE or 3×(208-230V) + PE
Power usage	1.1 Kw
Frequency	50/60 Hz
Operating Temperature	0 – 20° C (32°F – 68°F)
Dimensions	5720 mm × 1270 mm ×1780 mm (L x W x H) (225 1/4 in x 50 in x 70 1/8 in)
Belt width	Infeed belt 457mm (18 in) Outfeed belt 590 mm (23 in)
Belt type/length **Infeed Belt** **Outfeed Belt**	 L=10600 mm L= 6785 mm
Weight	Approx. 840 kg (1330 lb)
Noise level	<75dB(A)

Transportation and Handling

Read the following transportation and handling instructions before you attempt to lift or transport the equipment. If you fail to follow these instructions, lifting or transporting the equipment may cause death or major personal injury, or serious damage to the SensorX 502.

- Observe the mass of the SensorX 502 before lifting or moving the equipment. The mass is stated on the rating plate which is located to the left of the electrical cabinet.
- If you use a forklift **3** or pallet jack **1** (Figure 3) for transportation, you should place logs **2** or other material on top of the forks in order to prevent corrosive scratches on the structural member. Always lift under the central construction.
- It is recommended to secure the SensorX on a forklift **3** when transporting the machine to a position on a higher level, To secure the machine on the forklift **3**, use the designated transportation holes **4** (Figure 3).
- Remove the transportation bracket after installation.

	REMARK
	Never transport the machine with the X-ray generator installed.

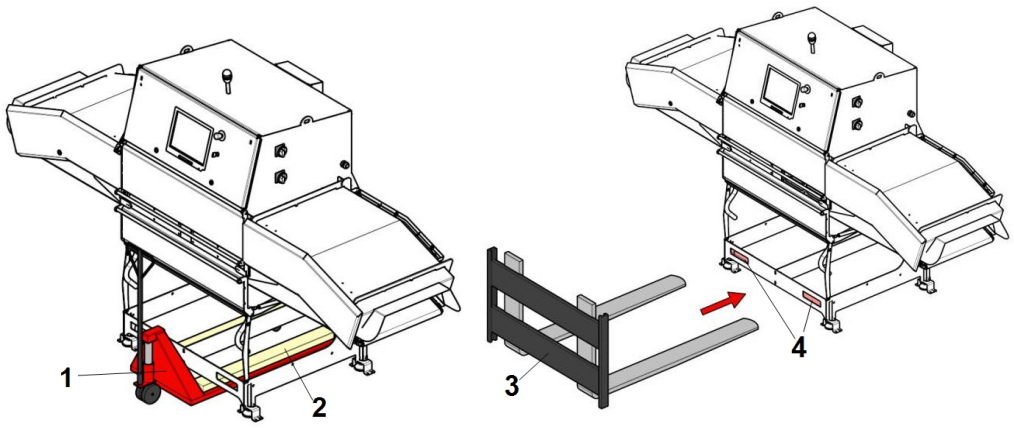


Figure 3 Transporting the SensorX with a pallet jack and forklift

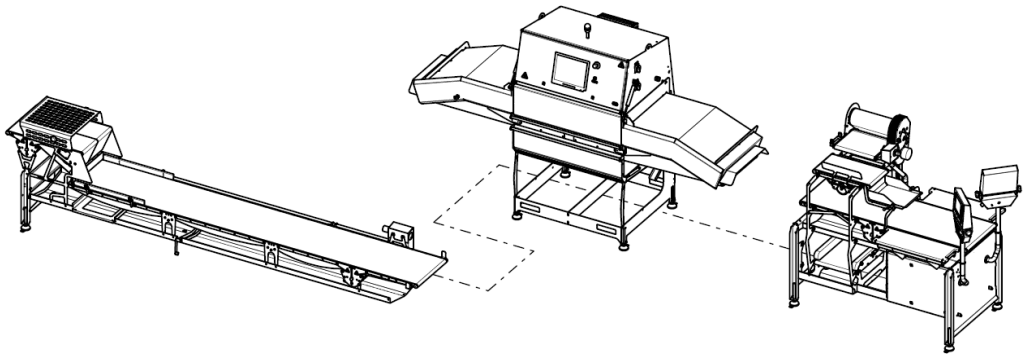


Figure 4 Transporting the SensorX 502

Installation

Site Requirements

The location of the SensorX 502 is decided upon by the buyer and Marel, the following points are important when choosing proper location for the system:

- **Floor:** The SensorX 502 should be placed on an even and stable surface and bolted to the floor.
- **Environment:** The SensorX 502 should not be placed near doorways or where there is a traffic of people passing. Neither should the system be placed where there is draught, e.g. from a ceiling fan or in an environment where there are vibrations.
- **Accessibility:** There should be enough space around the system for easy cleaning and maintenance.
- **Temperature:** The room temperature must not get below 4 °C (39 °F)0° C (32° F).
- **Electricity:** 3 x 400V + N + PE or 3 x 208V - 230V + PE power supply must be available.
- **Air:** The air must be clean and dry and the local air pressure for the factory must be minimum 7 bar. For more details see " Pneumatic Installations" on page 11.
- **Ethernet:** Ethernet connection is necessary, for example for remote service support.

Verifying the Equipment

Before you install the SensorX 502, verify the following:

- Inspect the equipment for damages incurred during shipment, such as scratches or dents. If the equipment has been damaged, do not operate because of potential X-ray hazard. Report damages immediately to Marel or your local Marel representative to have our technical personnel attend to the problem.
- Compare the equipment you have received to the packing list to see if the shipment is complete. Report any discrepancies to your Marel agent.

Installing the SensorX 502

1. Position the SensorX 502 and other auxiliary equipment according to floor plans.
2. Adjust all legs under the modules so the system is level, length- and width-wise and to ensure a smooth transfer of raw material from the infeed unit to the SensorX 502.

	NOTICE
	Do not weld near the SensorX 502 System. If welding needs to be done, then it must be done by Marel personnel or under their instructions.

3. Drill holes for the floor rods **2** that keep the SensorX 502 in place Figure 5.
   If you are installing other units attached to the SensorX 502, position these as well and drill holes for the rods.

	NOTICE
	The customer is responsible that the SensorX 502 is securely fastened to the floor.

4. Tighten the nut to the floor rod.

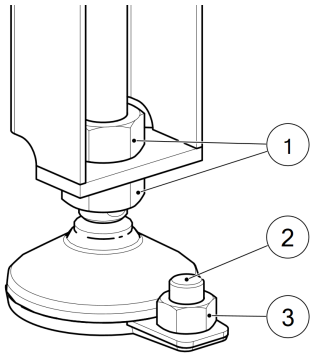


Figure 5 Floor leg

1	Nuts	2	Floor rod	2	Nut

5. Connect electrical, air. **1**, and water **2** supplies ().

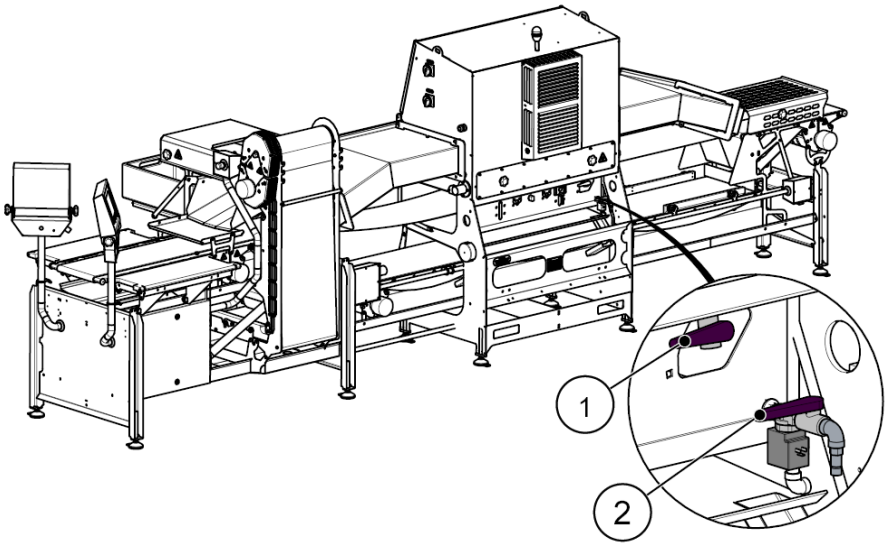


Figure 6 Air 1 and water 2 intake

Electrical Installations

The SensorX 502 uses a 3-phase electrical supply:

- 3 x 400V + N + PE
- 3 x 208V - 230V + PE

The mains is to be terminated in the electrical cabinet. Refer to the Technical Reference Manual. The mains rating is listed on the rating plate on the electrical cabinets.

	NOTICE
	Make sure the motors turn the belt in the right direction after installation. If not, you must reverse the motors by changing the three-phase connection.

Make sure to run the that cables so they do not affect the function of the SensorX 502 or disturb workers on the line. Cables must never induce danger, electrical or mechanical, to the workers.

Termination of cables is done after all units in the installation have been put in their final position. Ensure that all conduits between units are tight.

	REMARK
	Do not attach cable ladders or such to the machine. Drilling holes in certain parts of the machine may cause excessive radiation leakage.

	REMARK
	Electrical installations are to be performed by a licensed electrician only in accordance with manufacturer's specifications and national and local electrical codes.

Pneumatic Installations

Compressed air is used to operate air cylinders on the SensorX 502.
The SensorX 502 requires a supply of clean and dry air according to ISO standard 8573-1 class 3 (see Table 5).

Table 5 Quality of compressed air

ISO 8573-1

Class	Solids		Water	Oil
	Particle size max µm	**Concentration maximum mg/m^3**	**Max Pressure Dew point °C**	**Concentration mg/m^3**
1	0.1	0.1	- 70	0.01
2	1	1	- 40	0.1
3	**5**	**5**	**- 20**	**1**
4	15	8	+ 3	5
5	40	10	+ 7	25
6	-	-	+ 10	-
7	-	-	Not Specified	-

Pressure dew point is the temperature to which compressed air must be cooled before water vapor in the air starts to condense into water particles.

Recommended local air pressure is minimum 7 bar. Pressure below the recommended 7 bar will noticeably affect the operating speed of the system at full flow while pressure above 10 bar may damage the equipment. An Alarm shows and the machine stops if it is below 6 bars.

1. Make sure the air supply plumbing is clean before you connect the machine.
2. Set the operating air pressure at 6 bar (85-87 Psi) by adjusting the air regulator in the air cabinet.

	NOTICE
	The lifespan of air valves and cylinders is affected by the quality of the air supplied. It is therefore important that you only use clean and dry air.

Ethernet Connection

It is important that network cables are not drawn next to electrical power cables. Carefully prepare all network cable connections to prevent unstable network operations.

Check List

Use this check list for the initial start of the SensorX 502.

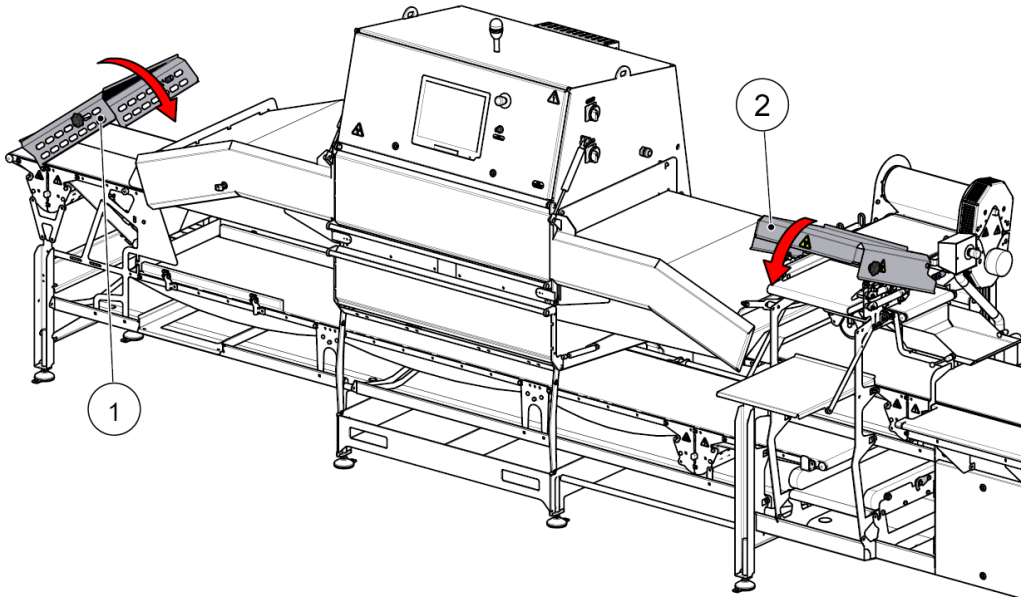
- The power outlet matches the power intake as specified on the rating plate.
- All unused cable glands in the electrical cabinet are sealed.
- The electrical cabinet is dry and no moisture can get in.
  If the cabinet is damp, check the heaters and cable glands.
- There are no loose objects, for example tools, lying on the belts.
- The belt quality is in order; no sticking links or dirt that can hinder the belt from moving freely.
- Check ambient air temperature and make sure it is within limits.
- Check air quality.
- Make sure that all belts sit properly and evenly.

Safety Instructions

In General

The SensorX 502 is not a dangerous piece of equipment but appropriate operating procedures must be followed. To avoid personal injury or damage to the machine take care of the following:

- **Electricity**
  The power must be turned off before any electrical work is performed.
- **Frames**
  Do not put your hands through frame holes near motors or any moving parts. Fingers may get crushed.
- **Conveyor ends**
  Do not place your hands under the belts, especially not near the rollers at the conveyor ends.
- **Cover on outfeed unit (1) and overflow conveyor (2)**(see Figure 1)
  During operation, the cover must always be closed.



	REMARK
	During operation of the SensorX care should be taken to prevent accidents.

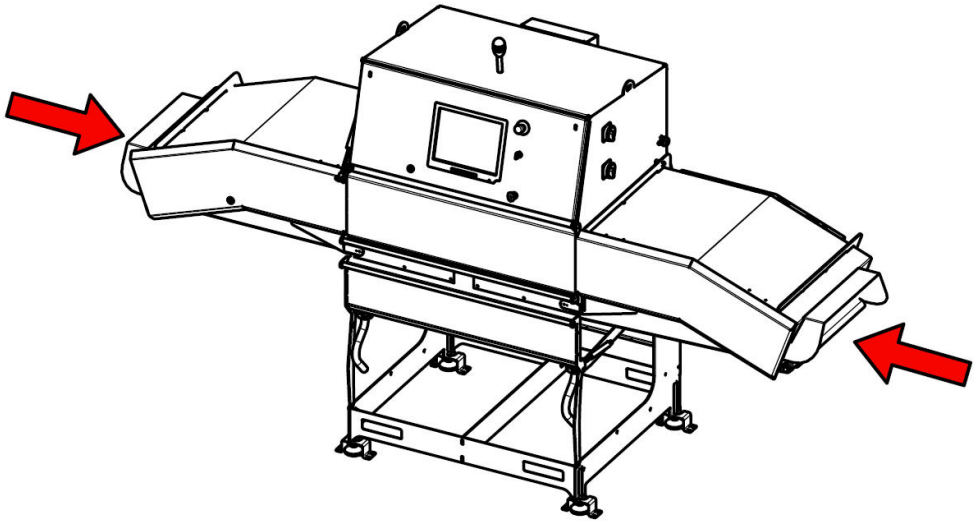


Figure 7 Potential hazard areas

- **Entrance/exit openings**
  Because of possible X-ray radiation, do not put your hand inside the entrance/exit openings. Warning signs are placed on the openings.
- **The safety covers (conveyor and motor covers)**
  Always turn the X-ray off before open the safety covers. Always open and close the covers with care. Do not slam down the covers.

	NOTICE
	The conveyor cover on SensorX has gas springs to prevent it from slamming down violently. If these gas springs are missing or starting to lose pressure, make sure to replace them to minimize the risk of accidents.

- **Air cylinders**
  Use extreme caution while adjusting the air cylinders with air pressure and power on the unit. Always stop the belt before adjusting the cylinders.
- **Cleaning main display**
  Before you start cleaning the display, press the emergency stop button to prevent an accidental start of the conveyor
- **Installation**
  Do not attach cable ladders or such to the machine. Drilling holes in certain partsof the machine may cause excessive radiation leakage.

Safety Arrangements

Warning Labels

The SensorX 502 system is supplied with the following warning labels:

	X-RAY RADIATION Potential X-ray hazard. Placed on the front panel cover and on entrance/exit openings.
	ELECTRICAL HAZARD Placed on the front panel cover.
	CRUSH HAZARD Danger of personal injury caused by pressure.
	CRUSH HAZARD Danger of personal injury caused by rotating parts.

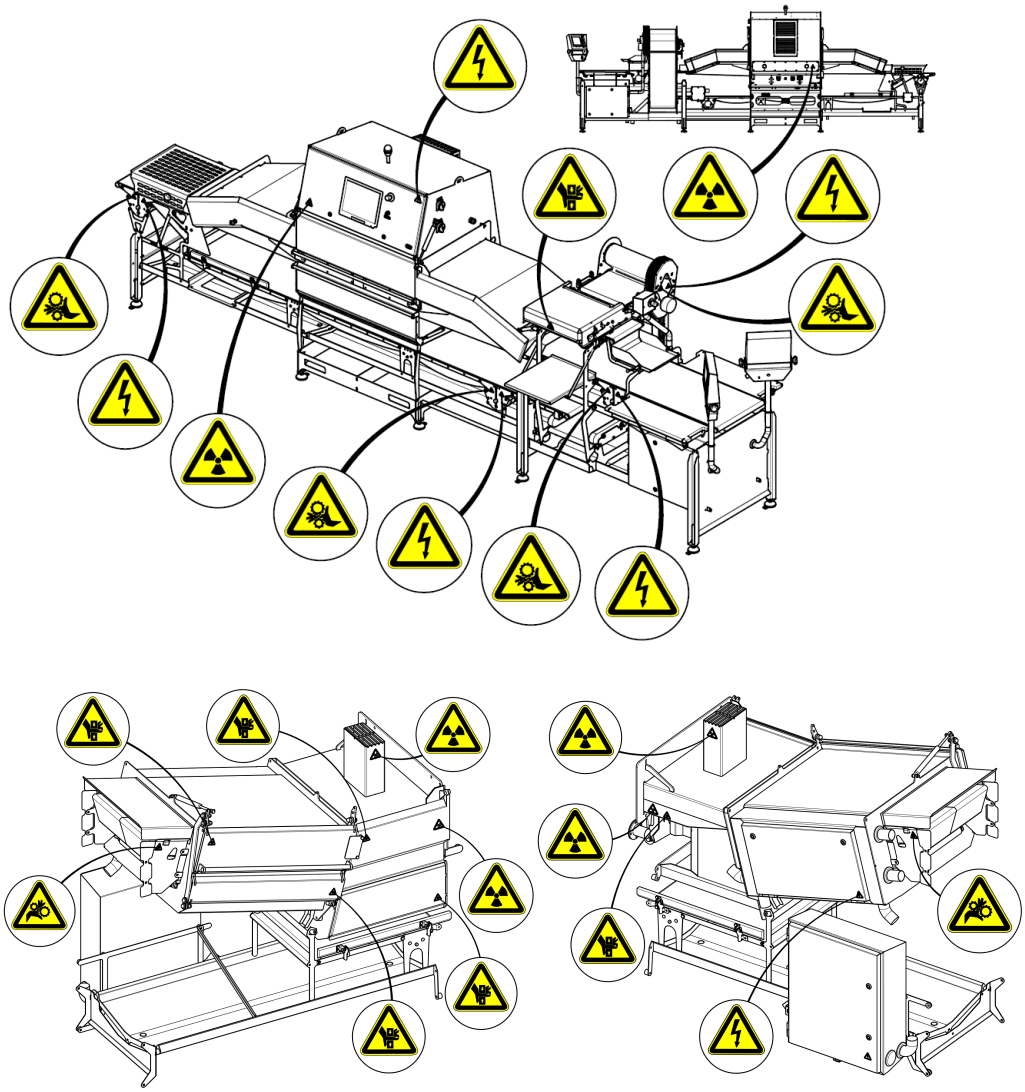


Figure 8 Warning labels on SmartSort connection module on SensorX

Do Not

Although the SensorX 502 has been designed and constructed with the highest level of safety in mind, it is very important to emphasize that proper use is the most important factor in a safe and trouble-free operation. Therefore:

- **Do not** use the unit without authorization.You may need special permission from local radiation protection authorities to operate the machine.
- **Do not** extend any part of your body into any openings on the unit while X-ray generation and scanning is in progress.
- If raw material is stuck in the unit, turn the X-rays OFF momentarily, open the conveyor compartment, and attend to the problem safely.
- **Do not** open the safety cover on the outfeed of the SensorX during production.
- **Do not** attempt to remove the test block (from the outfeed of the SenosrX) before it lands in the bin or on the belt because you may pinch your hand in the reject .
- **Do not** insert your hand in the safety cover's opening or other openings.
- **Do not** disconnect electrical power from the unit until at least 15 minutes after it has been stopped. This allows the internal cooling fans to remove heat from the X-ray generator after the generator has been turned OFF.

Radiological Safety Procedures and Precautions

SensorX 502 is designed with the utmost safety in mind when it comes to possible X-ray radiation shielding.
The unit is supplied with numerous safety features to ensure that X-ray generation is not initiated unless all required conditions are met.

The X-ray cabinet is made of stainless steel, adequate in thickness to prevent any radiation leakage. The entrance and exit openings are designed to allow only a minimum amount of leakage radiation. This leakage radiation is under limits given by radiation protection authorities. Any cover that has a radiological protection function is sensed so operation is not possible with the cover open.

Safety Function

The safety functions of the machine helps preventing harm caused by generation of x-rays or mechanical force/movement.

There are few types of safety functions on the machine:

Emergency switch
- Located by main control display

Key switch
- Located by main control display

X-ray notification light
- Located on top of the machine shown
- **Green** when X-ray generator is ready to be started
- **Yellow** while X-ray generator is starting up
- **Red** when X-ray generation is active

Lockout switch
- Disconnects the motor power, the x-ray and the pneumatic air, but still leaves a 24V current on the main display.

Safety sensors on openings
- See - Figure 12.

If any safety function is activated the relevant risk is prevented by safety stop. There are two different levels of safety stop defined, or **safety zones**:

X-ray generator
- Stopped when any Safety door is opened
- Stopped when any Emergency switch is pushed
- Stopped if key switch is not **ON**

Conveyors
- Stopped when any Emergency switch is pushed
- Some are stopped if a relevant Safety door is opened

If any safety function is activated (Safety Door opened or Emergency switch pushed) the relevant switch must be reset by closing the relevant door or pulling out the relevant emergency stop.
Then the machine can be started up again.

Positions of the Safety sensors

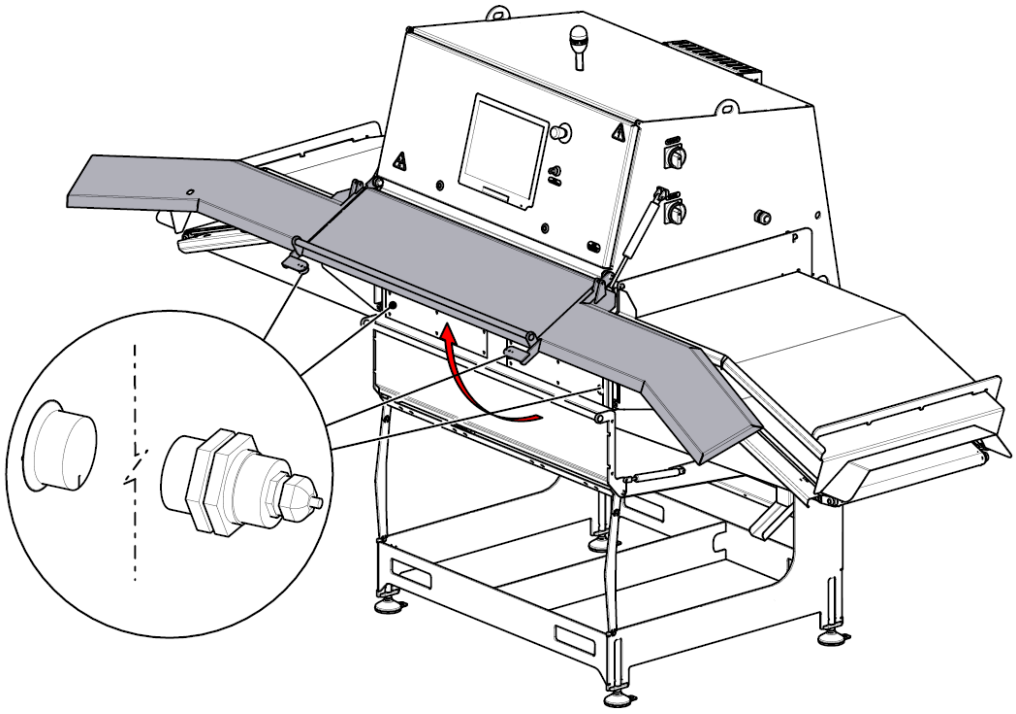


Figure 9 Safety sensor for the opening of the safety covers

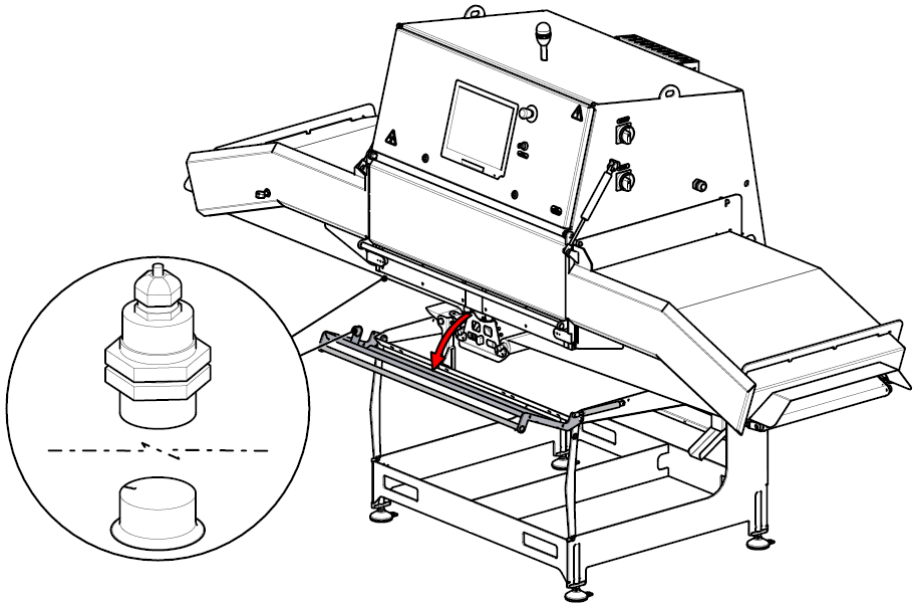


Figure 10 Safety sensor for the motor cover

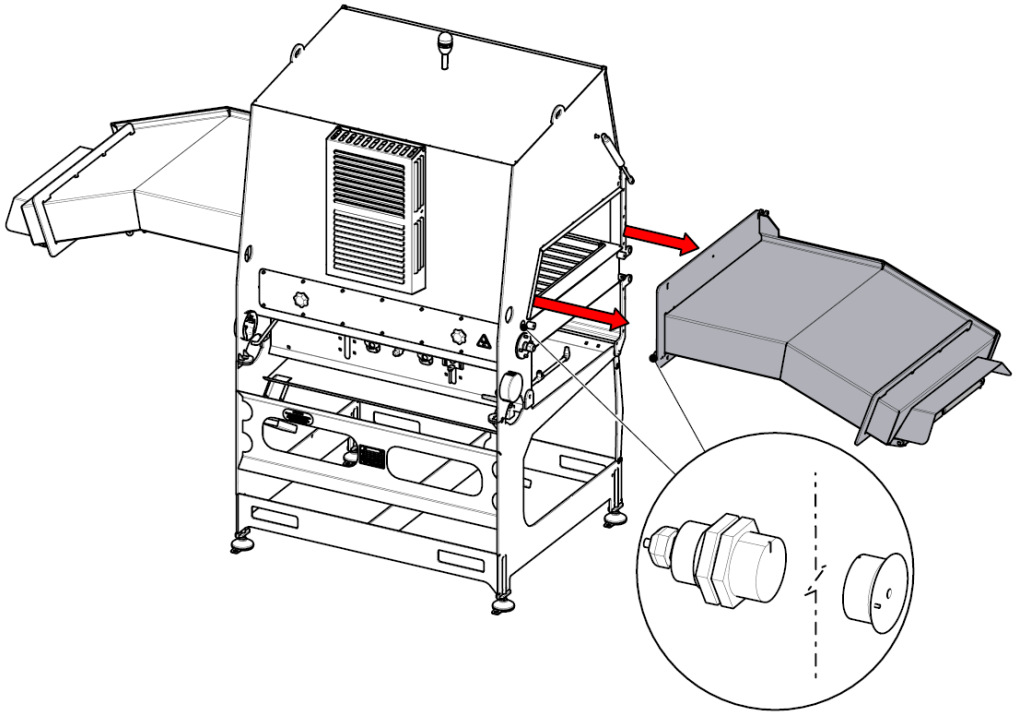


Figure 11 Safety sensor for the inlet removal

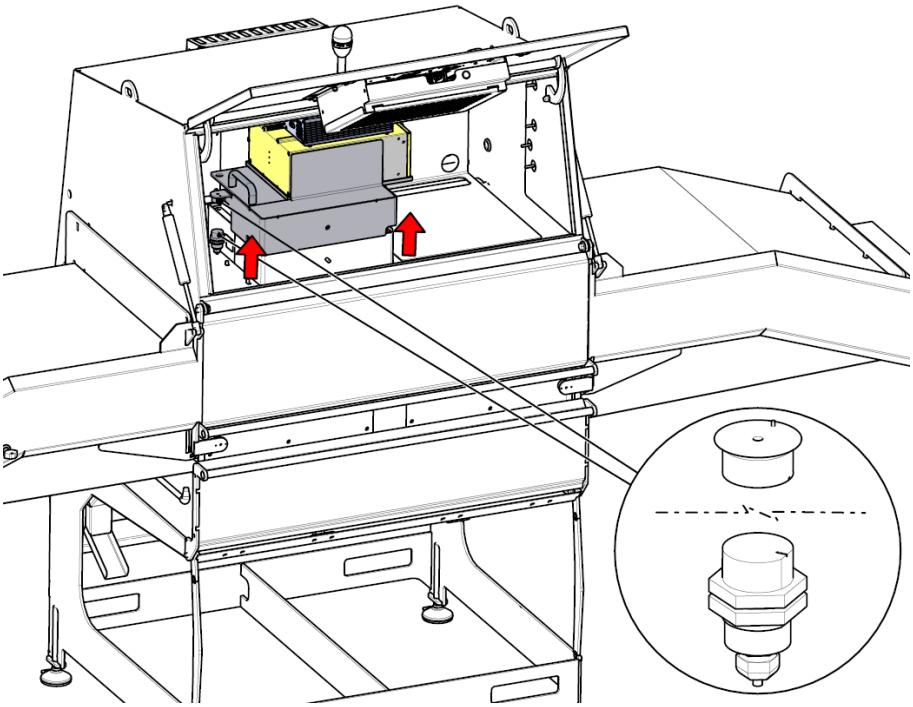


Figure 12 Safety sensor on the cover of the SensorX generator

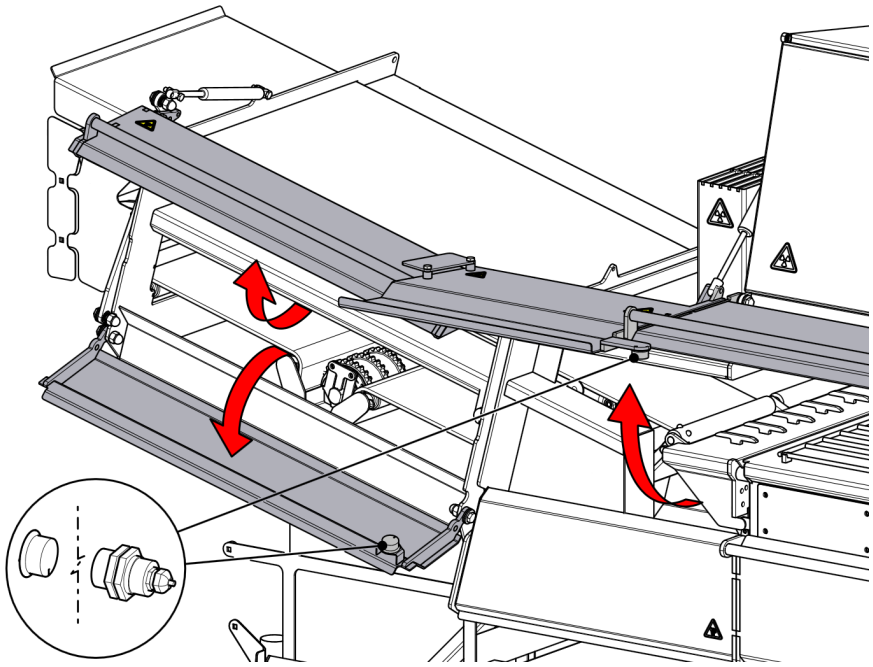


Figure 13 Safety sensor for the opening of the safety covers on SmartSort connection module

Emergency Stop Buttons

On the SensorX 502 system the emergency stop button is located on the front panel of the SensorX machine and by the rework stations.
When the emergency stop is activated, all activity on the system stops immediately.
See "Alarm Page".

- To start the system again after an emergency stop, pull out the emergency stop button, and tap the Start button on the touch screen.

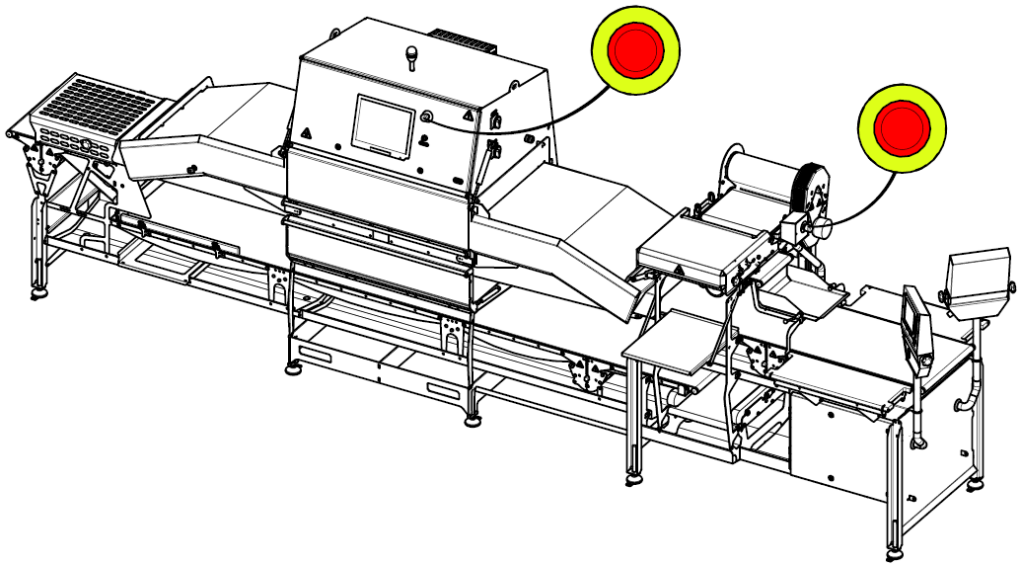


Figure 14 Location of emergency stop buttons

Operation

In General

This chapter describes how to operate the SensorX 502.

	REMARK
	Marel recommends that you always leave the mains switch ON during production breaks and off-periods. This keeps the unit's internal temperature control active and prevents variations in temperature, which is one of the factors that can affect the unit's performance.

Controls and Indicators

This section describes the location and use of basic controls and indicator lights on the SensorX 502.

The Mains switch and the Lockout switch are located on the right side of the SensorX x-ray inspection unit.
Figure 15 shows the position of the controls and indicators, and Table 6 provides their description.

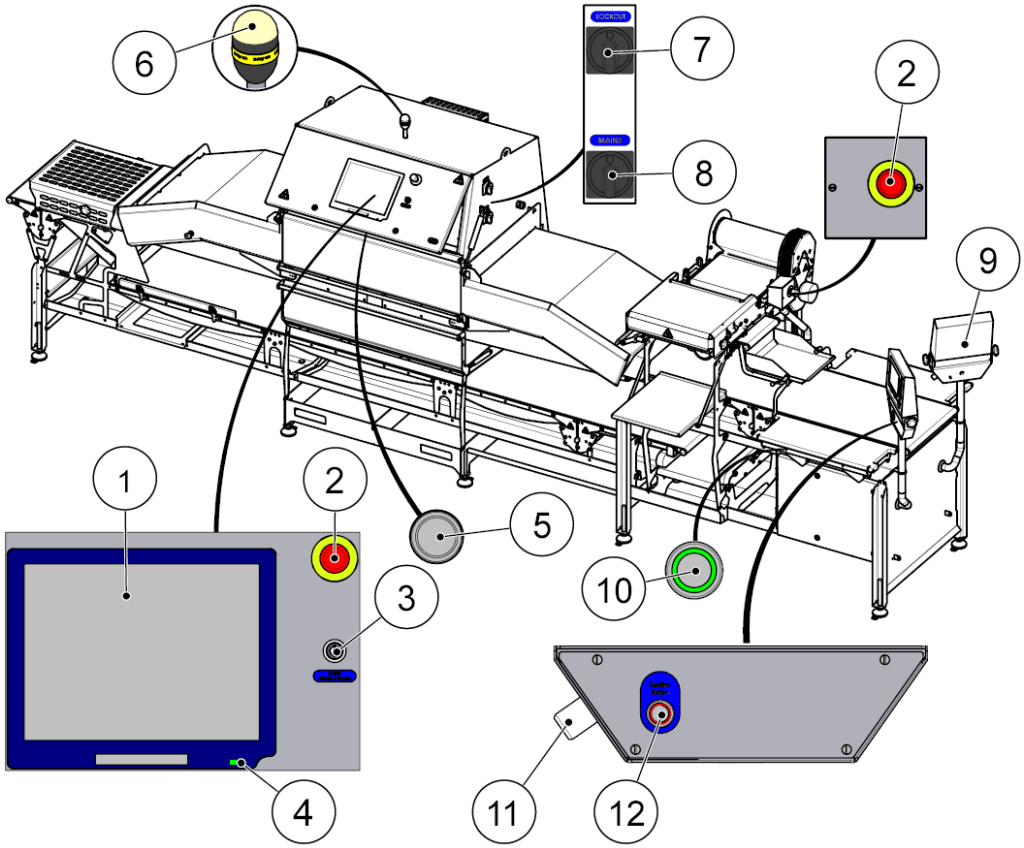


Figure 15 Positions of the control and indicators

Table 6 SensorX 502 system, basic controls and indicators

Number:	Name:	Description:
1	**SensorX main display and touch screen**	Controls the SensorX 502 System. Displays X-ray images and provides the user interface for operating, calibrating, and adjusting various parameters.
2	**Emergency stop button**	Instantly stops all operation of the system, including the conveyor belt and X-ray radiation. You cannot start the system again, unless you pull this button out first and reset the safety circuit.
3	**X-ray Key lock**	Turn this key to Enabled position to allow X-ray radiation. The key cannot be removed in the Enabled position. Turning the key to Disabled position terminates X-ray radiation. **REMARK** Remove the key to prevent unauthorized operation of the machine.
4	**Power ON**	Power On indicator, illuminates green when the SensorX Main display is powered ON.

5	**Reset button (under the front panel)**	Resets the computer.
6	**X-ray notification light (on the indicator beacon)**	Alarm lamp. The lamp is connected to the X-ray generator controller and is constantly illuminated **red** when the X-ray generator emits radiation. The lamp is **green** when X-rays can be generated and **yellow** when the radiation is about to start. Located on top of the SensorX machine.
7	**Lockout switch**	Disconnects the motor power, the x-ray and the pneumatic air, but still leaves a 24V current on the main display. A lockout padlock can be placed on this switch, if needed.
8	**Mains switch**	Breaker. Disconnects the mains power supply to the system.
9	**Rework terminal (optional)**	Displays X-ray images of contaminated products so the operator can locate and remove the contaminant fast and easily.
10	**Trim table backlight adjustment button**	Allows the operator to set the light, gradually, from off to full brightness.
11	**Confirmation knife detector (optional)**	Button, used to confirm rework of piece. Triggers the display of an image.
12	**Confirmation button (optional)**	Button, used to confirm rework of piece. Triggers the display of an image.

User Interface

The following sections describe the SensorX user interface.

The user interface, which is displayed on the SensorX inspection units main display, is designed for the operator and an administrator, people who are normally responsible for the daily operation of the unit.

After power on, the SensorX Main screen appears on the controller.

The Main Production Screen

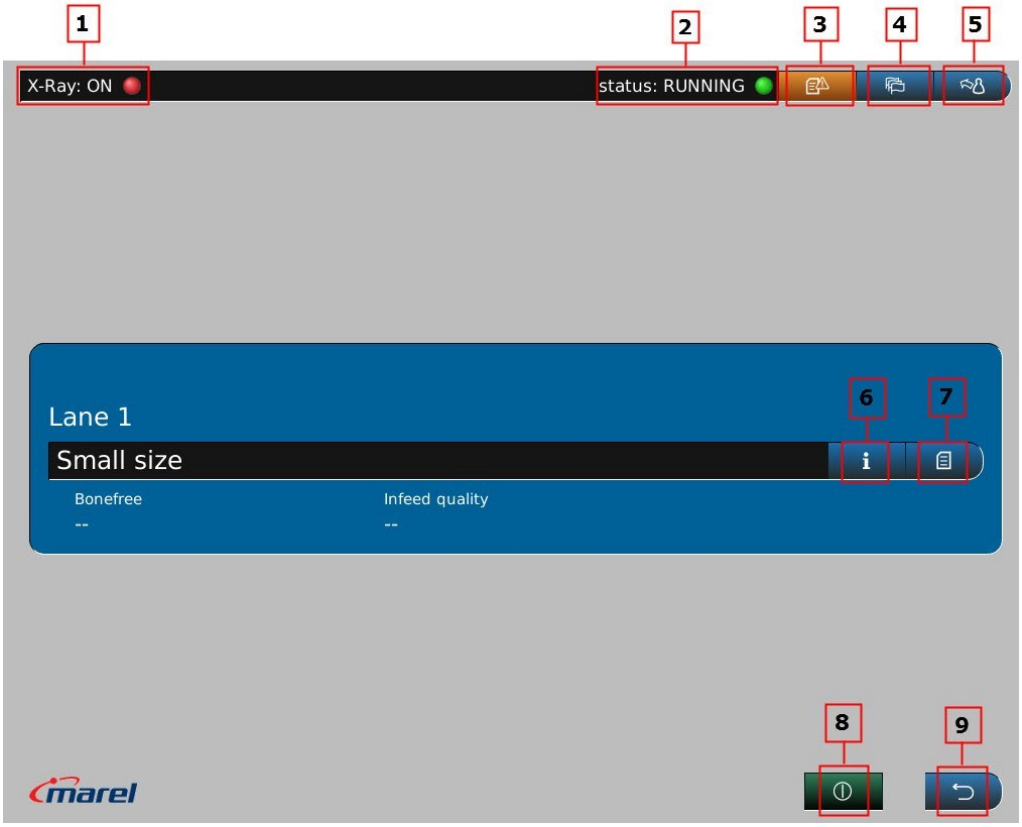


Figure 16 SensorX, Main production screen

1. **X-ray indicator**. Shows when the X-ray generator is running.
   - It is red when the generator is radiating
2. **Status**. Displays the status of the SensorX system: For example, Running, Stopped and Warming up.
3. **Alarms**. Tap here to get an overview of alarms (warnings or errors) on the system.
4. **Language**. Tap here to select a language for the user interface.
5. **Login**. Displays the login screen, where you can switch roles to access other sections and you may need to provide a password.
6. **Information**. Displays details on scanned material.
7. **Program list**. Displays the Programs screen.

8. **Start/Stop button**. Starts and stops X-ray generation and all conveyors in the system. Turns the X-ray generator and the conveyor belt ON and OFF. If there is a fault on the X-ray and it does not start, then the belt does not start.

	REMARK
	The belt and X-ray can be started individually in the X-ray diagnostics page (accessed from the Advanced Screen).

9. **Exit**. Exits this screen and displays the login screen.

Alarm Page

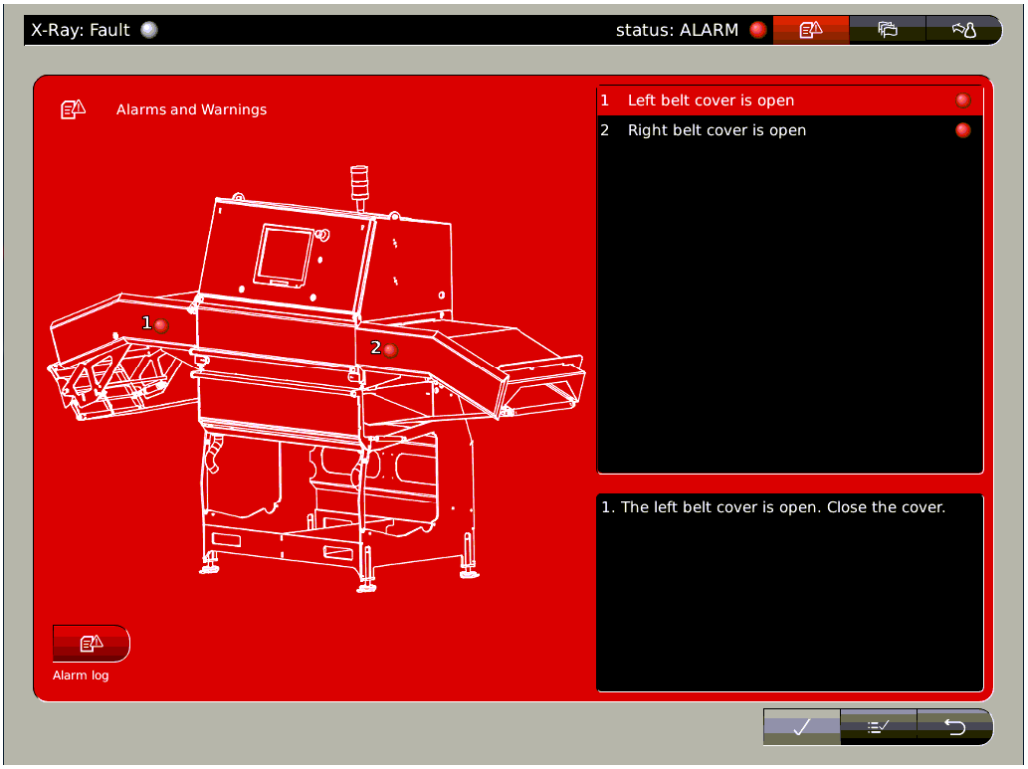


Figure 17 The Alarm page

The Alarm page gives you an overview of alarms (warnings or errors) on the system:

- The Alarm page gives you information. If you tap the Alarm log button, then you get the alarm log.
- If the system is still operational but you receive a warning, you need to check the alarm page for a solution.
- If you get an alarm, the system will not work. An example of an alarm is when the covers on the SensorX inspection unit are not closed. Figure 17 shows an example of what happens when the covers are left open. It shows which covers are open, and you are instructed on how to proceed.

Information Screen

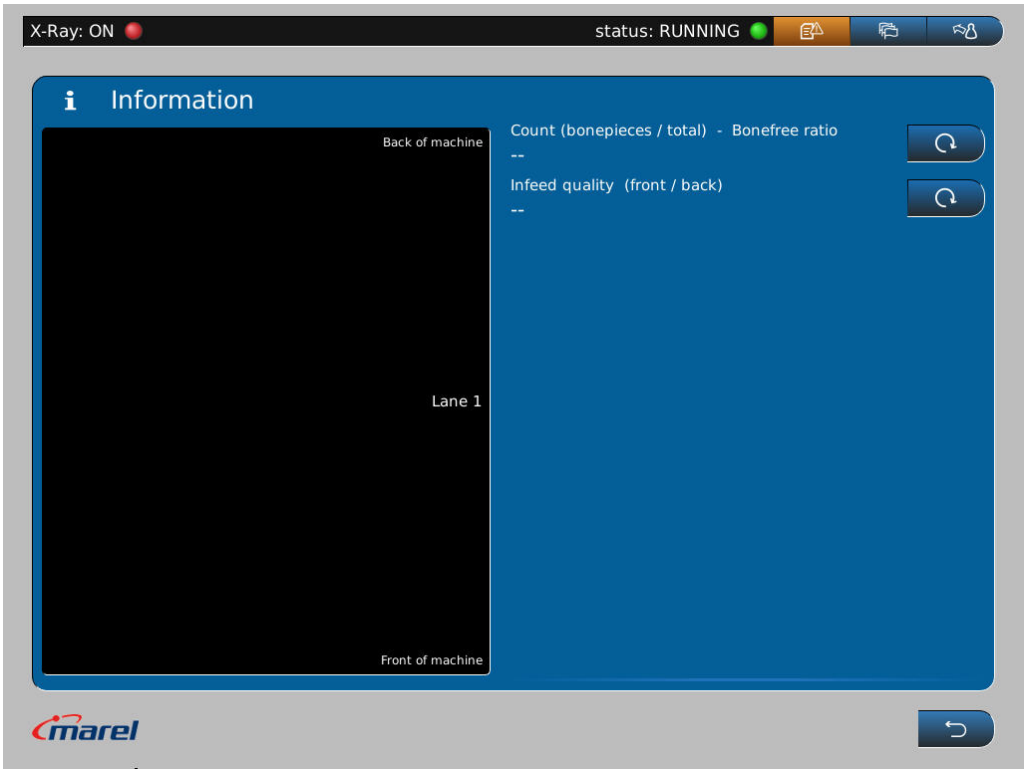


Figure 18 Information Screen

Here you can monitor the product flow through the inspection unit

The information page shows statistics for each lane as well as images of products that are being scanned.

It shows the amount of bones and the weight (if your SensorX x-ray inspection unit weighs the pieces).

The information page shows the statistics as well as images of products that are being scanned.

Programs Screen

Tap the **Programs** button  on the Main Production screen to access the Programs screen.

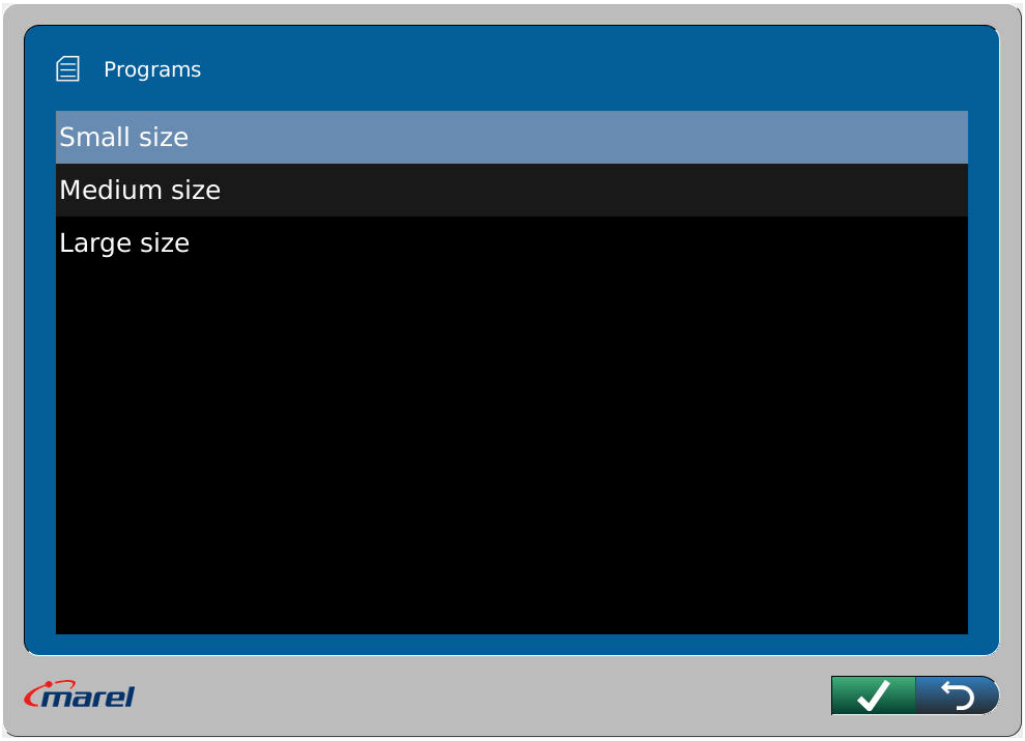


Figure 19 The Programs screen

In the Programs screen shown in Figure 19 you have three default programs to select from:

- Small size
- Medium size
- Large size

Tap the **Check** button  to confirm the selection.

	REMARK
	The most sensitive of the default programs is the Small size program. It detects smaller bones in a product than the Large or Medium size programs.

Marel service personnel custom-makes a program to suit your production needs and adjusts the detection sensitivity accordingly. For instance, more than three programs can be added. The customized programs are named as per your preferences.

The Login Screen

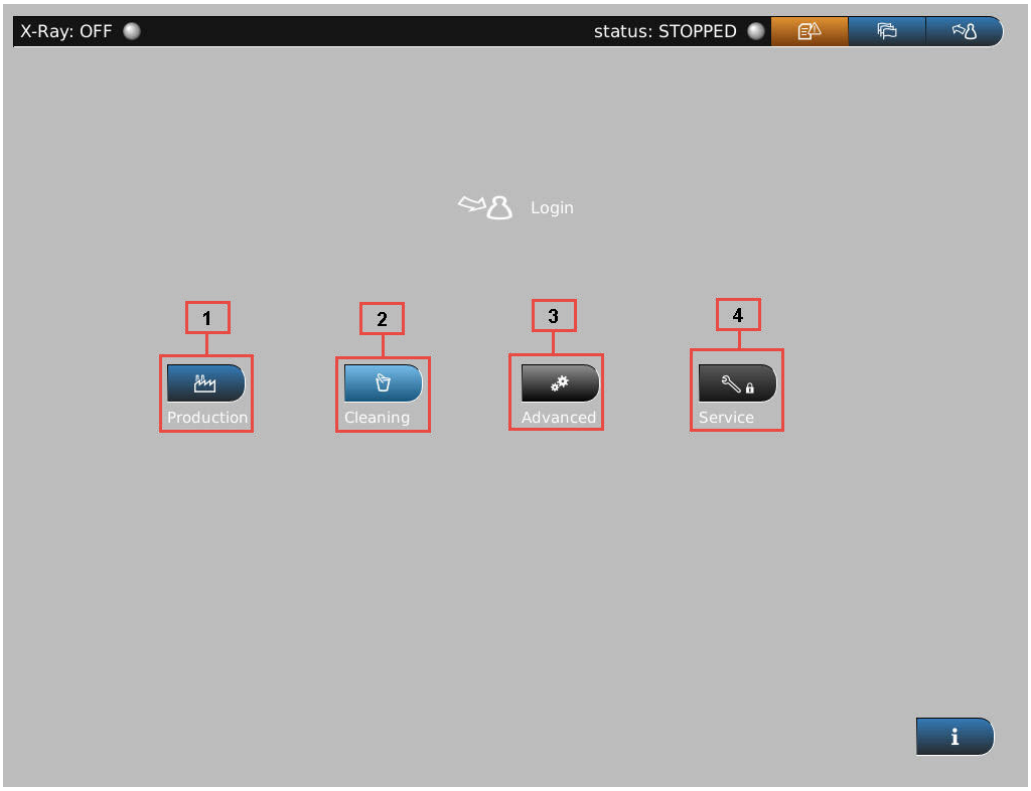


Figure 20 The Login screen

The login screen is used to access different parts of the user interface and it depends on your role as an operator which parts you can access.

In the Login screen, you can see four buttons:

1. **Production button**. Contains the Main Production Screen for operating the machine
2. **Cleaning button**. Contains screen for cleaning the machine
3. **Advanced button**. Contains screens with advanced features for administrative use.
4. **Service button**. Contains screens for servicing the machine. such as the settings screens

	REMARK
i	The Service screen is locked with a password and is only for Marel service personnel.

Cleaning

When you put the system in washing mode, X-ray generation is turned off and all conveyors run slowly.

To activate washing mode (see Figure 21):

- Tap the Start button **1**. A confirmation dialog box is displayed.

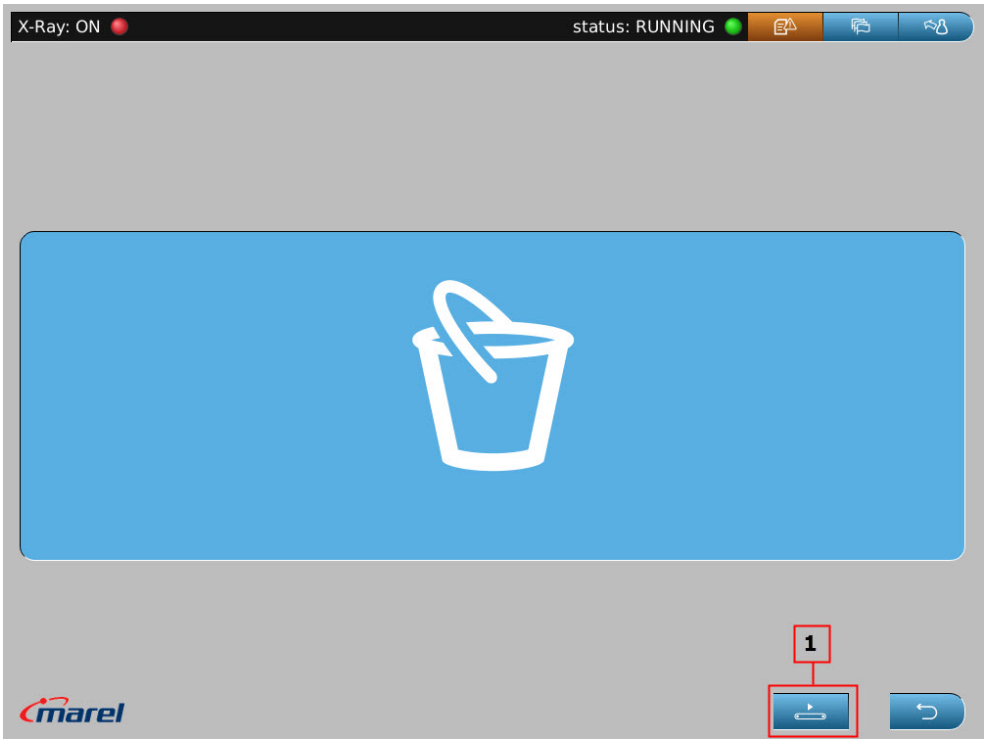


Figure 21 The Washing screen

	REMARK
	You must leave the lockout switch in OFF position if you want the conveyors to run in washing mode.

Advanced Screen

Figure 22 The Advanced screen

From the Advanced screen you can access several other system screens.

1. X-ray Diagnostics button. Displays the X-ray Diagnostics screen.
2. Hardware Monitor button . Displays the Hardware Monitor screen.
3. Service web button.
4. Emergency Mode button.
5. Weighing calibration button (Only shown if your machine has the weighing option).
6. Machine setup button (not always in use).
7. CL Measurements button (not always in use).

X-Ray Diagnostics

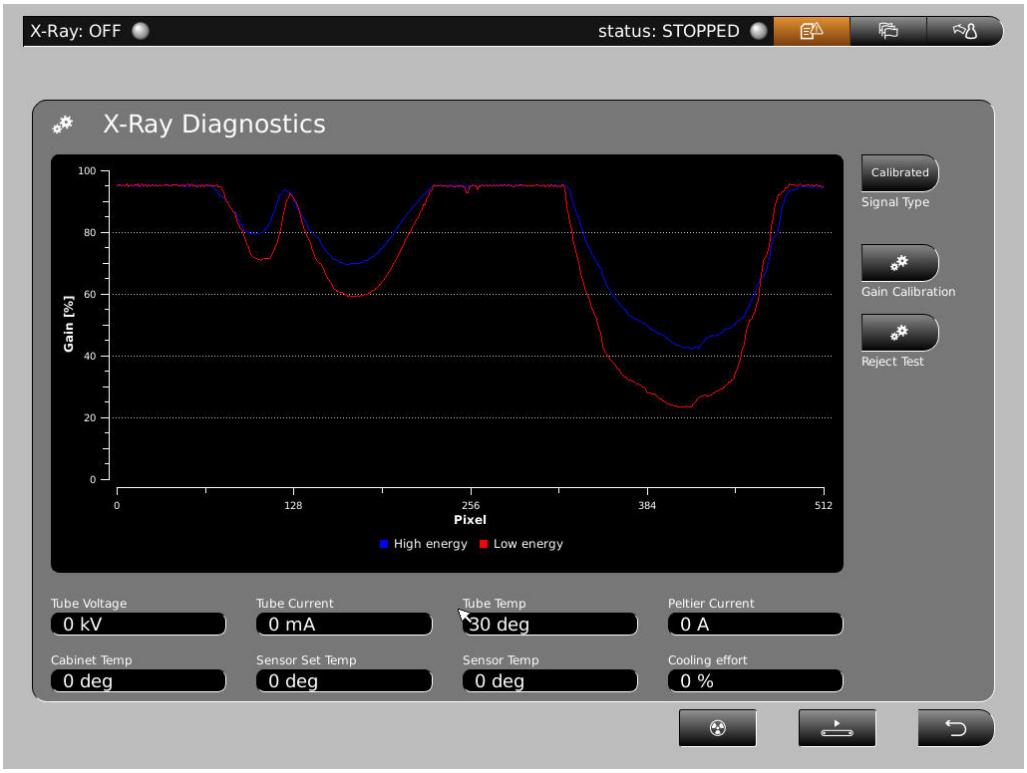


Figure 23 X-Ray Diagnostics screen

The X-Ray Diagnostics screen is for monitoring, testing and other various actions.

- Under normal circumstances when signal type id set to calibrated the signal level should be approximately 95% when the x-ray is fully on and no product is running through the machine.

- You can turn on and off the X-ray from this screen by tapping 
- You can turn on and off the SensorX inspection units belt by tapping  .
- You gain calibrate from this screen. See "Gain Calibration".

Gain Calibration

The machine should be gain calibrated during production breaks:

1. Go to the Advanced Screen.
2. Tap the X-ray diagnostics  button.
3. Tap the Gain Calibration button.

Figure 24 X-ray diagnostics screen

	REMARK
	Make sure that no product is on the belt when performing this operation.

Hardware Monitor Screen

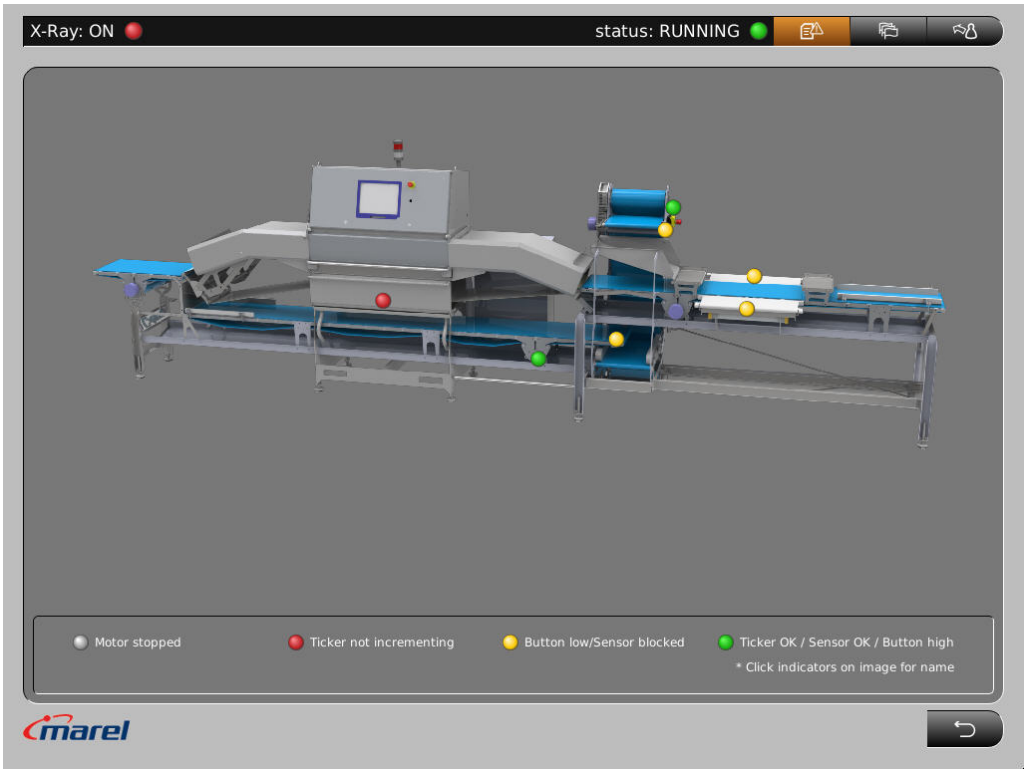


Figure 25 The Hardware Monitor screen

The Hardware Monitor screen provides an overview of system status. An image of the system is displayed with the following status indicators:

Colored bullet for **all motors** that are equipped with an encoder.

- Gray: the motor is stopped.
- Red: the ticker is not incrementing.
- Green: the ticker is incrementing.

Colored bullet for **all product sensors**.

- Yellow: the product sensor is blocked.
- Green: the sensor is not blocked.

Colored bullet **for all buttons**.

- Yellow: the button has been tapped.
- Green: the button is not tapped.

	REMARK
	If you click a bullet in the Hardware Monitor screen image, a text box is displayed with the bullet's name.

Emergency Mode

If the SensorX 502 machine cannot be operated, a feature called the Emergency Mode can be activated.

- For example, if the x-ray generator does not run.

The machine works like a conveyor in the Emergency Mode.

- The belts run
- The reject is forced to close

To activate Emergency mode:

1. Enter the **Login** Screen.
2. Tap the **Advanced page button.**
3. In the Advanced Screen, tap **The Emergency Mode button**, see Figure 26.

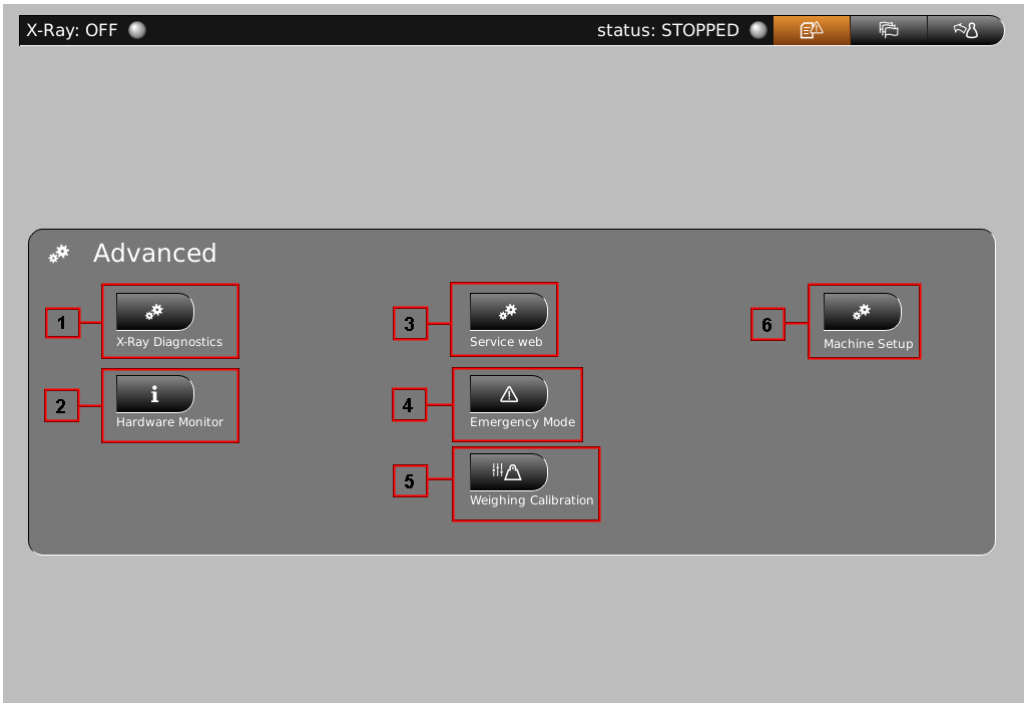


Figure 26 The Advanced screen

	REMARK
	It is only possible to tap the Emergency Mode button when the x-ray generator is turned **OFF.**

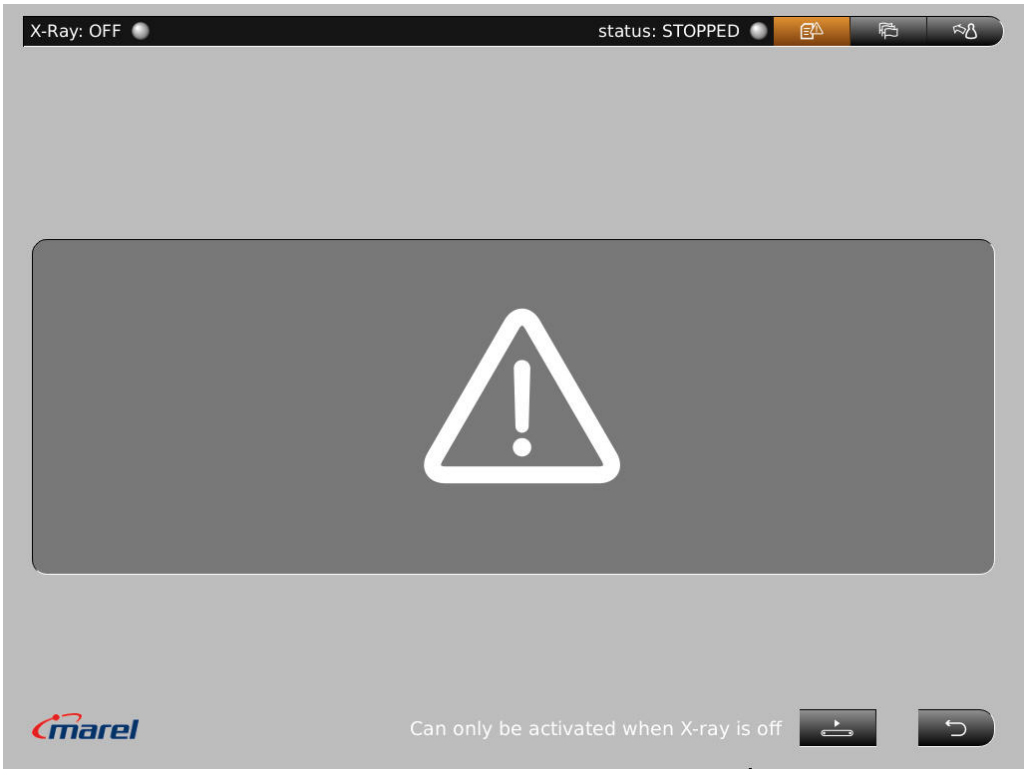


Figure 27 The Emergency Mode page

4. To enable the Emergency Mode tap the start button, see Figure 27. A message window appears.

Figure 28 Message box to enable the Emergency Mode

5. Tap the OK button to start the Emergency Mode. If you do not want to start Emergency Mode tap the button, see Figure 28.

When the system is running in Emergency Mode the page looks like Figure 29 to stop the Emergency Mode either stop the belts or leave the Emergency Mode page.

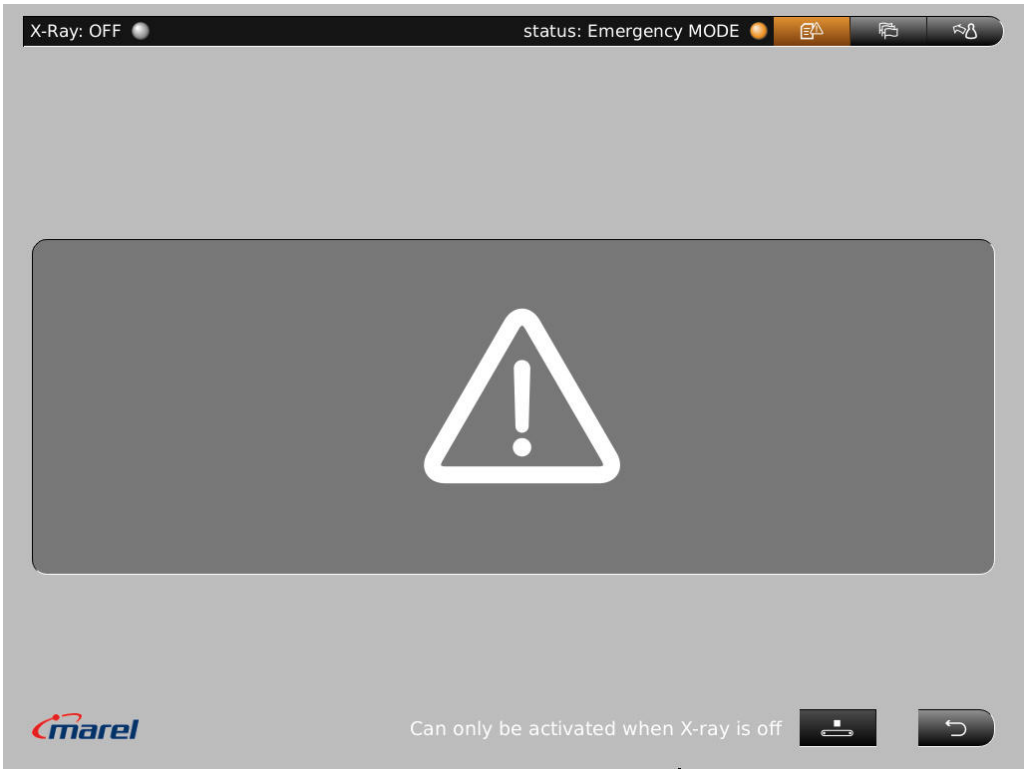


Figure 29 The Emergency Mode page with Emergency Mode active

When the machine is in Emergency Mode the Alarm Page should look like is shown in Figure 30.

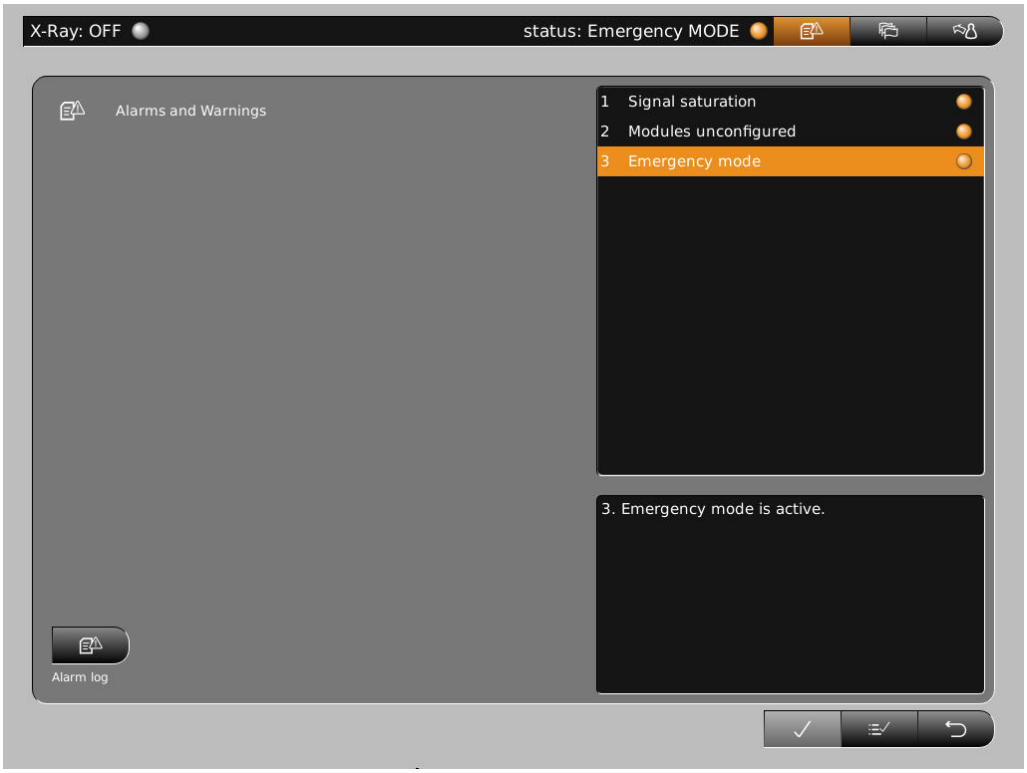


Figure 30 The alarm page with the Emergency Mode enabled

Weighing Calibration Procedure

This procedure takes a step-by-step approach at calibrating the weighing function of the SensorX x-ray inspection unit. While every customer has different requirements for the frequency of this calibration, it is suggested that it is done weekly to ensure continued accuracy.

You need:

- Access to the machine during non-production time
- 5-20 pieces of product, exactly as it would normally pass through the machine
- A scale, to weigh the products

	REMARK
	The X-ray should be allowed to run for at least one hour, so that the temperature can rise to a normal use temperature. If the X-ray is currently OFF, it can be turned ON through the X-ray Diagnostics utility **1** found in the Advanced tab see Figure 31.

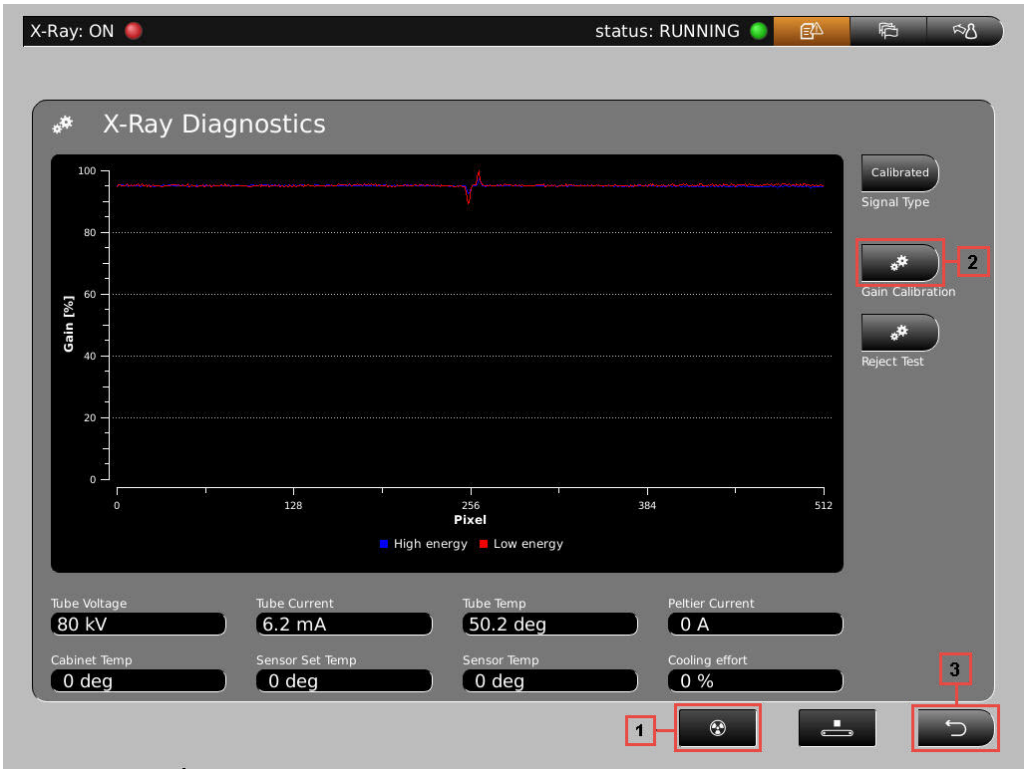


Figure 31 X-ray Diagnostics

1. Once the machine has been allowed sufficient warm-up time, you need to perform a gain calibration **2** to optimize the signal level. See "Gain Calibration".
2. Use the back button **3** to return to the Advanced screen.
3. Select the **Weighing Calibration** utility located in the Advanced screen (see Figure 32).

Figure 32 Weighing calibration button

4. The Weighing Calibration screen is displayed, and you get instructions on how to complete the calibration.
5. Weigh all the pieces of product that are going to be used for calibration. The weight should be recorded in grams, kilograms or pounds, and each piece should be weighed separately.
6. Once this has been accomplished, begin running the product through the machined one piece at a time.

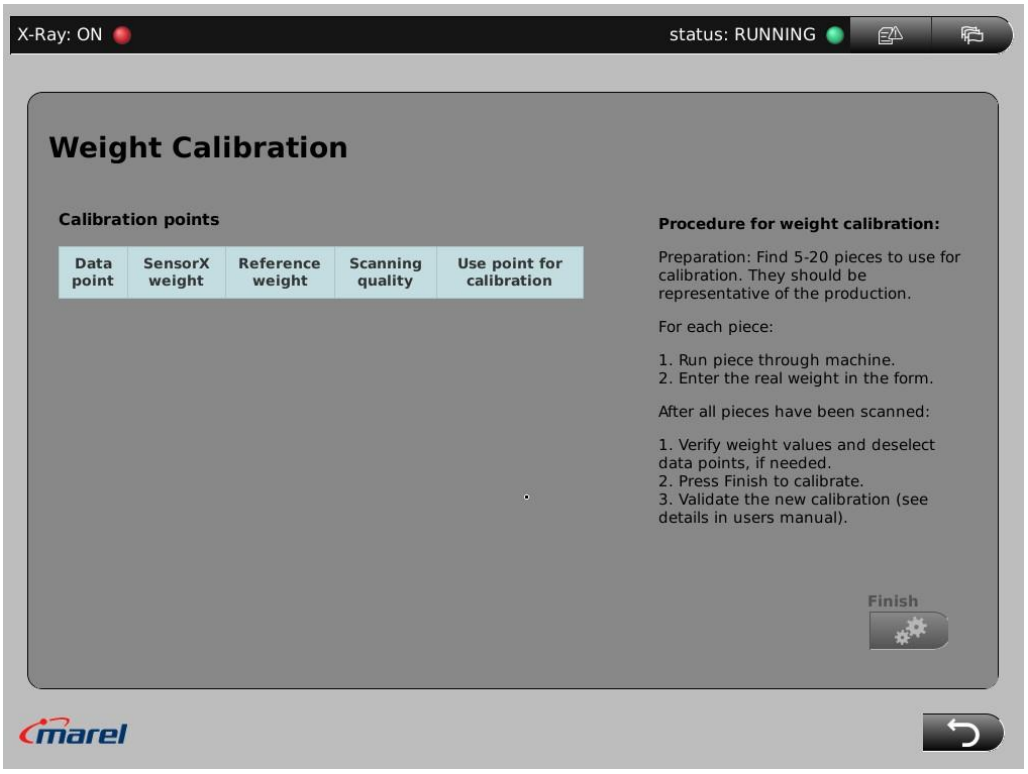


Figure 33 SensorX weighing calibration procedure

7. As each piece passes through the machine, the data gathered is displayed on this screen. By touching the box to the right of the Reference Weight, you are prompted to enter the actual weight of that piece.

	REMARK
i	If a mistake is made and you wish to disregard the data for a piece scanned, you can tap the check box under **Use point for calibration**, to clear the box.

8. After passing at least 5 pieces of product through the machine and inputting the weights of each piece, you are able to complete the calibration by selecting the **Finish** button in the lower right.

9. A message is displayed that states that the Weight calibration was successful.

Figure 34 Successful weighing calibration

10. You can return back to the **Login** page and go to the **Main production info** screen.

11. In the Information Screen (For more information, see "Information Screen" on page 28.), you can now check the accuracy of your calibration.

	REMARK
	Keep in mind that the more pieces of product you use to calibrate, the more accurate your calculated weight is during production.

Rework System

The rework system consists of a return conveyor, elevating conveyor and two rework stations, each with a work area and an optional rework terminal.

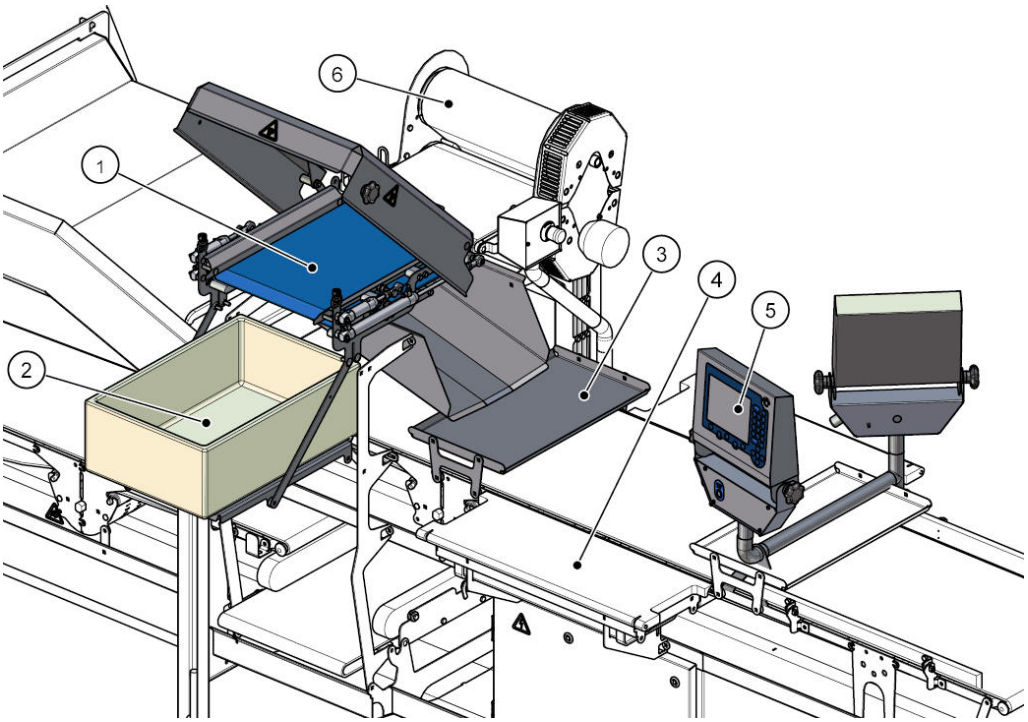


Figure 35 Rework system

1	Overflow conveyor	**4**	Work area table
2	Overflow tray	**5**	Rework terminal (optional)
3	Product bin	**6**	Elevating conveyor

The return conveyor and the elevating conveyor transfer a rejected product from the SensorX machine to the product bin. The product bin should only contain one product each time.

Rework terminal

When a piece of product is in the product bin and the operator presses the confirmation button (located below the terminal), an image of the product is displayed on the rework terminal. It makes the removal of the contaminant easier.

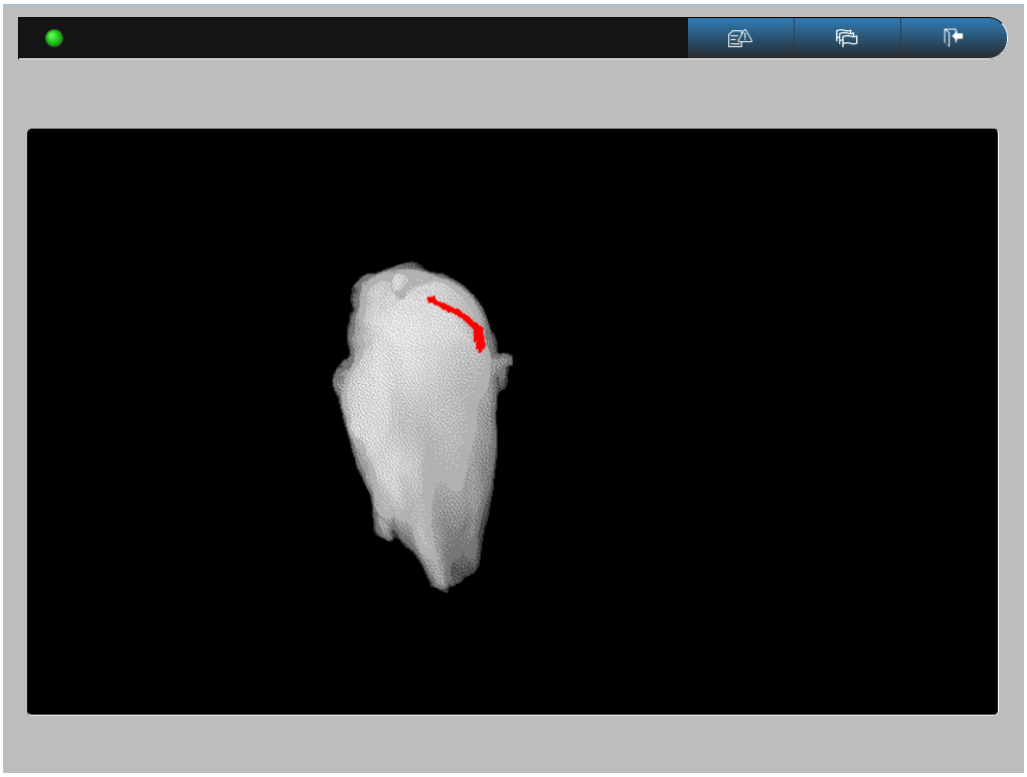


Figure 36 Rework terminal

Figure 36 shows an example of the front page on the rework terminal when the operation is in working order.

The return and elevating conveyors run continuously until a piece arrives in the bin, when the product bin is empty.

When a piece enters the product bin, the elevating conveyor stops running continuously and starts buffering incoming pieces.

If the product bin is not emptied and the elevating conveyor buffer is full, then the following pieces go to the overflow tray.

The system allots one piece of product to the product bin every time the confirmation button is pressed. The system optimizes the buffering resources before it diverts pieces to the overflow.

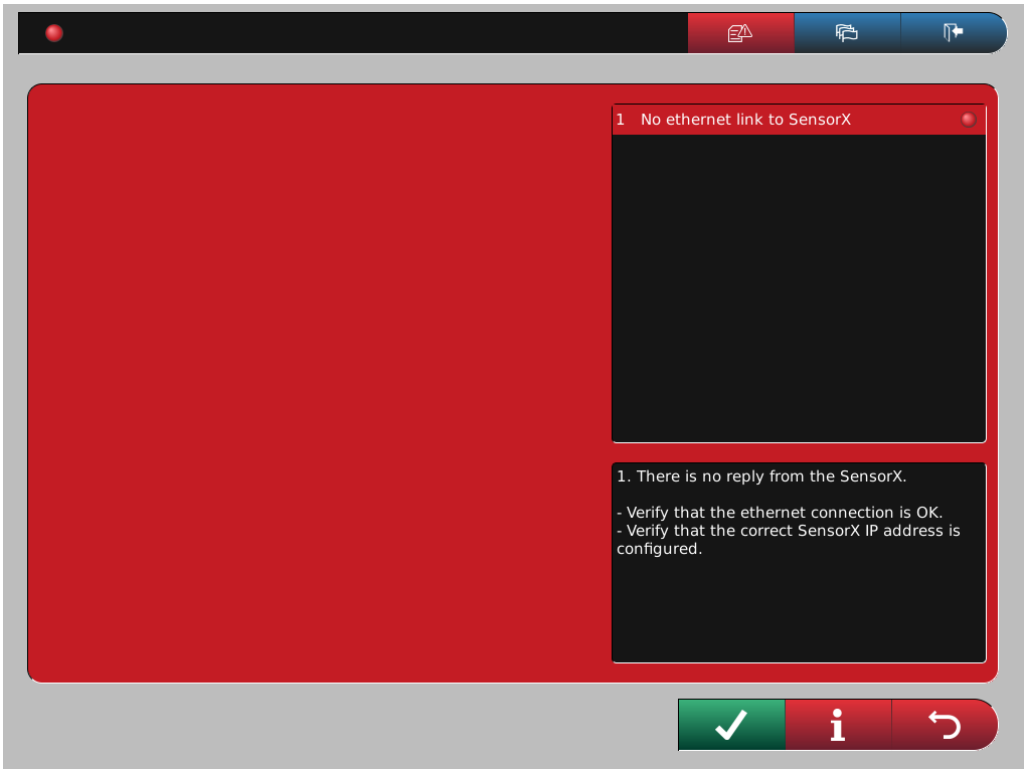


Figure 37 Alarm page on rework terminal

If there is a problem with the connection between the SensorX x-ray inspection unit and the rework station, then the Alarm page appears Figure 37, with instructions on how to proceed.

Overflow Mechanism

The overflow mechanism is used to reject pieces that arrive at the product bin but cannot be handled in a normal fashion (e.g. if they could not be tracked).
A piece that enters the rework station when the product bin is full is sent to the overflow.

If two pieces are insufficiently separated on the conveyor belt, both pieces are put to overflow in order to avoid a situation with two pieces in the bin and no way of knowing which image belongs to which piece.
Similarly, a piece is put to overflow if no image is available for it or if the tracking of the piece is incorrect, for example, if the piece has been moved.

	REMARK
	Monitor the amount of product going to the overflow tray. Optimally, the bulk of the rejected product should go to the product bin.

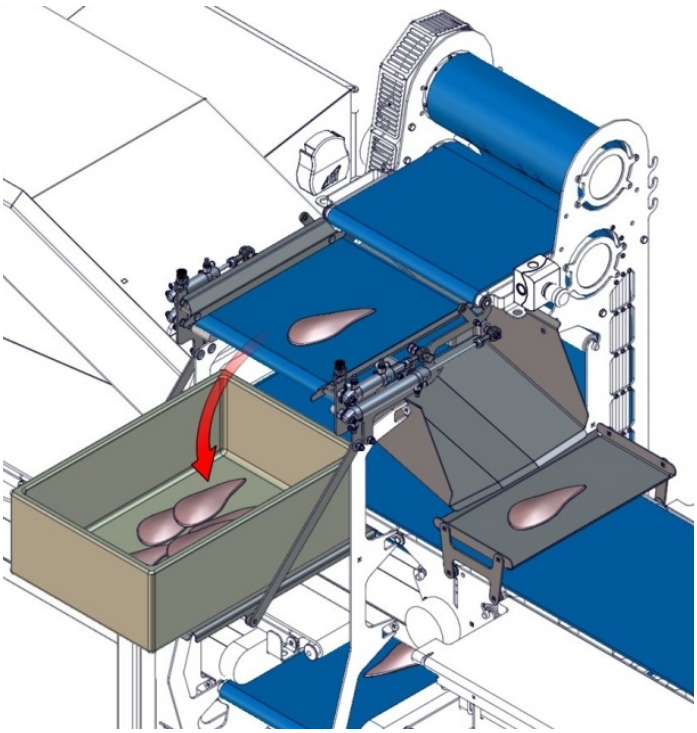


Figure 38 Overflow conveyor in closed position

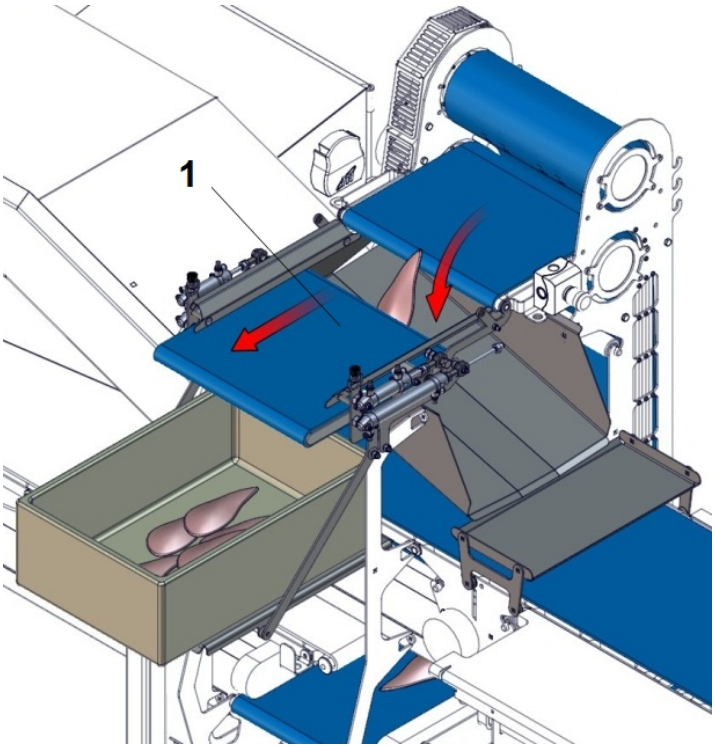


Figure 39 Overflow conveyor in open position

The conveyor **1** opens in horizontal direction.

Operation Procedures

Before Operation

1. Check the interface for the Power on indicator to see if the machine is powered on. If the indicator is OFF, turn the Main switch to **ON**.
2. If the machine was OFF, then it needs to warmup for at least **30 minutes** before operation.
3. Make sure that the product area above and under the conveyor are as dry as possible and without visible wet spots. Wipe upper and lower plastic strips **1** conveyor belt **2** and the grids **3**, shown in (Figure 40). Large drops of water diminish the radiation intensity and affect image acquisition.
4. Install the conveyor belt and put the grids in their proper places.

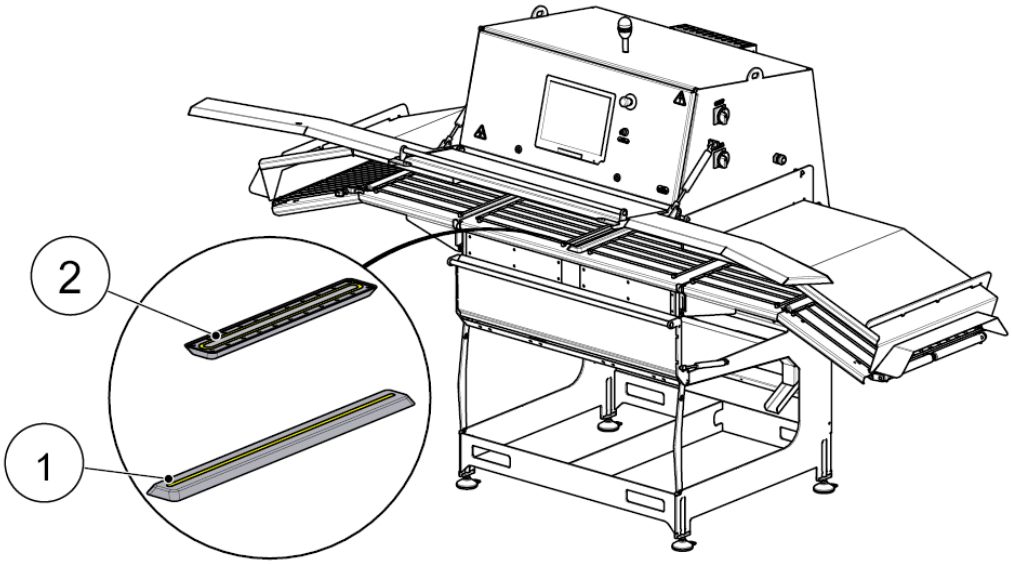


Figure 40 Wipe off the strips

5. Close the conveyor and motor covers, insert and turn the X-ray key to enable position.
6. Tap the green Start/Stop button  on the Main screen to start X-ray generation and the belt and let the x-ray warm up for at least 30 minutes.
7. The machine should then be **Gain calibrated.** It is critical that no product is scanned during gain calibration.
8. Once the machine has changed the state from **Warm up** to **Running** state, select **Gain calibrate**. For more information, see "Gain Calibration" on page 34..

Perform routine quality checks, for example, with a poultry machine: Run a test block **1** twice through the SensorX, either before production or any time when there is a production break.

1. Select the appropriate program for the product to be processed. See "Programs Screen".

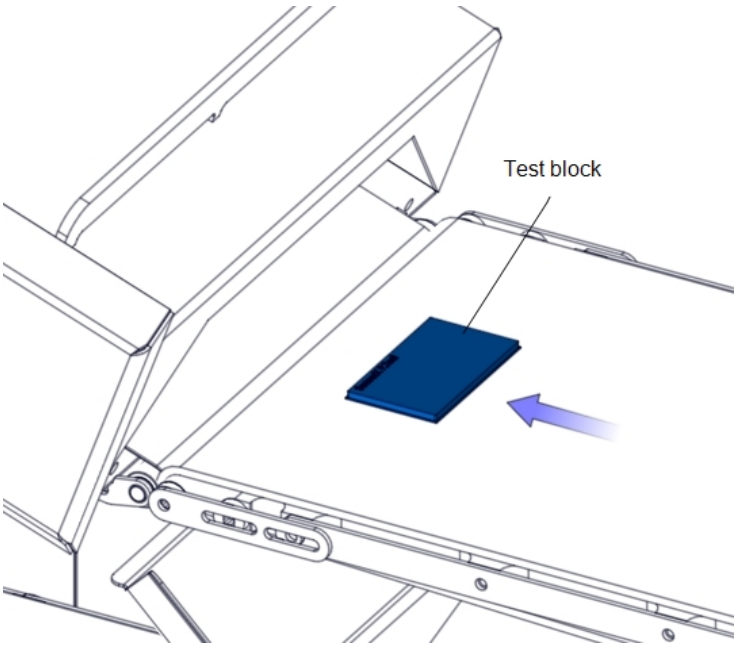


Figure 41 The test procedures

2. Check if the test was successful: the SensorX screen shows two bones in the block (see Figure 42).

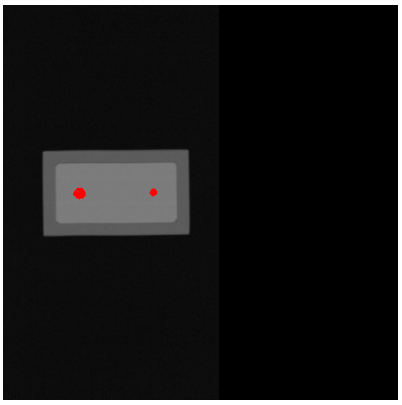


Figure 42 Successful block test

3. Never remove the test block **3** from the outfeed conveyor **1**.The safety cover **2** can not be open. You should manually remove the test block **3** from the return conveyor **4** and with the safety cover **2** closed. Remove the test block when the reject has come to a closed position. If the reject fails, then you should remove the test block at the end of the outfeed conveyor (when it has gone through the safety cover). See Figure 43 and Figure 44.
4. The machine is now ready for operation.

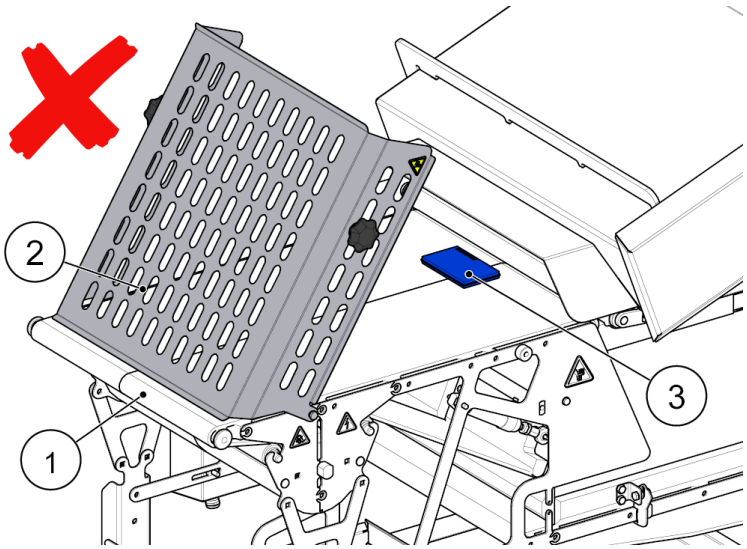


Figure 43 Incorrect position of the safety cover

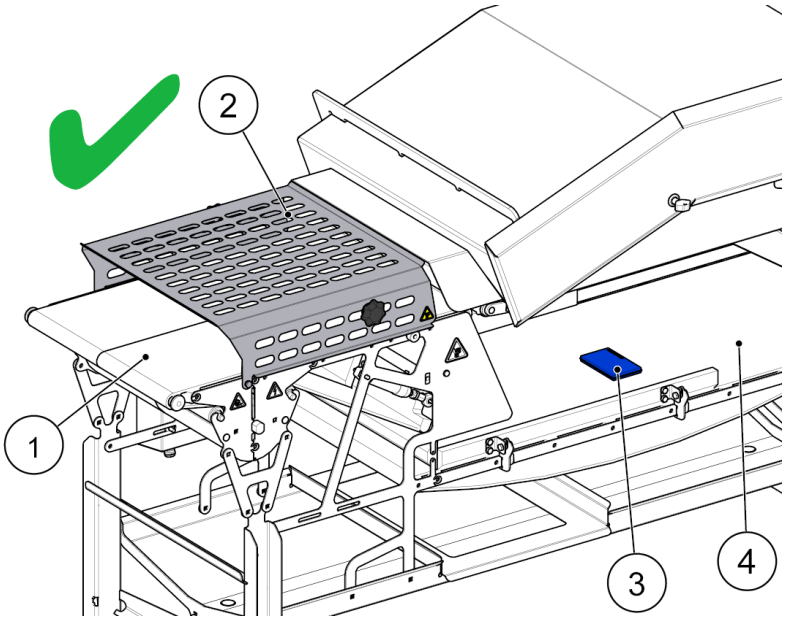


Figure 44 Correct position of the safety cover

1	Outfeed conveyor	3	Test block
2	Safety cover	4	Return conveyor

	NOTICE
	Do not attempt to remove the test block before it lands in the bin or on the belt because you may pinch your hand in the reject.

	REMARK
	If the results are not as expected, contact your local Marel service personnel.

During Operation

1. You must monitor and make sure that the pieces are separated and their location on the belt must be correct. You can monitor the infeed from the Main Production Screen and from the Information Screen. See "The Main Production Screen", and For more information, see "Information Screen" on page 28..
2. Calibrate the machine during production breaks (For more information, see "Gain Calibration" on page 34.).
3. If the product type changes, you may want to switch to another program.
4. As the pieces become thicker and/or larger, the scope of the X-ray beam narrows. Therefore, make sure the pieces are correctly positioned. The X-ray beam is 500 mm (21 in) wide when it is 25 mm above the conveyor belt.

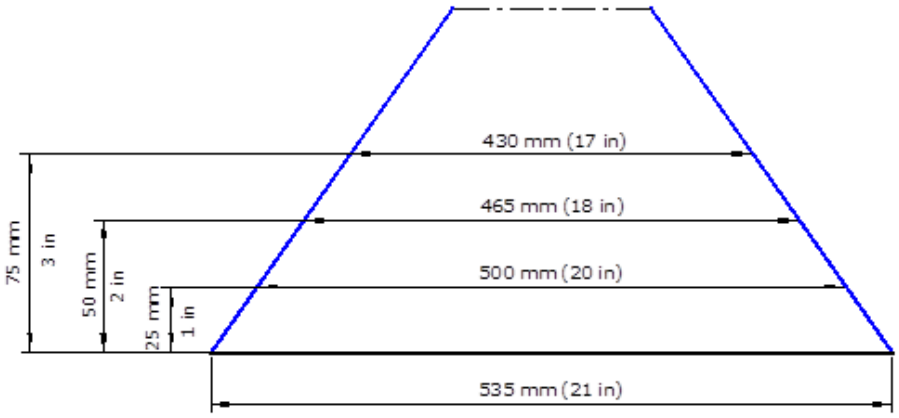


Figure 45 X-ray beam ranges

5. You must search and remove bones, and then rescan the product that has been diverted to the contaminants gate.

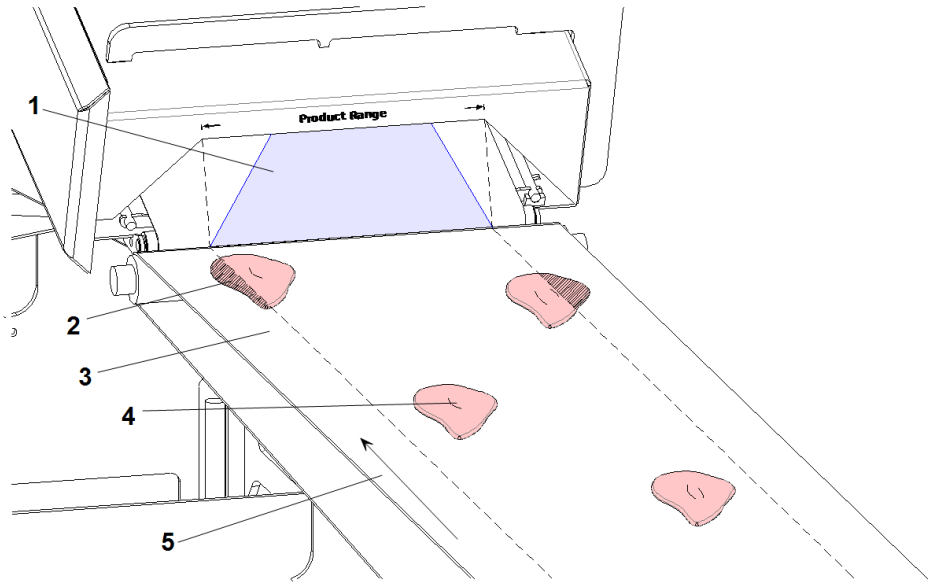


Figure 46 Positioning raw material in the product range

Table 7 Individual machine parts where raw material is positioned on the SensorX

1	Product range	**4**	Raw material
2	Product out-of-bounds	**5**	Running direction
3	Infeed belt		

	REMARK
	A bone in the out-of-bounds area will not be detected and the piece goes through the machine as a bone-free piece. However, the machine has the option to reject pieces that go in the out-of-bounds area. Contact your local Marel representative for your preferred settings.

After Operation

1. Tap the Start/Stop button on the Main display to shut down X-ray radiation and the belt.
2. Remove the X-ray key to prevent unauthorized operation.
3. Leave power on the machine.
4. Put the machine in washing mode before cleaning.

	REMARK
	When you leave SensorX 502 connected to electrical power, you should always **remove** the key from the X-ray lock. Store the key in a safe place to prevent unauthorized operation of the unit.

We recommend that you always leave SensorX 502 powered ON during production breaks and off-periods. This keeps the unit's internal temperature control active and prevents variations in temperature, one of the factors that can affect the unit's performance.

During cleaning the Mains switch should be ON. The safety functionality remains activated in Washing mode so opening covers and pressing emergency stop will work as expected.

Leave the Lockout switch in ON position (like in normal operation) if you need to run the belts but make sure covers are closed. If you need to remove the belts, rollers or disassemble any parts of the system it is recommended that the machine is locked out by putting the Lockout switch in OFF position.

Troubleshooting

This section describes unexpected scenarios that may occur and how you should react.

Table 8 Troubleshooting

Description:	Action:
X-ray generator does not start	Make sure all safety devices are in a proper state. Use Alarm screen.
Diminished contaminant detection/CL-measurement accuracy or weight	Make sure the SensorX 502 machine is warmed up and gain calibrated with no material on belt. Make sure the plastic strips above and below the conveyor belt inside the SensorX 502 are clean and dry. Make sure to clean belts that have collected much dirt.
Diminished bone detection accuracy	The unit may need calibration. Also, make sure the plastic strips above and below the conveyor belt inside the unit are clean and dry. If the belt has collected much dirt, clean the belt and adjust the scraper.
Defect reject mechanism	Check if the air supply to the reject mechanism is in order.
Other problems	Power OFF the machine, and then turn the power ON again after 60 seconds. This resets all software components. If all fails, contact your local SensorX 502 representative to have our technical personnel attend to the problem.

Maintenance

General Instructions

This chapter describes preventive maintenance of the SensorX 502 and various adjustments that may have to be made to the machine.

In order to ensure optimal performance and maximum lifespan for SensorX 502, the following should be maintained:

- Keep the SensorX 502 clean.
- Keep the mains breaker on at all times. Normally, do not unplug the machine as this shuts off the thermostat in the electrical cabinet and moisture may condense in the stainless steel cabinet.
- Keep the water nozzles clean. Check the nozzle every 40 working hours.

The conveyor belt on the SensorX 502 requires continuous monitoring. The belt soaks up particles from the raw material and darkens after being in use for a while. Therefore:

- Clean the belt carefully (see page 72 for more details).
- Replace the belt when necessary.
- Check if perforations are in order.

Maintenance Schedule

This chapter describes preventive maintenance of the SensorX 502 and various adjustments that may have to be made.

Table 9 contains the maintenance schedule for the system.

Table 9 Maintenance schedule

Every 40 operating hours:	• Check the water nozzle, if used.
Daily:	• Check motor and belts for abnormal noise or oil leak. • Check that the conveyor belts are clean and free of dirt particles. Replace the belts, if necessary. • Check that all product sensors are clean and correctly positioned. • Clean the SensorX 502 System. • Inspect the water ventilator daily to make sure it is operating normally.
Weekly:	• Check the drum motors for abnormal noise. • Check the general condition of the belts. • Make sure the steel safety switches on the safety covers are in order. • Make sure the emergency stop is in order. • Check the condition of the cooling fan filter and replace if necessary. • Check the condition on belt rollers and bushings. Replace if necessary. • Check all air cylinders. • Wipe cylinder piston rods with an oiled cloth at the end of the work week.
Monthly:	• Check the emergency stops. • Check the sprockets for wear. • Check the belt tension. • Check the belt supports for wear. • Remove and wash the plastic modular belts.
Every six months:	• Biannual service performed by Marel service personnel.

Beginning of every working shift	• Check all belts to make sure they are in the right place. • Check whether the weighing bins are properly mounted and lids are able to move without friction • Check whether the side guards are in upright position.
Every working shift:	• Check for broken links in the plastic modular belt. • Check if all bins are properly positioned and firmly in place.
Daily:	• Check motors and belts for abnormal noise. • Check that the conveyor belts are clean and free of dirt particles. Replace the belts, if necessary. • Check the movement, both horizontally and vertically of the gate arms. The movement should be easy and with no friction. • Clean the system.
Weekly:	• Check the idle end for abnormal noise. • Check the general condition of the belts. • Check all air cylinders. • Wipe the cylinder piston rods with an oiled cloth at the end of the work week. • Check the function and state of the gate arms.
Monthly:	• Check the emergency stops. • Check the sprockets for wear. • Check the belt tension. • Check the belt supports for wear. • Check the bushings of the idle end sprockets (discharge unit). • Remove and wash the plastic modular belts.
Every six months:	• Biannual service performed by Marel service personnel. • Inspection of the load cell(s) and the pneumatic and electrical system. • Check the calibration on the SensorX25
After 10.000 operating hours:	• Change the oil in gear motors.

Maintenance Procedures

Procedures for maintaining individual parts of the SensorX 502 are described in the following.

Pneumatic System

To operate properly, the system requires a constant level of air pressure. This is best achieved by setting the pressure to the recommended level while the unit is running (see " Pneumatic Installations" on page 8).

If you increase the air pressure after the air cylinders have been adjusted, the cylinders move faster and the shock is harder. If the pressure is decreased, the opposite happens, a slower and softer cylinder movement.

The water trap in the air cabinet (see Figure 47) is equipped with an automatic water ventilator.

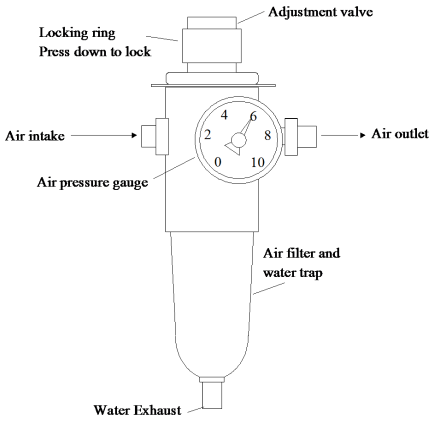


Figure 47 Air cabinet, air pressure regulator

To maintain the pneumatic system:

- Inspect the water ventilator daily to make sure it is operating normally.
- Replace the filter in the water trap when dirty.
- Keep the operating air pressure at 7 bar.

Air Cylinders

To ensure the duration of the air cylinders, the following maintenance procedure should be implemented at the end of every week or whenever the SensorX 502 is inactive for more than a day.

To maintain the air cylinders:

- After the SensorX 502 has been cleaned and shut down, wipe the piston rod in every air cylinder with an oiled cloth.

To replace and adjust the air cylinders:

> **WARNING**
> **Use extreme caution while adjusting the air cylinders with air pressure and power on the unit. Always stop the belt before adjusting the cylinders.**

Due to wear an air cylinder may have to be replaced from time to time. In that case, note the following:

- Always stop the belt before adjusting the cylinders.
- After replacing a cylinder, you must adjust it. Before you do, make sure the air pressure for the unit is at the correct level.
- After the cylinder has been replaced, make sure the piston does not knock against the enclosure.
    - Adjust the shock absorbing mechanism in the cylinder by turning the small adjustment screws on both ends of the cylinder (see Figure 48, **B** and **D**).

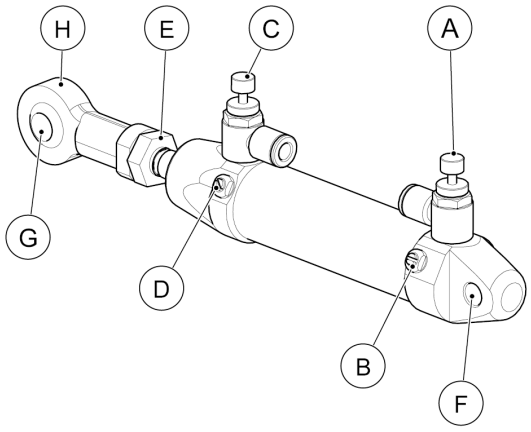


Figure 48 Adjusting the shock mechanism

A=speed adjustment screw, **in** movement
B=shock absorbing adjustment screw, **in** movement
C=speed adjustment screw, **out** movement
D=shock absorbing adjustment screw, **out** movement
E=piston length, adjustment screw
F,**G**=bolt connection
H=ball joint eye

- Make sure the bolt connection **F** (to the frame) has room to rotate.
- Tighten bolt connection **G** (to the gate arm). If a plastic ball joint eye **H** without a steel insert is used, do not fasten the bolt too tightly. Steel ball joint eyes, however, should be tightened firmly.
- Check the operation of the cylinders

To adjust air cylinder speed and buffer cushioning:

- Always stop the belt before adjusting the cylinders.
- To adjust the **out** speed of the piston rod, adjust the speed adjustment screw at the front end of the cylinder (see Figure 48, **C**).
- To adjust the **in** speed of the piston rod, adjust the speed adjustment screw at the rear end of the cylinder (see Figure 48, **A**).
- The speed of the cylinders has to be the same as the belt. When the cylinder opens in the same direction as the running direction of the belt, the cylinder has to close faster than the belt speed (this applies only to the reject on the outfeed unit).

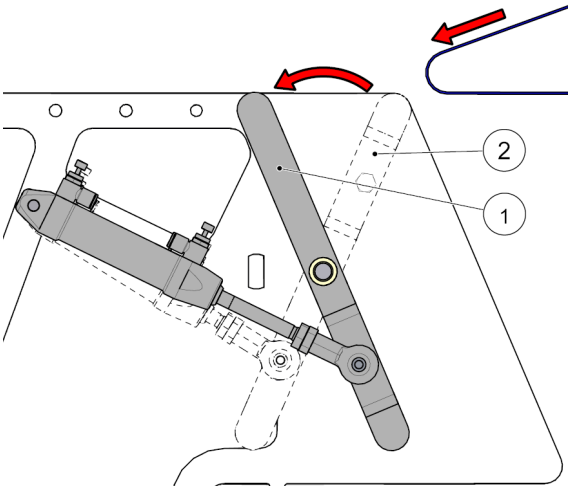


Figure 49 Cylinder and flipper plate

1	Cylinder and flipper plate in open position
2	Cylinder and flipper plate in closed position

When the right piston speed has been reached, you must adjust the cylinder's buffer cushioning. The cushioning is to minimize the effect of the shock on the equipment when the reject stops abruptly:

1. Adjust the cushioning for the **out** movement with the adjustment screw (see Figure 48, **D**). Turn the screw clockwise to increase the cushioning effect, counterclockwise to decrease the effect.
2. Adjust the cushioning for the **in** movement with the adjustment screw (see Figure 48, **B**). Turn the screw clockwise to increase the cushioning effect, counterclockwise to decrease the effect.

Product Sensors (Only on Rework Terminals)

The product sensors are located on the return conveyor and the elevating conveyor.

Do not allow dirt to build up on or around the sensors. The sensor consists of a light transmitter and receiver. Both parts of the sensor and the entire area between them must be kept clean at all times, or else the light beam may be interrupted.

If the product sensor needs to be replaced, you must adjust the light beam.

To adjust the light beam:

1. Set the height of the light beam across the belt to approximately 5-10 mm (0.2-0.4 in) above the belt.

This is to make sure that a small build-up of dirt and the like on the conveyor belt does not interrupt the light beam.

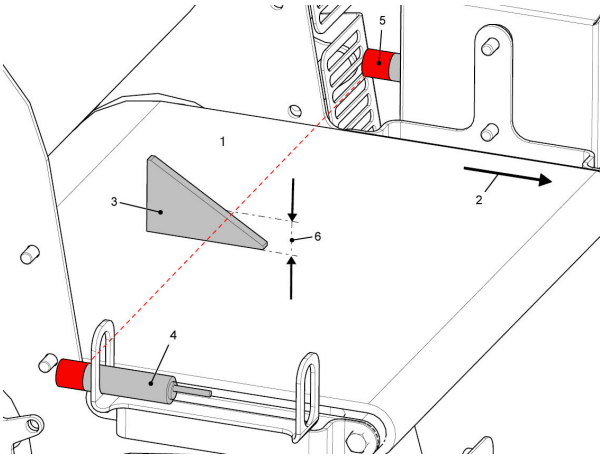


Figure 50 Adjusting the light beam

1	Belt	**3**	Wedge	**5**	Sensor
2	Direction	**4**	Sensor	**6**	Beam height

2. Adjust the light beam. Use, for example, a small wedge-shaped piece of cardboard: Place the wedge in front of the light beam, and check when the beam is interrupted. The height of the light beam can now be measured as the height of the wedge where it crosses the light beam.
3. Check the height from both sides of the belt and from the center.

Belt on SensorX X-Ray Inspection Unit

Remove the belt from the machine for cleaning. Remove the tensioning roller and the scraper.

Check the perforation along the belt's edges for wear. If the holes are worn **2,** the belt **3** should be replaced (see Figure 51).

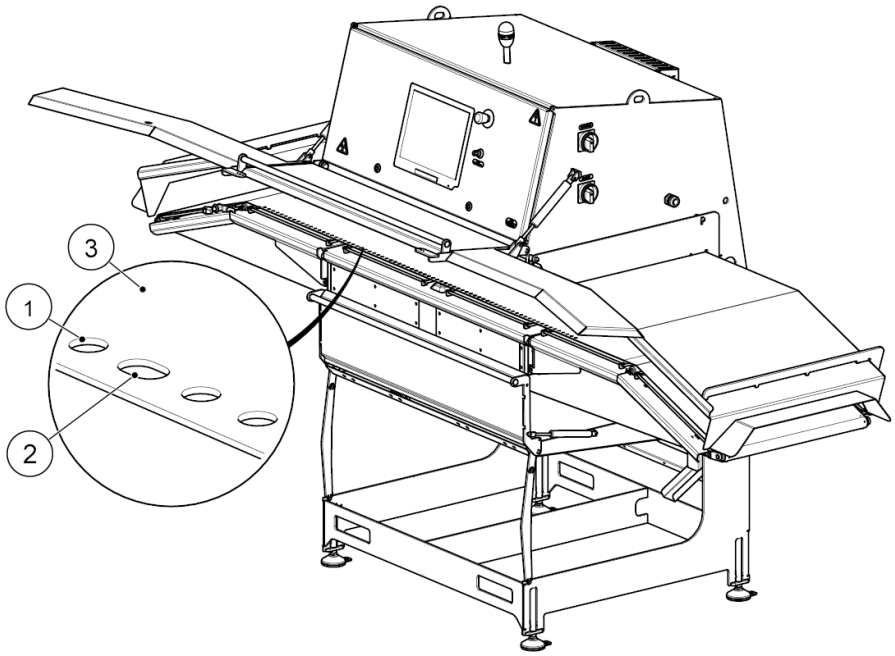


Figure 51 Wear in belt perforation

Table 10

1	Normal hole	**2**	Worn hole	**3**	Belt

Belts on the System Conveyors

It is very important that the belts on the SensorX 502 system are well maintained.

NOTE
A broken link or section in a belt presents danger to both equipment and operators. If the broken section is caught on something, a large section of the belt will be torn up, causing downtime and expensive belt replacement.

- Check the belts for broken sections or links at regular intervals.
- It is very important for proper operation that the links in the belts do not stick and thus prevent the belts from rotating smoothly on the sprocket wheels.
- Make sure that all belts are centered.
- Store your spare belts away from dust and other debris.

- If you need to replace the belt, follow the instructions in the belt manufacturer's instructions delivered with the equipment and be sure to check the quality of the belt as described below.

Belt Quality

It is important to check the quality of the belt at regular intervals:

1. Look for sticking rods and for dirt that makes the links stiff. In case some of the links are stiff because of dirt, clean the belt more thoroughly, or replace the stiff links with new ones.
2. Make sure the rods have not been damaged by tools, for example screwdrivers or pliers.
3. Before installing a new belt, place it on a bench, pick up one link at a time, and bend the link back and forth to check if it moves freely.

Belt Tension

It is important to keep proper belt tension in order to prevent the belt from slipping on the drive sprockets. All belts should be adjusted to have a proper "sag".
A new belt loses tension relatively fast, and therefore it is often necessary to remove a link from the belt after few weeks of use.

The conveyor belt expands and contracts, for example due to external factors such as changes in temperature, which makes it necessary to accommodate the change in the belt length. This is done by providing one or more unsupported sections on the belt's return side (underside) where the belt may sag. Here, the unsupported section of the belt hangs under its own weight, providing the extra belt length.

NOTE
Be careful not to let the sagging belt reach the conveyor frame or floor. This greatly reduces the belt tension and may cause sprocket disengagement.

Motors

There are two types of motors: drum motor, and gear motor. The drum motor is maintenance-free, but the gear motor needs maintenance.

For both types of motor, the following should be observed:

- Inspect the motors every day of operation. This is necessary to ensure that they run normally and that there is no abnormal noise from the motors. Check for oil leaks.
- Check regularly if the motor cable conduit and the nipple on the motor box are tight enough to prevent water from entering the motor.
- Check wear on sprockets.

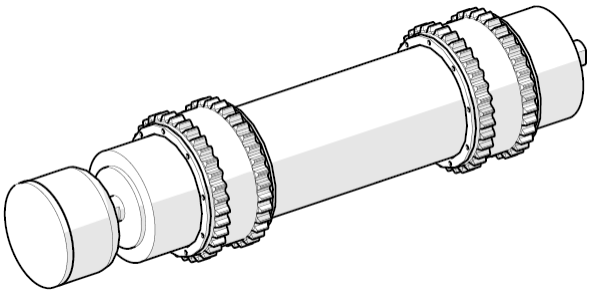


Figure 52 Drum motor with sprockets

For gear motor, also follow these instructions:

- Change the oil on the gear motors after every 10,000 operating hours.
  For refill, use EG gear oil SAE 90. For further details see the motor manufacturer's instructions.
- Check if homogeneous belt sits properly and holes on belt are aligned with pins in motor.

Emergency Stop Button

Test the emergency stop button at least once every week to check if the button functions as designed. Press the emergency stop, and notice if the X-ray generation and belt stop For more information, see "Controls and Indicators " on page 23..

Filter

Check condition of the filter every week. Open waterguard and flip down the lower duct **1** and lift up the filter frame **2** and place the filter **3** between the two filter frames.

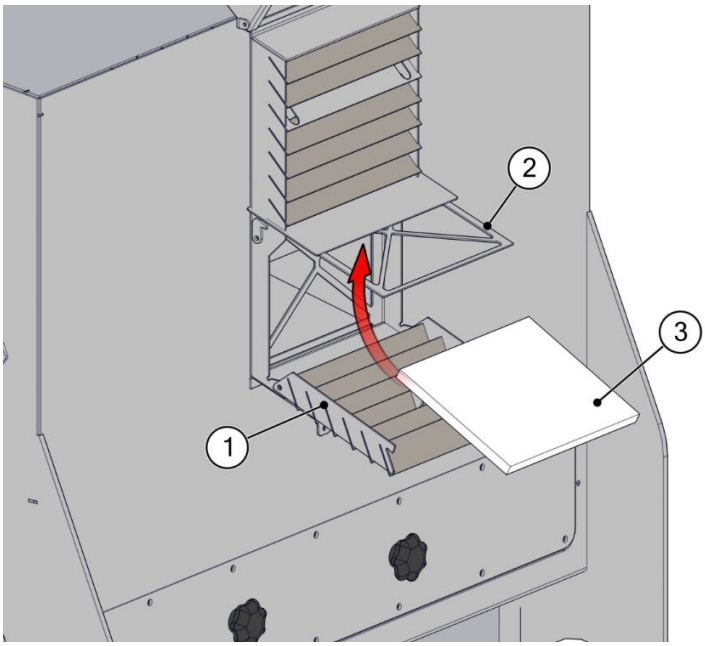


Figure 53 Filter position

Cleaning

Cleaning in General

The following sections contain general instructions for good cleaning practices which Marel considers appropriate for Marel equipment. The instructions are not a proposal for a complete cleaning plan for the user. The best available practices should be used at all times.

We recommend that you request an introduction to recommended cleaning agents and their use, from a qualified distributor of cleaning solutions. Selecting a sanitizer depends on the type of equipment to be sanitized, the hardness of the water, the application equipment available, the effectiveness of the sanitizer under site conditions, and cost.

Only approved sanitizers should be used in food processing plants. Lists of approved sanitizers are published by the authorities in most countries; see for example the Code of Federal Regulations in USA.

If you have questions on which sanitizer to use or on what is the appropriate solution strength, request technical advice from a reputable sanitizer manufacturer.

- It is very important that SensorX 502 is thoroughly cleaned every day after operation.
- In general, do not use excessively strong solutions of detergent. Chlorine disintegrates belts and strong base solutions (pH>13) corrode aluminum parts, air cylinders for example. The use of chlorine may cause rust spots to appear on the stainless steel.
- High-pressure water jets can easily damage sensitive mechanisms in the equipment. Therefore, do not use high-pressure water jets on the indicators (controller displays), product sensor and load cell, the electrical cabinets, or motor.
  Instead, use low water pressure (tap water), or clean these parts by hand and pour water over to rinse.

Materials Used in Marel Equipment

The materials listed here are common in Marel equipment. Use the list to determine the chemical tolerance of individual parts of the equipment.

	NOTICE
	Specific recommendations on types and strength of solutions used for cleaning or sanitization should, at all times, come from a qualified distributor of cleaning solutions.

Table 11 List of Materials

Material	Used in	Resistance to detergents
Metals:		
Stainless steel	Frames, various parts	High (in normal conditions, for example temperatures between -20 to +30 °C/-4 to 86 °F)
Aluminum	Load cell brackets and spacers, load cells, pneumatic cylinder ends	Low, to strong base solutions
Plastics:		
Polyethylene (PE)	Guides	High
Polycarbonate (PC)	Displays and keyboards	Limited, to strong base solutions
Polypropylene (PP)	Modular conveyor belts	High
Acetyl (POM)	Modular conveyor belts	High, may develop precipitations caused by chlorine
Polyvinylchloride (PVC)	Endless belts of layered PVC and PUR canvas	Low, especially to minimally diluted solutions
Polyurethane (PUR)		

Water and Temperature

- Water can contain a significant number of microorganisms. Therefore, inspection of water used for cleaning should be part of a HACCP plan. All impurities in water can influence the effectiveness of a detergent or sanitizer.
- Water hardness is the most important chemical property which directly effects cleaning and sanitizing efficiency. The pH value for normal water ranges from pH 5 to pH 8.5.
- Soils soluble in water are sugars, some starches and most salts.
- Always use clean water for rinsing and cleaning. Never rinse or clean with seawater.
- Rinse with cold water, except when working with fat products. In that case use 40-55 °C (104-131 °F) hot water to dissolve the fat. Some fats have a melting point below the recommended 40-55 °C, so you should adjust the water temperature accordingly.
- Be careful when using hot water. Some proteins denature in high temperatures and may become difficult to remove.
- Avoid temperatures above 55 °C (131 °F) because of the corrosive nature of most chemical sanitizers.

Detergents

The pH value of detergents used on Marel equipment should preferably be pH 12-13. Strong base solutions are the main ingredients in most cleaning agents, for example potassiumhydroxid (KOH) or caustic soda (NaOH). Because of its corrosive effects, caustic soda is not a desirable detergent for Marel equipment.
If possible, use detergent solutions with KOH instead.

- Always use detergents according to the detergent manufacturer's instructions.
- Do not use a detergent containing sodium hypochlorite for daily cleaning. Sodium hypochlorite is a common ingredient in detergents, but as it contains chlorine it should be used with great care because of chlorine's corrosive effect on stainless steel.

Daily Cleaning

Cleaning is the complete removal of food soils using appropriate detergent chemicals according to instructions. It is important that cleaning personnel have an understanding of the nature of the different types of food soils and the chemistry of their removal.

- Use high alkaline foaming detergent, 1% solution, pH 12-13, for regular daily cleaning. Avoid using a detergent containing a high amount of sodium hypochlorite for daily cleaning. The foaming detergent must be selected carefully and should contain some corrosion inhibitors and preferably potassium hydroxide (KOH) instead of sodium hydroxide (NaOH).
- Spray the detergent on all surface areas and leave it, to work for a time specified by the cleaning agent's manufacturer. Then rinse the detergent off with clean, cold water.
- To kill any remaining bacteria, you must finish the daily cleaning procedure by spraying the surface with an approved chemical sanitizer.

	NOTICE
	Quaternary ammonium compounds (QACs) are widely used in the food processing industry. Keep in mind, however, that while these are effective against most bacteria, they act slowly against some common spoilage bacteria. Many common bacteria may also develop tolerance against QACs, which should therefore not be used for an extended period of time unless they are rotated with compounds of a different type.

- QACs may leave an undesirable film on the surface of the equipment and, as they should not come in contact with food, they should always be rinsed off (before processing is resumed) with cold and, most importantly, clean water.

Sanitization

When choosing a sanitizing agent, please note that chlorine corrodes the stainless steel and disintegrates PVC and PUR belts, especially at higher temperatures. Chlorine is, however, an effective sanitizer, so occasional use of chlorine may be necessary to control the growth of microorganisms.

Marel recommends the following sanitization procedure:

- Spray the sanitizer on surfaces and leave to work according to manufacturer's instructions. Make sure you spray into all corners and hard-to-reach areas.
- After sanitizing, always rinse the equipment carefully with cold and clean water before resuming processing.
- Use chlorine or a comparable sanitizer on the equipment once a week after performing the regular cleaning procedure with a high alkaline foaming detergent.
- Make sure the strength of chlorine, if used, does not exceed 200 ppm.
- On days when chlorine or a comparable sanitizer is not used, use other sanitizers recommended for food processing instead.

	REMARK
	Rotating different sanitizers (for example chlorine, peracid or acid-anionic) in your sanitization program may ensure more effective sanitization.

As chlorine evaporates very quickly, its sanitizing effect will fade soon after it is sprayed on the equipment. Letting chlorine stay on the equipment will not improve the sanitizing effect, but only damage the equipment. Quaternary ammonium compounds are considerably more stable than chlorine and are active for a much longer time. Therefore, the benefit of leaving QACs on the equipment for an extended period of time is much greater.

Training Staff

It is important that new cleaning personnel receive the proper training and are made aware of the proper cleaning procedures for this machine. Demonstrate the cleaning procedures for new personnel using the instructions in the following sections. Make sure the cleaning personnel is familiar with safety rules concerning the use of cleaning agents.

Cleaning Procedures

Before you start cleaning the SensorX 502, follow the instructions below to ensure maximum safety during the cleaning.

Cleaning the SensorX 502 is a procedure in eight steps:

- preparation
- rinsing the nearby environment
- rinsing the SensorX 502
- foaming
- washing
- sanitizing
- assembling after sanitizing
- final inspection

Preparation

1. Secure the machine by turning the Motors switch OFF, unless you are using the Washing mode (optionally, lock the switch with a padlock for additional safety).
2. Remove the X-ray key to prevent unauthorized operation.
3. Unlock and open the conveyor cover. Lift the cover all the way up.
4. At this stage you can run the belt on the machine for rinsing off any major soils.
5. Open the motor cover.
6. Lift up the scraper and two rollers to remove the conveyor belt.
7. Clean the rollers and the SensorX conveyor belt separately.
8. Remove the six wear strip frames or roller frames from the conveyor compartment.

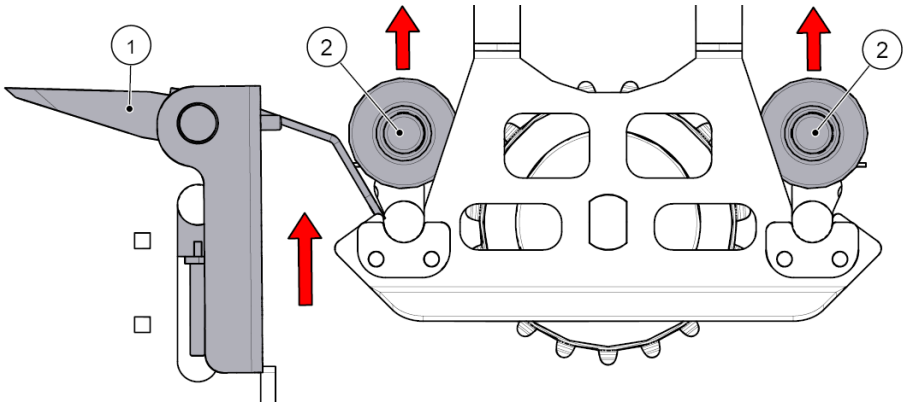


Figure 54 Lifting up the scraper and the belt rollers

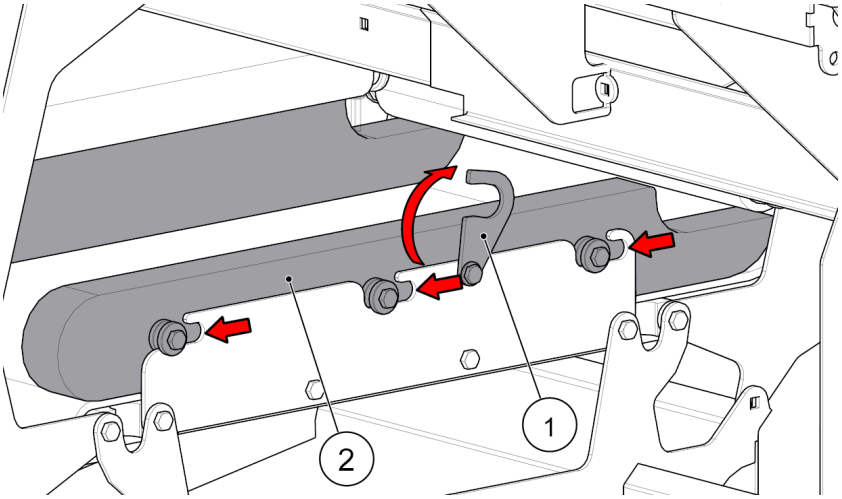


Figure 55 Remove plastic side guides for cleaning

9. Work stations: open the work table and tilt the lamp unit up to prevent the unit from being soaked.

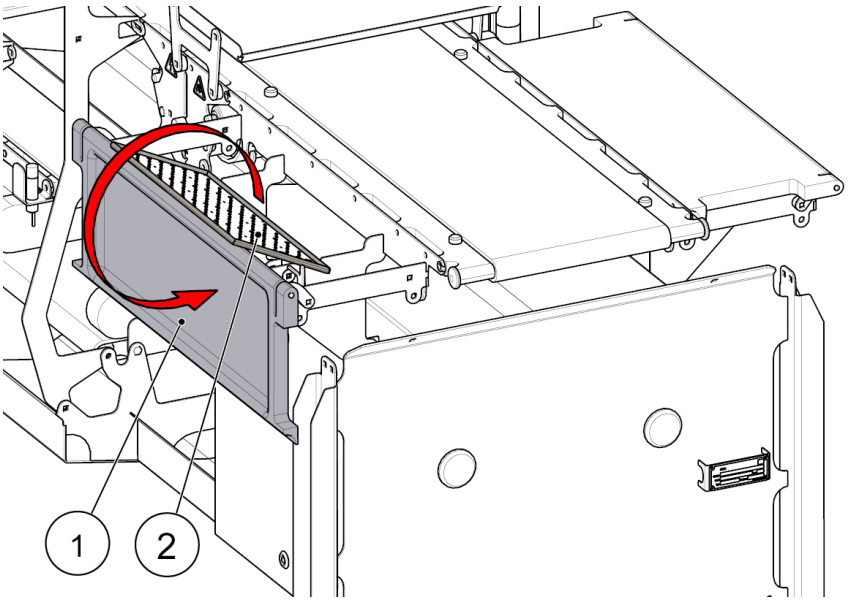


Figure 56 Flip down the work table and tilt the lamp

Rinsing the Environment

1. Thoroughly rinse nearby walls and floor to prevent cross-contamination from the environment after the SensorX 502 has been cleaned.
2. If possible, do not use water temperatures over 55 °C (131 °F) to avoid heat denatured proteins.

Rinsing the SensorX 502

1. Rinse soils off the machine using water jets or a brush. Rinse thoroughly from the top down with clean water.
2. **Do not** insert soils or water in the air duct, which is located at the back of the SensorX machine.
3. Avoid high water pressure in order not to spread the soils all over the machine.
4. If possible, do not use water temperatures over 55 °C (131 °F) to avoid heat denatured proteins.

Foaming

1. Make sure the foam reaches all corners and hard-to-reach areas.
2. Let the detergent work as specified by the manufacturer.

Washing

1. Keep the conveyor belt running while you rinse off dirt dissolved by the foaming, working from the top down using water jets.
2. Use a brush on solid dirt and not easily accessible surfaces.
3. Wash the belt thoroughly every day of operation. For a more thorough cleaning, remove the modular belts at least once a month and soak in a detergent bath.[1] For details on how to remove the belt, see the belt manufacturer's brochure delivered with the SensorX 502 system.
4. Let the SensorX 502 dry as much as possible before sanitizing.

	NOTICE
	Cross-contamination can easily occur if clean surfaces come in contact with other less clean surfaces, for example when you replace belts.

Sanitizing

- All surfaces in contact with the product should be sanitized every day of operation.
- Make sure the surface is as dry as possible before sanitizing, because water remaining from the washing process will dilute the sanitizing agent.
- For the daily sanitization, use sanitizing agents containing, for example, quaternary ammonium compounds. Once a week, sanitize with chlorine (≤ 200 ppm) or a comparable sanitizing agent.
- After sanitizing, rinse the SensorX 502 thoroughly with clean water to eliminate contact between sanitizer and raw material or products in the next production round. This also helps prevent corrosion of the stainless steel by aggressive sanitizers and prevents the forming of an undesirable chemical film.

Assembling After Sanitizing

- Retrace the steps in "Preparation" on page 69 to put the SensorX 502 back into operational condition.

Final Inspection

After cleaning, quality control personnel should evaluate the result of the cleaning process:

- Using your hands, ensure that places are clean where visual control is difficult.
- Regularly measure cleaning results by counting the microorganisms, for example using RODAC cups or ATP measurements.
- After cleaning and sanitizing, make sure that all surfaces dry as well as possible.

[1] The modular belt is heat resistant up to 100° C.

Special Cleaning Instructions

Some parts of the SensorX 502 system require special care during cleaning: the conveyor belt (see page 71), the Main display, and the electrical cabinet.

Cleaning the Conveyor Belts:

- Wash the belts thoroughly every day of operation.
- Remove all belts from the SensorX 502 at least once a week and soak in a detergent bath or spray with detergent.
  Let the detergent work according to manufacturer's instructions.
  For details on how to remove the belt, see the belt brochure delivered with the unit.
- Rinse thoroughly with clean, cold water or soak in clean water.
- Hang the belts up for drying. This is important to prevent bacterial growth which may contaminate food and cause serious infections. In case the belt cannot dry between shifts, we strongly recommend a rotation using a second belt. This will also increase belt life.

	REMARK
	Cross-contamination can easily occur if clean surfaces come in contact with other less clean surfaces, for example when you replace belts.

Cleaning the Main Display:

- Before you start cleaning the display, press the emergency stop button.
- Rinse the Main display thoroughly every day of operation.
- Do not use high-pressure jets on the display. Instead, use low water pressure, or clean by hand and pour water over to rinse.

	NOTICE
	Before you start cleaning the display, press the emergency stop button to prevent an accidental start of the conveyor.

Cleaning the Electrical Cabinet:

- Before you start cleaning the display, press the emergency stop button.
- Open the electrical cabinet at least once a month and check for soils.
- Turn the Mains switch to Off.
- Carefully wipe off the dirt with special attention to possible dirt accumulation in door grooves and the bottom of the cabinets.
- Sanitize places where dirt has accumulated by wiping with a sanitizing cloth.
- Secure the cabinet door and make sure the weather strip is intact and properly in place.
- Turn the Mains switch back to ON position to maintain constant power and prevent condensation of moisture in the unit.

	NOTICE
	Do not use water for cleaning inside the electrical cabinet. The electrical components in the cabinet must never become wet. If they do, you must make sure they are completely dry before the SensorX 502 system is powered on again.

Electrical Parts and Diagrams for SensorX 502

Marel ehf
Austurhraun 9
IS-210 Gardabear

Iceland
T: +354 563 8000
F: +354 563 8001
I: www.marel.com

ELECTRICAL DIAGRAM

SENSOR X SX25

SENSOR X - SX25

3ph230/3ph+N 400 VAC

DRAWING/BOM NO. : 6002449

REFERENCE DRAWING NUMBER	:				
DIMENSIONS OF ENCLOSURE [mm]	:	-		-	
CUSTOMER	:	SENSOR X SX25		-	
CUSTOMER CITY	:			-	
CUSTOMER STATE	:			-	
CUSTOMER COUNTRY	:			-	
AX ITEM NUMBER:	:			-	
AX REFERENCE NUMBER:	:				
NUMBER OF PAGES	:	40	EDITED BY	:	bjorn.fridriksson
HARDWARE ENGINEER	:	GHJ	EDIT DATE	:	2020.08.19 (YYYY-MM-DD)
CREATED ON	:	2018.11.19	PROJECT REVISION	:	G

STRUCTURE IDENTIFIER OVERVIEW

FULL DESIGNATION	LABELING	STRUCTURE DESCRIPTION	FULL DESIGNATION	LABELING	STRUCTURE DESCRIPTION
=GEN	Higher-level function	GENERAL INFORMATION			
=REP	Higher-level function	REPORTS			
+SOV	Mounting location	SYSTEM OVERVIEW			
+CUST	Mounting location	CUSTOMER			
+AQ1	Mounting location	MAIN CONTROL CABINET			
+AV1	Mounting location	VALVE CABINET 1			
+AQ2	Mounting location	MOTOR CABINET			

previous: 1

next: 3

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: STRUCTURE IDENTIFIER OVERVIEW
=GEN GENERAL INFORMATION

LAST EDIT DATE: 2018.10.09
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CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1 PAGE: 2
DWG. NO. 6002449
SHEET / TOTAL : (2 / 40)

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: TABLE OF CONTENTS
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SHEET / TOTAL : (3 / 40)

REVISION OVERVIEW

REVISION	PROJECT REVISION COMMENT	PAGE	PAGE REVISION DESCRIPTION	ENGINEER	DATE
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+SOV/10	UPDATE PARTS		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/7	New page created		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/8	New page created		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/2	New page created		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/3	New page created		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/4	New page created		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/5	New page created		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/6	New page created		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+AQ1/14	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+AV1/24	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/2	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/3	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/4	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/5	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/6	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/7	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=REP/8	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+AV1 (+AV1)	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+AV1/25	MCSTEP > MCSTEP2 UPDATE		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+AQ1/19	MAGNET PART NO UPDATED		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+AQ1/20	MAGNET PART NO UPDATED		2020.08.19
G	MCSTEP > MCSTEP2 UPGRADE	=GEN+SOV/10	PART NO UPDATE		2020.08.19
F	NEW DRAWING NUMBER MADE CHANGE X-RAY WARNING LIGHT	=GEN+AQ1/22	CHANGE X-RAY WARNING LIGHT	BJFR	2018.11.14

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

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Ethernet Cable
RJ-45 8-pin plug or 4-pin plug

8-Pin	4-Pin	Signal	Wire
1	1	Tx+ (Transmit)	WH/OG
2	2	Tx- (Transmit)	OG
3	3	Rx+ (Receive)	WH/GN
4		Not used	BU
5		Not used	WH/BU
6	4	Rx- (Receive)	GN
7		Not used	WH/BN
8		Not used	BN

Can connections
(Combicon Plug)

Pin	Signal	Wire
1	V+ (24Vdc)	RD
2	C+ (Can Hi)	WH
3	Screen	SH
4	C- (Can Low)	BU
5	V- (0V)	BK

Can connections
(9-pin Plug)

Pin	Signal	Wire
2	C- (Can Low)	BU
3	V- (0V)	BK
7	C+ (Can Hi)	WH

Serial Bus

Pin	Signal	Wire
2	RX/TX	YE
3	TX/RX	GN
5	0V	BU

Control cable wire Colour/Number comparison table

Reference table between Colours and Numbers
if data from cable in document is incomplete.

Colour code		Numbers
Blue	BU	1
Red	RD	2
Green	GN	3
Yellow	YE	4
White	WH	5
Black	BK	6
Brown	BN	7
Violet	VT	8
Orange	OG	9
Pink	PK	10
Cyan	CY	11
Grey	GY	12
Red/Blue	RD/BU	13
Green/Red	GN/RD	14
Yellow/Red	YE/RD	15
White/Red	WH/RD	16
Red/Black	RD/BK	17
Red/Brown	RD/BN	18
Yellow/Blue	YE/BU	19
White/Bue	WH/BU	20
Blue/Black	BU/BK	21
Orange/Blue	OG/BU	22
Yellow/Green	YE/GN	23
White/Green	WH/GN	24
Orange/Green	OG/GN	25
Green/Blue	GN/BU	26
Grey/Blue	GY/BU	27
Green/Black	GN/BK	28
Grey/Green	GY/GN	29
Yellow/Brown	YE/BN	30
White/Brown	WH/BN	31
Brown/Black	BN/BK	32
Grey/Brown	GY/BN	33
Yellow/Violet	YE/VT	34
Violet/Black	VT/BK	35
White/Violet	WH/VT	36

Other wire codes

Green/Yellow (PE)	GN/YE	
Screen	SH	
Transparent	TP	
Beige	BE	

INTERNAL WIRE SPECIFICATION

REMARK: USE UL(MTW) WIRE,
RATED VOLTAGE UL (AWM) U:600V, UL (MTW) U:600V

Wiring type		Colour	Cross section
Main current:			
Phase	1-3 Phase	Black	Min. AWG 14
Neutral		Light blue	Min. AWG 14
Control current:			
Vac	Phase, Voltage = mains	Black	Min. AWG 16
	Phase, Voltage < mains	Red	Min. AWG 16
	Switched	Red	Min. AWG 16
	Zero (0Vac)	White	Min. AWG 16
Vdc	+Vdc	Dark Blue	Min. AWG 16
	-Vdc	Dark Blue	Min. AWG 16
	Switched	Dark Blue	Min. AWG 16
	Zero (0Vdc)	White/Blue	Min. AWG 16
External source voltage		Orange	Min. AWG 16
Earthing:			
Main current		Yellow/Green	Min. AWG 10
Control current		Yellow/Green	Min. AWG 16
Door earthing		Yellow/Green	Min. AWG 3
Phase < 16mm²		Yellow/Green	Min. equal to ph.
Phase 16 - 35mm²		Yellow/Green	Min. 7/0
Phase 35 - 400mm²		Yellow/Green	Min. AWG 13/0
Screening:		Black shrink-wrap	
No earth wire		(Yellow/Green not allowed)	

previous: 4

next: 6

DEVICE TAG EXPLANATION

FIRST LETTER IS ACCORDING IEC-EN-81346
SECOND LETTER IS MAREL SUBCLASS DEFINITION FOR E-PARTS

LETTER CODE	DESCRIPTION / EXAMPLES
A	TWO OR MORE PURPOSES OR TASKS
AG	GENERAL ACCESORIES (PANEL ASSEMBLY COMPONENTS)
AK	CONTROL PANEL I/O AND ANALOG PROCESSING
AP	DISPLAY / TOUCH SCREEN / SIGNAL LIGHT BOX / OPERATOR PANEL
AQ	POWER PANEL INCLUDES MAIN VOLTAGE
AS	SWITCH BOX (BOX WITH A SINGLE SWITCH)
AT	TRANSFORMER PANEL / BOX
AV	VALVE PANEL / BOX
AW	CONTROL PANEL WEIGHING
AX	JUNCTION BOX / TERMINAL BOX
AY	OTHERS
AZ	BACKPLATE, MOUNTING PLATE
B	CONVERTING INPUT TO SIGNAL
BA	GAS / LIQUID PRESSURE (E.G. AIR, WATER)
BB	SAFETY LIGHT BEAM/CURTAIN
BD	DIFFUSE PHOTO SENSOR
BE	ENCODER/RESOLVER
BF	LEVEL, FLOAT SWITCH
BH	HEAT PROBE TEMPERATURE
BK	MECHANICAL SWITCH (MICRO, LIMIT SWITCH)
BL	LOADCELL
BM	INDUCTIVE PROXIMITY SENSOR
BN	CAPACITIVE PROXIMITY SENSOR
BO	REED CONTACT/MAGNET SENSOR
BP	PHOTO SENSOR RX/TX
BR	REFLECTIVE PHOTO SENSOR
BS	SAFETY SENSOR (INTRINSICALLY SAFETY FUNCTION)
BT	TAG READER (RF-ID)
BU	ULTRASONIC SENSOR
BV	VISION
BX	X-RAY SENSOR
BZ	LASER SENSOR
C	STORING ENERGY
CA	GAS / LIQUID RESERVOIR (E.G. AIR, WATER)
CC	CAPACITORS
CM	MEMORY
E	THERMAL / RADIANT ENERGY
EF	AIR CONDITIONER / HEAT EXCHANGER
EL	LIGHTS/LAMPS
ER	HEATER (RESISTANCE)
EX	X-RAY GENERATOR
EZ	LASER
F	SELF ACTING PROTECTION
FC	MINIATURE CIRCUIT BREAKER
FO	MOTOR OVERLOAD
FF	FUSE
FM	PROTECTING MODULE CLASS 2
FN	SURGE PROTECTION
FV	VOLTAGE MONITORING
G	INITIATING FLOW OF ENERGY
GB	BATTERY / UPS
K	PROCESSING SIGNALS
KA	ANALOG I/O UNITS
KB	BUS INTERFACE
KC	PROGRAMMABLE CONTROLLER
KD	DIGITAL I/O UNITS
KE	ETHERNET SWITCH / ROUTERS / GATEWAYS
KF	FILTER (EMC, LINE, LOAD)
KH	ENVIROMENTAL CNTR. (THERMOSTAD, HUMIDITY)
KR	RELAY, GENERAL
KO	RELAY, OPTO
KP	RELAY, SOLID STATE
KS	RELAY, SAFETY / CONTROLLER
KT	RELAY, TIMER
KV	VALVE, SOLENOID
M	PROVIDING MECHANICAL ENERGY
MA	CYLINDER / ACTUATORS
ML	LOW VOLTAGE MOTORS (<50V)
MT	MOTORS, WITH INTERGRATED FREQUENCY INVERTER
MS	MOTOR, SERVO
MV	MOTOR, VIBRATOR
M	MOTORS, GENERAL (>50V)
P	PRESENTING INFORMATION
PD	OPERATOR INTERFACE (HMI, HIM ETC.)
PJ	AUDIBLE PRESENTATION (BELL, SIRENE, HORN)
PL	VISUAL PRESENTATION (SIGNAL LIGHT, LED, MIMIC PANELS)
PM	PANEL METERS (AMPS, VOLTS, WATTS, HOURS, PRESSURE)
PP	PRINTER
Q	CONTROLLED SWITCHING ENERGY
QC	POWER CONTACTORS
QF	MOTOR CIRCUIT BREAKER
QM	MOTOR STARTER / SOFT STARTER
QR	POWER SWITCH (DISCONNECT)
QP	MOTOR PROTECTION
R	RESTRICTING / STABILIZING MOTION OR ENERGY
RA	AIR PRESSURE REGULATOR
RD	DIODE
RR	RESISTOR
RY	INDUCTOR
S	CONVERTING MANUAL OPERATION TO SIGNAL
SC	CONTROL SWITCH (PUSHBUTTON, SELECTOR SWITCH)
SE	EMERGENCY STOP, PULL CORD
SK	KEYBOARD
SS	SAFETY SWITCH
T	CONVERSION OF ENERGY
TA	AMPLIFIER
TC	SIGNAL CONVERSION
TD	DIAGNOSTIC ADAPTER (CAN, ETHERNET)
TF	MOTOR CONTROLLER (FREQ. INVERTER, SERVO)
TP	POWER SUPPLY, DC
TV	VIBRATOR CONTROLLER
TT	TRANSFORMER
U	KEEPING OBJECTS IN POSITION
UU	HOLDING / SUPPORT BRACKETS (INSULATOR)
V	PROCESSING, TREATING MATERIALS
VF	NON ELECTRICAL
W	TRANSPORTING ENERGY, SIGNALS, MATERIALS
WA	CABLE ASSEMBLY (E.G. CABLE LOOMS)
WB	BUS CABLES (CAN, ETHERCAT)
WC	CONTROL CABLES (<50V)
WE	ETHERNET CABLES
WM	MOTOR CABLES
WP	POWER CABLES (>50V)
WX	PREFABRICATED CABLES
W	CABLE, GENERAL
X	CONNECTING OBJECTS
XB	BUS CONNECTION MODULE
XC	CONTROL CONNECTOR (<50V)
XD	I/O CONNECTION MODULE
XF	AIR FITTINGS
XG	WIRE TERMINATION ACCESORIES (FERULE, WIRE NUMBER)
XP	POWER CONNECTOR (>50V)
X	TERMINALS

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: PROJECT SPECIFICATION
=GEN GENERAL INFORMATION

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CREATED ON: 2018.11.19 BY: GHJ

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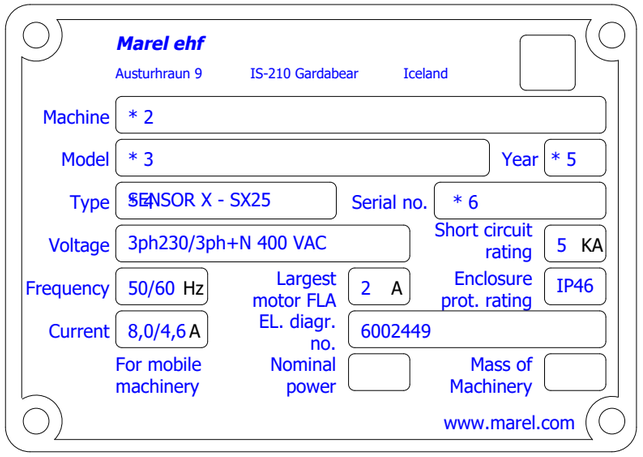
SHEET / TOTAL : (6 / 40)



MACHINEPLATE INFORMATION

* 2	MACHINE:	MACHINE NAME:	SEE INFORMATION FROM PRODUCTION SYSTEM
* 3	MODEL:	MACHINE CODE NO:	SEE INFORMATION FROM PRODUCTION SYSTEM
* 4	TYPE:	BOM LIST NO:	SEE INFORMATION FROM PRODUCTION SYSTEM
* 5	YEAR:	MANUFACTURING YEAR	SEE INFORMATION FROM PRODUCTION SYSTEM
* 6	SERIAL NO:	SERIAL NUMBER:	SEE INFORMATION FROM PRODUCTION SYSTEM

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: TAG PLATES
=GEN GENERAL INFORMATION

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SHEET / TOTAL : (7 / 40)

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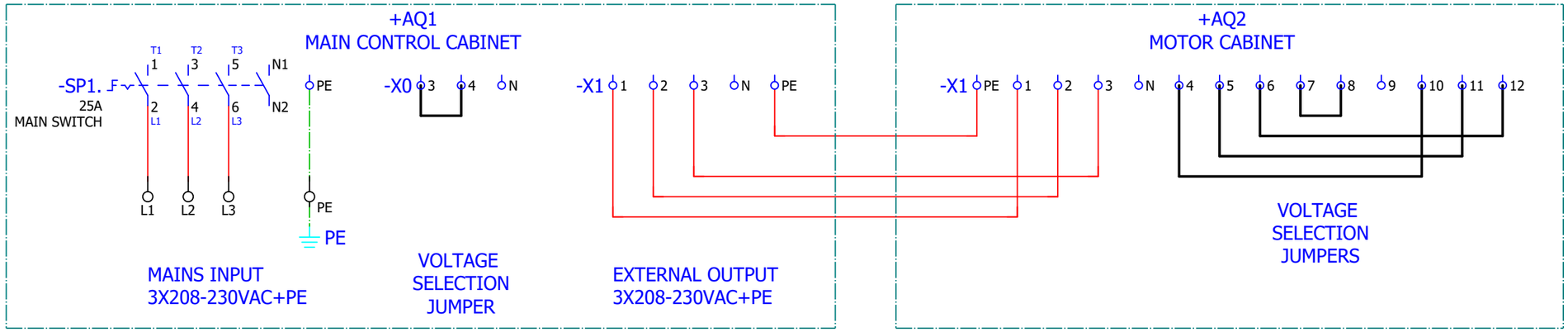
EXAMPLE 1



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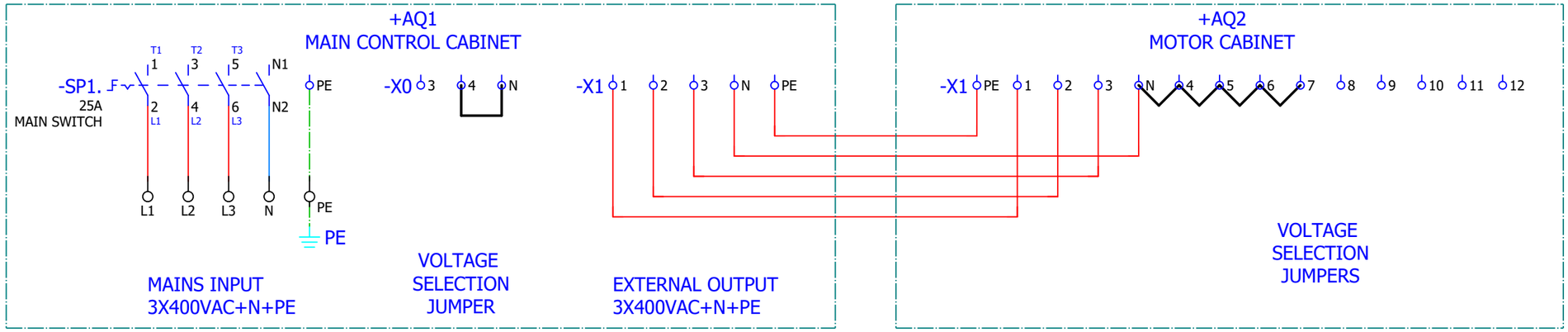
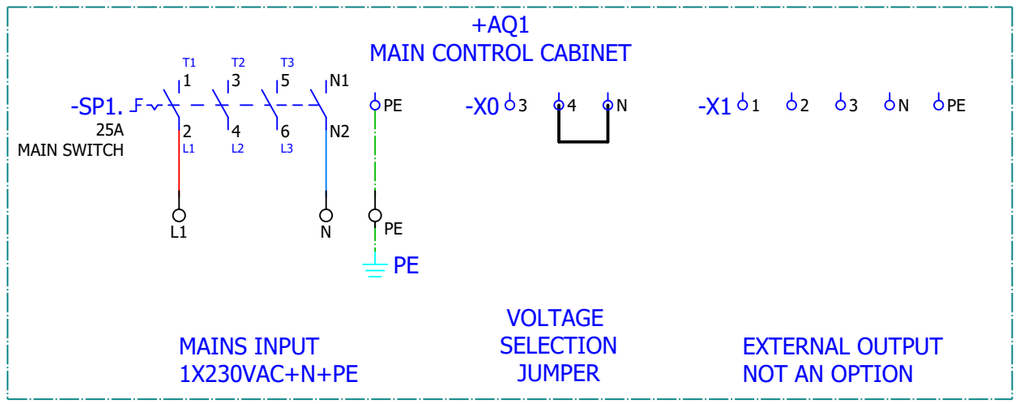


EXAMPLE 3



previous: +/8
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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CONNECTION DIAGRAMS
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVIEW

LAST EDIT DATE: 2018.10.10
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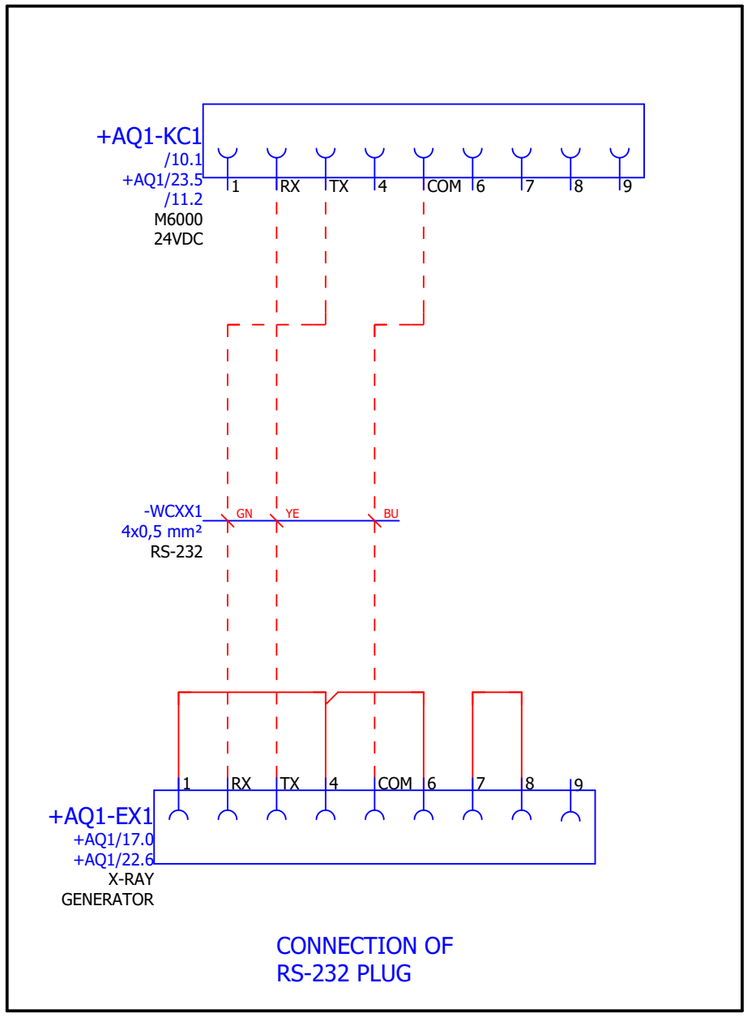
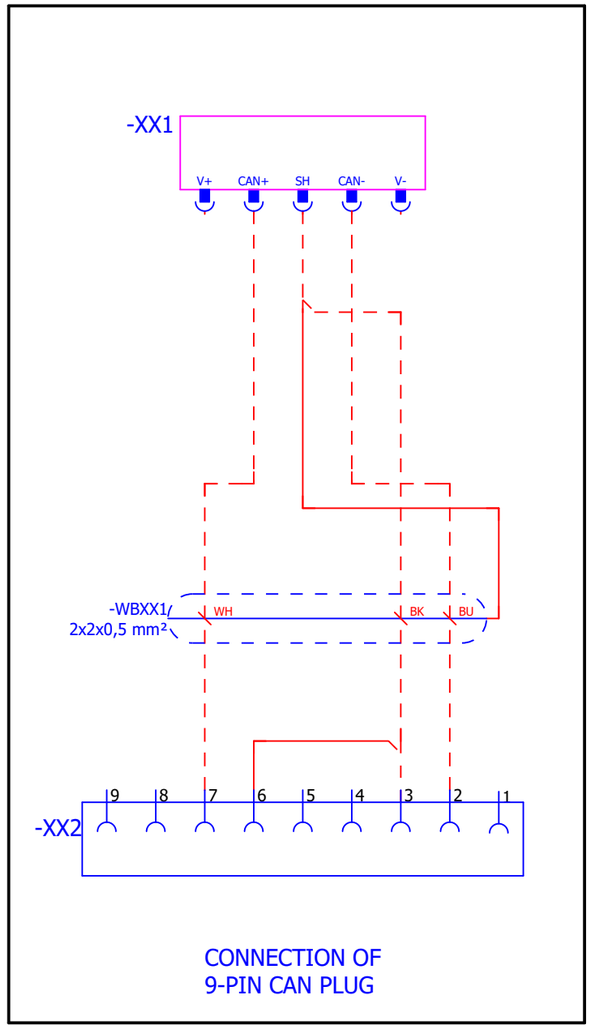
SHEET / TOTAL : (9 / 40)



CONNECTION OF
RS-232 PLUG



CONNECTION OF
9-PIN CAN PLUG

CAN CONNECTIONS		
PIN	SIGNAL	WIRE
1	V+ (24VDC)	RD
2	C+ (CAN HI)	WH
3	SCREEN	SH
4	C- (CAN LO)	BU
5	V- (0V)	BK

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next: 10

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: RS232 & 9 PIN CONNECTOR
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVIEW

LAST EDIT DATE: 2018.10.10
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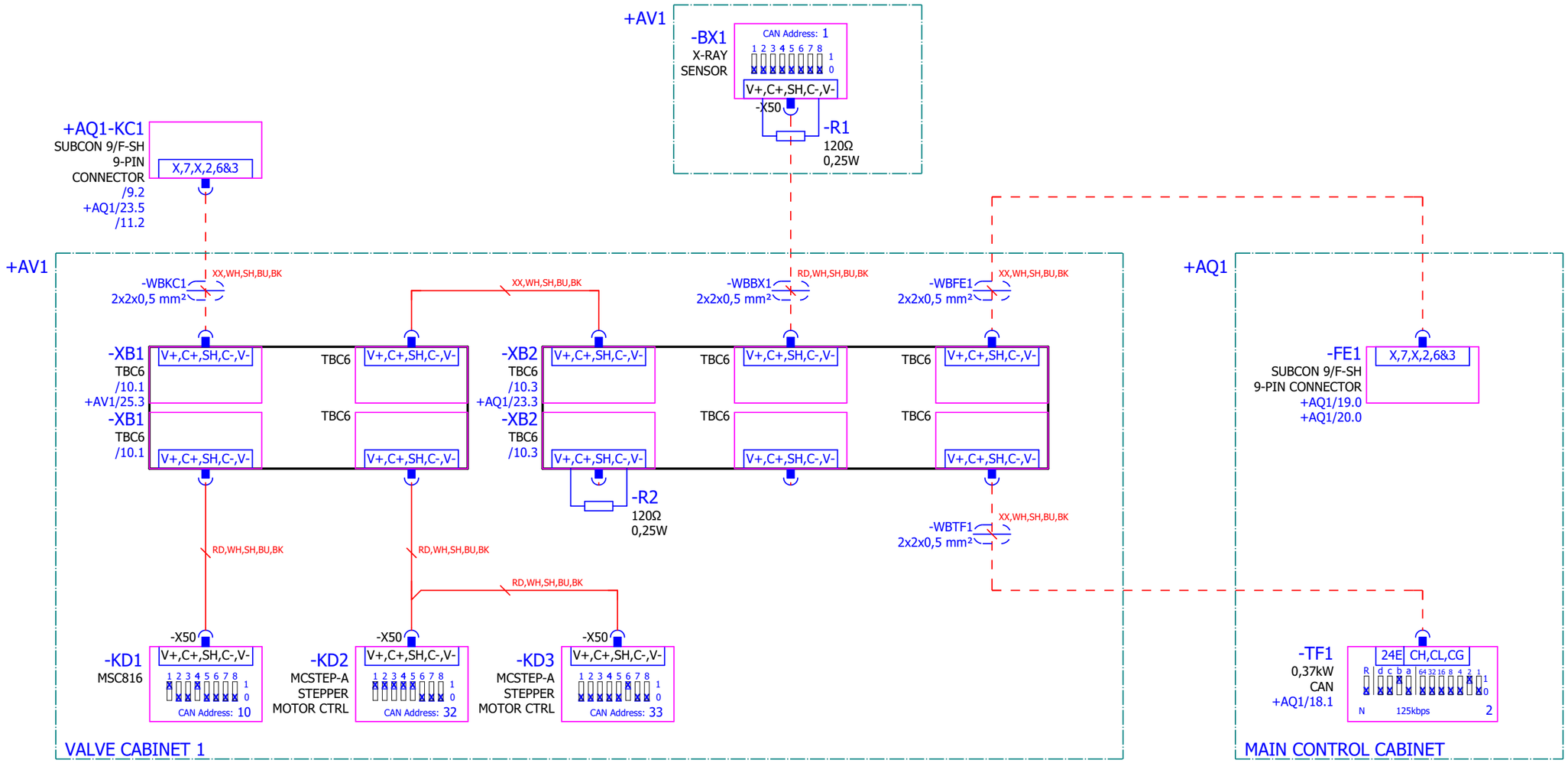

CAN CONNECTIONS		
PIN	SIGNAL	WIRE
1	V+ (24VDC)	RD
2	C+ (CAN HI)	WH
3	SCREEN	SH
4	C- (CAN LO)	BU
5	V- (0V)	BK

NOTE:
CAN TERMINATION RESISTORS R1 AND R2
ARE PLACED AT EACH END OF CAN NETWORK.

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CAN OVERVIEW, SX23 AND SX25
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVIEW

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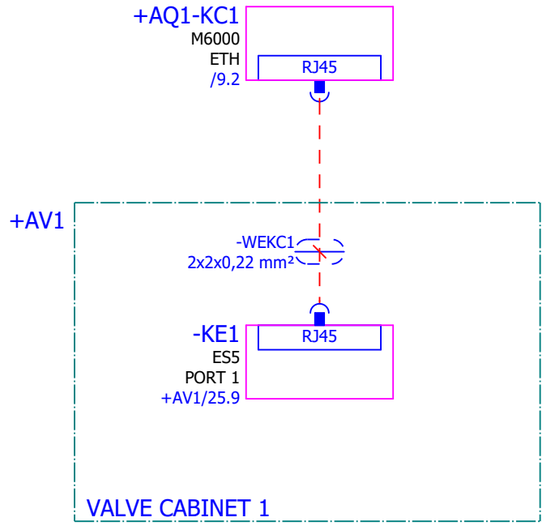

Ethernet Cable RJ-45 8-pin plug or 4-pin plug			
8-Pin	4-Pin	Signal	Wire
1	1	Tx+ (Transmit)	WH/OR
2	2	Tx- (Transmit)	OR
3	3	Rx+ (Receive)	WH/GN
4		Not used	BU
5		Not used	WH/BU
6	4	Rx- (Receive)	GN
7		Not used	WH/BN
8		Not used	BN

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: ETHERNET OVERVIEW, SX23 AND SX25
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVIEW

LAST EDIT DATE: 2018.10.10
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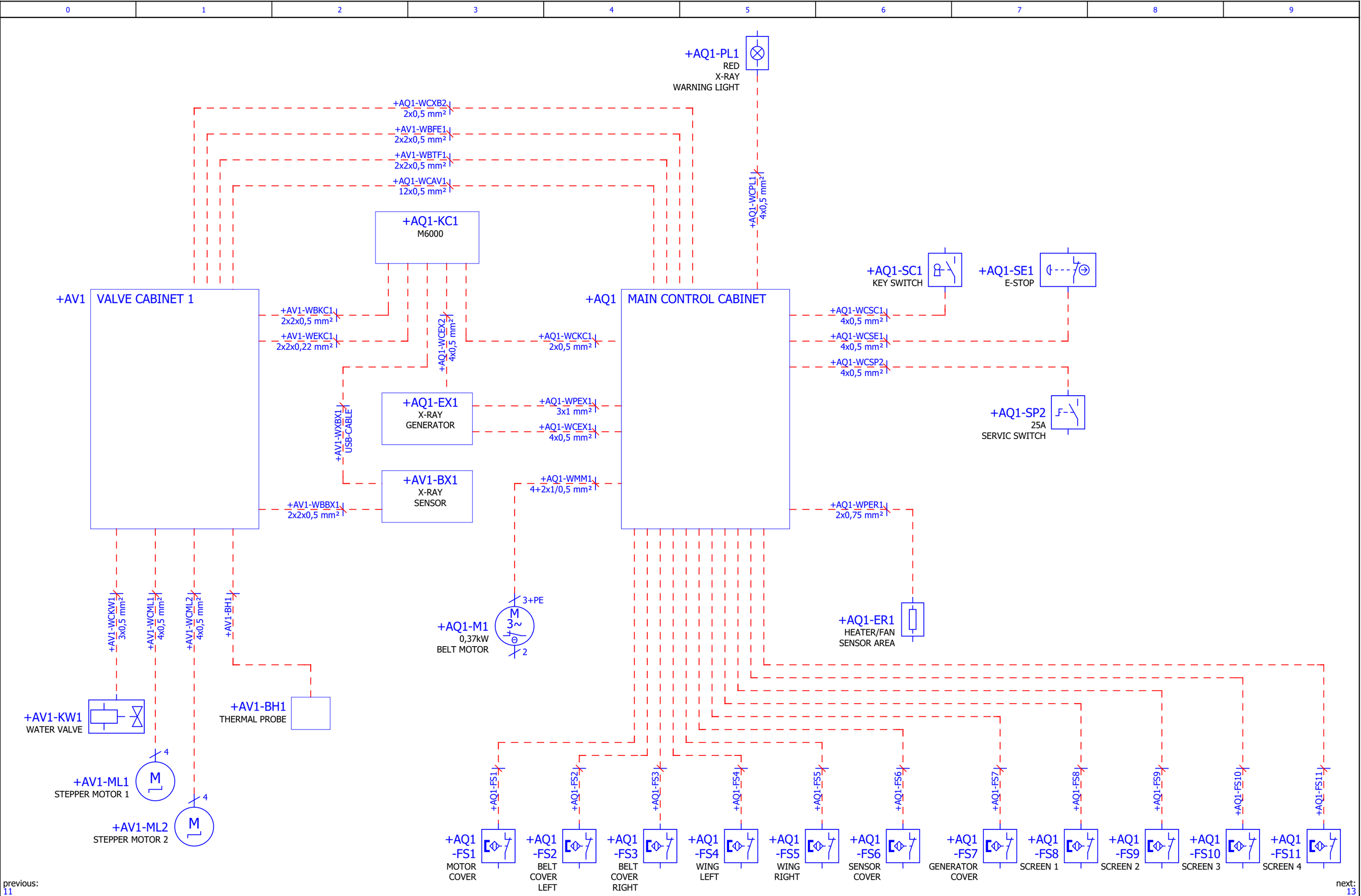

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PROJ. TYPE: SENSOR X - SX25
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PAGE DESCR.: SYSTEM LAYOUT, CABLES, SX25 SENSOR X 25
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVIEW

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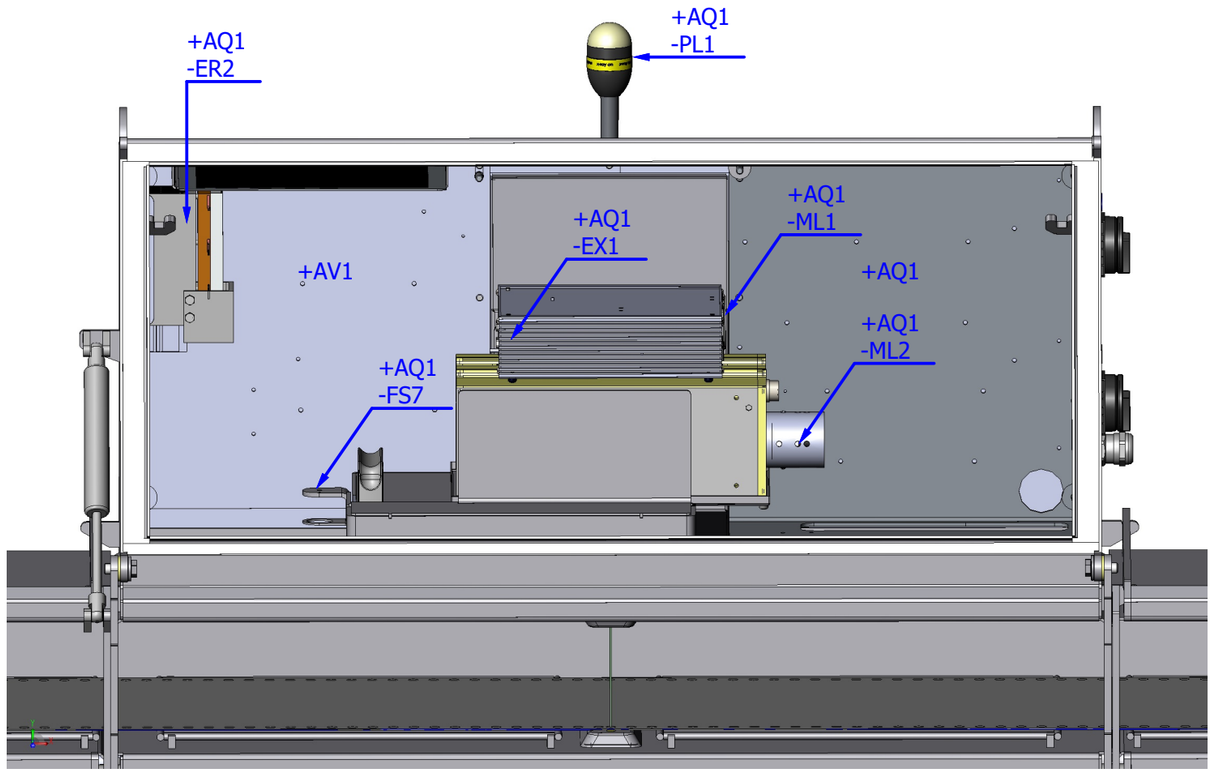

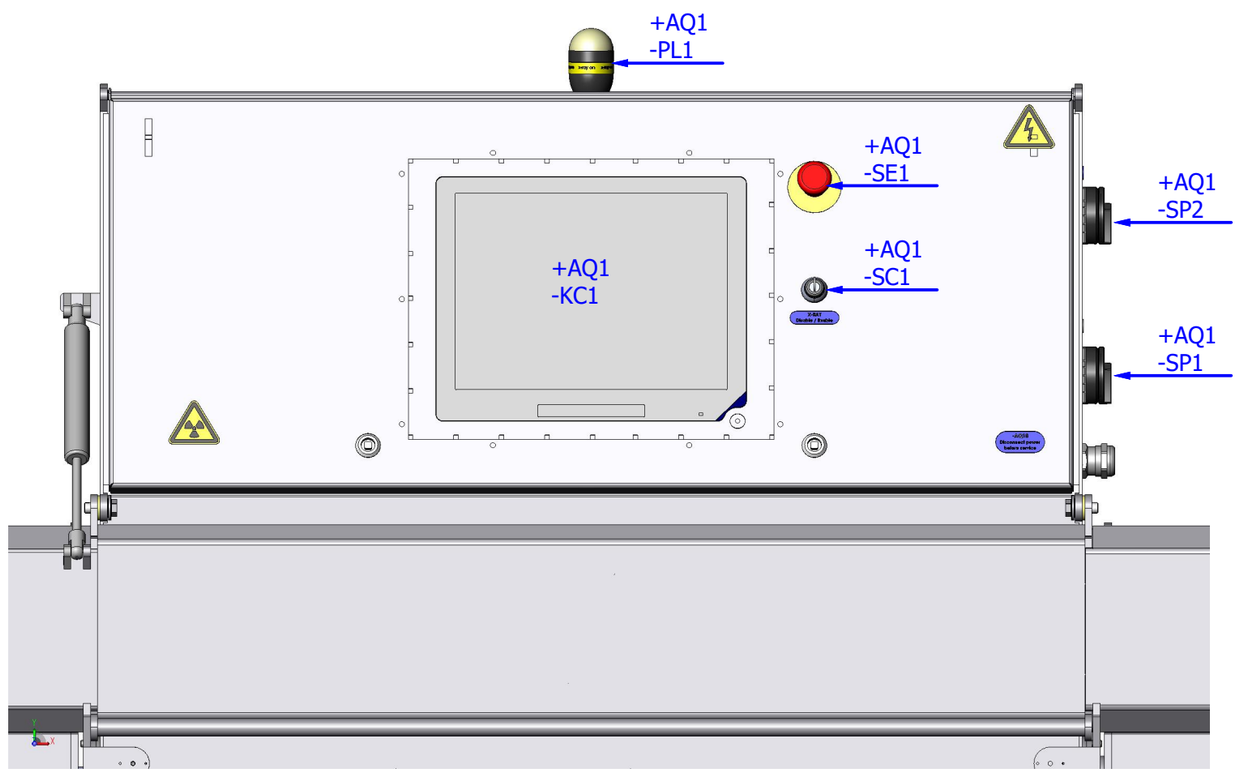

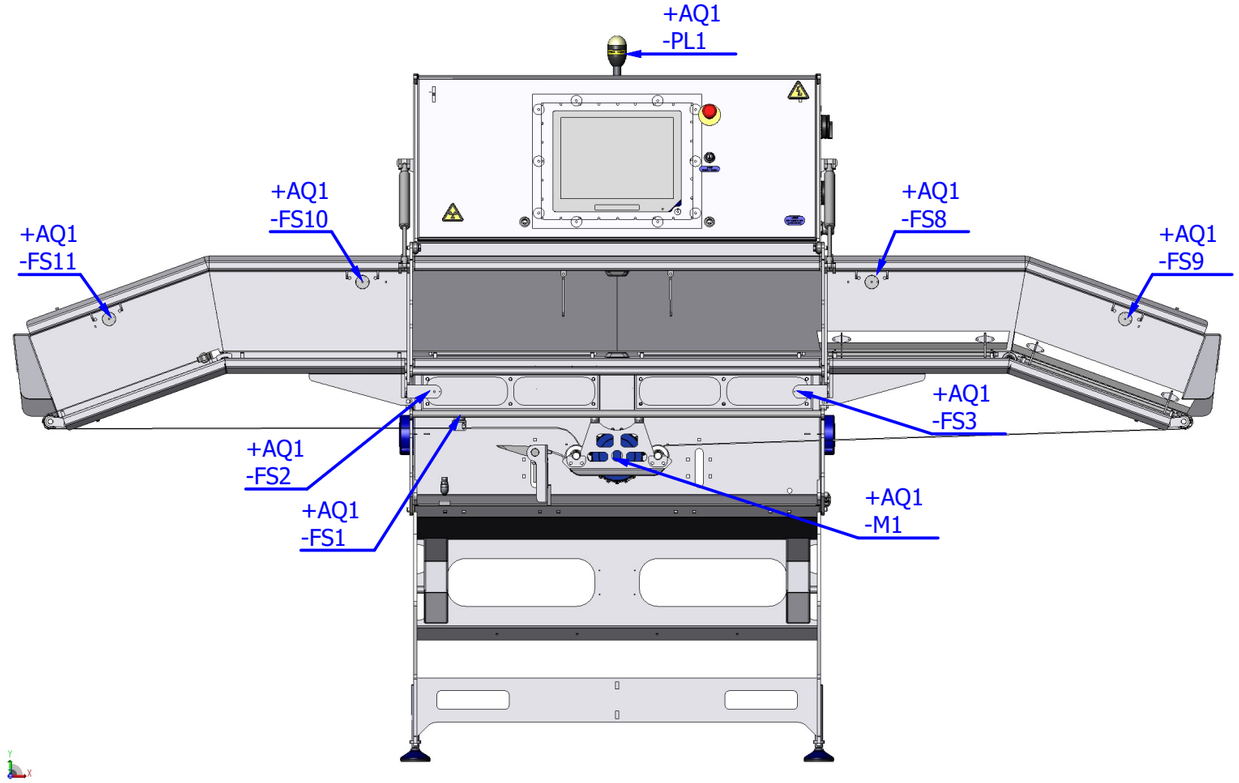

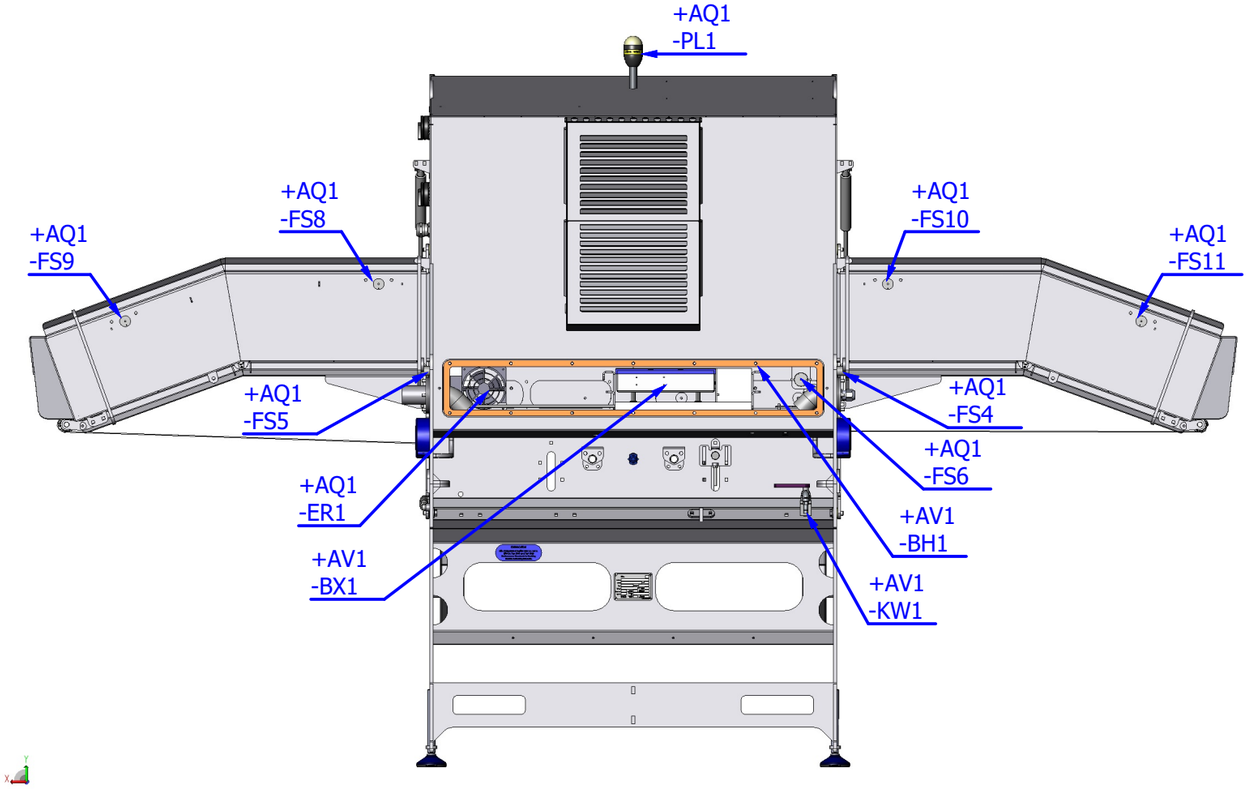

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next:
+AQ1/14

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: SYSTEM LAYOUT, SX25 SENSOR X 25
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVIEW

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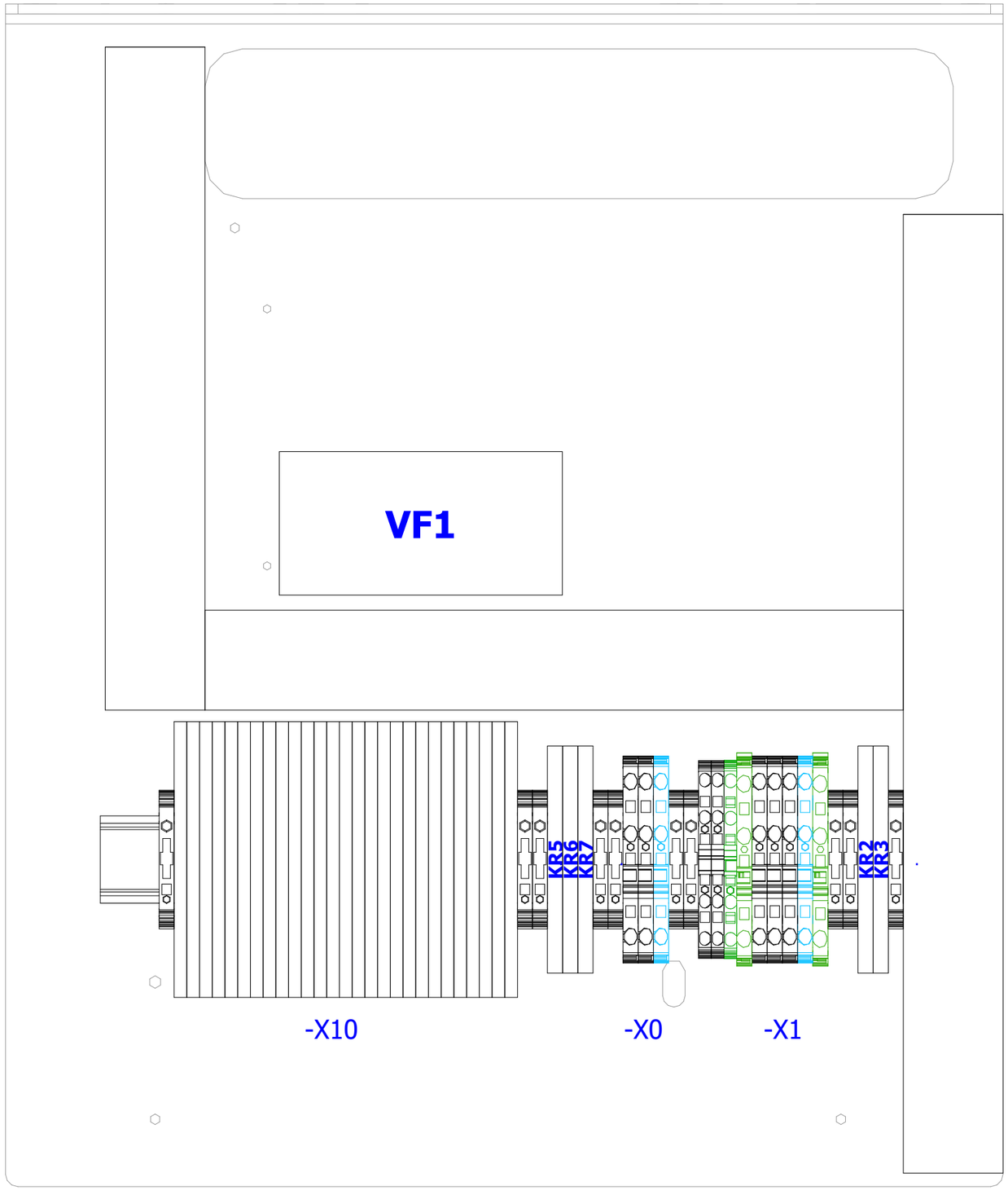
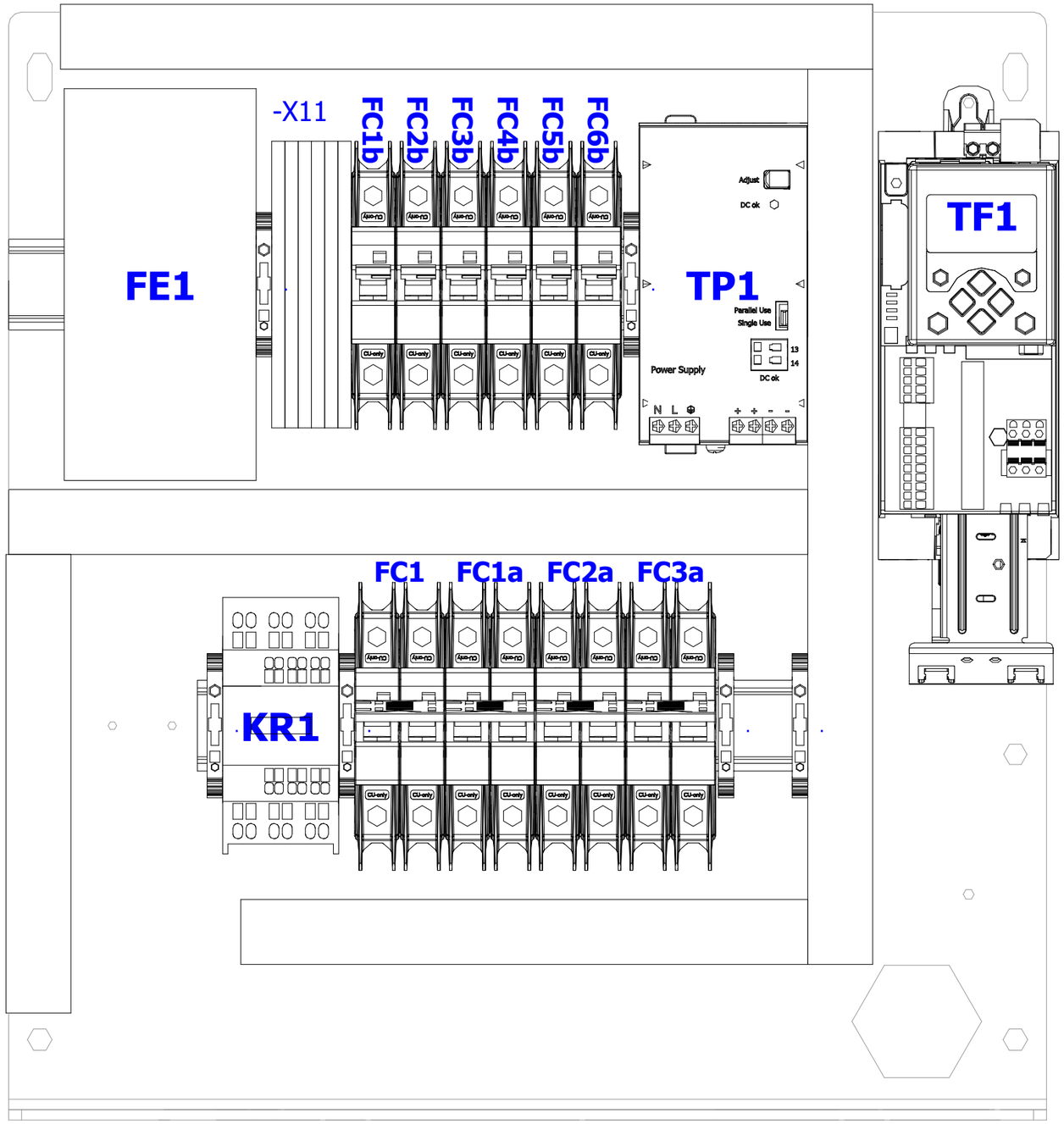
SHEET / TOTAL : (14 / 40)





previous:
+SOV/13

next:
15

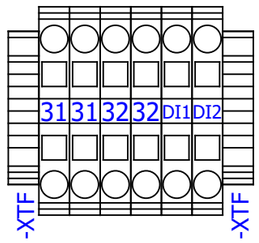
PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CABINET LAYOUT
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2020.08.19
PAGE REV. G
PROJ. REV. G
REVISED ON: 2020.08.19 BY:
CREATED ON: 2018.11.19 BY: GHJ

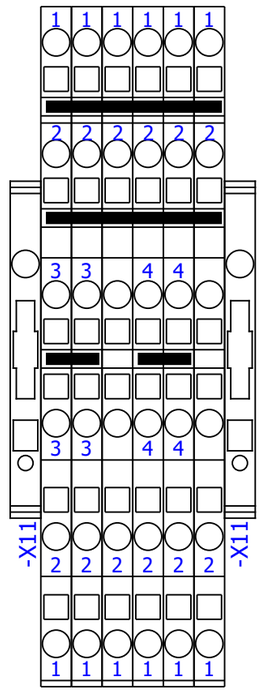
SCALE: 1:1
PAGE: 14
DWG. NO. 6002449
SHEET / TOTAL : (15 / 40)

-XTF



CONTROL CIRCUIT
-XTF

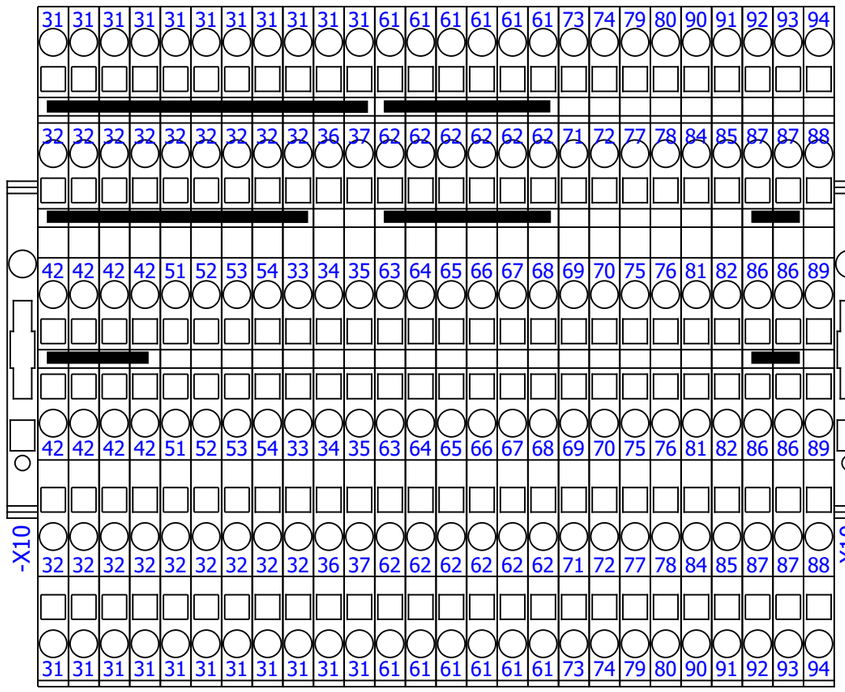
-X11



6 PCS.

CONTROL CIRCUIT
-X11

-X10

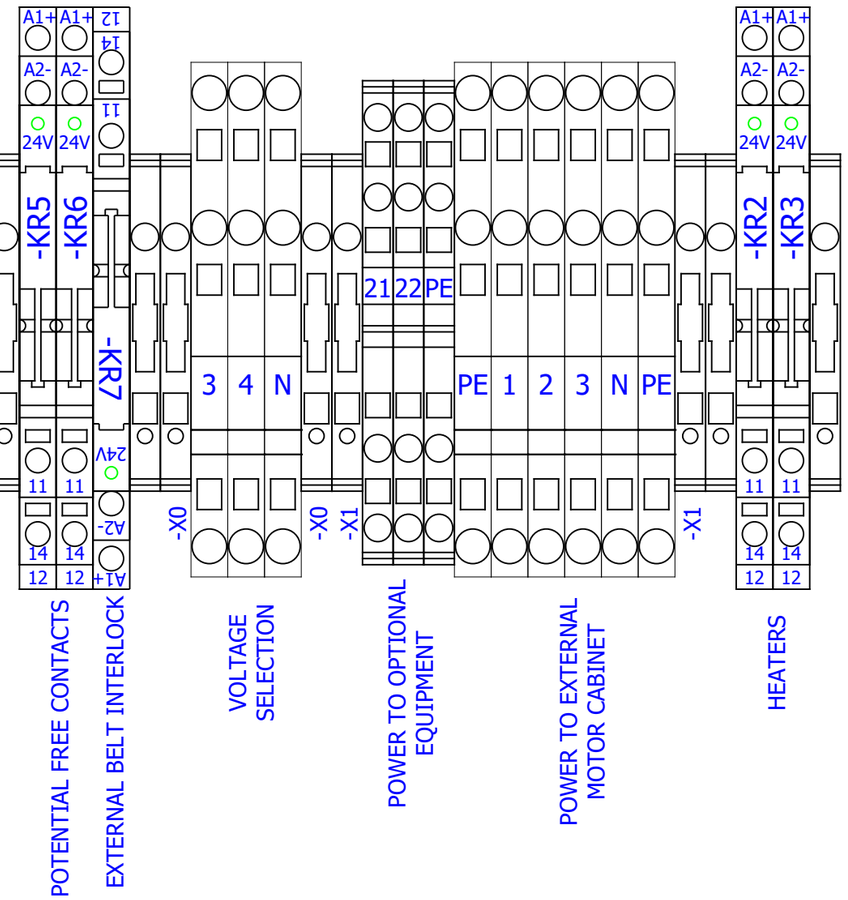


26 PCS.

CONTROL CIRCUIT
-X10

-X0

-X1



POTENTIAL FREE CONTACTS

EXTERNAL BELT INTERLOCK

VOLTAGE SELECTION

POWER TO OPTIONAL EQUIPMENT

POWER TO EXTERNAL MOTOR CABINET

HEATERS

previous: 14

next: 16

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

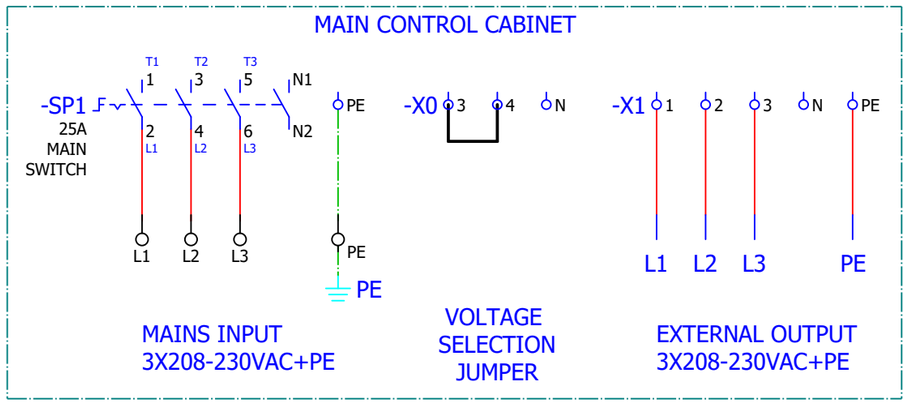
PAGE DESCR.: TERMINAL STRIP, SX25
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2018.11.16
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

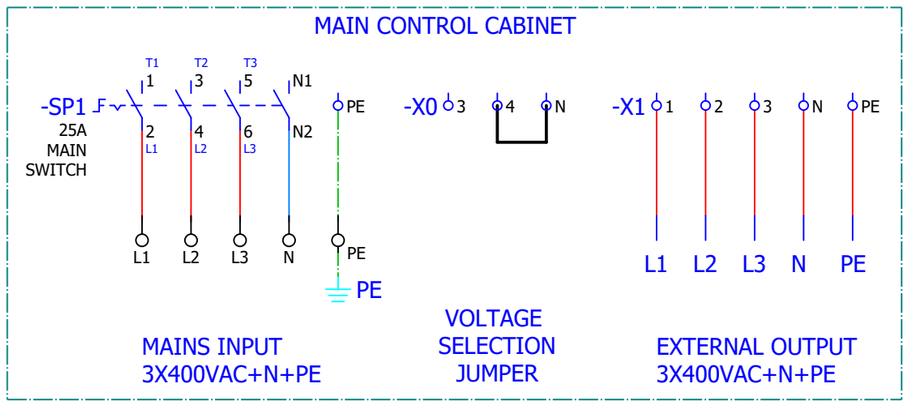
SCALE: 1:1
PAGE: 15
DWG. NO. 6002449
SHEET / TOTAL : (16 / 40)

CONNECTION DIAGRAMS

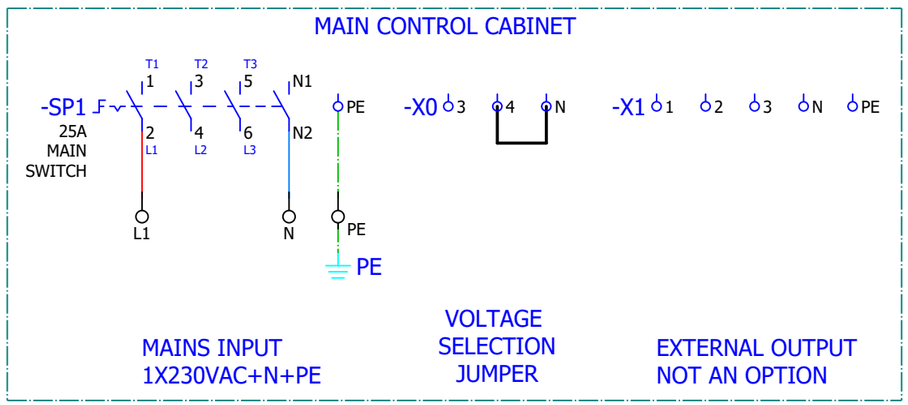
EXAMPLE 1

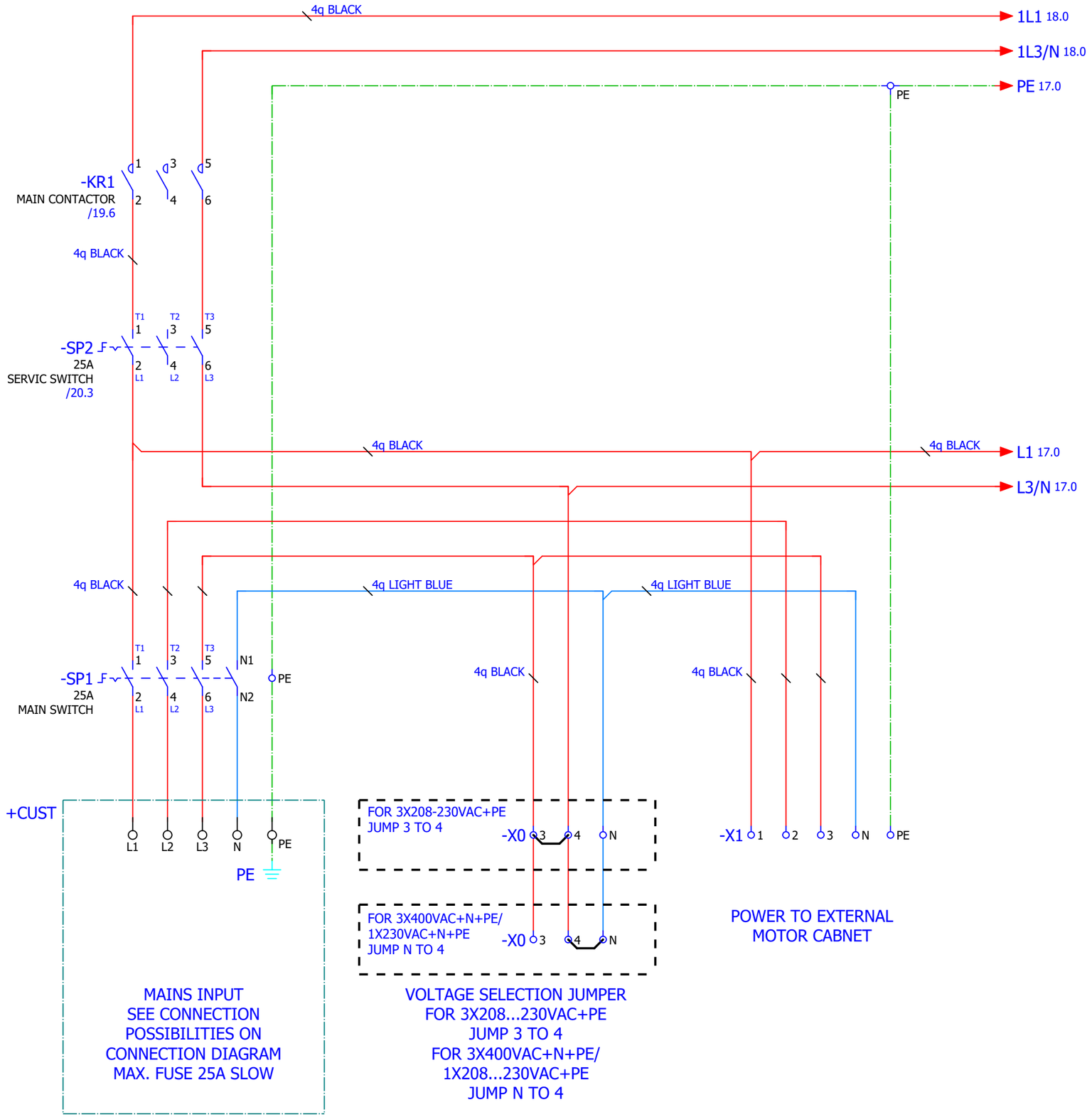


EXAMPLE 2



EXAMPLE 3





-X0 = VOLTAGE SELECTION JUMPER

-X1 = POWER TO EXTERNAL MOTORCABINET

previous: 15

next: 17

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: POWER CIRCUIT, INPUT
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2018.10.10
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 16
DWG. NO. 6002449
SHEET / TOTAL : (17 / 40)

16.9 L1
16.9 L3/N
16.9 PE

L1
L3/N
PE 18.0

4 mm² BK
-FC1a
10A/C
1 3 2 4

4 mm² BK
-FC2a
4A/C
1 3 2 4

4 mm² BK
-FC3a
10A/C
1 3 2 4

-VF1
/17.1
EMC FILTER
230V
L1 L2 PE
1L1 1L2 PE

-KR2
/21.3
12 14 11

-KR3
/21.4
12 14 11

-TP1
24VDC/20A
L N PE
+ + - -

-WPEX1
3x1 mm²
BN BU GNYE

-EX1
/22.6
+SOV/9.2
X-RAY
GENERATOR
L N PE
GND
2,5q GNYE

-X1
21 22 PE

-WPER1
3x0,75 mm²
BN GN/YE BU

-ER1
HEATER/FAN
SENSOR AREA
1 2

4 mm² BU
-FC1b 4A/C
-FC2b 4A/C
-FC3b 4A/C
-FC4b 4A/C
-FC5b 4A/C
-FC6b 10A/C
1 2 + -

-X10
32 33 34 35 36 37

+24VDC:1 19.0
+24VDC:2 23.1
+24VDC:3 23.3
+24VDC:4 23.5
+24VDC:5 23.7
+24VDC:6 23.8

4 mm² BU/WH
31 PE
0V 19.0

POWER TO COOLING
MACHINE (OPTIONAL)

24VDC
CONTROL CIRCUITS

previous: 16

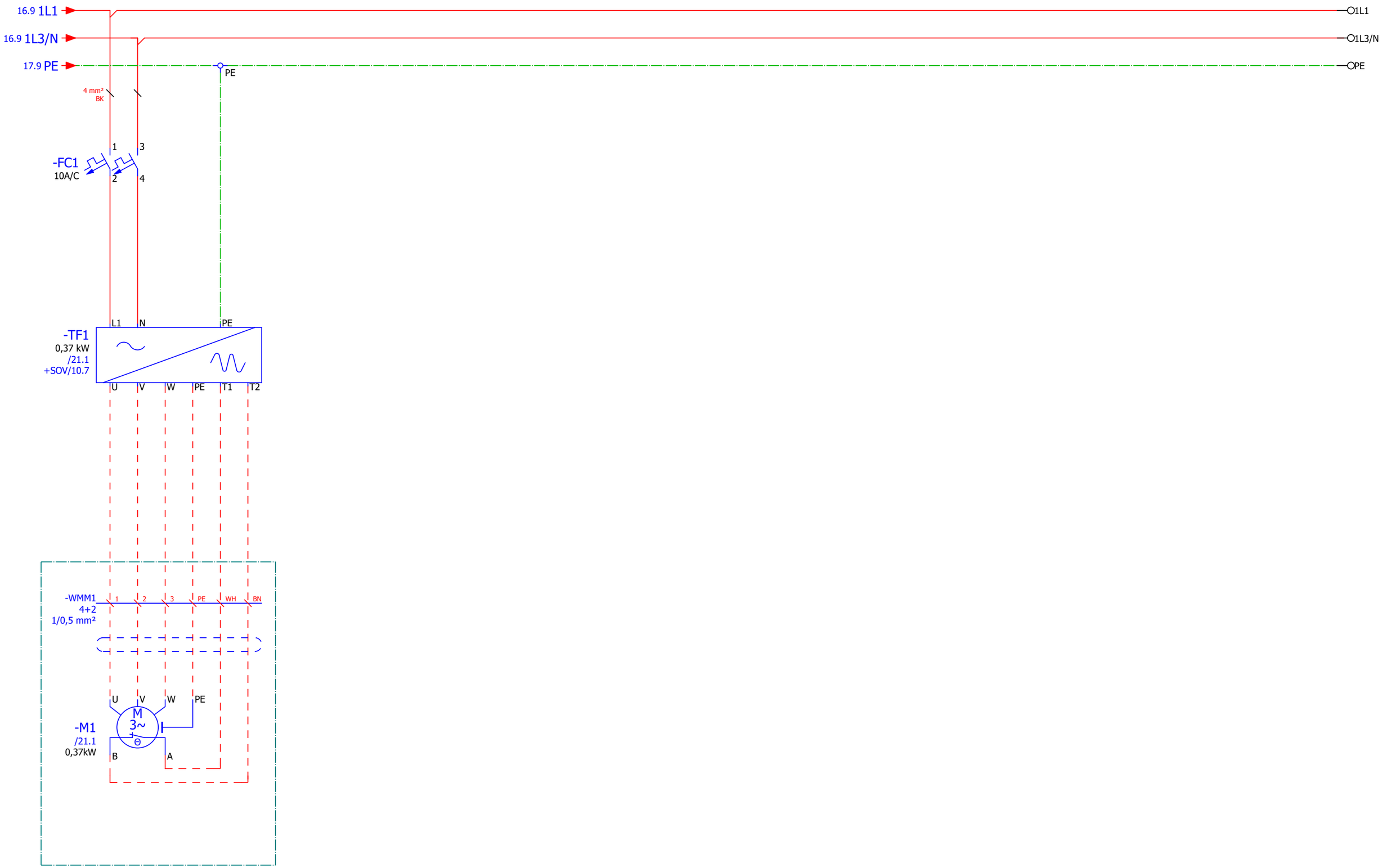
next: 18

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: POWER CIRCUIT
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2020.08.19
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 17
DWG. NO. 6002449
SHEET / TOTAL : (18 / 40)



previous: 17

next: 19

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: POWER CIRCUIT, MOTORS
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2018.10.10
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1 PAGE: 18
DWG. NO. 6002449
SHEET / TOTAL : (19 / 40)

17.5
+24VDC:1
-X10 32 32

21.0
+24VDC:1

-X11 2 2 2 2 2 2 2 2
-X11 1 1 1 1 1 1 1 1

-FS1 WH GN
-FS1 BN YE
-FS1 MOTOR COVER
-FS2 BELT COVER LEFT
-FS3 BELT COVER RIGHT
-FS4 WING LEFT
-FS5 WING RIGHT
-FS6 SENSOR COVER
-FS7 GENERATOR COVER
-FS8 SCREEN 1

-FE1
SAFETY CONTROLLER
/20.0
+SOV/10.7

C1: c1 c2 c3 c4 c5 c6 c7 c8 i1 i2 i3 i4
C2: i5 i6 i7 i8 i9 i10 i11 i12 i13 i14 i15 i16

A1 A2 13 14 23 24 33 34 43 44
o1 o2 o3 o4 o5 o6 HI GND GND GND

-X10 81 82
22.6 INTERLOCK_IN
22.7 INTERLOCK_OUT

CONNECTION
IN +AQ02
JUMP IF
NOT USED

+AQ2
-X10 90 91
-FE1 23 24
RELAY OUTPUTS

-X10 42
-WCRA1 BN
2x0,75 mm²
+AV1
VALVE CABINET 1
-RA1
SOFTSTART VALVE
+AV1/26.1
-WCRA1 BU
2x0,75 mm²

-KR1
24VDC
MAIN
CONTACTOR
A1
A2

ENABLE 21.0

0V
17.8

-X10 31
31
31
0V
21.0

/16.4
/16.4
/16.5
/20.4

previous:
18

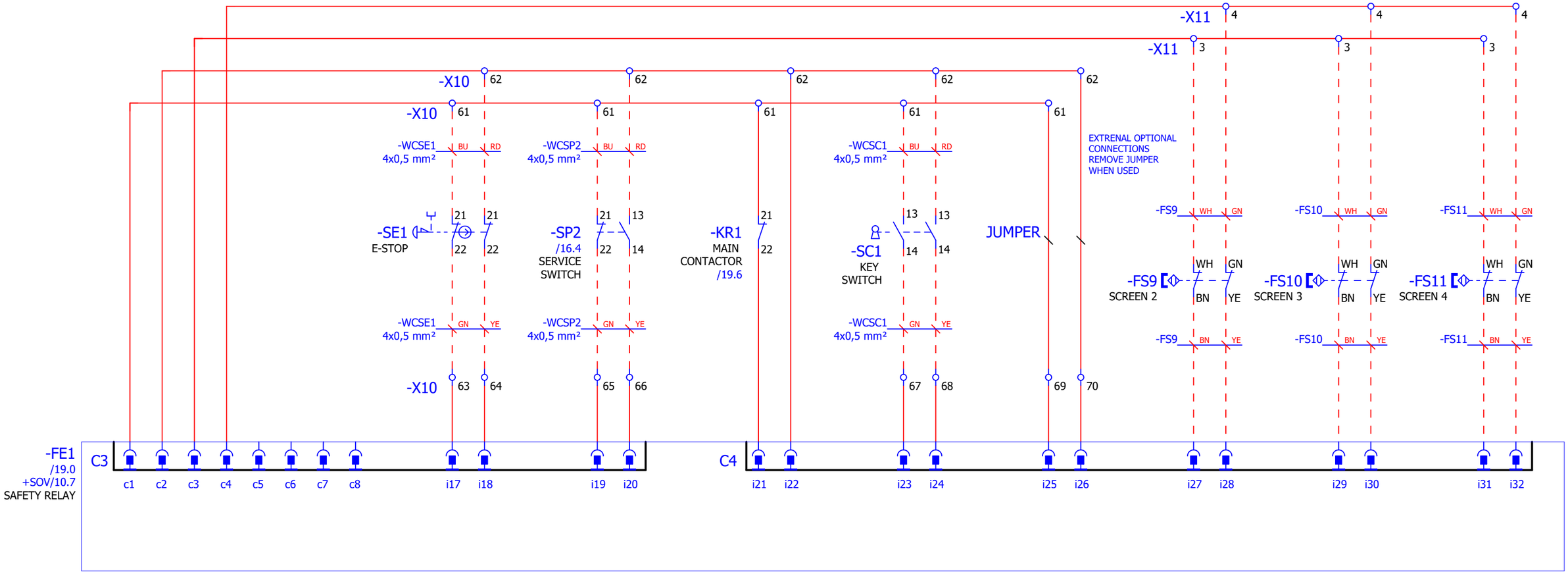
next:
20

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: SAFETY CIRCUIT, SX25
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2020.08.19
PAGE REV. G
PROJ. REV. G
REVISED ON: 2020.08.19 BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 19
DWG. NO. 6002449
SHEET / TOTAL : (20 / 40)



previous: 19

next: 21

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: SAFETY CIRCUIT, SX25
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2020.08.19
PAGE REV. G
PROJ. REV. G
REVISED ON: 2020.08.19 BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 20
DWG. NO. 6002449
SHEET / TOTAL : (21 / 40)

19.9 +24VDC:1
19.6 ENABLE
19.9 0V

-X10 32 → 32 → 32 → +24VDC:1 22.0
-X10 42 → ENABLE
-X10 31 → 31 → 0V 22.0

-TF1
/18.1
+SOV/10.7
GI0 DI2 DI1 24E RFR

-R2 2,2 kOHM
-R1 2,2 kOHM

-XTF 31 DI2 DI1 32

-KR7
/21.5
EXTERNAL BELT INTERLOCK
11 14 12

-WCAV1
12x0,5 mm²
RD BU GN PK YE WH

+AV1
VALVE CABINET 1

RD → +24VDC, +AV1/25.3
BU → 0V, +AV1/25.4
GN → +AQ11-KD1:O16 +AV1/26.6
HEATERS
PK → +AQ11-KD1:I18 +AV1/26.9
EXTERNAL BELT INTERLOCK
YE → +AQ11-KD1:O17 +AV1/26.7
POTENTIAL FREE CONTACT
WH → +AQ11-KD1:O18 +AV1/26.8
INFEED BELT RUN

-X10 51
-X10 52
-X10 53
-X10 54

-KR2 24VDC HEATERS A1 A2
-KR3 24VDC HEATERS A1 A2
-KR5 24VDC OPTIONAL POTENTIAL FREE CONTACT A1 A2
-KR6 24VDC INFEED BELT RUN A1 A2

-X10 31 → 31 → 31

-WMM1.1
4x0,22 mm²
BN WH GN YE
GND B A V+
-M1
MOTOR ENCODER
/18.0

-KR7 24VDC EXTERNAL BELT INTERLOCK A1 A2
-KR5 /21.6 12 14 11
-KR6 /21.7 12 14 11

OPTIONAL POTENTIAL FREE CONTACT
INFEED BELT RUN

14 12 11 /17.3
14 12 11 /17.4
14 12 11 /21.5
14 12 11 /21.6
14 12 11 /21.6

previous: 20
next: 22

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CONTROL CIRCUIT, INVERTERS
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2020.08.19
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1 PAGE: 21
DWG. NO. 6002449
SHEET / TOTAL : (22 / 40)

21.9
+24VDC:1

-X10 32

-X10 32

+24VDC:1

+AV1

VALVE CABINET 1

+AQ11-KD1:O11
+AV1/26.0
GREEN LIGHT

+AQ11-KD1:O14
+AV1/26.4
YELLOW LIGHT

RED LIGHT OK
+AV1/26.3

INTERLOCK_IN
19.1

INTERLOCK_OUT
19.1

-WCAV1
12x0,5 mm²
OG VT

-X10 86 87 85 88 81 82 84

-WCPL1
GN YE RD GY BN

-WCEX1
4x0,5 mm²
BU GN RD YE

GN YE RD GY WH BU BN

-PL1
BANNER
KL50LRGYP-806021
/804614
LIGHT W/
FAULT DETECTION

C3
X-RAY
READY
GN
PK

C2
X-RAY
STRART UP
YE

C1
X-RAY
ON
RD

C1
ACTIVE

ALARM

ALARM
TEST

PK

-WCPL1
PI

1 2 3 4 5 6 7 8 9

-EX1
SUBCON 9/F-SH
X-RAY
GENERATOR
/17.0
+SOV/9.2

0V
21.9

-X10 31

0V
23.0

previous:
21

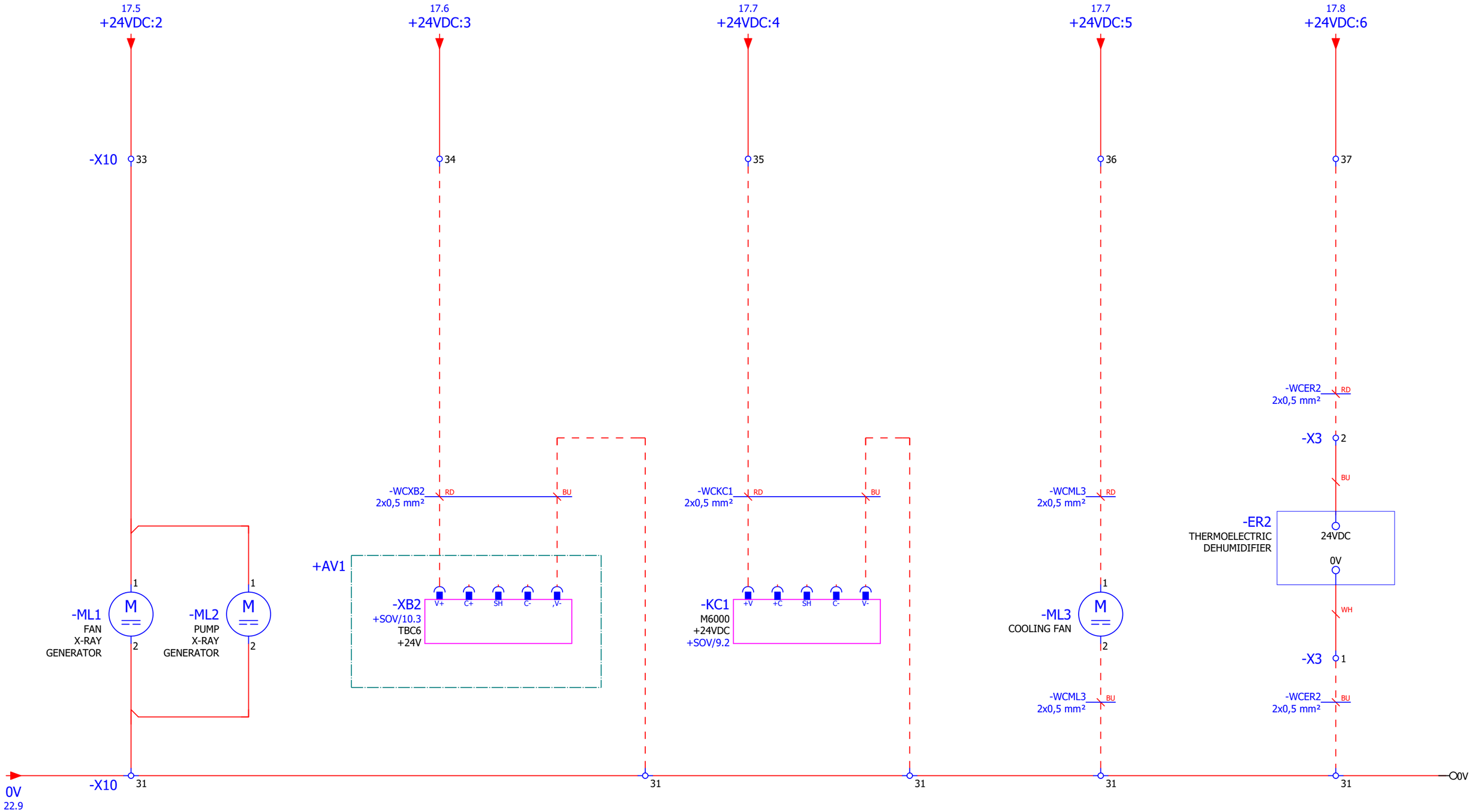
next:
23

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CONTROL CIRCUIT, X-RAY GENERATOR
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2020.08.19
PAGE REV. F
PROJ. REV. G
REVISED ON: 2018.11.14 BY: BJFR
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 22
DWG. NO. 6002449
SHEET / TOTAL : (23 / 40)



previous:
22

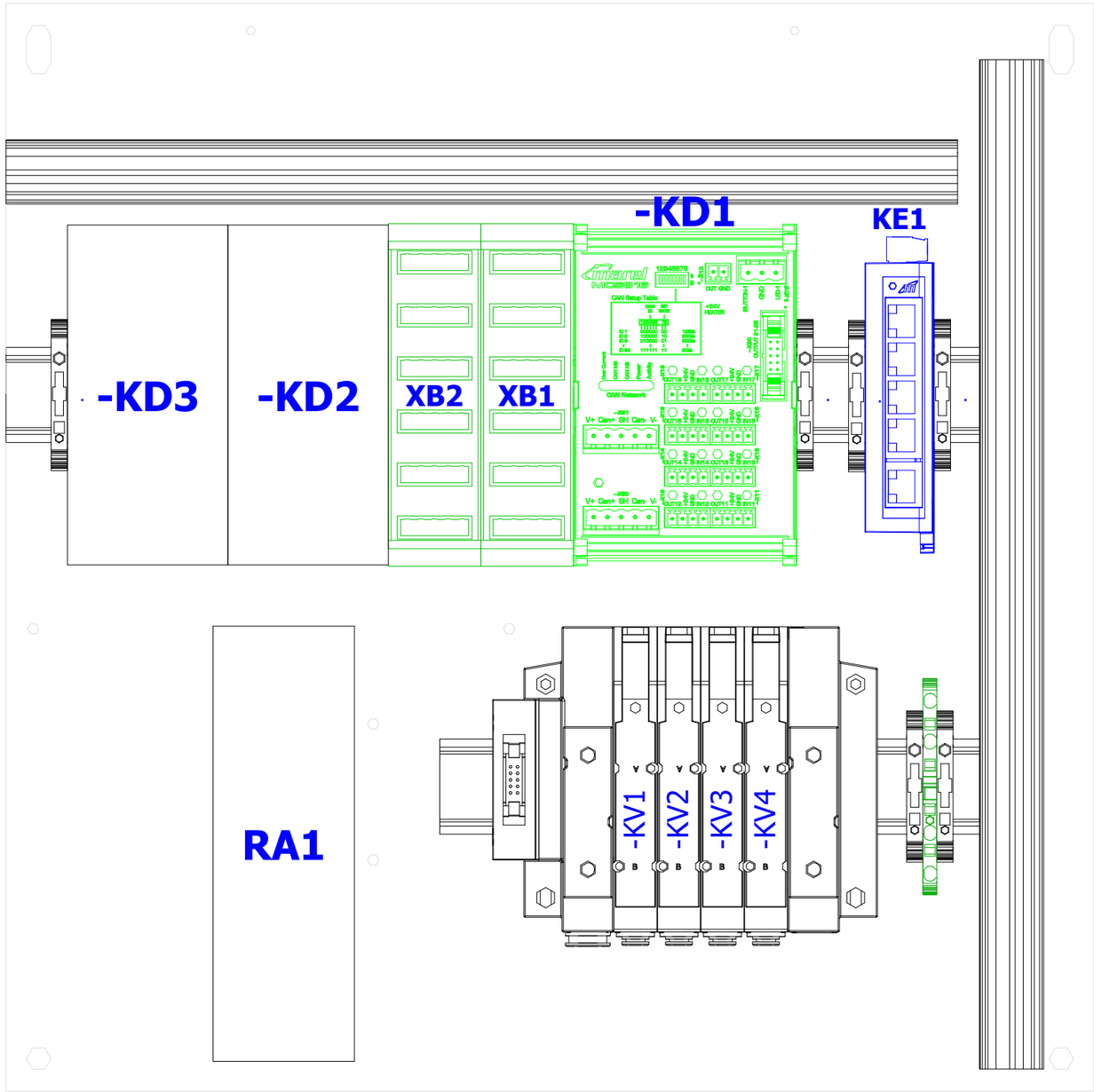
next:
+AV1/24

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CONTROL CIRCUIT
=GEN GENERAL INFORMATION
+AQ1 MAIN CONTROL CABINET

LAST EDIT DATE: 2020.08.19
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 23
DWG. NO. 6002449
SHEET / TOTAL : (24 / 40)



previous:
+AQ1/23

next:
25

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CABINET LAYOUT
=GEN GENERAL INFORMATION
+AV1 VALVE CABINET 1

LAST EDIT DATE: 2020.08.19
PAGE REV. G
PROJ. REV. G
REVISED ON: 2020.08.19 BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 24
DWG. NO. 6002449
SHEET / TOTAL : (25 / 40)

+AQ1

MAIN CONTROL CABINET

+24VDC, +AQ1/21.8

0V, +AQ1/21.8

-X10 32

31

+AQ1-WCAV1
12x0,5 mm²

RD

BU

-XB1
+SOV/10.1
TBC6
+24V

V+ C+ SH C- V-

TBC6
+24V

V+ C+ SH C- ,V-

RD

BK

-KD2
MCSTEPP2
STEPPER
MOTOR
CONTROL
+SOV/10.1

-X01 + - -X10 +24V EN

MOTOR IN
24-48Vdc

ENABLE IN

STEPPER MOTOR

-X30 W1 W2 W3 W4

-KD3
MCSTEPP2
STEPPER
MOTOR
CONTROL
+SOV/10.2

-X01 + - -X10 +24V EN

MOTOR IN
24-48Vdc

ENABLE IN

STEPPER MOTOR

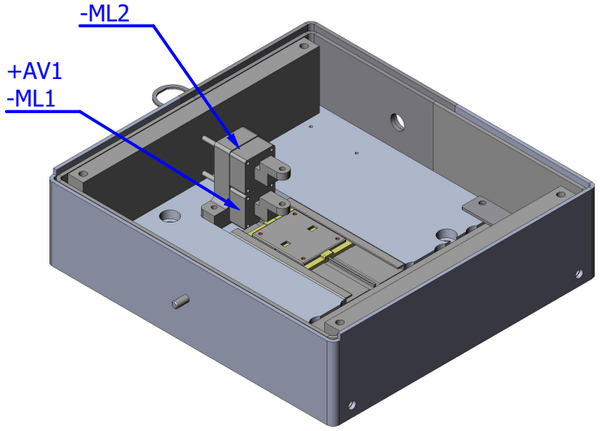
-X30 W1 W2 W3 W4

-KE1
ES5
+24V
+SOV/11.2

+24V 0V

+AV1
-ML2

+AV1
-ML1



-WCML1
4x0,5 mm²

GN YE BU RD

-AXML1

-X10 1 2 3 4

BK OR YE RD

M

-ML1
STEPPER MOTOR 1
PLASTIC
LOWER

-WCML2
4x0,5 mm²

GN YE BU RD

-AXML2

-X10 1 2 3 4

BK OR YE RD

M

-ML2
STEPPER MOTOR 2
ALUMINIUM
UPPER

previous:
24

next:
26

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CONTROL CIRCUIT, STEPPER MOTORS
=GEN GENERAL INFORMATION
+AV1 VALVE CABINET 1

LAST EDIT DATE: 2020.08.19
PAGE REV. G
PROJ. REV. G
REVISED ON: 2020.08.19 BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 25
DWG. NO. 6002449
SHEET / TOTAL : (26 / 40)

+AQ1

MAIN CONTROL CABINET

+AQ11-KD1:O11
+AQ1/22.1
GREEN LIGHT

RED LIGHT OK
+AQ1/22.2

+AQ11-KD1:O14
+AQ1/22.1
YELLOW LIGHT

OPTIONAL
JUMP IF NOT USED

+AQ11-KD1:O16
+AQ1/21.8
HEATERS

+AQ11-KD1:O17
+AQ1/21.8
POTENTIAL FREE CONTACT

+AQ11-KD1:O18
+AQ1/21.8
INFEED BELT RUN

+AQ11-KD1:I18
+AQ1/21.8
EXTERNAL BELT INTERLOCK

-X10 86 88 87 93 94 51 53 54 52

-WCAV1
12x0,5 mm²
OG GY VT BK BN GN YE WH PK

-RA1 P
PRESSURE SWITCH
+AQ1/19.5
5 3 4
BK RD

-KW1
WATER VALVE
A1 A2

-WCKW1
3x0,5 mm²
BN BU

-KD1
MSC816
+SOV/10.0

-X11 O11 +24V GND I11 MSC816 ID:10
-X12 O12 +24V GND I12 MSC816 ID:10
-X13 O13 +24V GND I13 MSC816 ID:10
-X14 O14 +24V GND I14 MSC816 ID:10
-X15 O15 +24V GND I15 MSC816 ID:10
-X16 O16 +24V GND I16 MSC816 ID:10
-X17 O17 +24V GND I17 MSC816 ID:10
-X18 O18 +24V GND I18 MSC816 ID:10

previous: 25

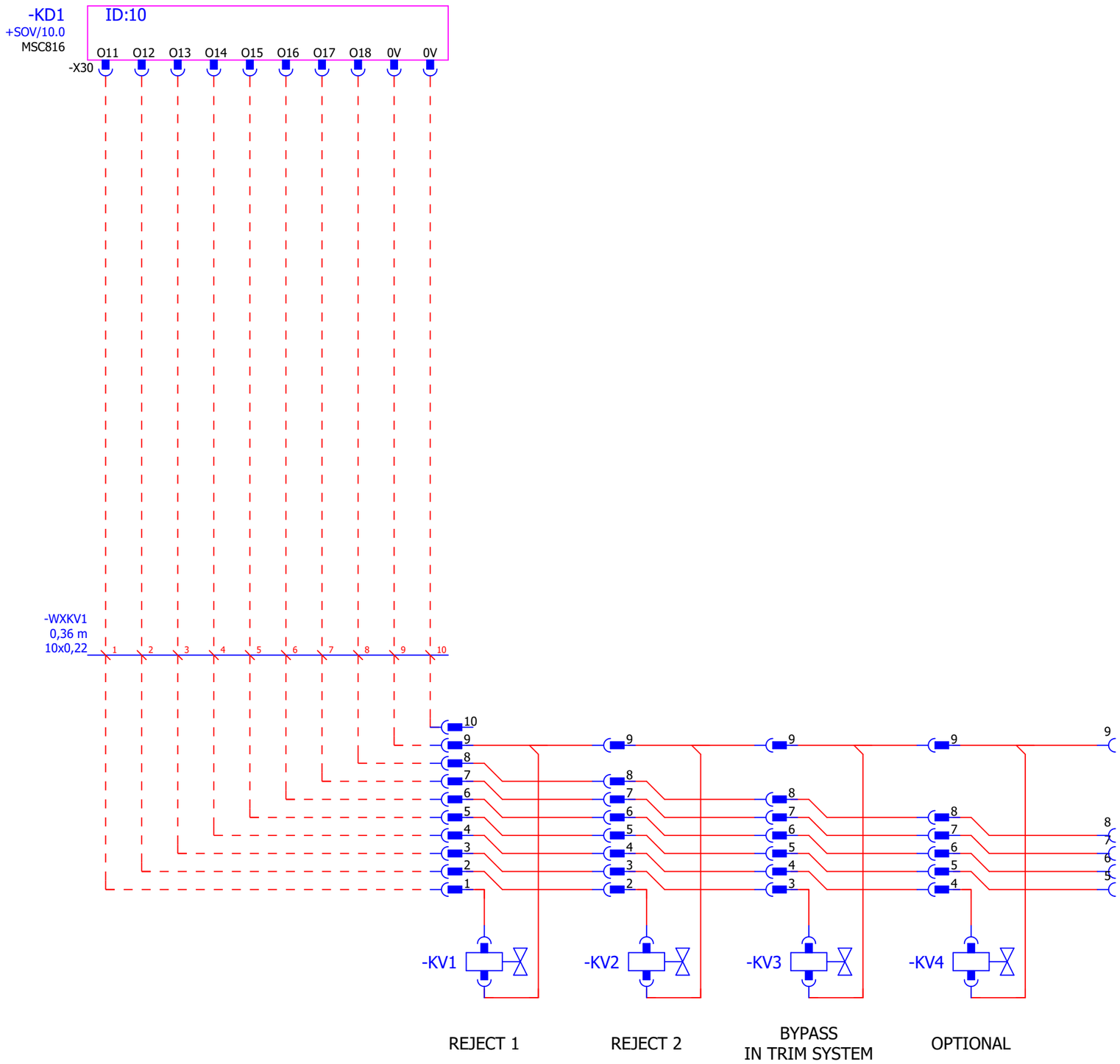
next: 27

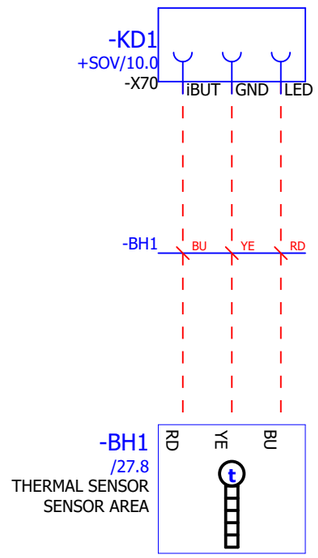
PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CONTROL CIRCUIT, I/O'S
=GEN GENERAL INFORMATION
+AV1 VALVE CABINET 1

LAST EDIT DATE: 2020.08.19
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 26
DWG. NO. 6002449
SHEET / TOTAL : (27 / 40)





previous:
26

next:
=REP+/1

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: KD1 X30 FOUR VALVES
=GEN GENERAL INFORMATION
+AV1 VALVE CABINET 1

LAST EDIT DATE: 2018.10.10
PAGE REV.
PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1
PAGE: 27
DWG. NO. 6002449
SHEET / TOTAL : (28 / 40)

0	1	2	3	4	5	6	7	8	9
I/O PAGE REFERENCE	I/O UNIT NAME	I/O UNIT TYPE	I/O UNIT PLUG	CAN ADDRESS	SIGNAL FUNCTION	COMPONENT CONN. POINT	COMPONENT NAME	COMPONENT TYPE	COMPONENT PAGE REFERENCE
=GEN+AV1/26.0	=GEN+AV1-KD1	MSC816	-X11	O 10 11					
=GEN+AV1/26.1	=GEN+AV1-KD1	MSC816	-X11	I 10 11					
=GEN+AV1/26.1	=GEN+AV1-KD1	MSC816	-X12	O 10 12					
=GEN+AV1/26.2	=GEN+AV1-KD1	MSC816	-X12	I 10 12		5	=GEN+AV1-RA1	PRESSURE SWITCH	=GEN+AV1/26.1
=GEN+AV1/26.2	=GEN+AV1-KD1	MSC816	-X13	O 10 13					
=GEN+AV1/26.3	=GEN+AV1-KD1	MSC816	-X13	I 10 13					
=GEN+AV1/26.4	=GEN+AV1-KD1	MSC816	-X14	O 10 14					
=GEN+AV1/26.4	=GEN+AV1-KD1	MSC816	-X14	I 10 14					
=GEN+AV1/26.5	=GEN+AV1-KD1	MSC816	-X15	O 10 15	WATER VALVE	A1	=GEN+AV1-KW1		=GEN+AV1/26.5
=GEN+AV1/26.5	=GEN+AV1-KD1	MSC816	-X15	I 10 15					
=GEN+AV1/26.6	=GEN+AV1-KD1	MSC816	-X16	O 10 16					
=GEN+AV1/26.6	=GEN+AV1-KD1	MSC816	-X16	I 10 16					
=GEN+AV1/26.7	=GEN+AV1-KD1	MSC816	-X17	O 10 17	OPTIONAL POTENTIAL FREE CONTACT	A1	=GEN+AQ1-KR5	24VDC	=GEN+AQ1/21.6
=GEN+AV1/26.8	=GEN+AV1-KD1	MSC816	-X17	I 10 17					
=GEN+AV1/26.8	=GEN+AV1-KD1	MSC816	-X18	O 10 18	INFEED BELT RUN	A1	=GEN+AQ1-KR6	24VDC	=GEN+AQ1/21.7
=GEN+AV1/26.9	=GEN+AV1-KD1	MSC816	-X18	I 10 18	EXTERNAL BELT INTERLOCK	12	=GEN+AQ1-KR7		=GEN+AQ1/21.5
=GEN+AV1/27.1	=GEN+AV1-KD1	MSC816	-X30	O 10 11	REJECT 1		=GEN+AV1-KV1		=GEN+AV1/27.3
=GEN+AV1/27.1	=GEN+AV1-KD1	MSC816	-X30	O 10 12	REJECT 2		=GEN+AV1-KV2		=GEN+AV1/27.3
=GEN+AV1/27.1	=GEN+AV1-KD1	MSC816	-X30	O 10 13	BYPASS IN TRIM SYSTEM		=GEN+AV1-KV3		=GEN+AV1/27.4
=GEN+AV1/27.1	=GEN+AV1-KD1	MSC816	-X30	O 10 14	OPTIONAL		=GEN+AV1-KV4		=GEN+AV1/27.5
=GEN+AV1/27.1	=GEN+AV1-KD1	MSC816	-X30	O 10 15					
=GEN+AV1/27.2	=GEN+AV1-KD1	MSC816	-X30	O 10 16					
=GEN+AV1/27.2	=GEN+AV1-KD1	MSC816	-X30	O 10 17					
=GEN+AV1/27.2	=GEN+AV1-KD1	MSC816	-X30	O 10 18					

previous:
=GEN+AV1/27

next:
2

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: PLC LIST
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CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1 PAGE: 1
DWG. NO. 6002449
SHEET / TOTAL : (29 / 40)

CABLE OVERVIEW

CABLE NAME	SOURCE (FROM)	TARGET (TO)	CABLE TYPE	ALL CON-DUCTORS	CON-DUCTORS USED	CROSS-SECTION mm	LENGTH [m]	REMARK	PLACEMENT
=GEN+SOV-WBXX1	=GEN+SOV-XX1	=GEN+SOV-XX2	CAN	2x2	3	0,5			=GEN+SOV/9.6
=GEN+SOV-WCXX1	=GEN+AQ1-EX1	=GEN+AQ1-KC1	CONTROL	4	3	0,5			=GEN+SOV/9.2
=GEN+AQ1-WCAV1	=GEN+AQ1-X10	=GEN+AQ1-X10	CONTROL	12	19	0,5			=GEN+AQ1/21.7
	=GEN+AQ1	=GEN+AV1-XB1							
		=GEN+AV1-KD1							
		=GEN+AV1							
=GEN+AQ1-WCER2	=GEN+AQ1-X3	=GEN+AQ1-X10	CONTROL	2	2	0,5			=GEN+AQ1/23.8
=GEN+AQ1-WCEX1	=GEN+AQ1-X10	=GEN+AQ1-EX1	CONTROL	4	4	0,5			=GEN+AQ1/22.6
	=GEN+AQ1								
=GEN+AQ1-WCKC1	=GEN+AQ1-X10	=GEN+AQ1-KC1	CONTROL	2	2	0,5			=GEN+AQ1/23.4
	=GEN+AQ1								
=GEN+AQ1-WCML3	=GEN+AQ1-X10	=GEN+AQ1-ML3	CONTROL	2	2	0,5			=GEN+AQ1/23.7
=GEN+AQ1-WCPL1	=GEN+AQ1-X10	=GEN+AQ1-PL1	CONTROL		5				=GEN+AQ1/22.1
	=GEN+AQ1								
=GEN+AQ1-WCRA1	=GEN+AQ1-X10	=GEN+AV1-RA1	CONTROL	2	1	0,75			=GEN+AQ1/19.5
=GEN+AQ1-WCSC1	=GEN+AQ1-X10	=GEN+AQ1-SC1	CONTROL	4	3	0,5			=GEN+AQ1/20.5
	=GEN+AQ1								
=GEN+AQ1-WCSE1	=GEN+AQ1-X10	=GEN+AQ1-SE1	CONTROL	4	3	0,5			=GEN+AQ1/20.2
	=GEN+AQ1								
=GEN+AQ1-WCSP2	=GEN+AQ1-X10	=GEN+AQ1-SP2	CONTROL	4	3	0,5			=GEN+AQ1/20.3
	=GEN+AQ1								
=GEN+AQ1-WCXB2	=GEN+AQ1-X10	=GEN+AV1-XB2	CONTROL	2	2	0,5			=GEN+AQ1/23.2
	=GEN+AQ1	=GEN+AV1							
=GEN+AQ1-WMM1	=GEN+AQ1-M1	=GEN+AQ1	MOTOR	4+2	6	1/0,5	10		=GEN+AQ1/18.0
		=GEN+AQ1-TF1							
=GEN+AQ1-WMM1.1	=GEN+AQ1-XTF	=GEN+AQ1-M1	CONTROL	4	4	0,22			=GEN+AQ1/21.1
=GEN+AQ1-WPER1	=GEN+AQ1-XPE	=+	POWER	3	3	0,75			=GEN+AQ1/17.3
	=GEN+AQ1-ER1	=GEN+AQ1							
		=GEN+AQ1-KR2							
		=GEN+AQ1-KR3							
=GEN+AQ1-WPEX1	=GEN+AQ1-EX1	=GEN+AQ1	POWER	3	3	1			=GEN+AQ1/17.0
		=GEN+AQ1-VF1							
=GEN+AV1-BH1	=GEN+AV1-BH1	=GEN+AV1			3				=GEN+AV1/27.8
		=GEN+AV1-KD1							
=GEN+AV1-WBBX1	=GEN+AV1-BX1	=GEN+AV1	CAN	2x2	1	0,5			=GEN+SOV/10.4
		=GEN+AV1-XB2							
=GEN+AV1-WBFE1	=GEN+AQ1-FE1	=GEN+AV1-XB2	CAN	2x2	1	0,5			=GEN+SOV/10.5
	=GEN+AQ1	=GEN+AV1							
=GEN+AV1-WBKC1	=GEN+AQ1-KC1	=GEN+AV1	CAN	2x2	2	0,5			=GEN+SOV/10.1
	=GEN+AV1-XB2	=GEN+AV1-XB1							
=GEN+AV1-WBTF1	=GEN+AQ1-TF1	=GEN+AV1-XB2	CAN	2x2	1	0,5			=GEN+SOV/10.5
	=GEN+AQ1	=GEN+AV1							
=GEN+AV1-WCKW1	=GEN+AV1	=GEN+AV1-KW1	CONTROL	3	2	0,5	3		=GEN+AV1/26.5
	=GEN+AV1-KD1								
=GEN+AV1-WCML1	=GEN+AV1-AXML1-X10	=GEN+AV1-KD2	CONTROL	4	4	0,5			=GEN+AV1/25.6
	=GEN+AV1	=GEN+AV1-ML1							

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

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SHEET / TOTAL : (30 / 40)

CABLE OVERVIEW

CABLE NAME	SOURCE (FROM)	TARGET (TO)	CABLE TYPE	ALL CON-DUCTORS	CON-DUCTORS USED	CROSS-SECTION mm	LENGTH [m]	REMARK	PLACEMENT
=GEN+AV1-WCML2	=GEN+AV1-AXML2-X10	=GEN+AV1-KD3	CONTROL	4	4	0,5			=GEN+AV1/25.7
	=GEN+AV1	=GEN+AV1-ML2							
=GEN+AV1-WEKC1	=GEN+AQ1-KC1	=GEN+AV1	ETHERNET	2x2	1	0,22			=GEN+SOV/11.2
		=GEN+AV1-KE1							
=GEN+AV1-WXBX1	=GEN+AQ1-KC1	=GEN+AV1-BX1	USB-CABLE		0				=GEN+SOV/12.2

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CABLE OVERVIEW
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DWG. NO. 6002449
SHEET / TOTAL : (31 / 40)

SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =GEN+SOV-WBXX1		**CABLE TYPE:** CAN 2x2x0,5 mm² **PART NO.:** 718-3702-Y2422PUR		**COMMENT:**		
			RD,WH,SH,BU,BK			
=GEN+SOV-XX1	SH	=GEN+SOV/9.7	BK	=GEN+SOV-XX2	3	=GEN+SOV/9.6
=GEN+SOV-XX1	CAN-	=GEN+SOV/9.7	BU	=GEN+SOV-XX2	2	=GEN+SOV/9.6
=GEN+SOV-XX1	CAN+	=GEN+SOV/9.7	WH	=GEN+SOV-XX2	7	=GEN+SOV/9.6
CABLE NAME: =GEN+SOV-WCXX1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:** RS-232		
			RD			
=GEN+AQ1-EX1	COM	=GEN+SOV/9.2	BU	=GEN+AQ1-KC1	COM	=GEN+SOV/9.2
=GEN+AQ1-EX1	RX	=GEN+SOV/9.2	GN	=GEN+AQ1-KC1	TX	=GEN+SOV/9.2
=GEN+AQ1-EX1	TX	=GEN+SOV/9.2	YE	=GEN+AQ1-KC1	RX	=GEN+SOV/9.2
CABLE NAME: =GEN+AQ1-WCAV1		**CABLE TYPE:** CONTROL 12x0,5 mm² **PART NO.:** 718-3702-0009		**COMMENT:**		
=GEN+AQ1-X10	32	=GEN+AQ1/21.3	RD	=GEN+AQ1-X10	32	=GEN+AV1/25.3
=GEN+AQ1-X10	31	=GEN+AQ1/21.3	BU	=GEN+AQ1-X10	31	=GEN+AV1/25.4
=GEN+AQ1-X10	51	=GEN+AQ1/21.3	GN	=GEN+AQ1-X10	51	=GEN+AV1/26.6
=GEN+AQ1-X10	53	=GEN+AQ1/21.7	YE	=GEN+AQ1-X10	53	=GEN+AV1/26.7
=GEN+AQ1-X10	54	=GEN+AQ1/21.7	WH	=GEN+AQ1-X10	54	=GEN+AV1/26.8
=GEN+AQ1-X10	93	=GEN+AV1/26.4	BK	=GEN+AV1-KD1	-X14	=GEN+AV1/26.4
=GEN+AQ1-X10	94	=GEN+AV1/26.4	BN	=GEN+AV1-KD1	-X14:14	=GEN+AV1/26.4
=GEN+AQ1-X10	87	=GEN+AV1/26.4	VT	=GEN+AQ1-X10	87	=GEN+AQ1/22.1
=GEN+AQ1-X10	86	=GEN+AV1/26.0	OG	=GEN+AQ1-X10	86	=GEN+AQ1/22.1
=GEN+AQ1-X10	52	=GEN+AQ1/21.7	PK	=GEN+AQ1-X10	52	=GEN+AV1/26.9
			CY			
=GEN+AQ1-X10	88	=GEN+AV1/26.3	GY	=GEN+AV1-KD1	-X13:13	=GEN+AV1/26.3
=GEN+AQ1-X10	31	=GEN+AV1/25.4	BU	=GEN+AV1-XB1		=GEN+AV1/25.3
=GEN+AQ1-X10	51	=GEN+AV1/26.6	GN	=GEN+AV1-KD1	-X16:16	=GEN+AV1/26.6
=GEN+AQ1-X10	86	=GEN+AV1/26.0	OG	=GEN+AV1-KD1	-X11:11	=GEN+AV1/26.0
=GEN+AQ1-X10	52	=GEN+AV1/26.9	PK	=GEN+AV1-KD1	-X18:18	=GEN+AV1/26.9
=GEN+AQ1-X10	32	=GEN+AV1/25.3	RD	=GEN+AV1-XB1	+24V	=GEN+AV1/25.3
=GEN+AQ1-X10	87	=GEN+AV1/26.4	VT	=GEN+AV1-KD1	-X14:14	=GEN+AV1/26.4
=GEN+AQ1-X10	54	=GEN+AV1/26.8	WH	=GEN+AV1-KD1	-X18:18	=GEN+AV1/26.8
=GEN+AQ1-X10	53	=GEN+AV1/26.7	YE	=GEN+AV1-KD1	-X17:17	=GEN+AV1/26.7
CABLE NAME: =GEN+AQ1-WCER2		**CABLE TYPE:** CONTROL 2x0,5 mm² **PART NO.:** 718-3702-00105		**COMMENT:**		
=GEN+AQ1-X3	2	=GEN+AQ1/23.8	RD	=GEN+AQ1-X10	37	=GEN+AQ1/23.8
=GEN+AQ1-X3	1	=GEN+AQ1/23.8	BU	=GEN+AQ1-X10	31	=GEN+AQ1/23.8
CABLE NAME: =GEN+AQ1-WCEX1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:**		
=GEN+AQ1-X10	32	=GEN+AQ1/22.7	RD	=GEN+AQ1-EX1	3	=GEN+AQ1/22.6
=GEN+AQ1-X10	81	=GEN+AQ1/22.6	BU	=GEN+AQ1-EX1	1	=GEN+AQ1/22.6
=GEN+AQ1-X10	82	=GEN+AQ1/22.7	GN	=GEN+AQ1-EX1	2	=GEN+AQ1/22.6

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: CABLE LIST
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LAST EDIT DATE: 2020.08.19
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SCALE: 1:1 PAGE: 4
DWG. NO. 6002449
SHEET / TOTAL : (32 / 40)

SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =GEN+AQ1-WCEX1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011			**COMMENT:**	
=GEN+AQ1-X10	84	=GEN+AQ1/22.7	YE	=GEN+AQ1-EX1	5	=GEN+AQ1/22.6
CABLE NAME: =GEN+AQ1-WCKC1		**CABLE TYPE:** CONTROL 2x0,5 mm² **PART NO.:** 718-3702-00105			**COMMENT:**	
=GEN+AQ1-X10	35	=GEN+AQ1/23.5	RD	=GEN+AQ1-KC1	+24V	=GEN+AQ1/23.5
			BU			
=GEN+AQ1-X10	31	=GEN+AQ1/23.6	BU	=GEN+AQ1-KC1		=GEN+AQ1/23.5
CABLE NAME: =GEN+AQ1-WCML3		**CABLE TYPE:** CONTROL 2x0,5 mm² **PART NO.:** 718-3702-00105;718-3702-00105			**COMMENT:**	
=GEN+AQ1-X10	36	=GEN+AQ1/23.7	RD	=GEN+AQ1-ML3	1	=GEN+AQ1/23.7
=GEN+AQ1-X10	31	=GEN+AQ1/23.7	BU	=GEN+AQ1-ML3	2	=GEN+AQ1/23.7
			RD			
			BU			
CABLE NAME: =GEN+AQ1-WCPL1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:**			**COMMENT:**	
=GEN+AQ1-X10	32	=GEN+AQ1/22.4	BN	=GEN+AQ1-PL1	BN	=GEN+AQ1/22.4
=GEN+AQ1-X10	86	=GEN+AQ1/22.1	GN	=GEN+AQ1-PL1	GN	=GEN+AQ1/22.1
=GEN+AQ1-X10	88	=GEN+AQ1/22.2	GY	=GEN+AQ1-PL1	GY	=GEN+AQ1/22.2
=GEN+AQ1-X10	85	=GEN+AQ1/22.2	RD	=GEN+AQ1-PL1	RD	=GEN+AQ1/22.2
=GEN+AQ1-X10	87	=GEN+AQ1/22.1	YE	=GEN+AQ1-PL1	YE	=GEN+AQ1/22.1
CABLE NAME: =GEN+AQ1-WCRA1		**CABLE TYPE:** CONTROL 2x0,75 mm² **PART NO.:** 718-3701-0001;718-3701-0001			**COMMENT:**	
=GEN+AQ1-X10	42	=GEN+AQ1/19.5	BN	=GEN+AV1-RA1		=GEN+AQ1/19.5
			BU			
			BN			
			BU			
CABLE NAME: =GEN+AQ1-WCSC1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011;718-3702-0011			**COMMENT:**	
=GEN+AQ1-X10	62	=GEN+AQ1/20.5	RD	=GEN+AQ1-SC1	13	=GEN+AQ1/20.5
=GEN+AQ1-X10	61	=GEN+AQ1/20.5	BU	=GEN+AQ1-SC1	13	=GEN+AQ1/20.5
			GN			
=GEN+AQ1-X10	68	=GEN+AQ1/20.5	YE	=GEN+AQ1-SC1	14	=GEN+AQ1/20.5
			RD			
			BU			
			GN			
			YE			
CABLE NAME: =GEN+AQ1-WCSE1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011;718-3702-0011			**COMMENT:**	
=GEN+AQ1-X10	62	=GEN+AQ1/20.3	RD	=GEN+AQ1-SE1	21	=GEN+AQ1/20.3
=GEN+AQ1-X10	61	=GEN+AQ1/20.2	BU	=GEN+AQ1-SE1	21	=GEN+AQ1/20.2
			GN			
=GEN+AQ1-X10	64	=GEN+AQ1/20.3	YE	=GEN+AQ1-SE1	22	=GEN+AQ1/20.3
			RD			
			BU			
			GN			

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

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DWG. NO. 6002449
SHEET / TOTAL : (33 / 40)

0	1	2	3	4	5	6	7	8	9

SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =GEN+AQ1-WCSE1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011;718-3702-0011		**COMMENT:**		
			YE			
CABLE NAME: =GEN+AQ1-WCSP2		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011;718-3702-0011		**COMMENT:**		
=GEN+AQ1-X10	62	=GEN+AQ1/20.4	RD	=GEN+AQ1-SP2	13	=GEN+AQ1/20.4
=GEN+AQ1-X10	61	=GEN+AQ1/20.3	BU	=GEN+AQ1-SP2	21	=GEN+AQ1/20.3
			GN			
=GEN+AQ1-X10	66	=GEN+AQ1/20.4	YE	=GEN+AQ1-SP2	14	=GEN+AQ1/20.4
			RD			
			BU			
			GN			
			YE			
CABLE NAME: =GEN+AQ1-WCXB2		**CABLE TYPE:** CONTROL 2x0,5 mm² **PART NO.:** 718-3702-00105		**COMMENT:**		
=GEN+AQ1-X10	34	=GEN+AQ1/23.3	RD	=GEN+AV1-XB2	+24V	=GEN+AQ1/23.3
			BU			
=GEN+AQ1-X10	31	=GEN+AQ1/23.4	BU	=GEN+AV1-XB2		=GEN+AQ1/23.3
CABLE NAME: =GEN+AQ1-WMM1		**CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042		**COMMENT:**		
=GEN+AQ1-M1	U	=GEN+AQ1/18.0	1	=GEN+AQ1-TF1	U	=GEN+AQ1/18.1
=GEN+AQ1-M1	V	=GEN+AQ1/18.0	2	=GEN+AQ1-TF1	V	=GEN+AQ1/18.1
=GEN+AQ1-M1	W	=GEN+AQ1/18.0	3	=GEN+AQ1-TF1	W	=GEN+AQ1/18.1
=GEN+AQ1-M1	PE	=GEN+AQ1/18.0	PE	=GEN+AQ1-TF1	PE	=GEN+AQ1/18.1
=GEN+AQ1-M1	A	=GEN+AQ1/18.0	WH	=GEN+AQ1-TF1	T1	=GEN+AQ1/18.1
=GEN+AQ1-M1	B	=GEN+AQ1/18.0	BN	=GEN+AQ1-TF1	T2	=GEN+AQ1/18.1
			SH			
CABLE NAME: =GEN+AQ1-WMM1.1		**CABLE TYPE:** CONTROL 4x0,22 mm² **PART NO.:** 718-3702-0006		**COMMENT:**		
			BU			
			RD			
=GEN+AQ1-XTF	DI1	=GEN+AQ1/21.1	GN	=GEN+AQ1-M1		=GEN+AQ1/21.1
=GEN+AQ1-XTF	32	=GEN+AQ1/21.2	YE	=GEN+AQ1-M1		=GEN+AQ1/21.1
=GEN+AQ1-XTF	31	=GEN+AQ1/21.1	BN	=GEN+AQ1-M1		=GEN+AQ1/21.1
=GEN+AQ1-XTF	DI2	=GEN+AQ1/21.1	WH	=GEN+AQ1-M1		=GEN+AQ1/21.1
CABLE NAME: =GEN+AQ1-WPER1		**CABLE TYPE:** POWER 3x0,75 mm² **PART NO.:** 718-3701-0003		**COMMENT:**		
=GEN+AQ1-ER1	1	=GEN+AQ1/17.3	BN	=GEN+AQ1-KR2	11	=GEN+AQ1/17.3
=GEN+AQ1-ER1	2	=GEN+AQ1/17.3	BU	=GEN+AQ1-KR3	11	=GEN+AQ1/17.4
=GEN+AQ1-XPE	PE	=GEN+AQ1/17.3	GN/YE	=+		=GEN+AQ1/17.3
CABLE NAME: =GEN+AQ1-WPEX1		**CABLE TYPE:** POWER 3x1 mm² **PART NO.:** 718-3703-1029677		**COMMENT:**		
=GEN+AQ1-EX1	L	=GEN+AQ1/17.0	BN	=GEN+AQ1-VF1	1L1	=GEN+AQ1/17.0
=GEN+AQ1-EX1	N	=GEN+AQ1/17.1	BU	=GEN+AQ1-VF1	1L2	=GEN+AQ1/17.0
			GN/YE			
=GEN+AQ1-EX1	PE	=GEN+AQ1/17.1	GNYE	=GEN+AQ1-VF1	PE	=GEN+AQ1/17.1

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
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DWG. NO. 6002449
SHEET / TOTAL : (34 / 40)

SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =GEN+AV1-BH1		**CABLE TYPE:** **PART NO.:**		**COMMENT:**		
=GEN+AV1-BH1	RD	=GEN+AV1/27.8	BU	=GEN+AV1-KD1	iBUT	=GEN+AV1/27.8
=GEN+AV1-BH1	BU	=GEN+AV1/27.9	RD	=GEN+AV1-KD1	LED	=GEN+AV1/27.8
=GEN+AV1-BH1	YE	=GEN+AV1/27.8	YE	=GEN+AV1-KD1	GND	=GEN+AV1/27.8
CABLE NAME: =GEN+AV1-WBBX1		**CABLE TYPE:** CAN 2x2x0,5 mm² **PART NO.:** 718-3702-Y2422PUR		**COMMENT:**		
=GEN+AV1-BX1	-X50	=GEN+SOV/10.4	RD,WH,SH,BU,BK	=GEN+AV1-XB2	CAN	=GEN+SOV/10.4
CABLE NAME: =GEN+AV1-WBFE1		**CABLE TYPE:** CAN 2x2x0,5 mm² **PART NO.:** 718-3702-Y2422PUR		**COMMENT:**		
			RD,WH,SH,BU,BK			
=GEN+AQ1-FE1	CAN	=GEN+SOV/10.7	XX,WH,SH,BU,BK	=GEN+AV1-XB2	CAN	=GEN+SOV/10.5
CABLE NAME: =GEN+AV1-WBKC1		**CABLE TYPE:** CAN 2x2x0,5 mm² **PART NO.:** 718-3702-Y2422PUR		**COMMENT:**		
			RD,WH,SH,BU,BK			
=GEN+AQ1-KC1	CAN	=GEN+SOV/10.1	XX,WH,SH,BU,BK	=GEN+AV1-XB1	CAN	=GEN+SOV/10.1
=GEN+AV1-XB2	CAN	=GEN+SOV/10.3	XX,WH,SH,BU,BK	=GEN+AV1-XB1	CAN	=GEN+SOV/10.2
CABLE NAME: =GEN+AV1-WBTF1		**CABLE TYPE:** CAN 2x2x0,5 mm² **PART NO.:** 718-3702-Y2422PUR		**COMMENT:**		
			RD,WH,SH,BU,BK			
=GEN+AQ1-TF1	CAN	=GEN+SOV/10.7	XX,WH,SH,BU,BK	=GEN+AV1-XB2	CAN	=GEN+SOV/10.5
CABLE NAME: =GEN+AV1-WCKW1		**CABLE TYPE:** CONTROL 3x0,5 mm² **PART NO.:** 718-3703-1012364		**COMMENT:**		
			BN			
			BU			
			GR/YE			
=GEN+AV1-KD1	-X15:15	=GEN+AV1/26.5	BN	=GEN+AV1-KW1	A1	=GEN+AV1/26.5
=GEN+AV1-KD1	-X15	=GEN+AV1/26.5	BU	=GEN+AV1-KW1	A2	=GEN+AV1/26.5
CABLE NAME: =GEN+AV1-WCML1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:**		
=GEN+AV1-AXML1-X10	4	=GEN+AV1/25.6	RD	=GEN+AV1-KD2	W4	=GEN+AV1/25.6
=GEN+AV1-AXML1-X10	3	=GEN+AV1/25.6	BU	=GEN+AV1-KD2	W3	=GEN+AV1/25.6
=GEN+AV1-AXML1-X10	1	=GEN+AV1/25.6	GN	=GEN+AV1-KD2	W1	=GEN+AV1/25.6
=GEN+AV1-AXML1-X10	2	=GEN+AV1/25.6	YE	=GEN+AV1-KD2	W2	=GEN+AV1/25.6
CABLE NAME: =GEN+AV1-WCML2		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:**		
=GEN+AV1-AXML2-X10	4	=GEN+AV1/25.8	RD	=GEN+AV1-KD3	W4	=GEN+AV1/25.8
=GEN+AV1-AXML2-X10	3	=GEN+AV1/25.8	BU	=GEN+AV1-KD3	W3	=GEN+AV1/25.8
=GEN+AV1-AXML2-X10	1	=GEN+AV1/25.8	GN	=GEN+AV1-KD3	W1	=GEN+AV1/25.7
=GEN+AV1-AXML2-X10	2	=GEN+AV1/25.8	YE	=GEN+AV1-KD3	W2	=GEN+AV1/25.8
CABLE NAME: =GEN+AV1-WEKC1		**CABLE TYPE:** ETHERNET 2x2x0,22 mm² **PART NO.:** 718-3702-F5P2PUR		**COMMENT:**		
=GEN+AQ1-KC1	RJ45	=GEN+SOV/11.2		=GEN+AV1-KE1	RJ45	=GEN+SOV/11.2

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			SH			

CABLE NAME: =GEN+AV1-WEKC1

CABLE TYPE: ETHERNET 2x2x0,22 mm²
PART NO.: 718-3702-F5P2PUR

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POS.NO.	DEVICE TAG	MAREL AX NUMBER (IS)	MAREL PLM NUMBER	DESCRIPTION	MANUFACTURER	TYPE NUMBER	QTY.	LENGTH	ENCL. ITEM NO.	PAGE REFERENCE
1	=GEN+SOV-WBXX1	718-3702-Y2422PUR	400003831	CABLE CAN PUR 2X2X0,5mm²	CEAM	1978e	1			=GEN+SOV/9.6
2	=GEN+SOV-WCXX1	718-3702-0011	400003826	CABLE CONTROL PUR 4X0,5mm²	CEAM	2135e-0405354	1			=GEN+SOV/9.2
3	=GEN+AQ1-1	055-0010-0	400007116	MOUNTING RAIL TS 35x15 487MM	RITTAL	SZ2318.000	1	308 mm	1	=GEN+AQ1 (+AQ1)
4	=GEN+AQ1-1	715-3302-11782300000	095145398	TRIPLE-TIER TERMINAL ZDLD 2.5-2N	WEIDMULLER	ZDLD 2.5-2N	6		52	=GEN+AQ1 (+AQ1)
5	=GEN+AQ1-2	055-0010-0	400007116	MOUNTING RAIL TS 35x15 487MM	RITTAL	SZ2318.000	1	235 mm	2	=GEN+AQ1 (+AQ1)
6	=GEN+AQ1-3	055-0010-0	400007116	MOUNTING RAIL TS 35x15 487MM	RITTAL	SZ2318.000	1	322 mm	3	=GEN+AQ1 (+AQ1)
7	=GEN+AQ1-7	721-4904-1030490	400007256	CABLE DUCT HxW 60x25mm INSIDE	HAGER	BA760025	1	177 mm	7	=GEN+AQ1 (+AQ1)
8	=GEN+AQ1-8	721-4904-1030490	400007256	CABLE DUCT HxW 60x25mm INSIDE	HAGER	BA760025	1	308 mm	8	=GEN+AQ1 (+AQ1)
9	=GEN+AQ1-9	721-4904-1030490	400007256	CABLE DUCT HxW 60x25mm INSIDE	HAGER	BA760025	1	219 mm	9	=GEN+AQ1 (+AQ1)
10	=GEN+AQ1-10	721-4904-1030490	400007256	CABLE DUCT HxW 60x25mm INSIDE	HAGER	BA760025	1	345 mm	10	=GEN+AQ1 (+AQ1)
11	=GEN+AQ1-11	721-4904-1030490	400007256	CABLE DUCT HxW 60x25mm INSIDE	HAGER	BA760025	1	313 mm	11	=GEN+AQ1 (+AQ1)
12	=GEN+AQ1-12	721-4904-1030491	400007117	CABLE DUCT HxW 60x40mm INSIDE	HAGER	BA760040	1	280 mm	43	=GEN+AQ1 (+AQ1)
13	=GEN+AQ1-13	721-4904-1030491	400007117	CABLE DUCT HxW 60x40mm INSIDE	HAGER	BA760040	1	266 mm	44	=GEN+AQ1 (+AQ1)
14	=GEN+AQ1-14	721-4904-1030491	400007117	CABLE DUCT HxW 60x40mm INSIDE	HAGER	BA760040	1	384 mm	45	=GEN+AQ1 (+AQ1)
15	=GEN+AQ1-.	715-3303-1954000000	095147910	END SUPPORT ZEW 35	WEIDMULLER	ZEW 35	10		12	=GEN+AQ1 (+AQ1)
16	=GEN+AQ1-ER2	765-0340-1048232	400005050	THERMOELECTRIC DEHUMIDIFIER	HOFFMAN	AVDR4SS4	1			=GEN+AQ1/23.8
17	=GEN+AQ1-FC1	717-4403-1051573	400011051	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		59	=GEN+AQ1/18.0
18	=GEN+AQ1-FC1a	717-4403-1051573	400011051	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		60	=GEN+AQ1/17.0
19	=GEN+AQ1-FC1b	717-4403-1051572	400010861	CIRCUIT BREAKER 1P 4A	ABB	SU201M-C4	1		53	=GEN+AQ1/17.5
20	=GEN+AQ1-FC2a	400011050	400011050	CIRCUIT BREAKER 2P 4A	ABB	SU202M-C4	1		61	=GEN+AQ1/17.2
21	=GEN+AQ1-FC2b	717-4403-1051572	400010861	CIRCUIT BREAKER 1P 4A	ABB	SU201M-C4	1		54	=GEN+AQ1/17.5
22	=GEN+AQ1-FC3a	717-4403-1051573	400011051	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		62	=GEN+AQ1/17.7
23	=GEN+AQ1-FC3b	717-4403-1051572	400010861	CIRCUIT BREAKER 1P 4A	ABB	SU201M-C4	1		55	=GEN+AQ1/17.6
24	=GEN+AQ1-FC4b	717-4403-1051572	400010861	CIRCUIT BREAKER 1P 4A	ABB	SU201M-C4	1		56	=GEN+AQ1/17.7
25	=GEN+AQ1-FC5b	717-4403-1051572	400010861	CIRCUIT BREAKER 1P 4A	ABB	SU201M-C4	1		57	=GEN+AQ1/17.7
26	=GEN+AQ1-FC6b	717-4403-1051571	400011047	CIRCUIT BREAKER 1P 10A	ABB	SU201M-C10	1		58	=GEN+AQ1/17.8
27	=GEN+AQ1-FE1	717-3400-1022409	400003755	XPS-MC - SAFETY CONTROLLER	SCHNEIDER ELECTRIC	XPSMC32ZC	1		18	=GEN+AQ1/19.0
28	=GEN+AQ1-FE1	717-3400-1023402	400003756	PLUG-IN SPRING CONNECTOR	SCHNEIDER ELECTRIC	XPS MCTC32	1			=GEN+AQ1/19.0
29	=GEN+AQ1-FE1	715-3005-00010	095425803	CONNECTOR FEMALE- SUBCON 9/F-SH	PHOENIX CONTACT	SUBCON 9/F-SH	1			=GEN+AQ1/19.0
30	=GEN+AQ1-FS1	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.2
31	=GEN+AQ1-FS1	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.2
32	=GEN+AQ1-FS2	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.3
33	=GEN+AQ1-FS2	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.3
34	=GEN+AQ1-FS3	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.4
35	=GEN+AQ1-FS3	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.4
36	=GEN+AQ1-FS4	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.5
37	=GEN+AQ1-FS4	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.5
38	=GEN+AQ1-FS5	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.6
39	=GEN+AQ1-FS5	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.6
40	=GEN+AQ1-FS6	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.7
41	=GEN+AQ1-FS6	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.7
42	=GEN+AQ1-FS7	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.8

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POS.NO.	DEVICE TAG	MAREL AX NUMBER (IS)	MAREL PLM NUMBER	DESCRIPTION	MANUFACTURER	TYPE NUMBER	QTY.	LENGTH	ENCL. ITEM NO.	PAGE REFERENCE
43	=GEN+AQ1-FS7	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.8
44	=GEN+AQ1-FS8	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/19.9
45	=GEN+AQ1-FS8	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/19.9
46	=GEN+AQ1-FS9	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/20.7
47	=GEN+AQ1-FS9	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/20.7
48	=GEN+AQ1-FS10	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/20.8
49	=GEN+AQ1-FS10	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/20.8
50	=GEN+AQ1-FS11	717-3407-1023751	400003796	MACHINE SAFETY SWITCH 2XNO M30X1,5	ELOBAU	171 V62V01	1			=GEN+AQ1/20.9
51	=GEN+AQ1-FS11	717-3407-1012325	4265925	MAGNET FOR ELOBAU SENSOR	ELOBAU	304 200 00 VH	1			=GEN+AQ1/20.9
52	=GEN+AQ1-KC1	4263855	4263855	CONTROL PANEL M6315 MI980 & CAN	MAREL	M6315 MI980 & CAN	1			=GEN+SOV/10.1
53	=GEN+AQ1-KC1	715-3005-00010	095425803	CONNECTOR FEMALE- SUBCON 9/F-SH	PHOENIX CONTACT	SUBCON 9/F-SH	1			=GEN+SOV/10.1
54	=GEN+AQ1-KR1	717-3406-1LC1D183BL	400003782	CONTACTOR 3P/18A 24VDC - SPRING TERMINALS	SCHNEIDER ELECTRIC	LC1-D183BL	1		63	=GEN+AQ1/19.6
55	=GEN+AQ1-KR2	717-3406-1012307	400003784	RELAY 24V xx/DC 1XCO 6A	WEIDMULLER	TRZ 24VDC 1CO	1			=GEN+AQ1/21.3
56	=GEN+AQ1-KR3	717-3406-1012307	400003784	RELAY 24V xx/DC 1XCO 6A	WEIDMULLER	TRZ 24VDC 1CO	1		26	=GEN+AQ1/21.4
57	=GEN+AQ1-KR5	717-3406-1012307	400003784	RELAY 24V xx/DC 1XCO 6A	WEIDMULLER	TRZ 24VDC 1CO	1		38	=GEN+AQ1/21.6
58	=GEN+AQ1-KR6	717-3406-1012307	400003784	RELAY 24V xx/DC 1XCO 6A	WEIDMULLER	TRZ 24VDC 1CO	1		37	=GEN+AQ1/21.7
59	=GEN+AQ1-KR7	717-3406-1012307	400003784	RELAY 24V xx/DC 1XCO 6A	WEIDMULLER	TRZ 24VDC 1CO	1		36	=GEN+AQ1/21.5
60	=GEN+AQ1-PL1	400014269	400014269	3 COLOR LIGHT RD, YE, GN	BANNER	K50LRGYP-806021	1			=GEN+AQ1/22.0
61	=GEN+AQ1-R1	711-2000-32205	400003735	RESISTOR 2,2 KOHM 0,25 W	IHLUTIR	711-2000-32205	1			=GEN+AQ1/21.2
62	=GEN+AQ1-R2	711-2000-32205	400003735	RESISTOR 2,2 KOHM 0,25 W	IHLUTIR	711-2000-32205	1			=GEN+AQ1/21.1
63	=GEN+AQ1-SC1	717-3405-1m22s-wrs	400003776	SWITCH SELECTOR, 2 POS. WITH KEY	EATON MOELLER	M22S-WRS	1			=GEN+AQ1/20.5
64	=GEN+AQ1-SC1	717-3405-1m22-xc-r	400003777	KEY CODING ADAPTER	EATON MOELLER	M22-XC-R	1			=GEN+AQ1/20.5
65	=GEN+AQ1-SC1	717-3404-1M22S-CK10+M22-A	400003768	CONTACT BLOCK+ ADAPTER, 1NO (CC,FF)	EATON MOELLER	M22-CK10+M22-A	2			=GEN+AQ1/20.5
66	=GEN+AQ1-SE1	717-3405-1M22-PV+K01	400003773	EMERGENCY-STOP PUSHBUTTON, 1NC	EATON MOELLER	M22-PV/K01	1			=GEN+AQ1/20.2
67	=GEN+AQ1-SP1	717-3406-0001	400003779	ON-OFF SWITCH 3-POLE 25A	EATON MOELLER	P1-25/E	1			=GEN+AQ1/16.4
68	=GEN+AQ1-SP1	717-3404-1012272	400003771	AUXILIARY CONTACT BLOCK NEUTRAL 1NO	EATON MOELLER	N-P1E	1			=GEN+AQ1/16.4
69	=GEN+AQ1-SP1	717-3405-1012295	400003778	ON-OFF HANDLE, BLACK LOCKABLE	EATON MOELLER	SVB-SW-T0	1			=GEN+AQ1/16.4
70	=GEN+AQ1-SP2	717-3406-0001	400003779	ON-OFF SWITCH 3-POLE 25A	EATON MOELLER	P1-25/E	1			=GEN+AQ1/16.4
71	=GEN+AQ1-SP2	717-3404-1012272	400003771	AUXILIARY CONTACT BLOCK NEUTRAL 1NO	EATON MOELLER	N-P1E	1			=GEN+AQ1/16.4
72	=GEN+AQ1-SP2	717-3405-1012295	400003778	ON-OFF HANDLE, BLACK LOCKABLE	EATON MOELLER	SVB-SW-T0	1			=GEN+AQ1/16.4
73	=GEN+AQ1-TF1	725-8400-1020401	400003843	INVERTER 1-PH 0,37KW	LENZE	E84AVSCE3712SX0	1		13	=GEN+AQ1/18.1
74	=GEN+AQ1-TF1	725-8400-1020427	400001196	HMI FOR LENZE 8400 INVERTER	LENZE	EZAEBK1001	1		14	=GEN+AQ1/18.1
75	=GEN+AQ1-TP1	719-3600-1026588	400005363	POWER SUPPLY 1PH / 24VDC-20A	PULS	CPS20.241	1		46	=GEN+AQ1/17.7
76	=GEN+AQ1-VF1	713-2900-1023406	400003736	EMC FILTER 230V 6,0A		FN2070-6-06	1		42	=GEN+AQ1/17.0
77	=GEN+AQ1-WCAV1	718-3702-0009	400003823	CABLE CONTROL PUR 12X0,5mm²	CEAM	2135e-0405362	1			=GEN+AQ1/21.7
78	=GEN+AQ1-WCER2	718-3702-00105	400003825	CABLE CONTROL PUR 2X0,5mm²	CEAM	2135e-0405352	1			=GEN+AQ1/23.8
79	=GEN+AQ1-WCEX1	718-3702-0011	400003826	CABLE CONTROL PUR 4X0,5mm²	CEAM	2135e-0405354	1			=GEN+AQ1/22.6
80	=GEN+AQ1-WCKC1	718-3702-00105	400003825	CABLE CONTROL PUR 2X0,5mm²	CEAM	2135e-0405352	1			=GEN+AQ1/23.4
81	=GEN+AQ1-WCML3	718-3702-00105	400003825	CABLE CONTROL PUR 2X0,5mm²	CEAM	2135e-0405352	2			=GEN+AQ1/23.7
82	=GEN+AQ1-WCRA1	718-3701-0001	400003801	CABLE POWER 2X0,75mm²	HELUKAPEL	black H03VV-F	2			=GEN+AQ1/19.5
83	=GEN+AQ1-WCSE1	718-3702-0011	400003826	CABLE CONTROL PUR 4X0,5mm²	CEAM	2135e-0405354	2			=GEN+AQ1/20.2
84	=GEN+AQ1-WCSP2	718-3702-0011	400003826	CABLE CONTROL PUR 4X0,5mm²	CEAM	2135e-0405354	2			=GEN+AQ1/20.3

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85	=GEN+AQ1-WCXB2	718-3702-00105	400003825	CABLE CONTROL PUR 2X0,5mm²	CEAM	2135e-0405352	1			=GEN+AQ1/23.2
86	=GEN+AQ1-WMM1	718-3701-0042	400003816	CABLE MOTOR PUR 4X1,0mm²+2X0,5mm²	CEAM	1864e	1	10 m		=GEN+AQ1/18.0
87	=GEN+AQ1-WMM1.1	718-3702-0006	400003820	CABLE CONTROL 4X0,22mm²	NEXANS	AK53192019	1			=GEN+AQ1/21.1
88	=GEN+AQ1-WPER1	718-3701-0003	400003802	CABLE POWER 3X0,75mm²	HELUKAPEL	H03VV-F	1			=GEN+AQ1/17.3
89	=GEN+AQ1-WPEX1	718-3703-1029677	400003832	CABLE POWER W/ANGLE PLUG 3X1mm²	NICK ELECTRONIC	gi25,5-H05VVF3G1.00-C13W/5,0				=GEN+AQ1/17.0
90	=GEN+AQ1-X0	715-3302-17904190000	400003747	TERMINAL, BLUE ZDU 4/3AN BL	WEIDMULLER	ZDU 4/3AN BL	1		29	=GEN+AQ1 (+AQ1)
91	=GEN+AQ1-X0	715-3303-1954000000	095147910	END SUPPORT ZEW 35	WEIDMULLER	ZEW 35	2		12	=GEN+AQ1 (+AQ1)
92	=GEN+AQ1-X0	715-3302-17904180000	400001160	TERMINAL ZDU 4/3AN	WEIDMULLER	ZDU 4/3AN	2		30;31	=GEN+AQ1 (+AQ1)
93	=GEN+AQ1-X1	715-3303-1954000000	095147910	END SUPPORT ZEW 35	WEIDMULLER	ZEW 35	2		12	=GEN+AQ1 (+AQ1)
94	=GEN+AQ1-X1	715-3302-17904170000	400003745	TERMINAL EARTH ZPE 4/3AN	WEIDMULLER	ZPE 4/3AN	2		28	=GEN+AQ1 (+AQ1)
95	=GEN+AQ1-X1	715-3302-17904180000	400001160	TERMINAL ZDU 4/3AN	WEIDMULLER	ZDU 4/3AN	3		30...32	=GEN+AQ1 (+AQ1)
96	=GEN+AQ1-X1	715-3302-11608660000	400003180	TERMINAL EARTH ZPE 2.5/4AN	WEIDMULLER	ZPE 2.5/4AN	1		33	=GEN+AQ1 (+AQ1)
97	=GEN+AQ1-X1	715-3302-11608570000	400003183	FEED-THROUGH TERMINAL ZDU 2,5/4AN	WEIDMULLER	ZDU 2,5/4AN	2		34;35	=GEN+AQ1 (+AQ1)
98	=GEN+AQ1-X1	715-3302-17904190000	400003747	TERMINAL, BLUE ZDU 4/3AN BL	WEIDMULLER	ZDU 4/3AN BL	1		29	=GEN+AQ1 (+AQ1)
99	=GEN+AQ1-X10	715-3303-1954000000	095147910	END SUPPORT ZEW 35	WEIDMULLER	ZEW 35	2		12	=GEN+AQ1 (+AQ1)
100	=GEN+AQ1-X10	715-3302-11782300000	095145398	TRIPLE-TIER TERMINAL ZDLD 2.5-2N	WEIDMULLER	ZDLD 2.5-2N	27		39	=GEN+AQ1 (+AQ1)
101	=GEN+AV1-3	055-0010-0	400007116	MOUNTING RAIL TS 35x15 487MM	RITTAL	SZ2318.000	1	358 mm	3	=GEN+AV1 (+AV1)
102	=GEN+AV1-4	055-0010-0	400007116	MOUNTING RAIL TS 35x15 487MM	RITTAL	SZ2318.000	1	198 mm	4	=GEN+AV1 (+AV1)
103	=GEN+AV1-.	715-3303-1954000000	095147910	END SUPPORT ZEW 35	WEIDMULLER	ZEW 35	6		5...10	=GEN+AV1 (+AV1)
104	=GEN+AV1-BH1	ELM-ESEN-MT1820-2M	6131905	TEMPERATUR SENSOR MT1820		DS18S20+	1			=GEN+AV1/27.8
105	=GEN+AV1-KD1	ELM-ECAN-MCS816	400003933	MODULE, I/O MCS816	MAREL	MCS816	1		18	=GEN+SOV/10.0
106	=GEN+AV1-KD2	4668755	4668755	MODULE, I/O MCSTEP2	MAREL	MCSTEP2	1		22	=GEN+AV1/25.6
107	=GEN+AV1-KD3	4668755	4668755	MODULE, I/O MCSTEP2	MAREL	MCSTEP2	1		23	=GEN+AV1/25.7
108	=GEN+AV1-KE1	elm-enet-es5	400003944	ETHERNET SWITCH, 5-PORTS, 24VDC	MAREL	ES5	1		17	=GEN+SOV/11.2
109	=GEN+AV1-KV1	750-1010-1023776	400003869	VALVE SV10 BLOCK X4 (4 VALVES)	SMC	750-SV10-00100410	1			=GEN+AV1/27.3
110	=GEN+AV1-KV1	750-1020-1020595	400003878	VALVE SV20 BLOCK X4 (4 VALVES)	SMC	750-1020-1020595	1		12	=GEN+AV1 (+AV1)
111	=GEN+AV1-KV2	750-SV20-21005FU	400003882	VALVE SV20 SOLENOID	SMC	SV2100-5FU	1			=GEN+AV1/27.3
112	=GEN+AV1-KV2	750-SV20-503AC6	400003883	VALVE SV20 BASE	SMC	SV2000-50-3A-C6	1			=GEN+AV1/27.3
113	=GEN+AV1-KV3	750-SV20-21005FU	400003882	VALVE SV20 SOLENOID	SMC	SV2100-5FU	1			=GEN+AV1/27.4
114	=GEN+AV1-KV3	750-SV20-503AC6	400003883	VALVE SV20 BASE	SMC	SV2000-50-3A-C6	1			=GEN+AV1/27.4
115	=GEN+AV1-KV4	750-SV20-21005FU	400003882	VALVE SV20 SOLENOID	SMC	SV2100-5FU	1			=GEN+AV1/27.5
116	=GEN+AV1-KV4	750-SV20-503AC6	400003883	VALVE SV20 BASE	SMC	SV2000-50-3A-C6	1			=GEN+AV1/27.5
117	=GEN+AV1-KW1	718-3703-1012364	400003833	CABLE FOR WATER VALVE 3X0,5mm², L=3M	SMC	AB2AA2U1309	1			=GEN+AV1/26.5
118	=GEN+AV1-R1	711-2000-21205	400003733	RESISTOR 120/OHM 0,25 W	FIRSTRONICS	RD14JN121T52	1			=GEN+SOV/10.4
119	=GEN+AV1-R2	711-2000-21205	400003733	RESISTOR 120/OHM 0,25 W	FIRSTRONICS	RD14JN121T52	1			=GEN+SOV/10.3
120	=GEN+AV1-RA1	752-9000-1040016	4317873	FILTER/PRESSURE REG.	SMC	AR20-F02EH-R	1		21	=GEN+AQ1/19.5
121	=GEN+AV1-WBBX1	718-3702-Y2422PUR	400003831	CABLE CAN PUR 2X2X0,5mm²	CEAM	1978e	1			=GEN+SOV/10.4
122	=GEN+AV1-WBFE1	718-3702-Y2422PUR	400003831	CABLE CAN PUR 2X2X0,5mm²	CEAM	1978e	1			=GEN+SOV/10.5
123	=GEN+AV1-WBKC1	718-3702-Y2422PUR	400003831	CABLE CAN PUR 2X2X0,5mm²	CEAM	1978e	1			=GEN+SOV/10.1
124	=GEN+AV1-WBTF1	718-3702-Y2422PUR	400003831	CABLE CAN PUR 2X2X0,5mm²	CEAM	1978e	1			=GEN+SOV/10.5
125	=GEN+AV1-WCKW1	718-3703-1012364	400003833	CABLE FOR WATER VALVE 3X0,5mm², L=3M	SMC	AB2AA2U1309	1	3 m		=GEN+AV1/26.5
126	=GEN+AV1-WCML1	718-3702-0011	400003826	CABLE CONTROL PUR 4X0,5mm²	CEAM	2135e-0405354	1			=GEN+AV1/25.6

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PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

PAGE DESCR.: PARTS LIST
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CREATED ON: 2018.11.19 BY: GHJ

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DWG. NO. 6002449
SHEET / TOTAL : (39 / 40)

0	1	2	3	4	5	6	7	8	9

POS.NO.	DEVICE TAG	MAREL AX NUMBER (IS)	MAREL PLM NUMBER	DESCRIPTION	MANUFACTURER	TYPE NUMBER	QTY.	LENGTH	ENCL. ITEM NO.	PAGE REFERENCE
127	=GEN+AV1-WCML2	718-3702-0011	400003826	CABLE CONTROL PUR 4X0,5mm²	CEAM	2135e-0405354	1			=GEN+AV1/25.7
128	=GEN+AV1-WEKC1	718-3702-F5P2PUR	400003829	CABLE ETHERNET PUR 2X2X0,22mm²	CEAM	FM5P2	1			=GEN+SOV/11.2
129	=GEN+AV1-WXKV1	508-0002-058	400003726	CABLE FLAT RIBBON 10X0,22mm² L=360MM +2 PLUG	MAREL	508-0002-058	1	0,36 m		=GEN+AV1/27.0
130	=GEN+AV1-X	715-3302-11608660000	400003180	TERMINAL EARTH ZPE 2.5/4AN	WEIDMULLER	ZPE 2.5/4AN	1		11	=GEN+AV1 (+AV1)
131	=GEN+AV1-XB1	elm-ecan-tbc6	400003940	MODULE, CAN MULTIPORT TBC6	MAREL	TBC6	1		20	=GEN+SOV/10.1
132	=GEN+AV1-XB2	elm-ecan-tbc6	400003940	MODULE, CAN MULTIPORT TBC6	MAREL	TBC6	1		19	=GEN+SOV/10.3

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next:

PROJ. TYPE: SENSOR X - SX25
CUSTOMER: SENSOR X SX25
COUNTRY:

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PROJ. REV. G
REVISED ON: BY:
CREATED ON: 2018.11.19 BY: GHJ

SCALE: 1:1 PAGE: 12
DWG. NO. 6002449
SHEET / TOTAL : (40 / 40)

Marel ehf
Austurhraun 9
IS-210 Gardabear

Iceland
T: +354 563 8000
F: +354 563 8001
I: www.marel.com

ELECTRICAL DIAGRAM

SENSOR X CONV. SYSTEM SX302/502

2012-101

3X230+PE/3X400+N+PE

DRAWING/BOM NO. : 2012-101-00002-02

REFERENCE DRAWING NUMBER	:	-
DIMENSIONS OF ENCLOSURE [mm]	:	-
CUSTOMER	:	STANDARD
CUSTOMER CITY	:	-
CUSTOMER STATE	:	-
CUSTOMER COUNTRY	:	-
AX ITEM NUMBER:	:	2012-101-00002
AX REFERENCE NUMBER:	:	-
NUMBER OF PAGES	:	32
HARDWARE ENGINEER	:	KRUN
CREATED ON	:	2014.09.30

BASIC FEEDBACK
-
-
-
-
-
-

EDITED BY :
EDIT DATE : (YYYY-MM-DD)
PROJECT REVISION :

STRUCTURE IDENTIFIER OVERVIEW

FULL DESIGNATION	LABELING	STRUCTURE DESCRIPTION	FULL DESIGNATION	LABELING	STRUCTURE DESCRIPTION
=GEN	Higher-level function	GENERAL INFORMATION			
=MON1	Higher-level function	REWORK MONITOR 1			
=MON2	Higher-level function	REWORK MONITOR 2			
=INF	Higher-level function	INFEED BELT			
=TAW	Higher-level function	TAKE AWAY BELT			
=CBELT	Higher-level function	C-BELT			
=REW	Higher-level function	REWORK BELT			
=DEL	Higher-level function	DELIVERY BELT			
=REP	Higher-level function	REPORTS			
+SOV	Mounting location	SYSTEM OVERVEIW			
+AC1	Mounting location	CONTROL BOX			
+AQ2	Mounting location	CONVEYOR CABINET			
+AQ1	Mounting location	SENSOR X MAIN CONTROL CABINET			
+AV1	Mounting location	SENSOR X VALVE CABINET 1			

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PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: STRUCTURE IDENTIFIER OVERVIEW
=GEN GENERAL INFORMATION

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1 PAGE: 2
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (2 / 32)

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CUSTOMER: STANDARD
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Ethernet Cable
RJ-45 8-pin plug or 4-pin plug

8-Pin	4-Pin	Signal	Wire
1	1	Tx+ (Transmit)	WH/OG
2	2	Tx- (Transmit)	OG
3	3	Rx+ (Receive)	WH/GN
4		Not used	BU
5		Not used	WH/BU
6	4	Rx- (Receive)	GN
7		Not used	WH/BN
8		Not used	BN

Can connections
(Combicon Plug)

Pin	Signal	Wire
1	V+ (24Vdc)	RD
2	C+ (Can Hi)	WH
3	Screen	SH
4	C- (Can Low)	BU
5	V- (0V)	BK

Can connections
(9-pin Plug)

Pin	Signal	Wire
2	C- (Can Low)	BU
3	V- (0V)	BK
7	C+ (Can Hi)	WH

Serial Bus

Pin	Signal	Wire
2	RX/TX	YE
3	TX/RX	GN
5	0V	BU

Control cable wire Colour/Number comparison table

Reference table between Colours and Numbers
if data from cable in document is incomplete.

Colour code		Numbers
Blue	BU	1
Red	RD	2
Green	GN	3
Yellow	YE	4
White	WH	5
Black	BK	6
Brown	BN	7
Violet	VT	8
Orange	OG	9
Pink	PK	10
Cyan	CY	11
Grey	GY	12
Red/Blue	RD/BU	13
Green/Red	GN/RD	14
Yellow/Red	YE/RD	15
White/Red	WH/RD	16
Red/Black	RD/BK	17
Red/Brown	RD/BN	18
Yellow/Blue	YE/BU	19
White/Bue	WH/BU	20
Blue/Black	BU/BK	21
Orange/Blue	OG/BU	22
Yellow/Green	YE/GN	23
White/Green	WH/GN	24
Orange/Green	OG/GN	25
Green/Blue	GN/BU	26
Grey/Blue	GY/BU	27
Green/Black	GN/BK	28
Grey/Green	GY/GN	29
Yellow/Brown	YE/BN	30
White/Brown	WH/BN	31
Brown/Black	BN/BK	32
Grey/Brown	GY/BN	33
Yellow/Violet	YE/VT	34
Violet/Black	VT/BK	35
White/Violet	WH/VT	36

Other wire codes

Green/Yellow (PE)	GN/YE	
Screen	SH	
Transparent	TP	
Beige	BE	

INTERNAL WIRE SPECIFICATION

REMARK: USE UL(MTW) WIRE,
RATED VOLTAGE UL (AWM) U:600V, UL (MTW) U:600V

Wiring type		Colour	Cross section
Main current:			
Phase	1-3 Phase	Black	Min. 2,5mm²
Neutral		Light blue	Min. 2,5mm²
Control current:			
Vac	Phase, Voltage = mains	Black	Min. 2,5mm²
	Phase, Voltage < mains	Red	Min. 1mm²
	Switched	Red	Min. 1mm²
	Zero (0Vac)	White	Min. 1mm²
Vdc	+Vdc	Dark Blue	Min. 1mm²
	-Vdc	Dark Blue	Min. 1mm²
	Switched	Dark Blue	Min. 1mm²
	Zero (0Vdc)	White/Blue	Min. 1mm²
External source voltage		Orange	Min. 1mm²
Earthing:			
Main current		Yellow/Green	Min. 2,5mm²
Control current		Yellow/Green	Min. 1mm²
Door earthing		Yellow/Green	Min. 6mm²
Phase < 16mm²		Yellow/Green	Min. equal to ph.
Phase 16 - 35mm²		Yellow/Green	Min. 16mm²
Phase 35 - 400mm²		Yellow/Green	Dim. phase:2
Screening:		Black shrink-wrap	
No earth wire		(Yellow/Green not allowed)	

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DEVICE TAG EXPLANATION

FIRST LETTER IS ACCORDING IEC-EN-81346
SECOND LETTER IS MAREL SUBCLASS DEFINITION FOR E-PARTS

LETTER CODE	DESCRIPTION / EXAMPLES
A	TWO OR MORE PURPOSES OR TASKS
AG	GENERAL ACCESORIES (PANEL ASSEMBLY COMPONENTS)
AK	CONTROL PANEL I/O AND ANALOG PROCESSING
AP	DISPLAY / TOUCH SCREEN / SIGNAL LIGHT BOX / OPERATOR PANEL
AQ	POWER PANEL INCLUDES MAIN VOLTAGE
AS	SWITCH BOX (BOX WITH A SINGLE SWITCH)
AT	TRANSFORMER PANEL / BOX
AV	VALVE PANEL / BOX
AW	CONTROL PANEL WEIGHING
AX	JUNCTION BOX / TERMINAL BOX
AY	OTHERS
AZ	BACKPLATE, MOUNTING PLATE
B	CONVERTING INPUT TO SIGNAL
BA	GAS / LIQUID PRESSURE (E.G. AIR, WATER)
BB	SAFETY LIGHT BEAM/CURTAIN
BD	DIFFUSE PHOTO SENSOR
BE	ENCODER/RESOLVER
BF	LEVEL, FLOAT SWITCH
BH	HEAT PROBE TEMPERATURE
BK	MECHANICAL SWITCH (MICRO, LIMIT SWITCH)
BL	LOADCELL
BM	INDUCTIVE PROXIMITY SENSOR
BN	CAPACITIVE PROXIMITY SENSOR
BO	REED CONTACT/MAGNET SENSOR
BP	PHOTO SENSOR RX/TX
BR	REFLECTIVE PHOTO SENSOR
BS	SAFETY SENSOR (INTRINSICALLY SAFETY FUNCTION)
BT	TAG READER (RF-ID)
BU	ULTRASONIC SENSOR
BV	VISION
BX	X-RAY SENSOR
BZ	LASER SENSOR
C	STORING ENERGY
CA	GAS / LIQUID RESERVOIR (E.G. AIR, WATER)
CC	CAPACITORS
CM	MEMORY
E	THERMAL / RADIANT ENERGY
EF	AIR CONDITIONER / HEAT EXCHANGER
EL	LIGHTS/LAMPS
ER	HEATER (RESISTANCE)
EX	X-RAY GENERATOR
EZ	LASER
F	SELF ACTING PROTECTION
FC	MINIATURE CIRCUIT BREAKER
FO	MOTOR OVERLOAD
FF	FUSE
FM	PROTECTING MODULE CLASS 2
FN	SURGE PROTECTION
FV	VOLTAGE MONITORING
G	INITIATING FLOW OF ENERGY
GB	BATTERY / UPS
K	PROCESSING SIGNALS
KA	ANALOG I/O UNITS
KB	BUS INTERFACE
KC	PROGRAMMABLE CONTROLLER
KD	DIGITAL I/O UNITS
KE	ETHERNET SWITCH / ROUTERS / GATEWAYS
KF	FILTER (EMC, LINE, LOAD)
KH	ENVIROMENTAL CNTR. (THERMOSTAD, HUMIDITY)
KR	RELAY, GENERAL
KO	RELAY, OPTO
KP	RELAY, SOLID STATE
KS	RELAY, SAFETY / CONTROLLER
KT	RELAY, TIMER
KV	VALVE, SOLENOID
M	PROVIDING MECHANICAL ENERGY
MA	CYLINDER / ACTUATORS
ML	LOW VOLTAGE MOTORS (<50V)
MT	MOTORS, WITH INTERGRATED FREQUENCY INVERTER
MS	MOTOR, SERVO
M	MOTORS, GENERAL (>50V)
P	PRESENTING INFORMATION
PD	OPERATOR INTERFACE (HMI, HIM ETC.)
PJ	AUDIBLE PRESENTATION (BELL, SIRENE, HORN)
PL	VISUAL PRESENTATION (SIGNAL LIGHT, LED, MIMIC PANELS)
PM	PANEL METERS (AMPS, VOLTS, WATTS, HOURS, PRESSURE)
PP	PRINTER
Q	CONTROLLED SWITCHING ENERGY
QC	POWER CONTACTORS
QF	MOTOR CIRCUIT BREAKER
QM	MOTOR STARTER / SOFT STARTER
QR	POWER SWITCH (DISCONNECT)
QP	MOTOR PROTECTION
R	RESTRICTING / STABILIZING MOTION OR ENERGY
RA	AIR PRESSURE REGULATOR
RD	DIODE
RR	RESISTOR
RY	INDUCTOR
S	CONVERTING MANUAL OPERATION TO SIGNAL
SC	CONTROL SWITCH (PUSHBUTTON, SELECTOR SWITCH)
SE	EMERGENCY STOP, PULL CORD
SK	KEYBOARD
SS	SAFETY SWITCH
T	CONVERSION OF ENERGY
TA	AMPLIFIER
TC	SIGNAL CONVERSION
TD	DIAGNOSTIC ADAPTER (CAN, ETHERNET)
TF	MOTOR CONTROLLER (FREQ. INVERTER, SERVO)
TP	POWER SUPPLY, DC
TV	VIBRATOR CONTROLLER
TT	TRANSFORMER
U	KEEPING OBJECTS IN POSITION
UU	HOLDING / SUPPORT BRACKETS (INSULATOR)
V	PROCESSING, TREATING MATERIALS
VF	NON ELECTRICAL
W	TRANSPORTING ENERGY, SIGNALS, MATERIALS
WA	CABLE ASSEMBLY (E.G. CABLE LOOMS)
WB	BUS CABLES (CAN, ETHERCAT)
WC	CONTROL CABLES (<50V)
WE	ETHERNET CABLES
WM	MOTOR CABLES
WP	POWER CABLES (>50V)
WX	PREFABRICATED CABLES
W	CABLE, GENERAL
X	CONNECTING OBJECTS
XB	BUS CONNECTION MODULE
XC	CONTROL CONNECTOR (<50V)
XD	I/O CONNECTION MODULE
XF	AIR FITTINGS
XG	WIRE TERMINATION ACCESORIES (FERULE, WIRE NUMBER)
XP	POWER CONNECTOR (>50V)
X	TERMINALS

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PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

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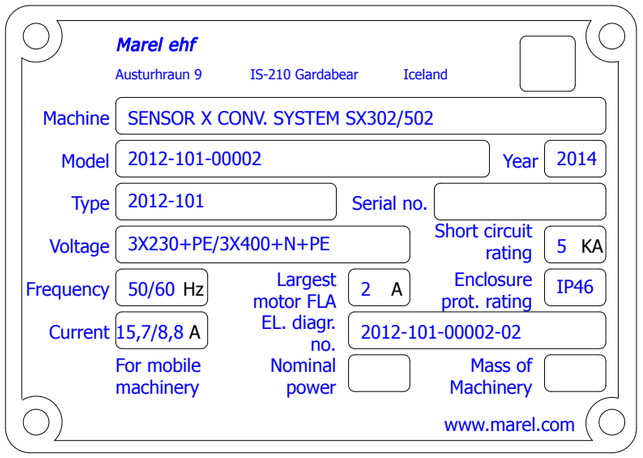
=GEN GENERAL INFORMATION

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1 PAGE: 5
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (4 / 32)



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+SOV/6

PROJ. TYPE: 2012-101
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=GEN GENERAL INFORMATION

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PAGE REV.
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REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

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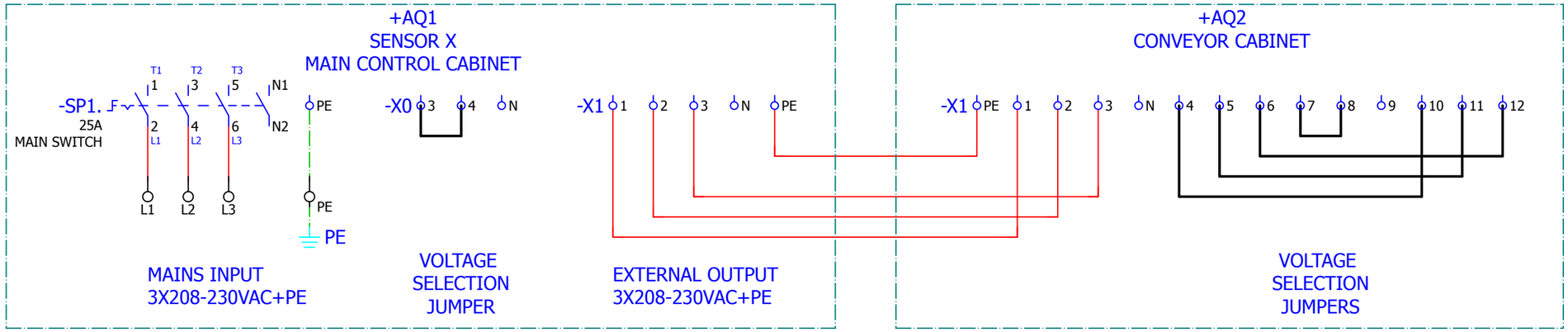
SHEET / TOTAL : (5 / 32)

EXAMPLE 1



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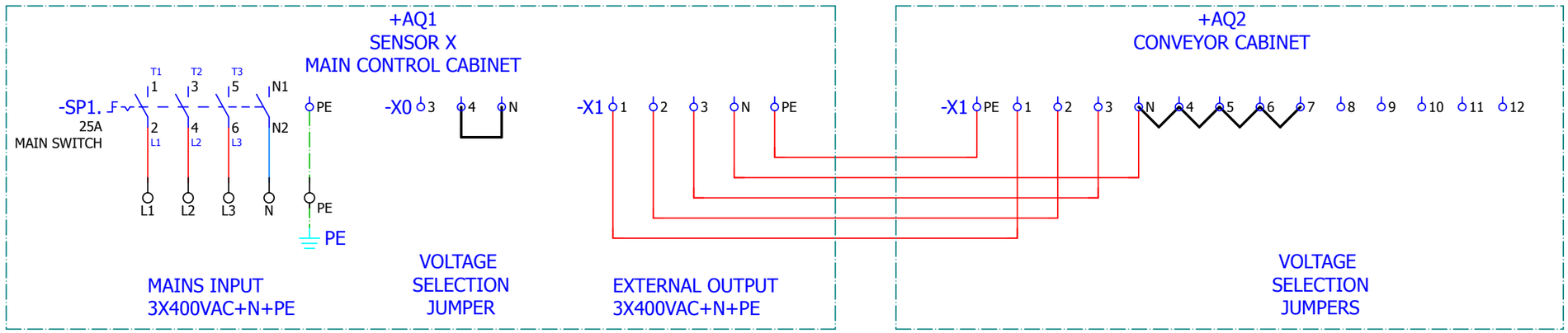

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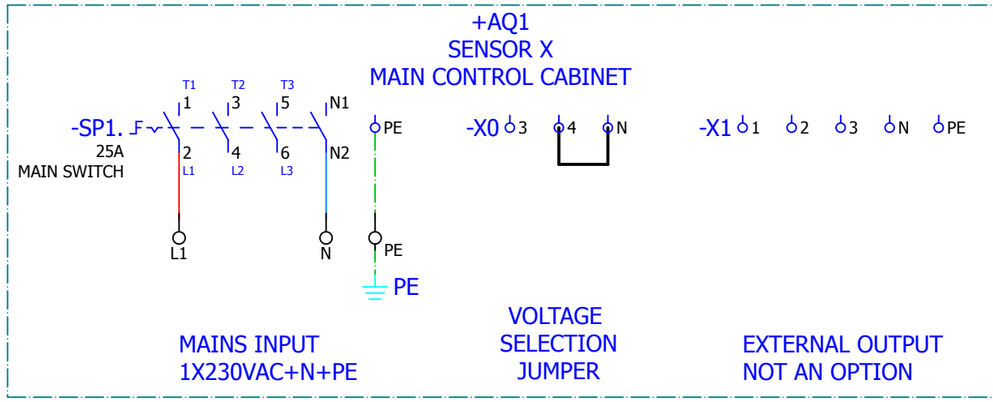

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CUSTOMER: STANDARD
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=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVEIW

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+AV1

SENSOR X
VALVE CABINET 1

-XB1
TBC6
V+,C+,SH,C-,V-

XX,WH,SH,BU,BK
-WBAQ2
2x2x1,5 mm²

+AQ2

CONVEYOR CABINET

RD,WH,SH,BU,BK

-R2
120OHM

-X50
-KD1
MSC816
V+,C+,SH,C-,V-
1 2 3 4 5 6 7 8 1 0
CAN Address: 8

-X50
-KD4
MSV8S8
V+,C+,SH,C-,V-
1 2 3 4 5 6 7 8 1 0
CAN Address: 31

-KD1
MSC816
/7.0
CAN Address: 8
V+,C+,SH,C-,V-

-X51
XX,WH,SH,BU,BK
-WBTF1
2x2x1,5 mm²

OPTIONAL

XX,WH,SH,BU,BK | XX,WH,SH,BU,BK | XX,WH,SH,BU,BK | XX,WH,SH,BU,BK

-TF1
0,37kW
CAN
+AQ2/15.1
24E CH,CL,CG
R d c b a 64 32 16 8 4 2 1 1 0
N 125kbps 3

-TF2
0,37kW
CAN
+AQ2/15.3
24E CH,CL,CG
R d c b a 64 32 16 8 4 2 1 1 0
N 125kbps 4

-TF3
0,37kW
CAN
+AQ2/15.4
24E CH,CL,CG
R d c b a 64 32 16 8 4 2 1 1 0
N 125kbps 5

-TF4
0,37kW
CAN
+AQ2/15.6
24E CH,CL,CG
R d c b a 64 32 16 8 4 2 1 1 0
N 125kbps 6

-TF5
0,37kW
CAN
+AQ2/15.8
24E CH,CL,CG
R d c b a 64 32 16 8 4 2 1 1 0
N 125kbps 7

CAN CONNECTIONS		
PIN	SIGNAL	WIRE
1	V+ (24VDC)	RD
2	C+ (CAN HI)	WH
3	SCREEN	SH
4	C- (CAN LO)	BU
5	V- (0V)	BK

NOTE:
CAN TERMINATION RESISTORS R1 AND R2
ARE PLACED AT EACH END OF CAN NETWORK.

previous: 6

next: 8

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CAN OVERVIEW, SX302/502 BASIC FEEDBACK
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVEIW

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1: 1
PAGE: 7
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (7 / 32)

MONITORS OPTION

=MON2+AQ2
REWORK MONITOR 2
-KC2
M3000
ETH
RJ45

=MON1+AQ2
REWORK MONITOR 1
-KC1
M3000
ETH
RJ45

+AV1
-WEAQ2
2x2x0,22 mm²
-KE1
ES5
PORT 1
RJ45
SENSOR X
VALVE CABINET 1

+AQ2
-KE1
ES5
PORT 1
+AQ2/17.3
RJ45
-WEKC1
2x2x0,22 mm²
ES5
PORT 2
RJ45
-WEKC2
2x2x0,22 mm²
ES5
PORT 3
RJ45
CONVEYOR CABINET

Ethernet Cable
RJ-45 8-pin plug or 4-pin plug

8-Pin	4-Pin	Signal	Wire
1	1	Tx+ (Transmit)	WH/OR
2	2	Tx- (Transmit)	OR
3	3	Rx+ (Receive)	WH/GN
4		Not used	BU
5		Not used	WH/BU
6	4	Rx- (Receive)	GN
7		Not used	WH/BN
8		Not used	BN

previous: 7
next: 9

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: ETHERNET OVERVIEW, SYSTEMS
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVEIW

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1
PAGE: 8
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (8 / 32)

+AQ1 SENSOR X
MAIN CONTROL CABINET

+AV1 SENSOR X
VALVE CABINET 1

+AQ2 CONVEYOR CABINET

PE
6 mm²

+AQ1-WPAQ2
5x4 mm²

+AQ1-WCAQ2
18x0,5 mm²

+AV1-WBAQ2
2x2x1,5 mm²

+AV1-WEAQ2
2x2x0,22 mm²

=CBELT+AC1 CONTROL BOX

+AQ2-WCSE1
4x0,5 mm²

=CBELT+AC1-BP1

=CBELT
+AC1
-BP1
OPT.SENS
PRODUCT
SENSOR
C-BELT

+AQ2-WCEL1
4x0,5 mm²

+AQ2-WCEL2
4x0,5 mm²

=REW+AQ2-BP2

+AQ2-WCKC1
2x0,5 mm²

+AQ2-WEKC1
2x2x0,22 mm²

+AQ2-WCRM1
4x0,5 mm²

=MON1
+AQ2
-KC1
M3210
REWORK
MONITOR 1

+AQ2-WCKC2
2x0,5 mm²

+AQ2-WEKC2
2x2x0,22 mm²

+AQ2-WCRM2
4x0,5 mm²

=MON2
+AQ2
-KC2
M3210
REWORK
MONITOR 2

+AQ2
-EL1
WORKLIGHT 1

+AQ2
-EL2
WORKLIGHT 2

=REW
+AQ2
-BP2
OPT.SENS
PRODUCT
SENSOR
REWORK
BELT

OPTIONAL

=INF
+AQ2
-WMM1
4+2
1/0,5 mm²
3+PE
-M1
0,37kW
2
INFEED BELT

=TAW
+AQ2
-WMM2
4+2
1/0,5 mm²
3+PE
-M2
0,37kW
2
TAKE AWAY BELT

=CBELT
+AQ2
-WMM3
4+2
1/0,5 mm²
3+PE
-M3
0,37kW
2
C-BELT

=REW
+AQ2
-WMM4
4+2
1/0,5 mm²
3+PE
-M4
0,37kW
2
REWORK BELT

=DEL
+AQ2
-WMM5
4+2
1/0,5 mm²
3+PE
-M5
0,37kW
2
DELIVERY BELT

previous: 8

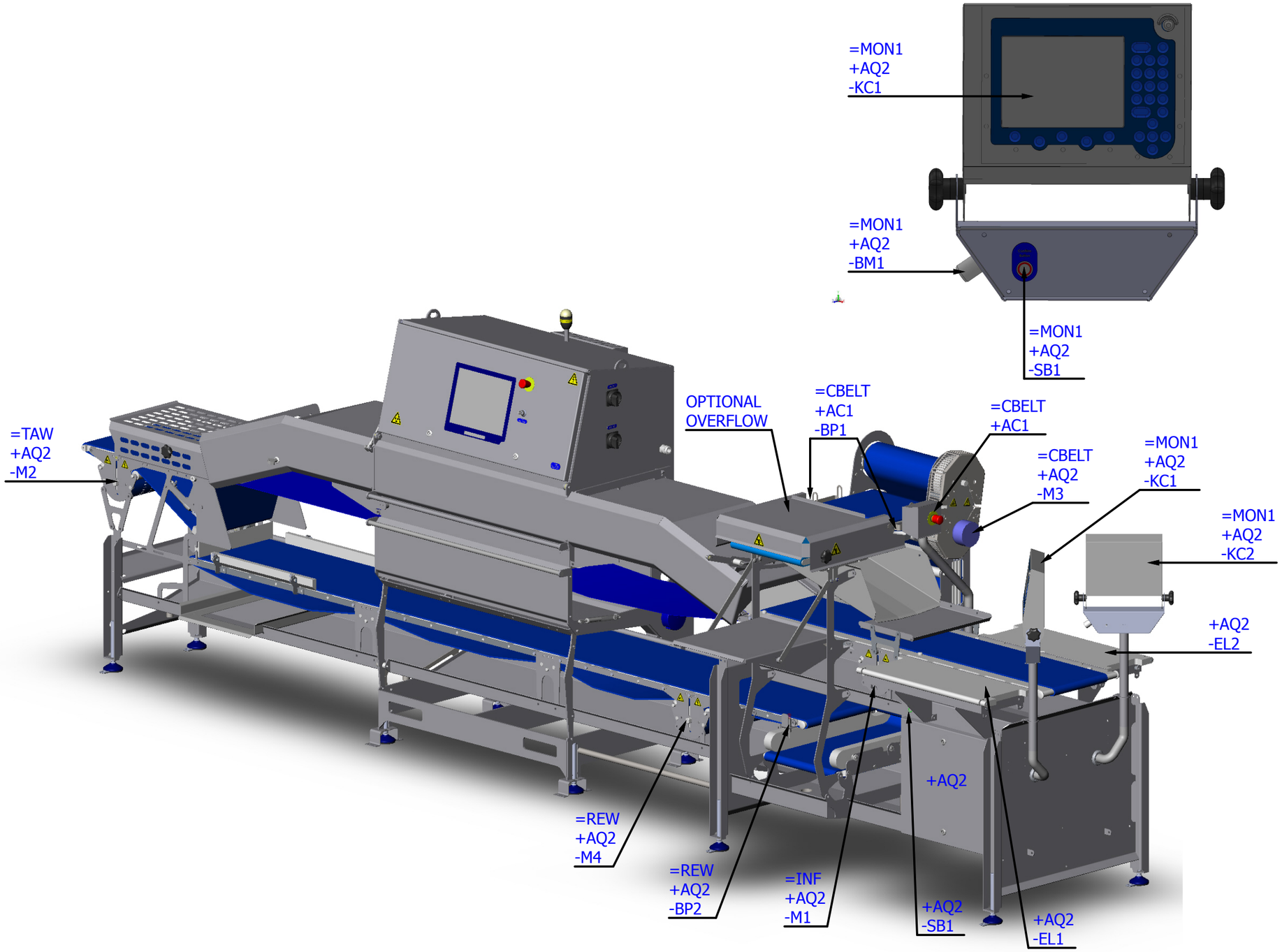
next: 10

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: SYSTEM LAYOUT, CABLES, SX302/502 BASIC FEEDBACK
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVEIW

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1
PAGE: 9
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (9 / 32)



previous: 9

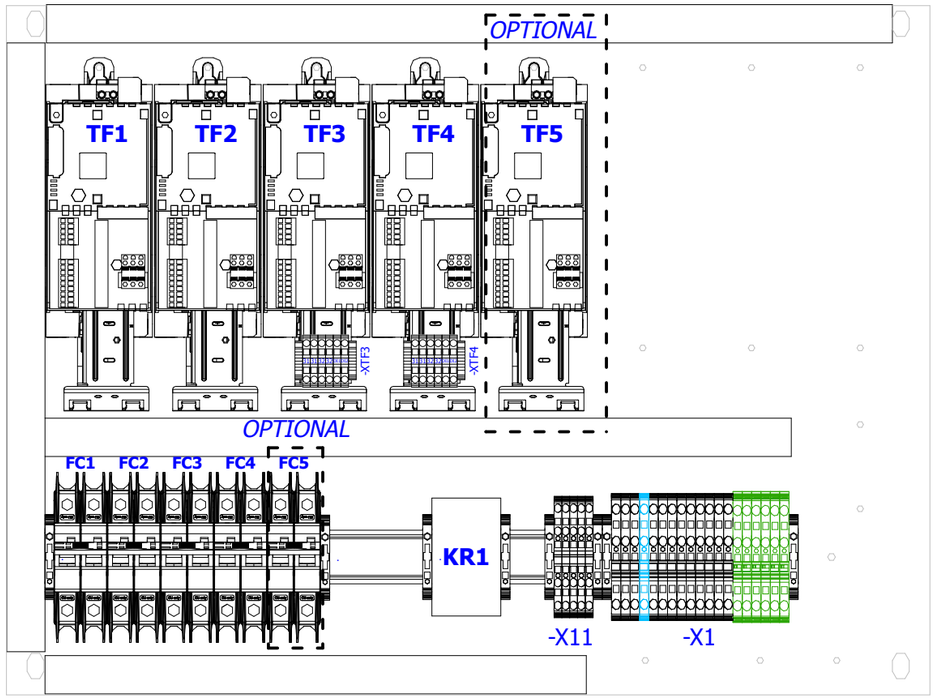
next: +AQ2/11

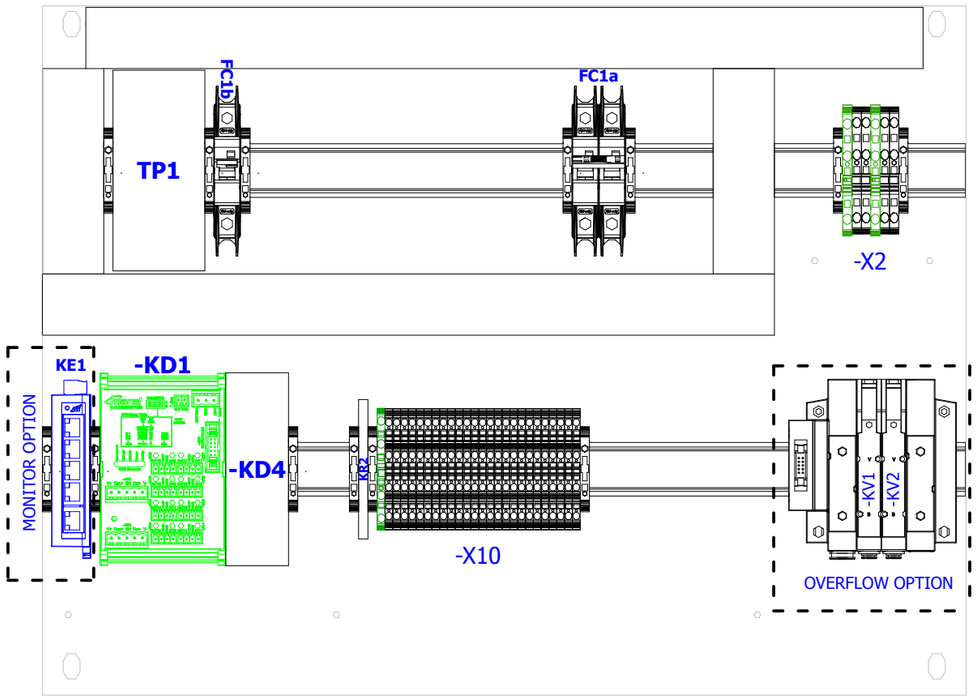
PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: SYSTEM LAYOUT, SX302/502 BASIC FEEDBACK
=GEN GENERAL INFORMATION
+SOV SYSTEM OVERVEIW

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1: 1
PAGE: 10
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (10 / 32)





previous: +SOV/10
next: 12

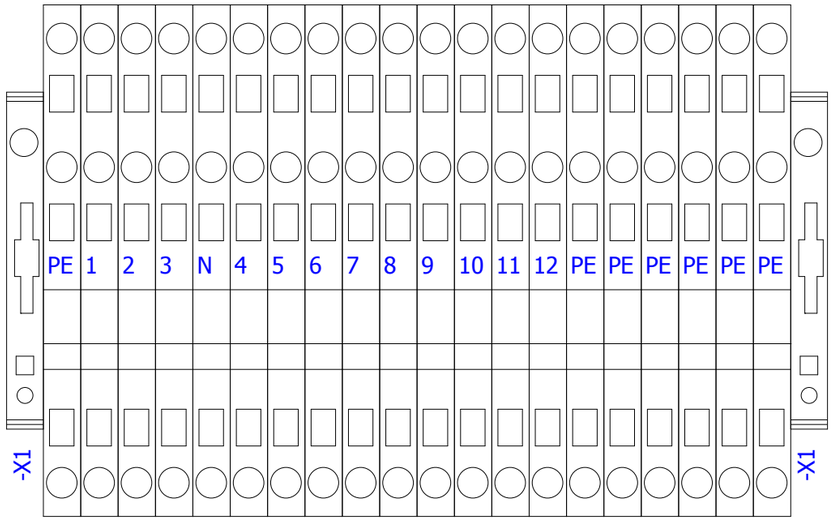
PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CABINET LAYOUT
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

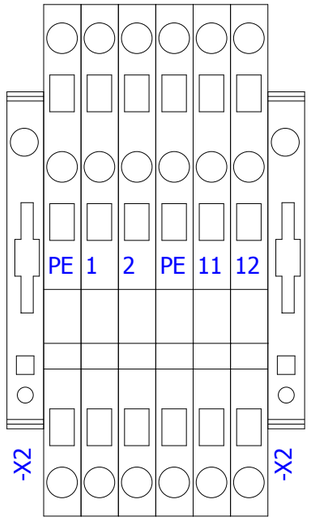
SCALE: 1:1
PAGE: 11
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (11 / 32)

POWER CIRCUIT -X1

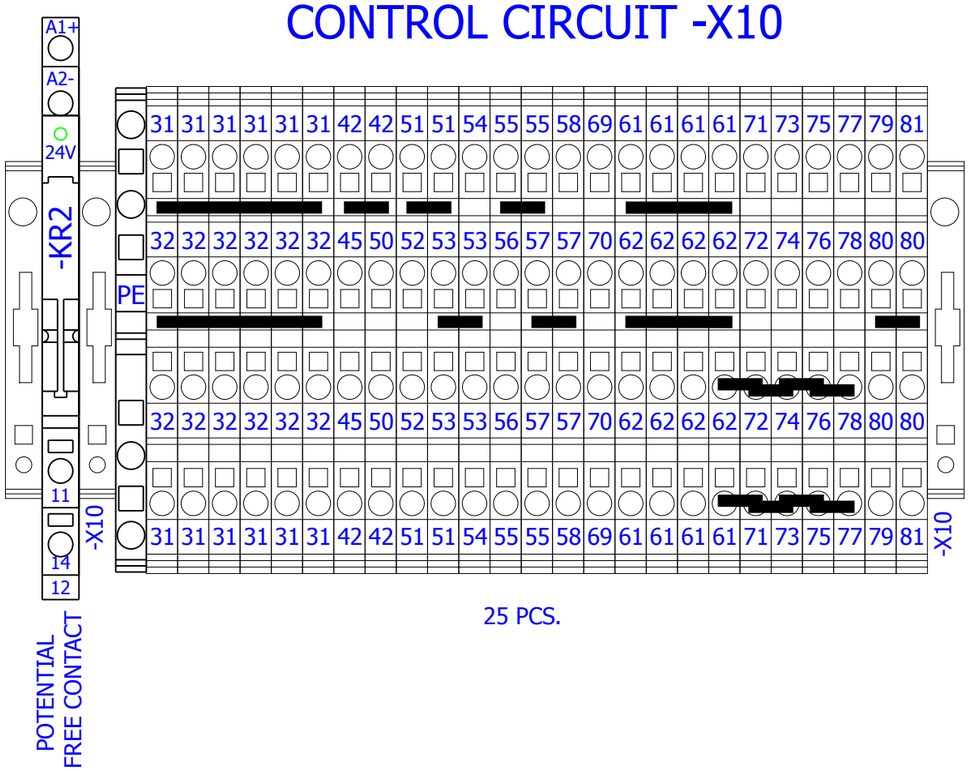


20 PCS.

POWER CIRCUIT -X2

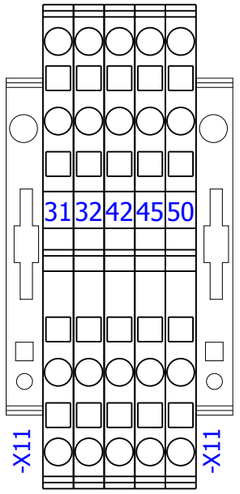


CONTROL CIRCUIT -X10



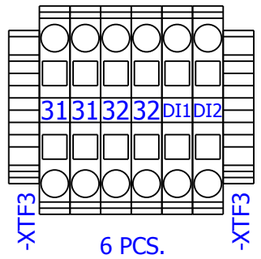
25 PCS.

CONTROL CIRCUIT -X11



5 PCS.

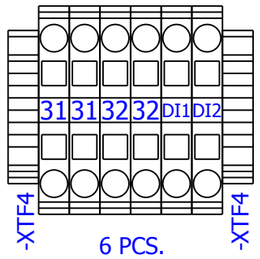
-XTF3



6 PCS.

CONTROL CIRCUIT -XTF3

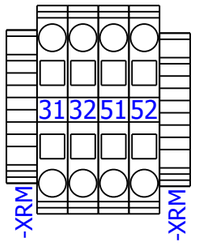
-XTF4



6 PCS.

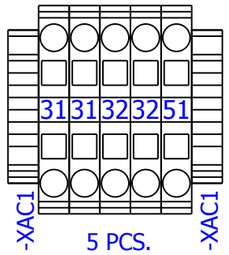
CONTROL CIRCUIT -XTF

=MON -XRM



CONTROL CIRCUIT -XRM

=CBELT +AC1 -XAC1



5 PCS.

CONTROL CIRCUIT -XAC1

previous: 11

next: 13

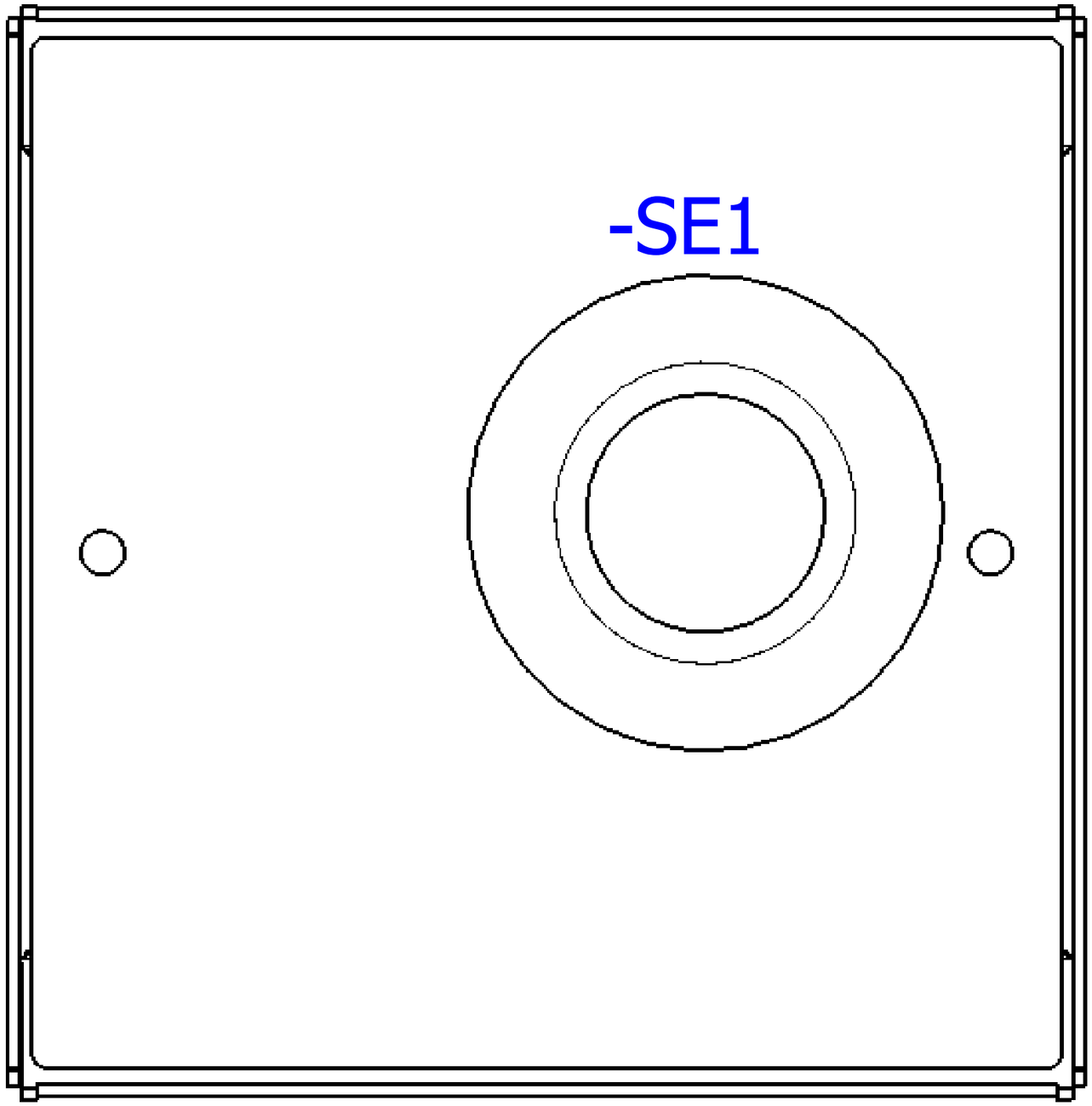
PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: TERMINAL STRIP, SYSTEMS
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1 PAGE: 12
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (12 / 32)

+AC1



previous:
12

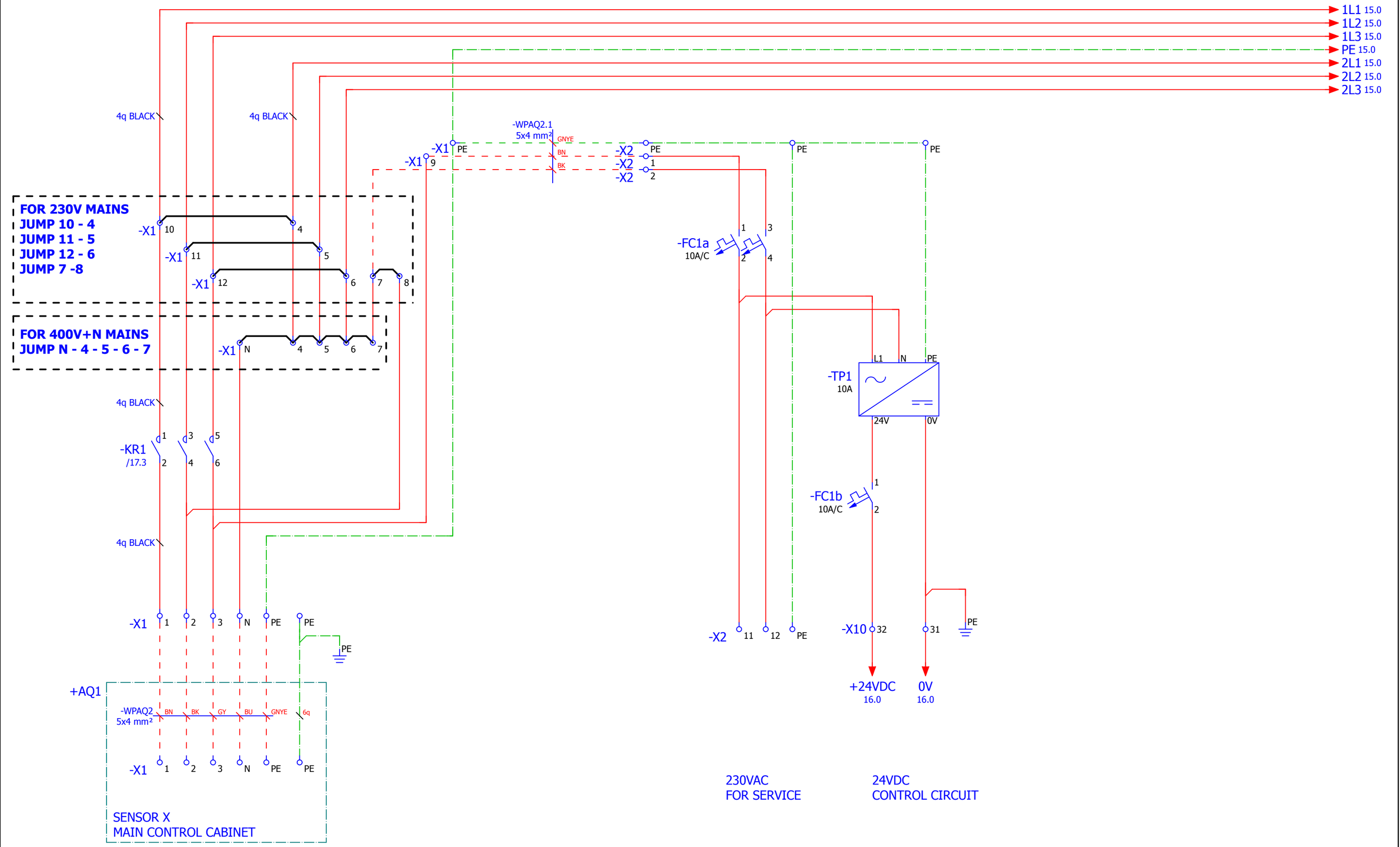
next:
14

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CONTROL BOX LAYOUT +AC1
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1
PAGE: 13
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (13 / 32)



previous: 13

-X2 = 230VAC FOR SERVICE -X10 = 24VDC CONTROL CIRCUIT

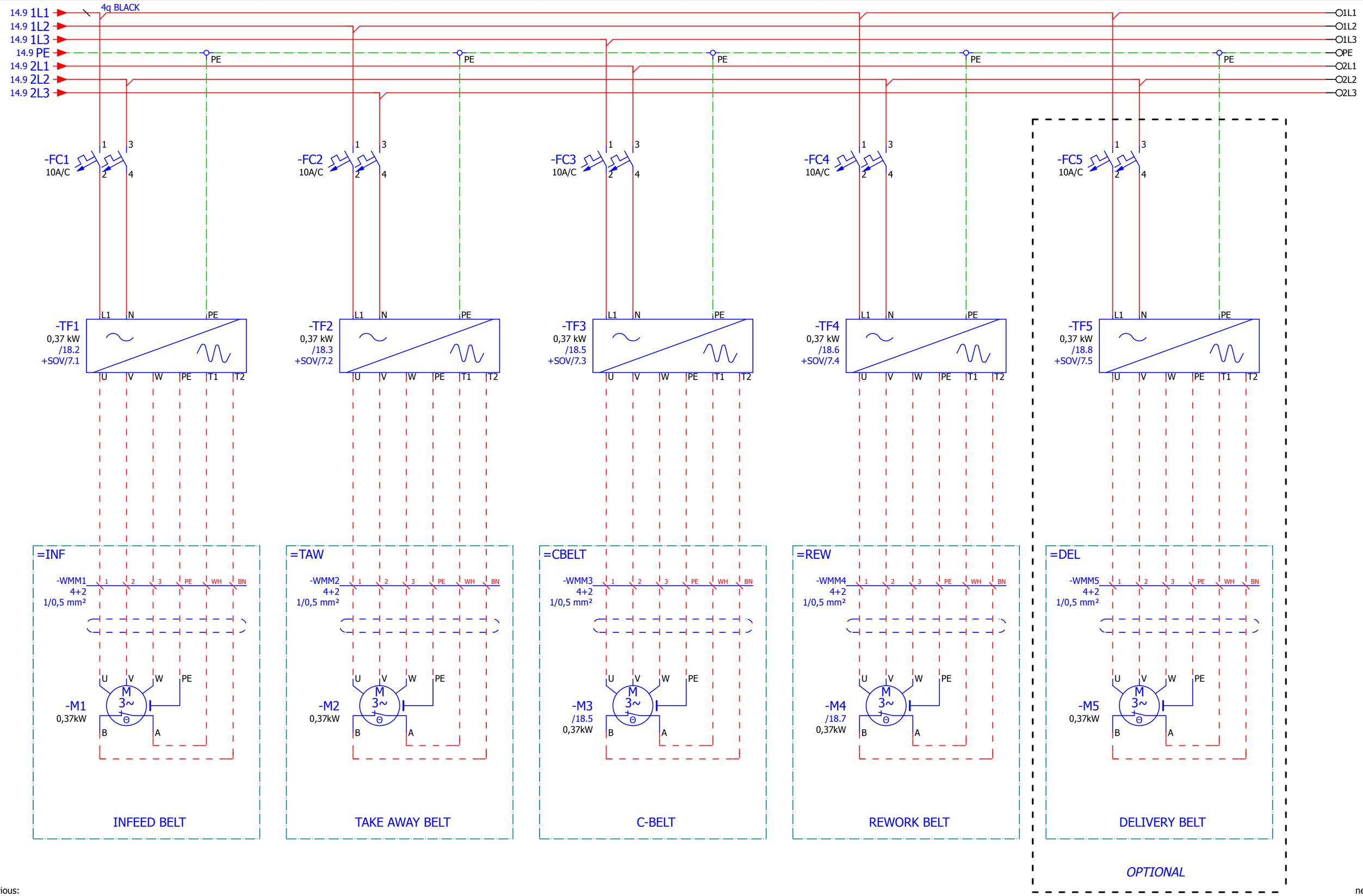
next: 15

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: POWER CIRCUIT, INPUT
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1
PAGE: 14
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (14 / 32)



previous: 14

next: 16

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: POWER CIRCUIT, MOTORS, SX302/502 BASIC FEEDBACK
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1 PAGE: 15
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (15 / 32)

+24VDC
14.6

+24VDC 17.0

+AQ1
SENSOR X
MAIN CONTROL CABINET

-WCAQ2
18x0,5 mm²

UNUSED PINS MUST BE JUMPED TO
61 AND 62.

-X10	80	RD/BK	-X10	80	
-X10	79	WH/RD	-X10	79	
-X10	78	YE/RD	-X10	78	
-X10	77	GN/RD	-X10	77	
-X10	76	RD/BU	-X10	76	
-X10	75	GY	-X10	75	
-X10	74	CY	-X10	74	
-X10	73	PK	-X10	73	
-X10	72	OG	-X10	72	
-X10	71	VT	-X10	71	
-X10	62	WH	-X10	62	62
-X10	61	BK	-X10	61	61
-X10	70	YE	-X10	70	70
-X10	69	BN	-X10	69	69
-X10	42	GN	-X10	42	ENABLE 17.0
-X10	31	BU	-X10	31	

-WCSE1 BU RD GN YE
4x0,5 mm²

=CBELT
+AC1

-SE1
E-STOP
11 21
12 22

CONTROL BOX

0V
14.6

-X10 31

0V 17.0

previous:
15

next:
17

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: SAFETY CIRCUIT
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1
PAGE: 16
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (16 / 32)

+24VDC
16.9

ENABLE
16.9

0V
16.9

-X10 32 32 32 32 32 +24VDC 18.9

-X10 42 ENABLE 18.9

-X10 31 31 31 31 31 0V 18.9

-WCKC1
2x0,5 mm²
RD
BU

-WCKC2
2x0,5 mm²
RD
BU

=MON1

=MON2

-KD1
MSC816
+SOV/7.0
-X50 V+ C+ SH C- V-

-KE1
ES5
+24V
+SOV/8.3
+24V 0V

-KC1
M3210
-X50 V+ C+ SH C- V-

-KC2
M3210
-X50 V+ C+ SH C- V-

REWORK MONITOR 1

REWORK MONITOR 2

MONITORS OPTION

-WCAQ2.2
4x0,5 mm²
GN
RD
YE
BU

-X10 50 -X11 50

-X11 32 +24VDC. 18.0

-X11 42 42 ENABLE. 18.0

-KR1
MAIN CONTACTOR
A1
A2

-X11 31 31 0V. 18.0

1 2 /14.1
3 4 /14.1
5 6 /14.1
13 14
21 22

previous: 16

next: 18

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CONTROL CIRCUIT, SYSTEMS
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1 PAGE: 17
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (17 / 32)

+24VDC.
17.9

ENABLE.
17.9

0V.
17.9

-X11 32

-X11 42

-X11 31

+24VDC 17.9

ENABLE 17.9

0V 17.9

-TF1
/15.1
GI0 DI2 DI1 24E RFR

-TF2
/15.3
+SOV/7.2
GI0 DI2 DI1 24E RFR

-TF3
/15.4
+SOV/7.3
GI0 DI2 DI1 24E RFR

-TF4
/15.6
+SOV/7.4
GI0 DI2 DI1 24E RFR

-TF5
/15.8
+SOV/7.5
GI0 DI2 DI1 24E RFR

-R4 2,2 kOHM

-R3 2,2 kOHM

-R6 2,2 kOHM

-R5 2,2 kOHM

-XTF3 31 DI2 DI1 32

-XTF4 31 DI2 DI1 32

OPTIONAL

=CBELT

-WMM3.1
4x0,22 mm²
BN WH GN 3E

GND B A V+

-M3
MOTOR ENCODER
/15.4

M

C-BELT

=REW

-WMM4.1
4x0,22 mm²
BN WH GN 3E

GND B A V+

-M4
MOTOR ENCODER
/15.6

M

REWORK BELT

previous:
17

next:
19

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CONTROL CIRCUIT, INVERTERS SX302/502 BASIC FEEDBACK
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST PRINT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1
PAGE: 18
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (18 / 32)

=CBELT
+AC1

C-BELT

-BP1
OPT.SENS
TX
PRODUCT
SENSOR
C-BELT
/19.0
/19.1

RX

-XAC1 32 31 51

-WCAC1
4x0,5 mm²
RD BU GN

-X11
-KD1
MSC816
+SOV/7.0
O11 +24V GND I11
ID:8

=REW

REWORK BELT

-BP2
OPT.SENS
TX
PRODUCT
SENSOR
REWORK
BELT
/19.2
/19.3

RX

-X12
-KD1
MSC816
+SOV/7.0
O12 +24V GND I12
ID:8

-KD1
MSC816
+SOV/7.0
ID:8
O21 O22 O23 O24 O25 O26 O27 O28 0V 0V
-X30

-WCKV1
0,56 m
10x0,22
1 2 3 4 5 6 7 8 9 10

10 9 8 7 6 5 4 3 2 1

-KV1 OVERFLOW

KV2 OPTIONAL

OPTIONAL OVERFLOW

NOTE!
10mm AIR SUPPLY FROM X-RAY MACHINE

=MON1

REWORK MONITOR 1

-BM1
IND.SENS.
M18
CONFIRM
SENSOR
/19.4

-SB1
PIEZO
BUTTON
CONFIRM
BUTTON
/19.5
RED/GREEN
YE WH GY BN GN

-XRM1 51 32 31 52

-WCRM1
4x0,5 mm²
GN RD BU YE

-X13
-KD1
MSC816
+SOV/7.0
O13 +24V GND I13
ID:8

=MON2

REWORK MONITOR 2

-BM2
IND.SENS.
M18
CONFIRM
SENSOR
/19.7

-SB2
PIEZO
BUTTON
CONFIRM
BUTTON
/19.8
RED/GREEN
YE WH GY BN GN

-XRM2 51 32 31 52

-WCRM2
4x0,5 mm²
GN RD BU YE

-X14
-KD1
MSC816
+SOV/7.0
O14 +24V GND I14
ID:8

MONITORS OPTION

OPTIONAL
POTENTIAL FREE
CONTACT

-KR2
24VUC
A2
A1

-KR2
/19.7
12 14
11

-X16
-KD1
MSC816
+SOV/7.0
O16 +24V GND I16
ID:8

A1 A2
14 11 /19.8
12

previous: 18

next: 20

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CONTROL CIRCUIT, I/O'S SX302/502 BASIC FEEDBACK
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1
PAGE: 19
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (19 / 32)

+24VDC
20.9

-X10 32

32

-WCEL1
4x0,5 mm²

RD
YE
BU

-EL1
WORK
LIGHT 1

24VDC
PWM
0V

-X10 51

-WCSB1 WH YE

WH YE GN

-SB1 E
WORK LIGHT 1

BLUE/WHITE

BN GY

-WCSB1 BN GY

-X10 52

-X11
I/O12 +24V GND I/O11

-KD4
MSV8S8
+SOV/7.1

ID:31

-X10 31

31

0V
20.9

32

32

-WCEL2
4x0,5 mm²

RD
YE
BU

-EL2
WORK
LIGHT 2

24VDC
PWM
0V

-X10 53

-WCSB2 WH YE

WH YE GN

-SB2 E
WORK LIGHT 2

BLUE/WHITE

BN GY

-WCSB2 BN GY

54

-X12
I/O14 +24V GND I/O13

-KD4
MSV8S8
+SOV/7.1

ID:31

31

31

+24VDC 20.0

0V 20.0

previous:
19

next:
=REP+/21

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CONTROL CIRCUIT, WORK LIGHTS 1-2
=GEN GENERAL INFORMATION
+AQ2 CONVEYOR CABINET

LAST EDIT DATE: 2017.02.22
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REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1 PAGE: 20
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (20 / 32)

0	1	2	3	4	5	6	7	8	9
I/O PAGE REFERENCE	I/O UNIT NAME	I/O UNIT TYPE	I/O UNIT PLUG	CAN ADDRESS	SIGNAL FUNCTION	COMPONENT CONN. POINT	COMPONENT NAME	COMPONENT TYPE	COMPONENT PAGE REFERENCE
=GEN+AQ2/19.1	=GEN+AQ2-KD1	MSC816	-X11	O 8 11					
=GEN+AQ2/19.1	=GEN+AQ2-KD1	MSC816	-X11	I 8 11		4	=CBELT+AC1-BP1	RX	=GEN+AQ2/19.1
=GEN+AQ2/19.3	=GEN+AQ2-KD1	MSC816	-X12	O 8 12					
=GEN+AQ2/19.3	=GEN+AQ2-KD1	MSC816	-X12	I 8 12		4	=REW+AQ2-BP2	RX	=GEN+AQ2/19.3
=GEN+AQ2/19.5	=GEN+AQ2-KD1	MSC816	-X13	O 8 13	CONFIRM BUTTON	YE	=MON1+AQ2-SB1	PIEZO BUTTON	=GEN+AQ2/19.6
=GEN+AQ2/19.6	=GEN+AQ2-KD1	MSC816	-X13	I 8 13	=	BN	=MON1+AQ2-SB1	PIEZO BUTTON	=GEN+AQ2/19.6
=GEN+AQ2/19.8	=GEN+AQ2-KD1	MSC816	-X14	O 8 14	=	YE	=MON2+AQ2-SB2	PIEZO BUTTON	=GEN+AQ2/19.8
=GEN+AQ2/19.9	=GEN+AQ2-KD1	MSC816	-X14	I 8 14	=	BN	=MON2+AQ2-SB2	PIEZO BUTTON	=GEN+AQ2/19.8
=GEN+AQ2/19.7	=GEN+AQ2-KD1	MSC816	-X16	O 8 16		A1	=GEN+AQ2-KR2	24VUC	=GEN+AQ2/19.7
=GEN+AQ2/19.8	=GEN+AQ2-KD1	MSC816	-X16	I 8 16					
=GEN+AQ2/19.1	=GEN+AQ2-KD1	MSC816	-X30	O 8 21	OVERFLOW		=GEN+AQ2-KV1		=GEN+AQ2/19.3
=GEN+AQ2/19.1	=GEN+AQ2-KD1	MSC816	-X30	O 8 22	OPTIONAL		=GEN+AQ2-KV2		=GEN+AQ2/19.4
=GEN+AQ2/19.1	=GEN+AQ2-KD1	MSC816	-X30	O 8 23					
=GEN+AQ2/19.1	=GEN+AQ2-KD1	MSC816	-X30	O 8 24					
=GEN+AQ2/19.1	=GEN+AQ2-KD1	MSC816	-X30	O 8 25					
=GEN+AQ2/19.2	=GEN+AQ2-KD1	MSC816	-X30	O 8 26					
=GEN+AQ2/19.2	=GEN+AQ2-KD1	MSC816	-X30	O 8 27					
=GEN+AQ2/19.2	=GEN+AQ2-KD1	MSC816	-X30	O 8 28					

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=GEN+AQ2/20

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PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: PLC LIST
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SHEET / TOTAL : (/ 32)

CABLE OVERVIEW

CABLE NAME	SOURCE (FROM)	TARGET (TO)	CABLE TYPE	ALL CON-DUCTORS	CON-DUCTORS USED	CROSS-SECTION mm	LENGTH [m]	REMARK	PLACEMENT
=GEN+AQ2-WBTF1	=GEN+AQ2-KD1	=GEN+AQ2-TF1	CAN	2x2	1	1,5			=GEN+SOV/7.1
=GEN+AQ2-WCAC1	=CBELT+AC1-XAC1	=GEN+AQ2-KD1	CONTROL	4	3	0,5			=GEN+AQ2/19.1
=GEN+AQ2-WCAQ2.2	=GEN+AQ2-X10	=GEN+AQ2-X11	CONTROL	4	4	0,5			=GEN+AQ2/17.2
=GEN+AQ2-WCEL1	=GEN+AQ2-X10	=GEN+AQ2-EL1	CONTROL	4	3	0,5			=GEN+AQ2/20.3
	=GEN+AQ2								
=GEN+AQ2-WCEL2	=GEN+AQ2-X10	=GEN+AQ2-EL2	CONTROL	4	3	0,5			=GEN+AQ2/20.8
	=GEN+AQ2								
=GEN+AQ2-WCKC1	=GEN+AQ2-X10	=MON1+AQ2-KC1	CONTROL	2	2	0,5			=GEN+AQ2/17.4
	=GEN+AQ2								
=GEN+AQ2-WCKC2	=GEN+AQ2-X10	=MON2+AQ2-KC2	CONTROL	2	2	0,5			=GEN+AQ2/17.6
	=GEN+AQ2								
=GEN+AQ2-WCRM1	=MON1+AQ2-XRM1	=GEN+AQ2-KD1	CONTROL	4	4	0,5			=GEN+AQ2/19.5
	=GEN+AQ2	=MON1+AQ2-KC1							
=GEN+AQ2-WCRM2	=MON2+AQ2-XRM2	=GEN+AQ2-KD1	CONTROL	4	4	0,5			=GEN+AQ2/19.8
	=GEN+AQ2	=MON2+AQ2-KC2							
=GEN+AQ2-WCSB1	=GEN+AQ2-X10	=GEN+AQ2-SB1			4				=GEN+AQ2/20.0
=GEN+AQ2-WCSB2	=GEN+AQ2-X10	=GEN+AQ2-SB2			4				=GEN+AQ2/20.5
=GEN+AQ2-WCSE1	=GEN+AQ2-X10	=CBELT+AC1-SE1	CONTROL	4	4	0,5			=GEN+AQ2/16.3
	=GEN+AQ2	=CBELT+AC1							
=GEN+AQ2-WEKC1	=GEN+AQ2-KE1	=MON1+AQ2-KC1	ETHERNET	2x2	1	0,22			=GEN+SOV/8.4
	=GEN+AQ2								
=GEN+AQ2-WEKC2	=GEN+AQ2-KE1	=MON2+AQ2-KC2	ETHERNET	2x2	1	0,22			=GEN+SOV/8.6
	=GEN+AQ2								
=GEN+AQ2-WPAQ2.1	=GEN+AQ2-X1	=GEN+AQ2-X2	ÖLFLEX CLASSIC 100 G	5	3	4			=GEN+AQ2/14.3
=GEN+AQ1-WCAQ2	=GEN+AQ2-X10	=GEN+AQ1-X10	CONTROL	18	16	0,5			=GEN+AQ2/16.1
	=GEN+AQ2	=GEN+AQ1							
=GEN+AQ1-WPAQ2	=GEN+AQ2-X1	=GEN+AQ1-X1	ÖLFLEX CLASSIC 100 G	5	5	4			=GEN+AQ2/14.1
	=GEN+AQ2	=GEN+AQ1							
=GEN+AV1-WBAQ2	=GEN+AQ2-KD1	=GEN+AV1-XB1	CAN	2x2	1	1,5			=GEN+SOV/7.1
	=GEN+AQ2	=GEN+AV1							
=GEN+AV1-WEAQ2	=GEN+AQ2-KE1	=GEN+AV1-KE1	ETHERNET	2x2	1	0,22			=GEN+SOV/8.1
	=GEN+AQ2	=GEN+AV1							
=MON1+AQ2-BM1	=MON1+AQ2-XRM1	=MON1+AQ2-BM1			3				=GEN+AQ2/19.4
=MON1+AQ2-SB1	=MON1+AQ2-XRM1	=MON1+AQ2-SB1			4				=GEN+AQ2/19.5
=MON2+AQ2-BM2	=MON2+AQ2-XRM2	=MON2+AQ2-BM2			3				=GEN+AQ2/19.7
=MON2+AQ2-SB2	=MON2+AQ2-XRM2	=MON2+AQ2-SB2			4				=GEN+AQ2/19.8
=INF+AQ2-WMM1	=GEN+AQ2	=INF+AQ2-M1	MOTOR	4+2	6	1/0,5	10		=GEN+AQ2/15.0
	=GEN+AQ2-TF1								
=TAW+AQ2-WMM2	=GEN+AQ2	=TAW+AQ2-M2	MOTOR	4+2	6	1/0,5	10		=GEN+AQ2/15.2
	=GEN+AQ2-TF2								
=CBELT+AC1-BP1	=CBELT+AC1-XAC1	=CBELT+AC1-BP1			5				=GEN+AQ2/19.0
	=GEN+AQ2								
=CBELT+AQ2-WMM3	=GEN+AQ2	=CBELT+AQ2-M3	MOTOR	4+2	6	1/0,5	10		=GEN+AQ2/15.4
	=GEN+AQ2-TF3								
=CBELT+AQ2-WMM3.1	=GEN+AQ2-XTF3	=CBELT+AQ2-M3	CONTROL	4	4	0,22			=GEN+AQ2/18.5
=REW+AQ2-BP2	=GEN+AQ2	=REW+AQ2-BP2			5				=GEN+AQ2/19.2

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PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CABLE OVERVIEW
=REP REPORTS

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CABLE OVERVIEW

CABLE NAME	SOURCE (FROM)	TARGET (TO)	CABLE TYPE	ALL CON-DUCTORS	CON-DUCTORS USED	CROSS-SECTION mm	LENGTH [m]	REMARK	PLACEMENT
	=GEN+AQ2-KD1								
=REW+AQ2-WMM4	=GEN+AQ2	=REW+AQ2-M4	MOTOR	4+2	6	1/0,5	10		=GEN+AQ2/15.6
	=GEN+AQ2-TF4								
=REW+AQ2-WMM4.1	=GEN+AQ2-XTF4	=REW+AQ2-M4	CONTROL	4	4	0,22			=GEN+AQ2/18.7
=DEL+AQ2-WMM5	=GEN+AQ2	=DEL+AQ2-M5	MOTOR	4+2	6	1/0,5	10		=GEN+AQ2/15.8
	=GEN+AQ2-TF5								

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next: 24

PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

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SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =GEN+AQ2-WBTF1		**CABLE TYPE:** CAN 2x2x1,5 mm² **PART NO.:** 718-3702-Y1815PVC		**COMMENT:**		
			RD			
			WH			
			SH			
			BU			
			BK			
=GEN+AQ2-KD1	-X51	=GEN+SOV/7.1	XX,WH,SH,BU,BK	=GEN+AQ2-TF1	CAN	=GEN+SOV/7.1
CABLE NAME: =GEN+AQ2-WCAC1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:**		
=CBELT+AC1-XAC1	32	=GEN+AQ2/19.1	RD	=GEN+AQ2-KD1	-X11	=GEN+AQ2/19.1
=CBELT+AC1-XAC1	31	=GEN+AQ2/19.1	BU	=GEN+AQ2-KD1	-X11	=GEN+AQ2/19.1
=CBELT+AC1-XAC1	51	=GEN+AQ2/19.1	GN	=GEN+AQ2-KD1	-X11:11	=GEN+AQ2/19.1
			YE			
CABLE NAME: =GEN+AQ2-WCAQ2.2		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:**		
=GEN+AQ2-X10	32	=GEN+AQ2/17.1	RD	=GEN+AQ2-X11	32	=GEN+AQ2/17.3
=GEN+AQ2-X10	31	=GEN+AQ2/17.1	BU	=GEN+AQ2-X11	31	=GEN+AQ2/17.3
=GEN+AQ2-X10	50	=GEN+AQ2/17.0	GN	=GEN+AQ2-X11	50	=GEN+AQ2/17.3
=GEN+AQ2-X10	42	=GEN+AQ2/17.1	YE	=GEN+AQ2-X11	42	=GEN+AQ2/17.3
CABLE NAME: =GEN+AQ2-WCEL1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:**		
=GEN+AQ2-X10	32	=GEN+AQ2/20.2	RD	=GEN+AQ2-EL1	24VDC	=GEN+AQ2/20.3
=GEN+AQ2-X10	31	=GEN+AQ2/20.2	BU	=GEN+AQ2-EL1	0V	=GEN+AQ2/20.3
			GN			
=GEN+AQ2-X10	51	=GEN+AQ2/20.2	YE	=GEN+AQ2-EL1	PWM	=GEN+AQ2/20.3
CABLE NAME: =GEN+AQ2-WCEL2		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:**		
=GEN+AQ2-X10	32	=GEN+AQ2/20.7	RD	=GEN+AQ2-EL2	24VDC	=GEN+AQ2/20.8
=GEN+AQ2-X10	31	=GEN+AQ2/20.7	BU	=GEN+AQ2-EL2	0V	=GEN+AQ2/20.8
			GN			
=GEN+AQ2-X10	53	=GEN+AQ2/20.7	YE	=GEN+AQ2-EL2	PWM	=GEN+AQ2/20.8
CABLE NAME: =GEN+AQ2-WCKC1		**CABLE TYPE:** CONTROL 2x0,5 mm² **PART NO.:** 718-3702-00105		**COMMENT:**		
=GEN+AQ2-X10	32	=GEN+AQ2/17.4	RD	=MON1+AQ2-KC1	-X50:1	=GEN+AQ2/17.4
=GEN+AQ2-X10	31	=GEN+AQ2/17.5	BU	=MON1+AQ2-KC1	-X50:5	=GEN+AQ2/17.5
CABLE NAME: =GEN+AQ2-WCKC2		**CABLE TYPE:** CONTROL 2x0,5 mm² **PART NO.:** 718-3702-00105		**COMMENT:**		
=GEN+AQ2-X10	32	=GEN+AQ2/17.6	RD	=MON2+AQ2-KC2	-X50:1	=GEN+AQ2/17.6
=GEN+AQ2-X10	31	=GEN+AQ2/17.7	BU	=MON2+AQ2-KC2	-X50:5	=GEN+AQ2/17.7
CABLE NAME: =GEN+AQ2-WCRM1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011		**COMMENT:** OPTIONAL		
=MON1+AQ2-XRM1	32	=GEN+AQ2/19.6	RD	=GEN+AQ2-KD1	-X13	=GEN+AQ2/19.6
=MON1+AQ2-XRM1	31	=GEN+AQ2/19.6	BU	=GEN+AQ2-KD1	-X13	=GEN+AQ2/19.6
=MON1+AQ2-XRM1	51	=GEN+AQ2/19.5	GN	=GEN+AQ2-KD1	-X13:13	=GEN+AQ2/19.5

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PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

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SCALE: 1: 1
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SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =GEN+AQ2-WCRM1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011			**COMMENT:** OPTIONAL	
=MON1+AQ2-XRM1	52	=GEN+AQ2/19.6	YE	=GEN+AQ2-KD1	-X13:13	=GEN+AQ2/19.6
CABLE NAME: =GEN+AQ2-WCRM2		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011			**COMMENT:** OPTIONAL	
=MON2+AQ2-XRM2	32	=GEN+AQ2/19.8	RD	=GEN+AQ2-KD1	-X14	=GEN+AQ2/19.8
=MON2+AQ2-XRM2	31	=GEN+AQ2/19.8	BU	=GEN+AQ2-KD1	-X14	=GEN+AQ2/19.8
=MON2+AQ2-XRM2	51	=GEN+AQ2/19.8	GN	=GEN+AQ2-KD1	-X14:14	=GEN+AQ2/19.8
=MON2+AQ2-XRM2	52	=GEN+AQ2/19.9	YE	=GEN+AQ2-KD1	-X14:14	=GEN+AQ2/19.9
CABLE NAME: =GEN+AQ2-WCSB1		**CABLE TYPE:** **PART NO.:**			**COMMENT:**	
=GEN+AQ2-X10	52	=GEN+AQ2/20.1	BN	=GEN+AQ2-SB1	BN	=GEN+AQ2/20.1
=GEN+AQ2-X10	31	=GEN+AQ2/20.1	GY	=GEN+AQ2-SB1	GY	=GEN+AQ2/20.1
=GEN+AQ2-X10	32	=GEN+AQ2/20.0	WH	=GEN+AQ2-SB1	WH	=GEN+AQ2/20.1
=GEN+AQ2-X10	51	=GEN+AQ2/20.2	YE	=GEN+AQ2-SB1	GN	=GEN+AQ2/20.1
CABLE NAME: =GEN+AQ2-WCSB2		**CABLE TYPE:** **PART NO.:**			**COMMENT:**	
=GEN+AQ2-X10	54	=GEN+AQ2/20.6	BN	=GEN+AQ2-SB2	BN	=GEN+AQ2/20.6
=GEN+AQ2-X10	31	=GEN+AQ2/20.6	GY	=GEN+AQ2-SB2	GY	=GEN+AQ2/20.6
=GEN+AQ2-X10	32	=GEN+AQ2/20.6	WH	=GEN+AQ2-SB2	WH	=GEN+AQ2/20.6
=GEN+AQ2-X10	53	=GEN+AQ2/20.7	YE	=GEN+AQ2-SB2	GN	=GEN+AQ2/20.6
CABLE NAME: =GEN+AQ2-WCSE1		**CABLE TYPE:** CONTROL 4x0,5 mm² **PART NO.:** 718-3702-0011			**COMMENT:**	
=GEN+AQ2-X10	62	=GEN+AQ2/16.3	RD	=CBELT+AC1-SE1	21	=GEN+AQ2/16.3
=GEN+AQ2-X10	61	=GEN+AQ2/16.3	BU	=CBELT+AC1-SE1	11	=GEN+AQ2/16.3
=GEN+AQ2-X10	69	=GEN+AQ2/16.3	GN	=CBELT+AC1-SE1	12	=GEN+AQ2/16.3
=GEN+AQ2-X10	70	=GEN+AQ2/16.3	YE	=CBELT+AC1-SE1	22	=GEN+AQ2/16.3
CABLE NAME: =GEN+AQ2-WEKC1		**CABLE TYPE:** ETHERNET 2x2x0,22 mm² **PART NO.:** 718-3702-F5P2PUR			**COMMENT:**	
=GEN+AQ2-KE1	RJ45	=GEN+SOV/8.4		=MON1+AQ2-KC1	RJ45	=GEN+SOV/8.4
			SH			
CABLE NAME: =GEN+AQ2-WEKC2		**CABLE TYPE:** ETHERNET 2x2x0,22 mm² **PART NO.:** 718-3702-F5P2PUR			**COMMENT:**	
=GEN+AQ2-KE1	RJ45	=GEN+SOV/8.6		=MON2+AQ2-KC2	RJ45	=GEN+SOV/8.6
			SH			
CABLE NAME: =GEN+AQ2-WPAQ2.1		**CABLE TYPE:** ÖLFLEX CLASSIC 100 G 5x4 mm² **PART NO.:** 718-3701-0031			**COMMENT:**	
=GEN+AQ2-X1	9	=GEN+AQ2/14.3	BN	=GEN+AQ2-X2	1	=GEN+AQ2/14.4
=GEN+AQ2-X1	7	=GEN+AQ2/14.2	BK	=GEN+AQ2-X2	2	=GEN+AQ2/14.4
			GY			
			BU			
=GEN+AQ2-X1	PE	=GEN+AQ2/14.3	GNYE	=GEN+AQ2-X2	PE	=GEN+AQ2/14.4
CABLE NAME: =GEN+AQ1-WCAQ2		**CABLE TYPE:** CONTROL 18x0,5 mm² **PART NO.:** 718-3702-0010			**COMMENT:**	
=GEN+AQ2-X10	31	=GEN+AQ2/16.2	BU	=GEN+AQ1-X10	31	=GEN+AQ2/16.0
			RD			
=GEN+AQ2-X10	42	=GEN+AQ2/16.2	GN	=GEN+AQ1-X10	42	=GEN+AQ2/16.0

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PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

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SCALE: 1:1 PAGE: 25
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0	1	2	3	4	5	6	7	8	9

SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =GEN+AQ1-WCAQ2		**CABLE TYPE:** CONTROL 18x0,5 mm² **PART NO.:** 718-3702-0010		**COMMENT:**		
=GEN+AQ2-X10	70	=GEN+AQ2/16.2	YE	=GEN+AQ1-X10	70	=GEN+AQ2/16.0
=GEN+AQ2-X10	62	=GEN+AQ2/16.2	WH	=GEN+AQ1-X10	62	=GEN+AQ2/16.0
=GEN+AQ2-X10	61	=GEN+AQ2/16.2	BK	=GEN+AQ1-X10	61	=GEN+AQ2/16.0
=GEN+AQ2-X10	69	=GEN+AQ2/16.2	BN	=GEN+AQ1-X10	69	=GEN+AQ2/16.0
=GEN+AQ2-X10	71	=GEN+AQ2/16.2	VT	=GEN+AQ1-X10	71	=GEN+AQ2/16.0
=GEN+AQ2-X10	72	=GEN+AQ2/16.2	OG	=GEN+AQ1-X10	72	=GEN+AQ2/16.0
=GEN+AQ2-X10	73	=GEN+AQ2/16.2	PK	=GEN+AQ1-X10	73	=GEN+AQ2/16.0
=GEN+AQ2-X10	74	=GEN+AQ2/16.2	CY	=GEN+AQ1-X10	74	=GEN+AQ2/16.0
=GEN+AQ2-X10	75	=GEN+AQ2/16.2	GY	=GEN+AQ1-X10	75	=GEN+AQ2/16.0
=GEN+AQ2-X10	76	=GEN+AQ2/16.2	RD/BU	=GEN+AQ1-X10	76	=GEN+AQ2/16.0
=GEN+AQ2-X10	77	=GEN+AQ2/16.2	GN/RD	=GEN+AQ1-X10	77	=GEN+AQ2/16.0
=GEN+AQ2-X10	78	=GEN+AQ2/16.2	YE/RD	=GEN+AQ1-X10	78	=GEN+AQ2/16.0
=GEN+AQ2-X10	79	=GEN+AQ2/16.2	WH/RD	=GEN+AQ1-X10	79	=GEN+AQ2/16.0
=GEN+AQ2-X10	80	=GEN+AQ2/16.2	RD/BK	=GEN+AQ1-X10	80	=GEN+AQ2/16.0
			RD/BN			
CABLE NAME: =GEN+AQ1-WPAQ2		**CABLE TYPE:** ÖLFLEX CLASSIC 100 G 5x4 mm² **PART NO.:** 718-3701-0031		**COMMENT:**		
=GEN+AQ2-X1	1	=GEN+AQ2/14.1	BN	=GEN+AQ1-X1	1	=GEN+AQ2/14.1
=GEN+AQ2-X1	2	=GEN+AQ2/14.1	BK	=GEN+AQ1-X1	2	=GEN+AQ2/14.1
=GEN+AQ2-X1	3	=GEN+AQ2/14.1	GY	=GEN+AQ1-X1	3	=GEN+AQ2/14.1
=GEN+AQ2-X1	N	=GEN+AQ2/14.1	BU	=GEN+AQ1-X1	N	=GEN+AQ2/14.1
=GEN+AQ2-X1	PE	=GEN+AQ2/14.1	GNYE	=GEN+AQ1-X1	PE	=GEN+AQ2/14.1
CABLE NAME: =GEN+AV1-WBAQ2		**CABLE TYPE:** CAN 2x2x1,5 mm² **PART NO.:** 718-3702-Y1815PVC		**COMMENT:**		
			RD			
			WH			
			SH			
			BU			
			BK			
=GEN+AQ2-KD1	-X50	=GEN+SOV/7.1	XX,WH,SH,BU,BK	=GEN+AV1-XB1	CAN	=GEN+SOV/7.1
CABLE NAME: =GEN+AV1-WEAQ2		**CABLE TYPE:** ETHERNET 2x2x0,22 mm² **PART NO.:** 718-3702-F5P2PUR		**COMMENT:**		
=GEN+AQ2-KE1	RJ45	=GEN+SOV/8.3		=GEN+AV1-KE1	RJ45	=GEN+SOV/8.1
			SH			
CABLE NAME: =MON1+AQ2-BM1		**CABLE TYPE:** **PART NO.:**		**COMMENT:** OPTIONAL		
=MON1+AQ2-XRM1	32	=GEN+AQ2/19.6		=MON1+AQ2-BM1	1	=GEN+AQ2/19.4
=MON1+AQ2-XRM1	31	=GEN+AQ2/19.6		=MON1+AQ2-BM1	2	=GEN+AQ2/19.4
=MON1+AQ2-XRM1	52	=GEN+AQ2/19.6		=MON1+AQ2-BM1	3	=GEN+AQ2/19.4
CABLE NAME: =MON1+AQ2-SB1		**CABLE TYPE:** **PART NO.:**		**COMMENT:** OPTIONAL		
=MON1+AQ2-XRM1	51	=GEN+AQ2/19.5		=MON1+AQ2-SB1	YE	=GEN+AQ2/19.6

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PROJ. TYPE: 2012-101
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COUNTRY: -

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SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE
CABLE NAME: =MON1+AQ2-SB1		**CABLE TYPE:** **PART NO.:**		**COMMENT:** OPTIONAL		
=MON1+AQ2-XRM1	32	=GEN+AQ2/19.6		=MON1+AQ2-SB1	WH	=GEN+AQ2/19.6
=MON1+AQ2-XRM1	31	=GEN+AQ2/19.6		=MON1+AQ2-SB1	GY	=GEN+AQ2/19.6
=MON1+AQ2-XRM1	52	=GEN+AQ2/19.6		=MON1+AQ2-SB1	BN	=GEN+AQ2/19.6
CABLE NAME: =MON2+AQ2-BM2		**CABLE TYPE:** **PART NO.:**		**COMMENT:** OPTIONAL		
=MON2+AQ2-XRM2	32	=GEN+AQ2/19.8		=MON2+AQ2-BM2	1	=GEN+AQ2/19.7
=MON2+AQ2-XRM2	31	=GEN+AQ2/19.8		=MON2+AQ2-BM2	2	=GEN+AQ2/19.7
=MON2+AQ2-XRM2	52	=GEN+AQ2/19.9		=MON2+AQ2-BM2	3	=GEN+AQ2/19.7
CABLE NAME: =MON2+AQ2-SB2		**CABLE TYPE:** **PART NO.:**		**COMMENT:** OPTIONAL		
=MON2+AQ2-XRM2	51	=GEN+AQ2/19.8		=MON2+AQ2-SB2	YE	=GEN+AQ2/19.8
=MON2+AQ2-XRM2	32	=GEN+AQ2/19.8		=MON2+AQ2-SB2	WH	=GEN+AQ2/19.8
=MON2+AQ2-XRM2	31	=GEN+AQ2/19.8		=MON2+AQ2-SB2	GY	=GEN+AQ2/19.8
=MON2+AQ2-XRM2	52	=GEN+AQ2/19.9		=MON2+AQ2-SB2	BN	=GEN+AQ2/19.8
CABLE NAME: =INF+AQ2-WMM1		**CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042		**COMMENT:**		
=GEN+AQ2-TF1	U	=GEN+AQ2/15.1	1	=INF+AQ2-M1	U	=GEN+AQ2/15.0
=GEN+AQ2-TF1	V	=GEN+AQ2/15.1	2	=INF+AQ2-M1	V	=GEN+AQ2/15.0
=GEN+AQ2-TF1	W	=GEN+AQ2/15.1	3	=INF+AQ2-M1	W	=GEN+AQ2/15.0
=GEN+AQ2-TF1	PE	=GEN+AQ2/15.1	PE	=INF+AQ2-M1	PE	=GEN+AQ2/15.0
=GEN+AQ2-TF1	T1	=GEN+AQ2/15.1	WH	=INF+AQ2-M1	A	=GEN+AQ2/15.0
=GEN+AQ2-TF1	T2	=GEN+AQ2/15.1	BN	=INF+AQ2-M1	B	=GEN+AQ2/15.0
			SH			
CABLE NAME: =TAW+AQ2-WMM2		**CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042		**COMMENT:**		
=GEN+AQ2-TF2	U	=GEN+AQ2/15.3	1	=TAW+AQ2-M2	U	=GEN+AQ2/15.2
=GEN+AQ2-TF2	V	=GEN+AQ2/15.3	2	=TAW+AQ2-M2	V	=GEN+AQ2/15.2
=GEN+AQ2-TF2	W	=GEN+AQ2/15.3	3	=TAW+AQ2-M2	W	=GEN+AQ2/15.2
=GEN+AQ2-TF2	PE	=GEN+AQ2/15.3	PE	=TAW+AQ2-M2	PE	=GEN+AQ2/15.2
=GEN+AQ2-TF2	T1	=GEN+AQ2/15.3	WH	=TAW+AQ2-M2	A	=GEN+AQ2/15.2
=GEN+AQ2-TF2	T2	=GEN+AQ2/15.3	BN	=TAW+AQ2-M2	B	=GEN+AQ2/15.2
			SH			
CABLE NAME: =CBELT+AC1-BP1		**CABLE TYPE:** **PART NO.:**		**COMMENT:**		
=CBELT+AC1-XAC1	32	=GEN+AQ2/19.1		=CBELT+AC1-BP1	1	=GEN+AQ2/19.0
=CBELT+AC1-XAC1	31	=GEN+AQ2/19.1		=CBELT+AC1-BP1	2	=GEN+AQ2/19.0
=CBELT+AC1-XAC1	32	=GEN+AQ2/19.1		=CBELT+AC1-BP1	2	=GEN+AQ2/19.1
=CBELT+AC1-XAC1	31	=GEN+AQ2/19.1		=CBELT+AC1-BP1	3	=GEN+AQ2/19.1
=CBELT+AC1-XAC1	51	=GEN+AQ2/19.1		=CBELT+AC1-BP1	4	=GEN+AQ2/19.1
CABLE NAME: =CBELT+AQ2-WMM3		**CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042		**COMMENT:**		
=GEN+AQ2-TF3	U	=GEN+AQ2/15.4	1	=CBELT+AQ2-M3	U	=GEN+AQ2/15.4
=GEN+AQ2-TF3	V	=GEN+AQ2/15.4	2	=CBELT+AQ2-M3	V	=GEN+AQ2/15.4
=GEN+AQ2-TF3	W	=GEN+AQ2/15.4	3	=CBELT+AQ2-M3	W	=GEN+AQ2/15.4

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PROJ. TYPE: 2012-101
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CABLE NAME: =CBELT+AQ2-WMM3		**CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042		**COMMENT:**		
=GEN+AQ2-TF3	PE	=GEN+AQ2/15.4	PE	=CBELT+AQ2-M3	PE	=GEN+AQ2/15.4
=GEN+AQ2-TF3	T1	=GEN+AQ2/15.4	WH	=CBELT+AQ2-M3	A	=GEN+AQ2/15.4
=GEN+AQ2-TF3	T2	=GEN+AQ2/15.4	BN	=CBELT+AQ2-M3	B	=GEN+AQ2/15.4
			SH			
CABLE NAME: =CBELT+AQ2-WMM3.1		**CABLE TYPE:** CONTROL 4x0,22 mm² **PART NO.:** 718-3702-0006		**COMMENT:**		
			BU			
			RD			
=GEN+AQ2-XTF3	DI1	=GEN+AQ2/18.5	GN	=CBELT+AQ2-M3		=GEN+AQ2/18.5
=GEN+AQ2-XTF3	32	=GEN+AQ2/18.6	YE	=CBELT+AQ2-M3		=GEN+AQ2/18.5
=GEN+AQ2-XTF3	31	=GEN+AQ2/18.5	BN	=CBELT+AQ2-M3		=GEN+AQ2/18.5
=GEN+AQ2-XTF3	DI2	=GEN+AQ2/18.5	WH	=CBELT+AQ2-M3		=GEN+AQ2/18.5
CABLE NAME: =REW+AQ2-BP2		**CABLE TYPE:** **PART NO.:**		**COMMENT:**		
=GEN+AQ2-KD1	-X12	=GEN+AQ2/19.3		=REW+AQ2-BP2	1	=GEN+AQ2/19.2
=GEN+AQ2-KD1	-X12	=GEN+AQ2/19.3		=REW+AQ2-BP2	2	=GEN+AQ2/19.2
=GEN+AQ2-KD1	-X12	=GEN+AQ2/19.3		=REW+AQ2-BP2	2	=GEN+AQ2/19.3
=GEN+AQ2-KD1	-X12	=GEN+AQ2/19.3		=REW+AQ2-BP2	3	=GEN+AQ2/19.3
=GEN+AQ2-KD1	-X12:12	=GEN+AQ2/19.3		=REW+AQ2-BP2	4	=GEN+AQ2/19.3
CABLE NAME: =REW+AQ2-WMM4		**CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042		**COMMENT:**		
=GEN+AQ2-TF4	U	=GEN+AQ2/15.6	1	=REW+AQ2-M4	U	=GEN+AQ2/15.6
=GEN+AQ2-TF4	V	=GEN+AQ2/15.6	2	=REW+AQ2-M4	V	=GEN+AQ2/15.6
=GEN+AQ2-TF4	W	=GEN+AQ2/15.6	3	=REW+AQ2-M4	W	=GEN+AQ2/15.6
=GEN+AQ2-TF4	PE	=GEN+AQ2/15.6	PE	=REW+AQ2-M4	PE	=GEN+AQ2/15.6
=GEN+AQ2-TF4	T1	=GEN+AQ2/15.6	WH	=REW+AQ2-M4	A	=GEN+AQ2/15.6
=GEN+AQ2-TF4	T2	=GEN+AQ2/15.6	BN	=REW+AQ2-M4	B	=GEN+AQ2/15.6
			SH			
CABLE NAME: =REW+AQ2-WMM4.1		**CABLE TYPE:** CONTROL 4x0,22 mm² **PART NO.:** 718-3702-0006		**COMMENT:**		
			BU			
			RD			
=GEN+AQ2-XTF4	DI1	=GEN+AQ2/18.7	GN	=REW+AQ2-M4		=GEN+AQ2/18.7
=GEN+AQ2-XTF4	32	=GEN+AQ2/18.7	YE	=REW+AQ2-M4		=GEN+AQ2/18.7
=GEN+AQ2-XTF4	31	=GEN+AQ2/18.6	BN	=REW+AQ2-M4		=GEN+AQ2/18.7
=GEN+AQ2-XTF4	DI2	=GEN+AQ2/18.7	WH	=REW+AQ2-M4		=GEN+AQ2/18.7
CABLE NAME: =DEL+AQ2-WMM5		**CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042		**COMMENT:**		
=GEN+AQ2-TF5	U	=GEN+AQ2/15.8	1	=DEL+AQ2-M5	U	=GEN+AQ2/15.8
=GEN+AQ2-TF5	V	=GEN+AQ2/15.8	2	=DEL+AQ2-M5	V	=GEN+AQ2/15.8
=GEN+AQ2-TF5	W	=GEN+AQ2/15.8	3	=DEL+AQ2-M5	W	=GEN+AQ2/15.8
=GEN+AQ2-TF5	PE	=GEN+AQ2/15.8	PE	=DEL+AQ2-M5	PE	=GEN+AQ2/15.8
=GEN+AQ2-TF5	T1	=GEN+AQ2/15.8	WH	=DEL+AQ2-M5	A	=GEN+AQ2/15.8

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PROJ. TYPE: 2012-101
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SOURCE (FROM)	CONNECTION	PAGE REFERENCE	WIRE	TARGET (TO)	CONNECTION	PAGE REFERENCE

CABLE NAME: =DEL+AQ2-WMM5 **CABLE TYPE:** MOTOR 4+2x1/0,5 mm² **PART NO.:** 718-3701-0042 **COMMENT:**

=GEN+AQ2-TF5	T2	=GEN+AQ2/15.8	BN	=DEL+AQ2-M5	B	=GEN+AQ2/15.8
			SH			

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PROJ. TYPE: 2012-101
CUSTOMER: STANDARD
COUNTRY: -

PAGE DESCR.: CABLE LIST
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POS.NO.	DEVICE TAG	MAREL NUMBER (IS)	DESCRIPTION	MANUFACTURER	TYPE NUMBER	QTY.	LENGTH	ENCL. ITEM NO.	PAGE REFERENCE
1	=GEN+AQ2-1	055-0010-0	Mounting rail EN 50 022 (35x15)		TS 35_15	1	602,705 mm	1	=GEN+AQ2 (+AQ2 CON
2	=GEN+AQ2-2	721-4904-1030491	Cable duct 60x40	HAGER	TEBA7 60040	1	478,002 mm	2	=GEN+AQ2 (+AQ2 CON
3	=GEN+AQ2-3	721-4904-1030491	Cable duct 60x40	HAGER	TEBA7 60040	1	134,1 mm	3	=GEN+AQ2 (+AQ2 CON
4	=GEN+AQ2-4	721-4904-1030491	Cable duct 60x40	HAGER	TEBA7 60040	1	546,702 mm	4	=GEN+AQ2 (+AQ2 CON
5	=GEN+AQ2-5	721-4904-1030491	Cable duct 60x40	HAGER	TEBA7 60040	1	134,1 mm	5	=GEN+AQ2 (+AQ2 CON
6	=GEN+AQ2-6	055-0010-0	Mounting rail EN 50 022 (35x15)		TS 35_15	1	397,9 mm	6	=GEN+AQ2 (+AQ2 CON
7	=GEN+AQ2-7	055-0010-0	Mounting rail EN 50 022 (35x15)		TS 35_15	1	124,739 mm	7	=GEN+AQ2 (+AQ2 CON
8	=GEN+AQ2-8	721-4904-1030490	Cable duct 60x25	HAGER	TEBA7 60025	1	552,363 mm	1	=GEN+AQ2 (+AQ2 INV
9	=GEN+AQ2-9	721-4904-1030490	Cable duct 60x25	HAGER	TEBA7 60025	1	397,457 mm	2	=GEN+AQ2 (+AQ2 INV
10	=GEN+AQ2-10	721-4904-1030490	Cable duct 60x25	HAGER	TEBA7 60025	1	353,452 mm	3	=GEN+AQ2 (+AQ2 INV
11	=GEN+AQ2-11	721-4904-1030490	Cable duct 60x25	HAGER	TEBA7 60025	1	487,293 mm	4	=GEN+AQ2 (+AQ2 INV
12	=GEN+AQ2-12	055-0010-0	Mounting rail EN 50 022 (35x15)		TS 35_15	1	491,79 mm	5	=GEN+AQ2 (+AQ2 INV
13	=GEN+AQ2-.	715-3303-1954000000	END SUPPORT ZEW	WEIDMULLER	ZEW	13		12	=GEN+AQ2 (+AQ2 CON
14	=GEN+AQ2-EL1	ELM-EVIS-BL1	LIGHT LED 24V	MAREL	ELM-EVIS-BL1	1			=GEN+AQ2/20.3
15	=GEN+AQ2-EL2	ELM-EVIS-BL1	LIGHT LED 24V	MAREL	ELM-EVIS-BL1	1			=GEN+AQ2/20.8
16	=GEN+AQ2-FC1	717-4403-1051573	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		27	=GEN+AQ2/15.0
17	=GEN+AQ2-FC1a	717-4403-1051573	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		35	=GEN+AQ2/14.5
18	=GEN+AQ2-FC1b	717-4403-1051571	CIRCUIT BREAKER 1P 10A	ABB	SU201M-C10	1		34	=GEN+AQ2/14.6
19	=GEN+AQ2-FC2	717-4403-1051573	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		28	=GEN+AQ2/15.2
20	=GEN+AQ2-FC3	717-4403-1051573	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		29	=GEN+AQ2/15.4
21	=GEN+AQ2-FC4	717-4403-1051573	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		30	=GEN+AQ2/15.6
22	=GEN+AQ2-FC5	717-4403-1051573	CIRCUIT BREAKER 2P 10A	ABB	SU202M-C10	1		31	=GEN+AQ2/15.8
23	=GEN+AQ2-KD1	ELM-ECAN-MCS816	MODULE, I/O MCS816	MAREL	MCS816	1		17	=GEN+SOV/7.0
24	=GEN+AQ2-KD4	001-0012-0037	MODULE, I/O MCV8S8	MAREL	MCV8S8	1		18	=GEN+SOV/7.1
25	=GEN+AQ2-KE1	elm-enet-es5	ETHERNET SWITCH, 5-PORTS, 24VDC	MAREL	ES5	1		33	=GEN+SOV/8.3
26	=GEN+AQ2-KR1	717-3406-1LC1D183BL	CONTACTOR 3P/18A 24VDC	SCHNEIDER ELECTRIC	LC1D183BL	1			=GEN+AQ2/17.3
27	=GEN+AQ2-KR1		CONTACTOR TeSys LC1-D - 3P - AC-3 440V 18 A	SCHNEIDER ELECTRIC	LC1D18BD	1		17	=GEN+AQ2 (+AQ2 INV
28	=GEN+AQ2-KR2	717-3406-1012307	RELAY 24VAC/DC 1XCO 6A	WEIDMULLER	TRZ 24VUC 1CO	1			=GEN+AQ2/19.7
29	=GEN+AQ2-KV1	750-1020-1020594	VALVE SV20 BLOCK X2 (2 VALVES)	SMC	750-1020-1020594	1		19	=GEN+AQ2/19.3
30	=GEN+AQ2-KV2	750-SV20-21005FU	VALVE SOLENOID	SMC	SV2100-5FU	1			=GEN+AQ2/19.4
31	=GEN+AQ2-KV2	750-SV20-503AC6	VALVE SV20 BASE	SMC	SV2000-50-3A-C6	1			=GEN+AQ2/19.4
32	=GEN+AQ2-R2		RESISTOR 120 OHM 0,25 W	AZCON	MF207/120	1			=GEN+SOV/7.2
33	=GEN+AQ2-R3	711-2000-32205	RESISTOR 2,2 KOHM 0,25 W	IHLUTIR	711-2000-32205	1			=GEN+AQ2/18.6
34	=GEN+AQ2-R4	711-2000-32205	RESISTOR 2,2 KOHM 0,25 W	IHLUTIR	711-2000-32205	1			=GEN+AQ2/18.5
35	=GEN+AQ2-R5	711-2000-32205	RESISTOR 2,2 KOHM 0,25 W	IHLUTIR	711-2000-32205	1			=GEN+AQ2/18.7
36	=GEN+AQ2-R6	711-2000-32205	RESISTOR 2,2 KOHM 0,25 W	IHLUTIR	711-2000-32205	1			=GEN+AQ2/18.7
37	=GEN+AQ2-SB1	717-3400-1029180	PUSH BUTTON PIEZO 22MM BLUE/WHITE 3M CABLE	BARAN	13102058-01_907-526	1			=GEN+AQ2/20.1
38	=GEN+AQ2-SB2	717-3400-1029180	PUSH BUTTON PIEZO 22MM BLUE/WHITE 3M CABLE	BARAN	13102058-01_907-526	1			=GEN+AQ2/20.6
39	=GEN+AQ2-TF1	725-8400-1020401	INVERTER 1-PH 0,37 KW	LENZE	E84AVSCE3712SX0	1		18	=GEN+AQ2/15.1
40	=GEN+AQ2-TF2	725-8400-1020401	INVERTER 1-PH 0,37 KW	LENZE	E84AVSCE3712SX0	1		19	=GEN+AQ2/15.3
41	=GEN+AQ2-TF3	725-8400-1020401	INVERTER 1-PH 0,37 KW	LENZE	E84AVSCE3712SX0	1		20	=GEN+AQ2/15.4
42	=GEN+AQ2-TF4	725-8400-1020401	INVERTER 1-PH 0,37 KW	LENZE	E84AVSCE3712SX0	1		21	=GEN+AQ2/15.6

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CUSTOMER: STANDARD
COUNTRY: -

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POS.NO.	DEVICE TAG	MAREL NUMBER (IS)	DESCRIPTION	MANUFACTURER	TYPE NUMBER	QTY.	LENGTH	ENCL. ITEM NO.	PAGE REFERENCE
43	=GEN+AQ2-TF5	725-8400-1020401	INVERTER 1-PH 0,37 KW	LENZE	E84AVSCE3712SX0	1		26	=GEN+AQ2/15.8
44	=GEN+AQ2-TP1	719-3600-1012378	POWER SUPPLY 1PH 10A 240W/288W	PULS	CS10.241	1		13	=GEN+AQ2/14.6
45	=GEN+AQ2-X1	715-3303-1954000000	END SUPPORT ZEW	WEIDMULLER	ZEW	2		12	=GEN+AQ2 (+AQ2 INV
46	=GEN+AQ2-X1	715-3302-17904170000	TERMINAL EARTH ZPE 4/3AN	WEIDMULLER	ZPE 4/3AN	6		23	=GEN+AQ2 (+AQ2 INV
47	=GEN+AQ2-X1	715-3302-17904180000	TERMINAL ZDU 4/3AN	WEIDMULLER	ZDU 4/3AN	12		24	=GEN+AQ2 (+AQ2 INV
48	=GEN+AQ2-X1	715-3302-17904190000	TERMINAL ZDU 4/3AN BL	WEIDMULLER	ZDU 4/3AN BL	1		25	=GEN+AQ2 (+AQ2 INV
49	=GEN+AQ2-X2	715-3303-1954000000	END SUPPORT ZEW	WEIDMULLER	ZEW	2		12	=GEN+AQ2 (+AQ2 CON
50	=GEN+AQ2-X2	715-3302-17904180000	TERMINAL ZDU 4/3AN	WEIDMULLER	ZDU 4/3AN	4		22...25	=GEN+AQ2 (+AQ2 CON
51	=GEN+AQ2-X2	715-3302-17904170000	TERMINAL EARTH ZPE 4/3AN	WEIDMULLER	ZPE 4/3AN	2		28;29	=GEN+AQ2 (+AQ2 CON
52	=GEN+AQ2-X10	715-3303-1954000000	END SUPPORT ZEW	WEIDMULLER	ZEW	1		12	=GEN+AQ2 (+AQ2 CON
53	=GEN+AQ2-X10	715-3302-11608660000	TERMINAL EARTH ZPE2,5/4AN	WEIDMULLER	ZPE 2.5/4AN	1		31	=GEN+AQ2 (+AQ2 CON
54	=GEN+AQ2-X10	715-3302-1022132	TERMINAL ZDK 2.5	WEIDMULLER	ZDK 2.5	25		32	=GEN+AQ2 (+AQ2 CON
55	=GEN+AQ2-X11	715-3303-1954000000	END SUPPORT ZEW	WEIDMULLER	ZEW	3		12	=GEN+AQ2 (+AQ2 INV
56	=GEN+AQ2-X11	715-3302-11608570000	TERMINAL ZDU 2.5/4AN	WEIDMULLER	ZDU 2.5/4AN	5		22	=GEN+AQ2 (+AQ2 INV
57	=GEN+AQ1-WCAQ2	718-3702-0010	CABLE CONTROL 18X0,5mm²	NEXANS	AK53192039	1			=GEN+AQ2/16.1
58	=GEN+AQ1-XPE	715-3302-1026525	TERMINAL EARTH WPE 10	WEIDMULLER	WPE 10	3			=GEN+SOV/6.2
59	=GEN+AV1-KE1	elm-enet-es5	ETHERNET SWITCH, 5-PORTS, 24VDC	MAREL	ES5	1			=GEN+SOV/8.1
60	=MON1+AQ2-SB1	717-3400-1029182	PUSH BUTTON PIEZO 22MM RED/GREEN 3M CABLE	BARAN	13101352-01_907-597	1			=GEN+AQ2/19.6
61	=MON2+AQ2-SB2	717-3400-1029182	PUSH BUTTON PIEZO 22MM RED/GREEN 3M CABLE	BARAN	13101352-01_907-597	1			=GEN+AQ2/19.8
62	=CBELT+AC1-SE1	717-3400-1012258	PUSHBUTTON EMERGENCY STOP 2XNC		M22-PV-KC02/IY	1			=GEN+AQ2/16.3

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LAST EDIT DATE: 2017.03.02
PAGE REV.
PROJ. REV.
REVISED ON: BY:
CREATED ON: 2014.09.30 BY: KRUN

SCALE: 1:1 PAGE: 31
DWG. NO. 2012-101-00002-02
SHEET / TOTAL : (/ 32)

Appendix

Regulations and licenses

SensorX X-ray Inspection unit uses low-energy X-rays to scan the product. During the design and construction of SensorX X-ray Inspection unit great care has been taken to ensure safe operation. Radiation regulations guiding the design and the construction of the equipment include:

Denmark:
Sundhedsstyrelsens bekendtgørelse nr. 307 af 24. maj 1984 om industrielle røntgenanlæg m.v.

Germany:
DIN 54 113, Teil 1, 1992 Strahlenschutzregeln f. die technische Anwendung von Röntgeneinrichtungen bis 500 kV.
DIN 54 113, Teil 2, 1992 Strahlenschutzregeln f. die technische Anwendung von Röntgeneinrichtungen bis 500 kV.
DIN 54113-3, 1995 Strahlenschutzregeln f. die technische Anwendung von Röntgeneinrichtungen bis 500 kV.

Iceland:
Law nr. 44/2002 on radiological protection.

USA:
PART 1020 -- PERFORMANCE STANDARDS FOR IONIZING RADIATION EMITTING PRODUCTS
Sec. 1020.40 Cabinet X-ray systems.

	REMARK
	Generally, a license is needed from the local authorities for the operation of an X-ray machine. In some countries a license is granted from a federal institution but sometimes by a local institution, for example from the county or state. This institution can also provide information regarding X-ray radiation, if needed.

Your local Marel representative can help you locate the appropriate institution.

Glossary of Terms

Emergency Stop Button
When activated, the button immediately stops SensorX25. Located on the front panel.

Front Panel
An operator panel with indicators to start/stop SensorX

Hz
Hertz, frequency measure unit.

kV
Kilovolts, thousands of volts.

kW
Kilowatts.

l/min
Capacity measure—liters per minute.

mA
Milliampere, one thousand of an Ampere.

Safety Circuit
The safety circuit is an electronic circuit that prevents the operation of the machine if the machine is in an unsafe state.

SensorX main display
A computer with a display unit that controls Marel equipment.

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