

User's Guide

# SensorX 302 System

Basic System With Reinspection



 marel

“Original instructions”

Published by Marel ehf  
Austurhraun 9  
IS-210 Gardabaer  
Iceland

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**DECLARATION OF CONFORMITY***Konformitätserklärung**Déclaration de Conformité**Declaración de la Conformidad*

<b>Manufacturer:</b> <i>Hersteller:</i> <i>Fabricant :</i> <i>Fabricante:</i>	<b>Marel ehf</b> Austurhraun 9 IS-210 Gardabaer, Iceland
<b>Product:</b> <i>Produkt:</i> <i>Produit :</i> <i>Producto:</i>	<b>SENSORX 302 SYSTEM</b>
<b>Type:</b> <i>Typ:</i> <i>Type :</i> <i>Tipo:</i>	<b>302 System</b>
<b>Serial number:</b> <i>Seriennummer:</i> <i>Numéro de série :</i> <i>Número de serie:</i>	

**Marel ehf declares that this product is in conformity with the requirements of the following EC directives and later amendments:**

*Marel ehf erklärt, dass dieses Produkt in Übereinstimmung mit den Anforderungen der folgenden EC-Direktiven und späteren Änderungen ist:*

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- 2006/42/EC                   Machinery. Safety of Machinery  
(*Maschinen, Machines, Maquinaria*)
- 2004/108/EC EMC           Electro-Magnetic Compatibility  
(*Elektromagnetische Verträglichkeit, Compatibilité électromagnétique, Compatibilidad electromagnética*)
- 2006/95/EC                  Low Voltage  
(*Niederspannung, Basse tension, Baja tensión*)

**Signature:***Unterschrift:**Signature :**Firma:*

Þórdís Þórdóttir, Senior Director of Manufacturing

**Place/Date:***Ort/Datum:**Lieu/Date :**Lugar/Fecha:*

Gardabaer,

March 27, 2012





## **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.



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# Introduction

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## About This Manual

The *SensorX 302 System, User's Guide* is intended to assist you in operating and maintaining the Marel SensorX 302 Basic Piece Inspection System.

SensorX 302 systems are only sold and used in combination with SensorX, the Marel X-ray product inspection machine.

For information regarding the SensorX specifically, see the *SensorX User's Guide*.

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**Note:** In this manual the term “SensorX” is used for the SensorX product inspection machine alone while the term “SensorX 302 system” or simply “system” is used for a complete SensorX 302 Basic Piece Inspection system.

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The manual is divided into the following main chapters:

- Introduction
- Installation
- Safety Instructions
- Operation
- Maintenance
- Cleaning
- Parts Lists – mechanical parts lists and electrical diagrams and parts lists.

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**Note:** Before you start working on your SensorX 302 system, make sure you read and understand the warnings and the warranty agreement.

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## Customer Support and Improvements

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 ehf, Austurhraun 9, IS-210 Gardabaer, Iceland; phone (+354) 563-8000, fax (+354) 563-8001, attn. Documentation & Localization, email: [documentation@marel.com](mailto:documentation@marel.com).

For customer support please contact your local Marel service partner. For details see [www.marel.com](http://www.marel.com) or contact Marel's Service Department, e-mail: [service@marel.com](mailto:service@marel.com).

## Warranty Information

Warranties issued by Marel ehf. are revoked if the equipment has not been used according to specifications. The same applies if the equipment has been modified in any way without Marel's consent.

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## About the SensorX 302 System – Basic Piece Inspection System With Reinspection

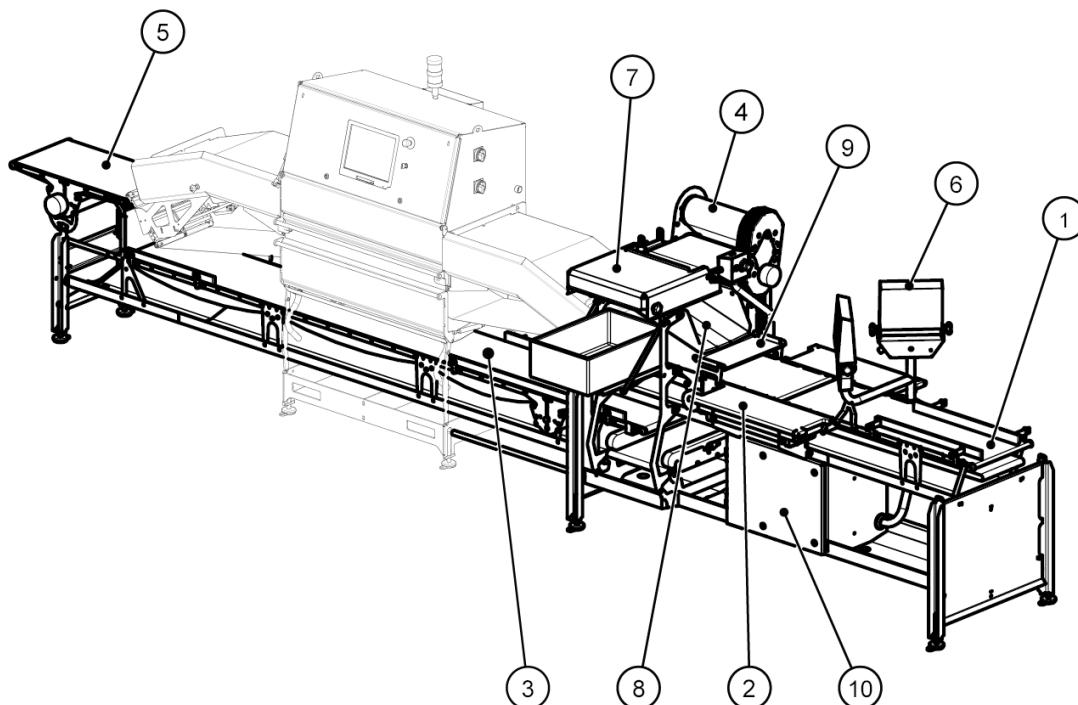


Figure 1 SensorX 302 Basic piece inspection system with reinspection, including optional rework terminals.

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Table 1 SensorX 302 – Basic piece inspection system with reinspection, main parts.

1. Infeed conveyor	6. Rework terminal (optional)
2. Rework stations	7. Overflow conveyor (optional)
3. Return conveyor	8. Product bin
4. Elevating conveyor	9. Product tray
5. Outfeed conveyor	10. Electrical cabinet

## Operation

- 1 SensorX scans the product for bone contaminants.
- 2 Contaminant free products travel past the reject mechanism and are transported on the outfeed conveyor (3) to further processing. If a contaminant is detected, that product is rejected.
- 3 The rejected product then travels on the return conveyor (7), to the elevating conveyor (5) and then to the rework station (2) which is located in front of the SensorX.
- 4 After the contaminant has been removed at the rework station (2), the product is sent back to the infeed conveyor (1) to be scanned a second time by the SensorX. This is to verify that the operator succeeded in removing the contaminant.

## Main Features and Naming Conventions

The SensorX 302 system consists of a number of standard modules which are combined with the SensorX machine. The following is an overview of these modules:

Module:	Definition:
<b>Return conveyor</b>	The conveyor underneath the SensorX machine which brings rejected material back to the front of the machine.
<b>Elevating conveyor</b>	Transfers material from the return conveyor up to the product bin on the rework station.
<b>Rework station</b>	Where operators remove bones from the product.
<b>Rework terminal</b>	Also called “QC terminal” or “QC station”. Part of the rework station.
<b>Infeed conveyor</b>	The conveyor which brings the product to the SensorX machine.
<b>Overflow</b>	If products have accumulated at the rework station, the module will direct the overflow out through the overflow gate.

## Technical Specifications

Table 2 Technical data (excluding the SensorX machine).

<b>Belt speed</b>	0.52 m/sec (102 feet/minute) for infeed and outfeed conveyors. Other conveyors may have slower speeds depending on operational mode.
<b>Power supply voltage</b>	Single phase 230 Vac + N + PE or 3×400V + N + PE or 3×(208-230V) + PE
<b>Power usage</b>	See rating plate ( <i>Figure 2</i> )
<b>Frequency</b>	50/60 Hz
<b>Residual current circuit breaker</b>	Type B, 500 mA
<b>Dimensions</b>	7300 mm × 980 mm × 1930 mm (L x W x H) (287 in x 39 in x 76 in)
<b>Belt width</b> <b>Infeed belt</b> <b>Outfeed belt</b> <b>Return belt</b> <b>Elevating belt</b>	Width 305 mm (12 in), length 5.6 m (220 in) Width 406 mm (16 in), length 2 m (79 in) Width 406 mm (16 in) length 7.5 m (296 in) Width 406 mm (16 in) length 6.8 m (268 in)
<b>Belt type/length</b>	Modular, plastic
<b>Weight</b>	Approx. 700 kg (1544 lbs.)
<b>Noise level</b>	<75 dB (A)

## Transportation and Handling

Read these 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 302 system.

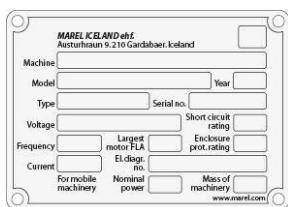


Figure 2 Rating plate.

- Observe the mass of the SensorX 302 system 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 for transportation, you should place logs or other material on top of the forks in order to prevent corrosive scratches on the structural member. Always lift under the central construction.

Refer to Figure 3 below for details on how to lift a SensorX module correctly.

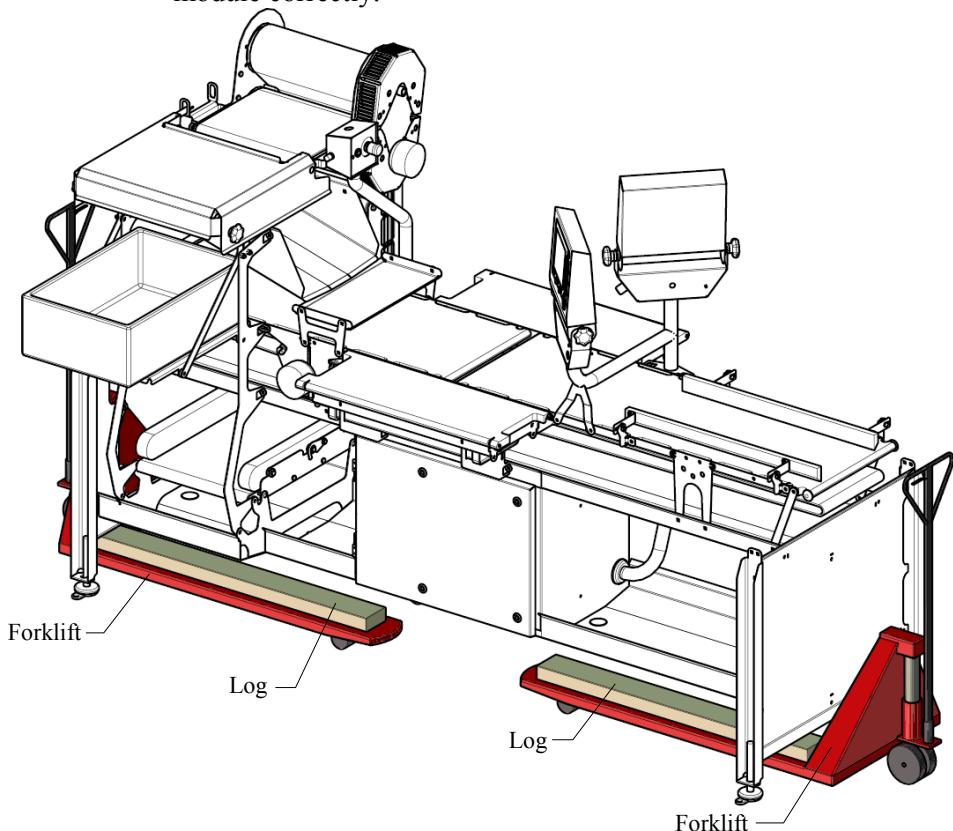


Figure 3 Transporting the SensorX 302 system.



# Installation

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## Site Requirements

The location of the SensorX 302 system is decided upon by the buyer and Marel ehf, but the following points are important when choosing the proper location for the processing line:

- **Floor:** The system should be placed on an even and stable surface and bolted to the floor.
- **Accessibility:** There should be enough space around the system for easy cleaning and maintenance.
- **Temperature:** The room temperature must not get below 0°C (32°F).

## Verifying the Equipment

Before you install the system, verify the following:

- Inspect the equipment for damages incurred during shipment, such as scratches or dents.
- Compare the equipment you have received to the packing list to see if the shipment is complete. Report any discrepancies to Marel ehf.

## Installing the SensorX 302 System

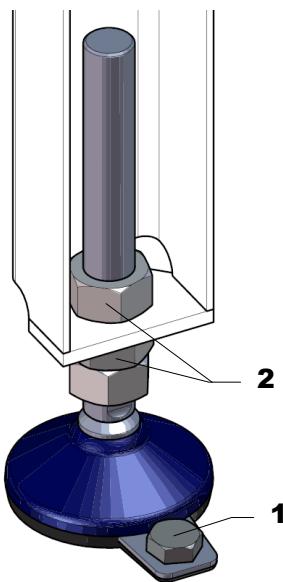


Figure 4 Floor bolts.

## Electrical Installations

The SensorX 302 system can use different types of electrical supply:

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

The mains is to be terminated in the SensorX electrical cabinet. Refer to the electrical diagrams for details. The mains rating is listed on the rating plate on the electrical cabinet.

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

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

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

## Pneumatic Installations

Compressed air is used to operate air cylinders in various places in the system.

The system requires a supply of clean and dry air according to ISO standard 8573-1 class 3 (see Table 3).

*Table 3 Quality of compressed air.*

**ISO 8573 -1**

Class	Solids		Water	Oil
	Particle size max $\mu\text{m}$	Concentration maximum $\text{mg/m}^3$	Max Pressure Dew point $^\circ\text{C}$	Concentration $\text{mg/m}^3$
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**

**Note:** 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.

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

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 checklist for initial start of the SensorX 302 system.

	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.
	The SensorX main display turns on when you power on the SensorX. If not, check if there is 24 Vdc power to the SensorX main display (see electrical diagrams and part list on page 61).

# Safety Instructions

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## In General

The SensorX 302 system 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.

- **Frames**

Do not put your hands through frame holes near motors or any moving parts. Fingers can get crushed.

- **Conveyor ends**

Do not place your hands under the belts, especially not near the rollers at the conveyor ends.

- **Cover on overflow**

During operation the cover must always be closed.

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## Emergency Stop Buttons

The emergency stop buttons are in two locations on the 302 system. One is located on the front panel of the SensorX machine and the other is located on the right side of the elevating conveyor,

When an emergency stop is activated, all activity on the system stops immediately.

- To start the system again after an emergency stop, pull out the emergency stop button, and press the Start button on the main electrical cabinet.

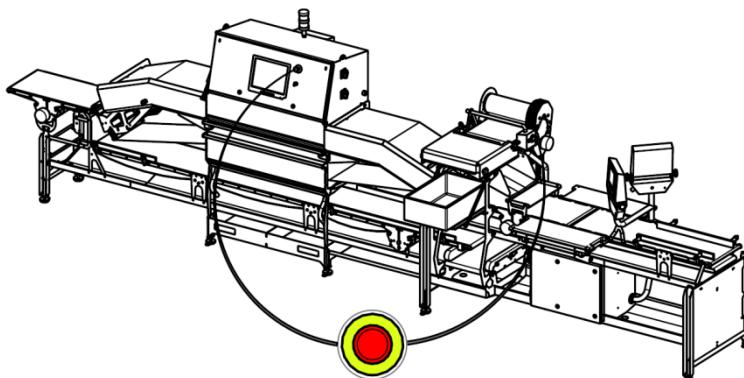


Figure 5 Location of emergency stop buttons.

## Warning Labels

The SensorX 302 system is supplied with the following warning labels:



- Electrical hazard. The label is placed on the electrical cabinet door and on both sides of the drum motor plate.
- Danger of hands or arms getting crushed between belt roller and belt. The label is placed on both sides of conveyors near the conveyor ends.

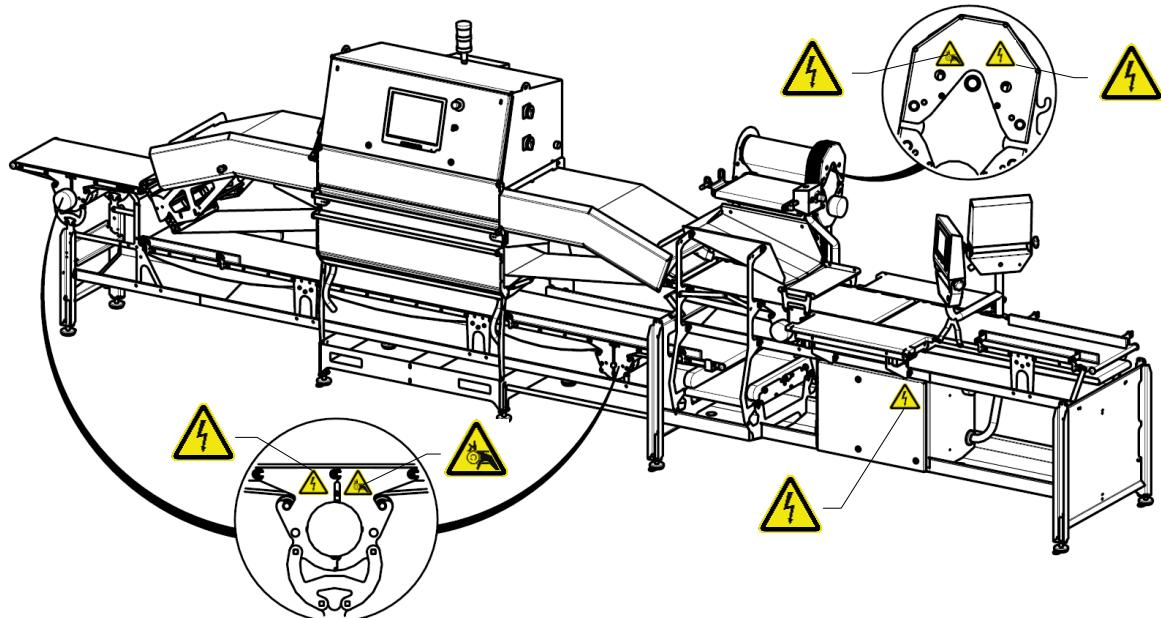


Figure 6 Location of warning labels, front view.

## Elevating Conveyor Overload Protection

The elevating conveyor is equipped with an overload protection.

- In case of an overload, use the emergency stop button to stop the system and clear the stopped product flow.

**Note:** **Do not** attempt to clear a stopped flow while the system is running.

# Operation

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## In General

This chapter describes how the SensorX 302 system works.

Detailed information on the configuration of the SensorX machine itself is available in the *SensorX, User's Guide*.

# Controls and Indicators

This section describes the location and use of basic controls and indicator lamps on the SensorX 302 system.

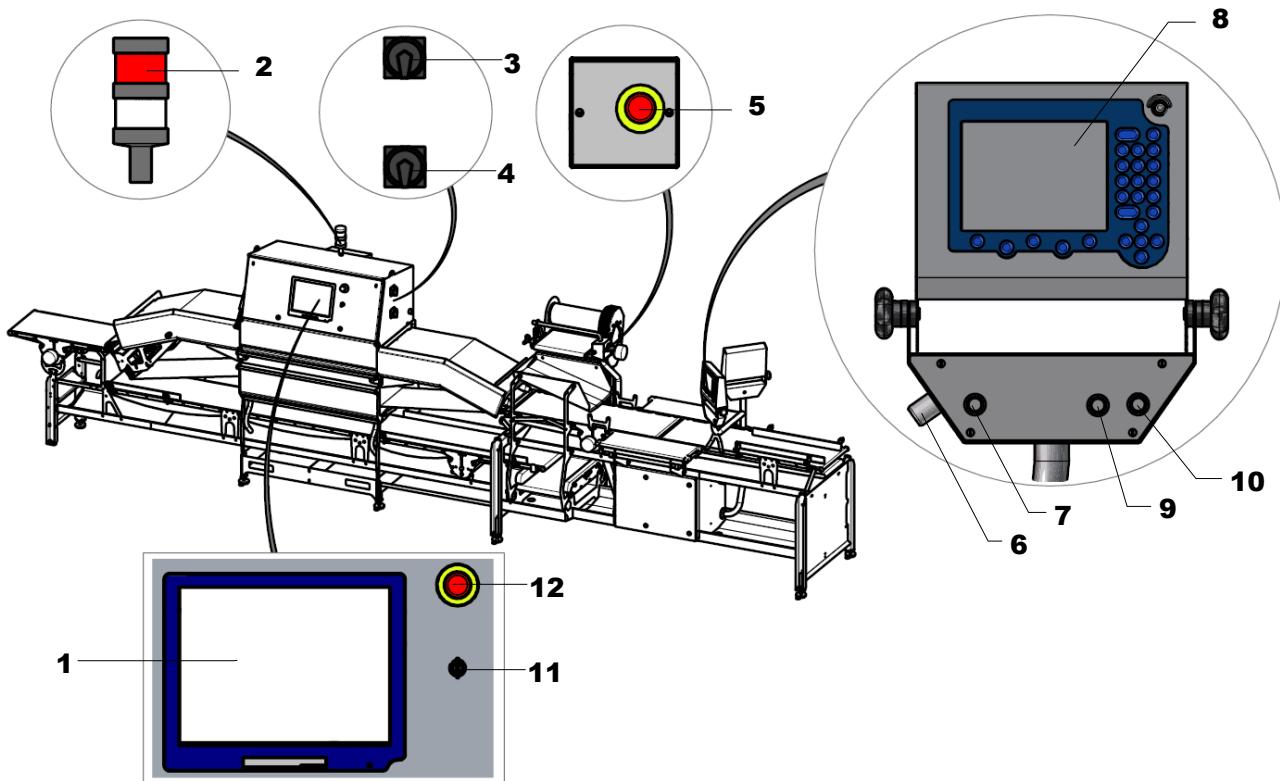


Figure 7 SensorX, basic controls and indicators.

Number:	Name:	Description:
1	SensorX main display	Controls the SensorX 302 system. Displays X-ray images and provides the system's user interface. Located on the front side of the SensorX machine.
2	X-ray alarm	Alarm lamp. The lamp is connected to the X-ray generator controller and is constantly illuminated (red) when the X-ray generator is emitting radiation. Located on top of the SensorX machine.
3	Motors	Switch. Disconnects the motor power, but still leaves a 24V current on the main display. A lockout padlock can be placed on this switch, if needed.
4	Mains	Breaker. Disconnects the mains power supply to the system.
5, 12	Emergency stop	Button. Instantly stops all operation of the system, including the conveyor

		belts and X-ray radiation. You cannot start the system again, unless you pull this button out first
<b>6</b>	<b>Confirmation button (optional)</b>	Button, used to confirm rework of piece. Triggers the display of an image.
<b>7</b>	<b>Confirmation knife switch (optional)</b>	Button, used to confirm rework of piece. Triggers the display of an image.
<b>8</b>	<b>Rework terminal (optional)</b>	Displays X-ray images of contaminated products so the operator can locate and remove the contaminant fast and easily.
<b>9</b>	<b>Infeed Off/On button (optional)</b>	Button, for turning the infeed off and on.
<b>10</b>	<b>Flush button (optional)</b>	Button, for activating flush of products from return conveyor to product bin.
<b>11</b>	<b>Key lock</b>	Next to the SensorX control panel. Locks the machine.

# User Interface

The SensorX 302 system is controlled from the SensorX main display which is located on the front side of the SensorX machine.

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

On the Main screen there are several control and status indicators as well as the Start/Stop button for the entire SensorX 302 system.

## The Main Screen

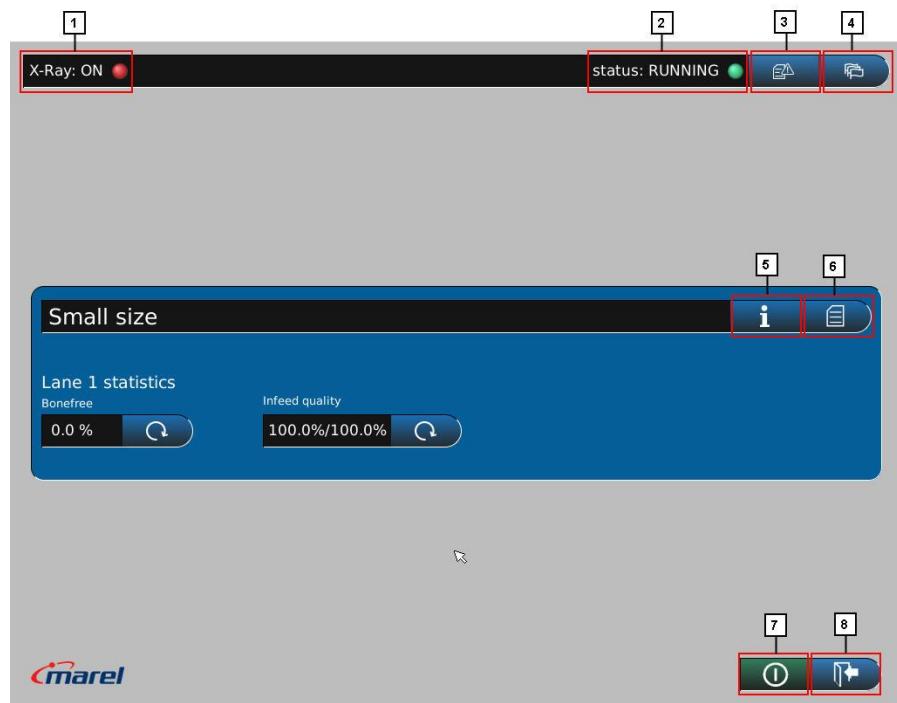


Figure 8 SensorX, Main screen.

- 1 **X-ray indicator.** Shows when the X-ray generator is running.
- 2 **Status.** Displays the status of the SensorX machine: Running, Stopped, Ready, and Warming up.
- 3 **Alarms.** Displays an overview of alarms (warnings or errors) on the system.
- 4 **Language.** Lets you select a language for the user interface.
- 5 **Information.** Displays details on scanned material.
- 6 **Program list.** Displays the Programs screen.
- 7 **Start/Stop** button. Starts and stops X-ray generation and all conveyors in the system.
- 8 **Exit.** Exits this screen and displays a logon screen.

For additional information on the SensorX screens, see the *SensorX, User's Guide*.

## The Logon Screen

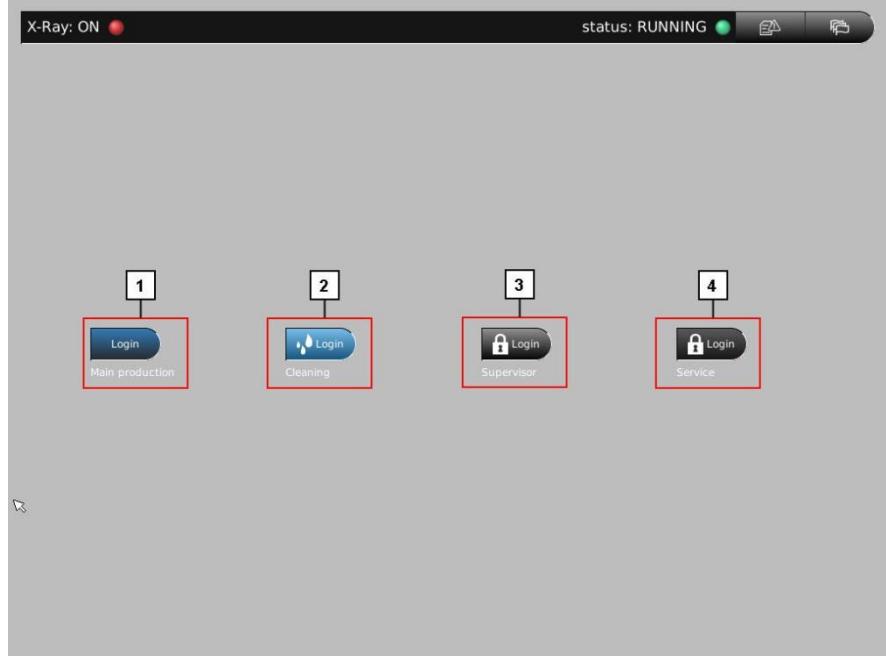


Figure 9 The Logon screen.

The Logon screen has four buttons:

- **Main production** (1) opens the Main screen which is used in normal operation of the system.
- **Cleaning** (2) opens the Washing screen where you can put the system in cleaning mode.
- **Supervisor** (3) opens the Supervisor screen. You can lock this screen with a password.
- **Service** (4) opens the Service screen. This screen is locked with a password.

## Washing Screen

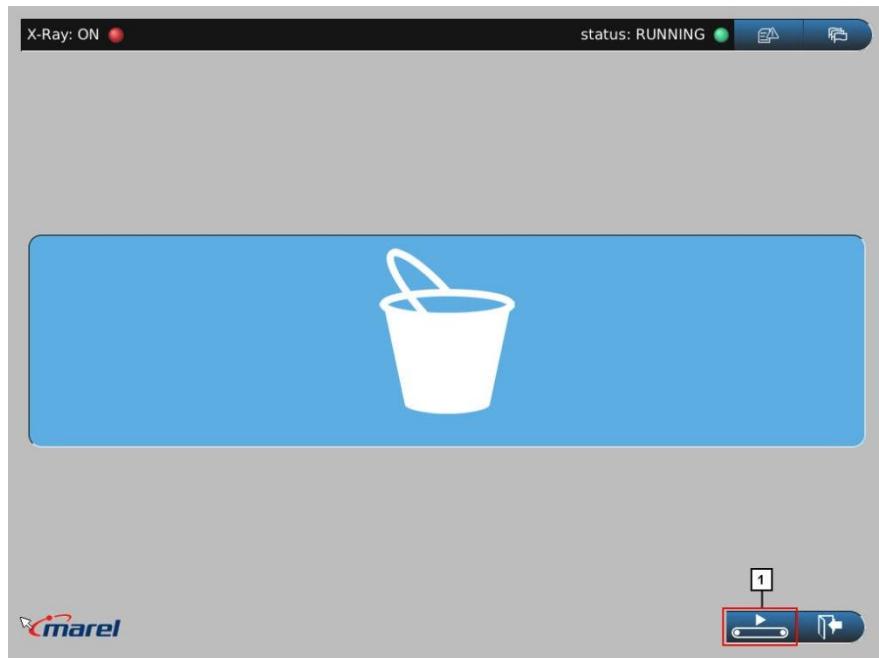


Figure 10 The Washing screen.

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

To activate washing mode:

- Press the Play button (1). A confirmation dialog box is displayed.

## Supervisor Screen

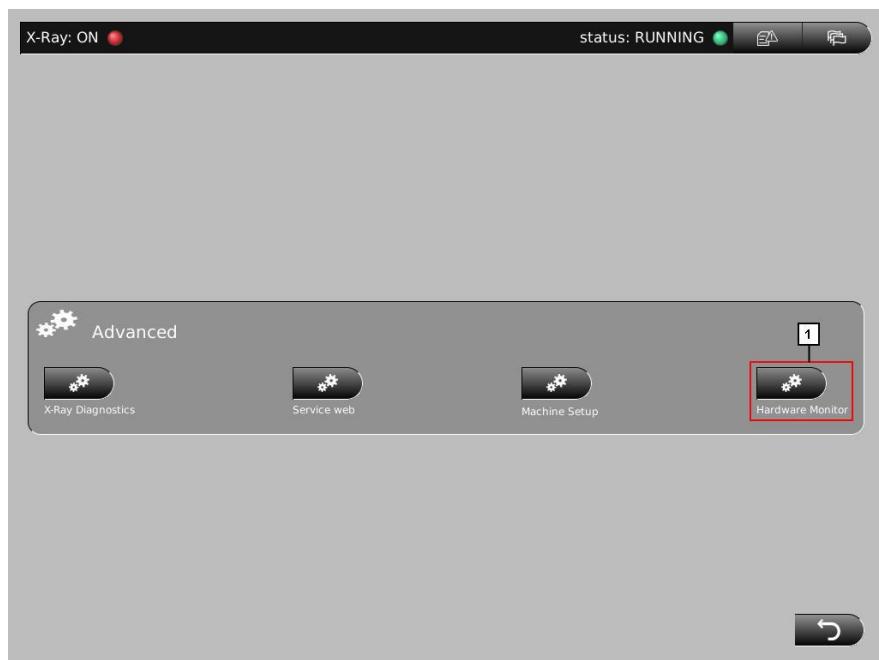


Figure 11 The Supervisor screen.

From the Supervisor screen you have access to several other system screens. Only the Hardware Monitor screen is described in this manual.

- Press the Hardware Monitor button (1) on the Supervisor screen to display the Hardware Monitor screen.

## Hardware Monitor Screen

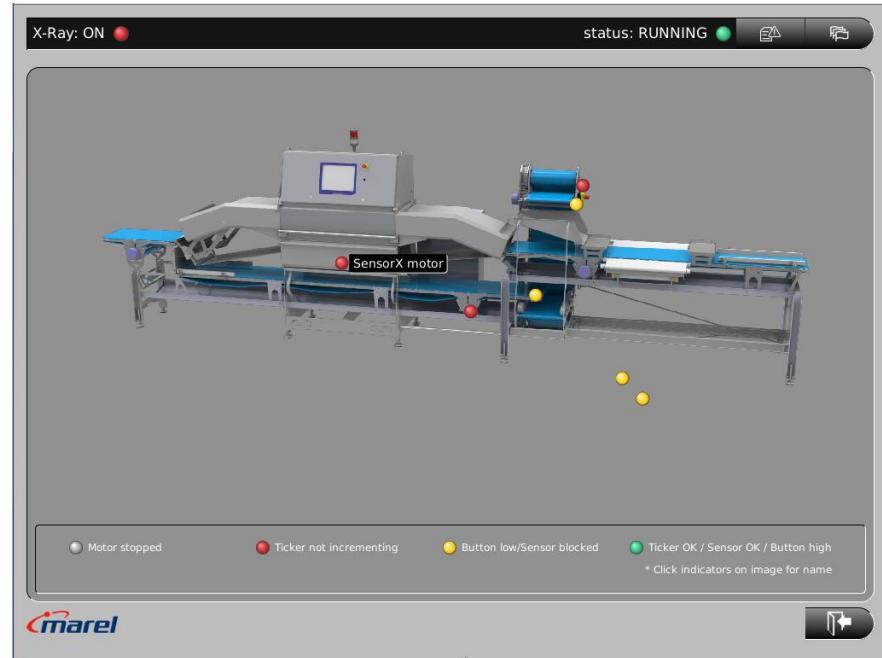


Figure 12 The Hardware Monitor screen.

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 pressed.
  - Green: the button is not pressed.

---

**Note:** If you click a bullet in the Hardware Monitor screen image, a text box is displayed with the bullet's name (see "SensorX motor" in Figure 12).

## Rework System (Optional)

A rework system consists of an overflow conveyor and two rework stations, each with a rework terminal and a work area.

When a piece of product is in the product bin and the operator presses the pedal switch, an image of the product is displayed on the rework terminal.

The rework system can also be used with the Hybrid Inspection System.

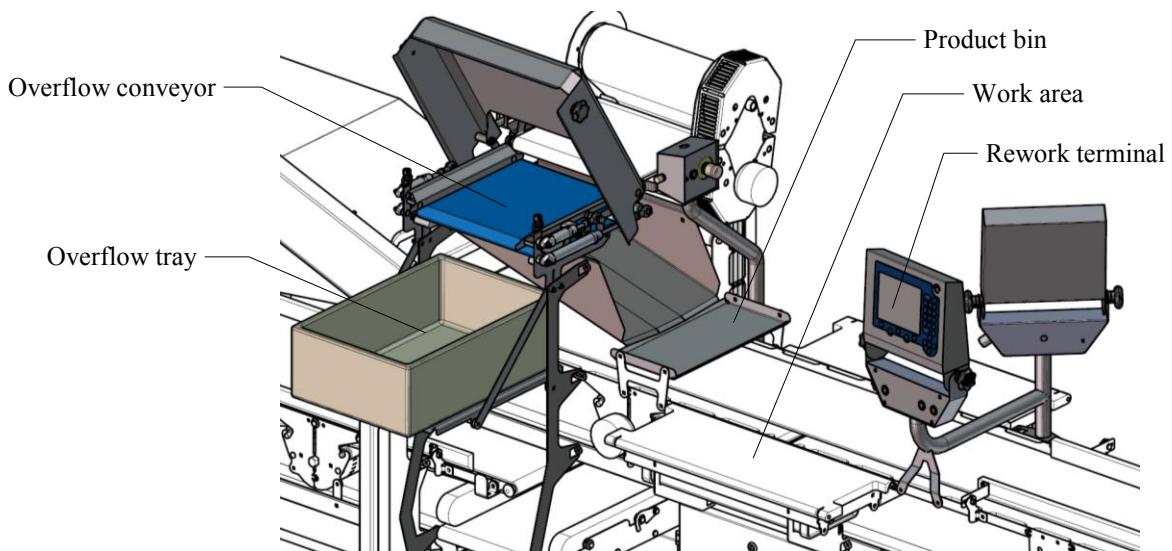


Figure 13 Rework system.

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 piece of product at a time.

When the product bin is empty, the return and elevating conveyors run continuously until a piece arrives in the bin. 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, the return conveyor starts buffering pieces.

The system makes sure that operators have pieces in the product bin ready for rework. The system optimizes the buffering resources before it diverts pieces to the overflow.

When a product arrives at the product bin, the operator picks it up and presses the pedal switch. An image of the product is displayed on the operator's rework terminal to make the removal of the contaminant easier.

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## Overflow Mechanism

The overflow mechanism is used to reject pieces that arrive at the product bin but cannot be handled in a normal fashion.

A piece that enters the rework station when the product bin is full will be 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.

---

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

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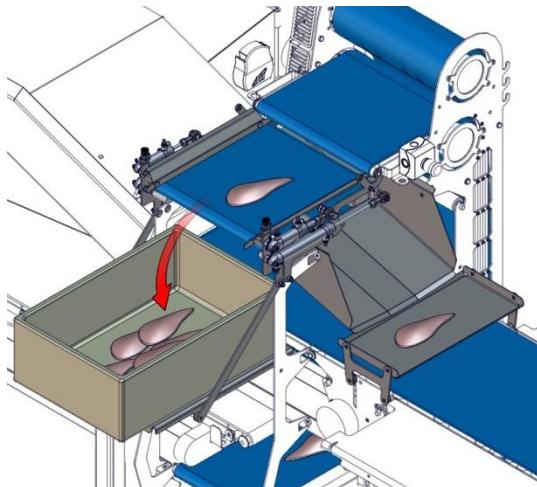


Figure 14 Overflow conveyor in closed position.

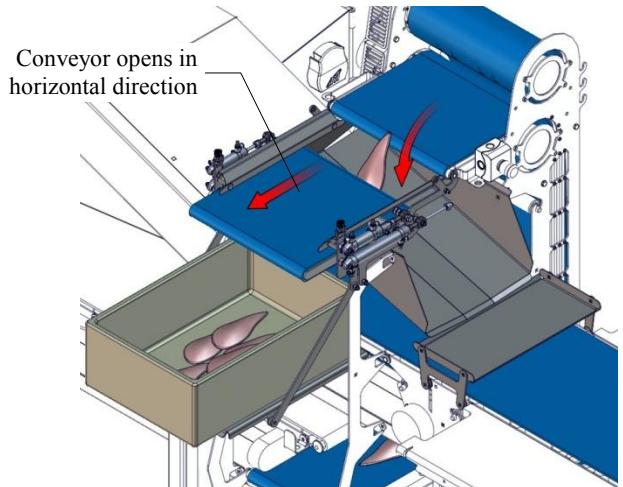


Figure 15 Overflow conveyor in open position.

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## 302H Hybrid System: Operation (Optional)

The concept behind the Hybrid System is to approach the throughput of a mass-flow system but also to show bone images on the optional rework terminals.

This is made possible by running the system in a piece-based mode during rerun. The hybrid system requires an operator to control the system manually with the control box.

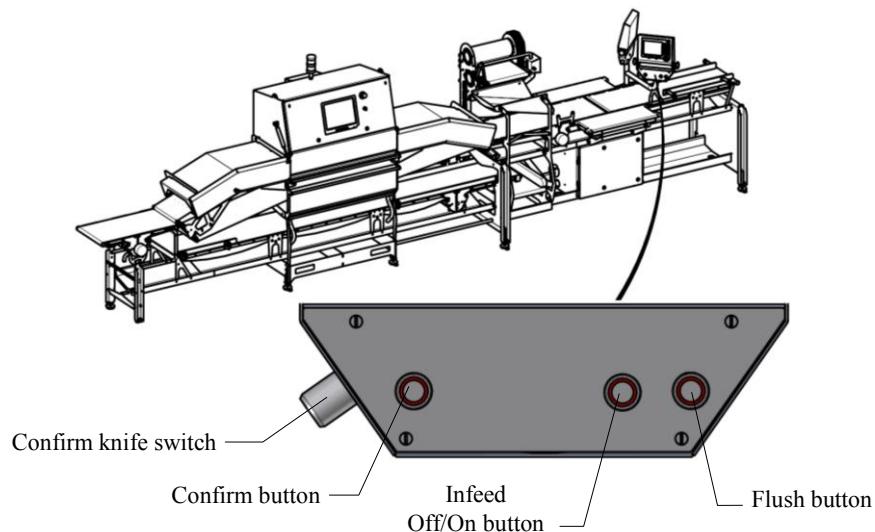


Figure 16 Control box.

## Work Cycles

The Hybrid System has three types of work cycles:

- Scanning mass-flow state
- Rescanning state
- Rework state + scanning mass-flow

### Scanning Mass-flow

- 1 Turn on the infeed by pressing the Infeed On/Off button.
- 2 Material flows through the machine and rejected material is buffered on the return conveyor.
- 3 The operator ends this work cycle when the return conveyor is full.
- 4 Stop the stream of incoming product at the end of the cycle by pressing the infeed on/off button. .

### Rescanning

- 1 Push the Flush button until all material on the return conveyor has been transported to the product bin.
- 2 Enable rescan mode by turning off the infeed by pressing the Infeed On/Off button
- 3 Then, place pieces from the product bin individually on the infeed belt. Some pieces will be rejected and their bone images will be stored for use in the next work cycle.
- 4 This work cycle ends when the product bin is empty and all pieces have been rescanned.

---

## **Rework and Scanning Mass-flow**

- 1** Turn the infeed back on. At this point, the stream of incoming product can be resumed.
- 2** Use the flush button to have individual pieces delivered to the product bin..
- 3** When a piece is dropped into the product bin, the rework station operators take that piece and simultaneously press the confirm button to request the bone image for that particular piece to be displayed on the rework terminal.
- 4** After inspecting the piece and removing the bone, place the piece on the infeed conveyor, in the stream of incoming product.
- 5** This work cycle ends when all rerun products on the return conveyor have been inspected.  
If no piece is shown on the rework terminal when you press the confirm button, the operators have completed this work cycle.

By default, the next work cycle is the Scanning Mass-flow cycle.



# Maintenance

## Maintenance Schedule

This chapter describes preventive maintenance of the SensorX 302 system and various adjustments that may have to be made.

Table 4 contains the maintenance schedule for the system.

*Table 4 Maintenance schedule*

<b>Every working shift:</b>	<ul style="list-style-type: none"><li>Check for broken links in the plastic modular belts.</li></ul>
<b>Daily:</b>	<ul style="list-style-type: none"><li>Check motor and belts for abnormal noise.</li><li>Check that the conveyor belts are clean and free of dirt particles. Replace the belts, if necessary.</li><li>Check that all product sensors are clean and correctly positioned.</li><li>Clean the SensorX 302 system.</li></ul>
<b>Weekly:</b>	<ul style="list-style-type: none"><li>Check the drum motors for abnormal noise.</li><li>Check the general condition of the belts.</li><li>Check all air cylinders.</li><li>Wipe cylinder piston rods with an oiled cloth at the end of the work week.</li></ul>
<b>Monthly:</b>	<ul style="list-style-type: none"><li>Check the emergency stops.</li><li>Check the sprockets for wear.</li><li>Check the belt tension.</li><li>Check the belt supports for wear.</li><li>Remove and wash the plastic modular belts.</li></ul>
<b>Yearly:</b>	<ul style="list-style-type: none"><li>Service control by Marel's service personnel recommended.</li></ul>

# Maintenance Procedures

## 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, page 11).

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

The water trap in the air cabinet (see Figure 17) is equipped with an automatic water ventilator.

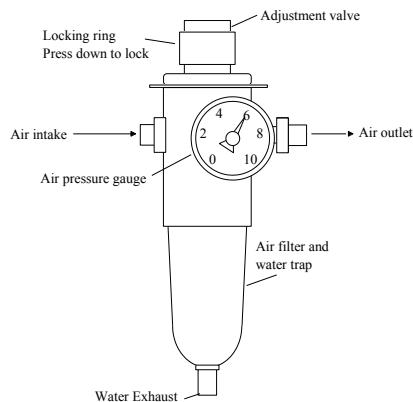


Figure 17 Air cabinet, air pressure regulator.

### To maintain the pneumatic system:

- 1 Inspect the water ventilator daily to make sure it is operating normally.
- 2 Replace the filter in the water trap when dirty.
- 3 Keep the operating air pressure at 6 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 system is inactive for more than a day.

### To maintain the air cylinders:

- After the system 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 system. Always stop the conveyor belts 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:

- 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 by adjusting the shock absorbing adjustment screw (D).
- Adjust the shock absorbing mechanism in the cylinder by turning the small adjustment screws on both ends of the cylinder (see Figure 18, B and D).

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

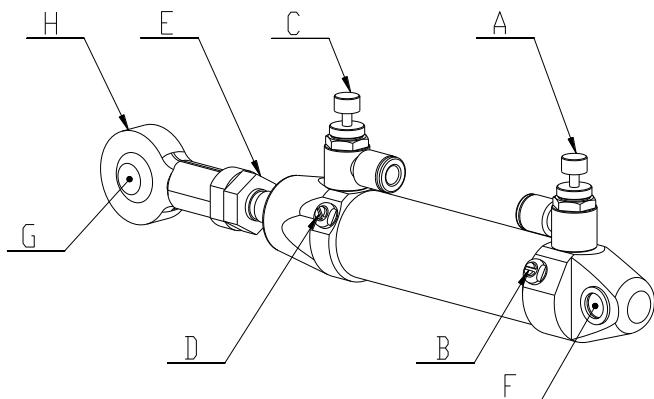


Figure 18 Adjusting the shock mechanism.

- Make sure the bolt connection F (to the frame) has room to rotate.
- Tighten bolt connection (G). 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.

### To adjust air cylinder speed:

- 1 To adjust the “out” speed of the piston rod, adjust the speed adjustment screw at the front end of the cylinder (see Figure 18, C).
- 2 To adjust the “in” speed of the piston rod, adjust the speed adjustment screw at the rear end of the cylinder (see Figure 18, A).

# Product Sensors

The product sensors are located on 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 will not interrupt the light beam.

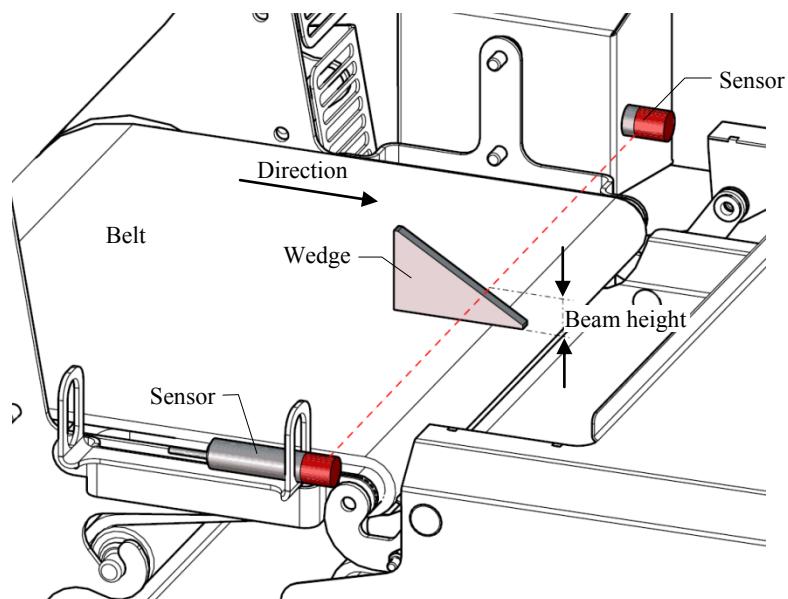


Figure 19 Adjusting the light beam.

- 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.

## Belts

It is very important that the belts on the SensorX 302 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" (see Figure 20 below).

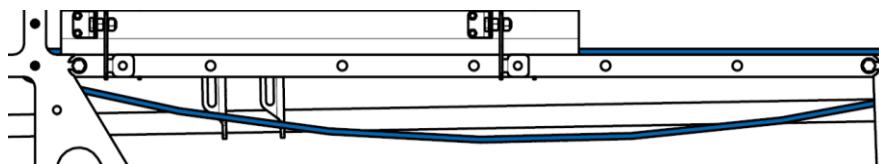


Figure 20 Proper sag on conveyor belts

A new belt loses tension relatively fast, and therefore it is often necessary to remove a link from the belt after a few weeks usage.

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 will greatly reduce the belt tension and may cause sprocket disengagement.

### Belt Guides

Belt guides on the elevating conveyor are used to support and guide the belt. A damaged or improperly mounted support block can cause damages to the belt.

- Check the condition and wear of the belt guides at regular intervals.

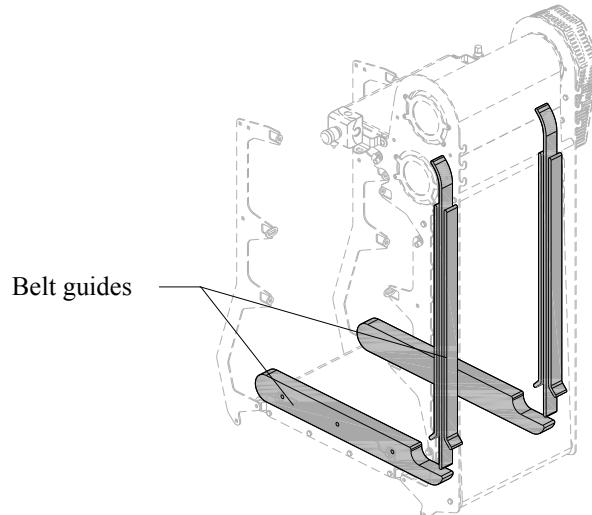


Figure 21 Belt guides on elevating conveyor.

## Motors

All motors in the SensorX 302 system are drum motors. Some of them are equipped with an encoder bearing. The motors are controlled by a frequency inverter and all adjustments on the inverter are performed on the M6000 Controller.

The motors are maintenance-free. Nevertheless, 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 them. Check for oil leak.
- 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.

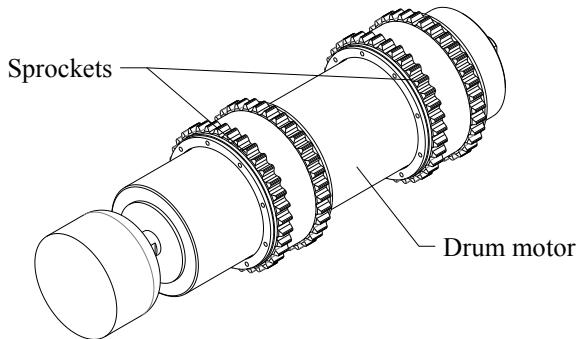


Figure 22 Drum motor with sprockets.



# Cleaning

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## 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 questions on the appropriate solution strength, request technical advice from a reputable sanitizer manufacturer.

- It is very important that the SensorX 302 system is thoroughly cleaned every day after operation.
- In general, do not use excessively strong solutions of detergent. Chlorine disintegrates belts and strong base solutions ( $\text{pH}>13$ ) corrode aluminum parts. 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 SensorX main display, the electrical cabinets, connection box, or motors.  
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.

**Note:** 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 5 List of Materials*

Material	Used in	Resistance to detergents
<b>Metals:</b>		
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
<b>Plastics:</b>		
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 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.

---

**Note:** 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.

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

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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 Sensor X System, follow the instructions below to ensure maximum safety during the cleaning.

Cleaning the system is a procedure in 8 steps:

- preparation
- rinsing the nearby environment
- rinsing the SensorX 302 system
- foaming
- washing
- assembling
- sanitizing
- final inspection

## Preparation

- 1 Secure the system by turning the Motors switch Off.  
(Optionally, lock the switch with a padlock for additional safety.)
- 2 Remove all belt rollers to slacken the belts.
- 3 Elevating conveyor: remove the plastic side guides for easier access.
- 4 Work stations: open the work table and tip the lamp unit up to prevent the unit from being soaked.

## Rinsing the Environment

- 1 Thoroughly rinse nearby walls and floor to prevent cross-contamination from the environment after the SensorX 302 system has been cleaned.
- 2 Avoid soils spreading over the machines when rinsing the walls and floors.
- 3 If possible, do not use water temperatures over 55°C (131°F) to avoid heat denatured proteins.

## Rinsing the Unit

- 1 Rinse soils off the machines using water jets or a brush. Rinse thoroughly from the top down with clean water.
- 2 Lift the slackened belts and rinse soils from under the belts.

- 3** Avoid high water pressure in order not to spread the soils all over the machines.
- 4** If possible, do not use water temperatures over 55°C (131°F) to avoid heat denatured proteins.

## **Foaming**

- 1** Spray the machines with detergent foam or other appropriate type of detergent. Make sure the foam reaches all corners and hard-to-reach areas.
- 2** Let the detergent work as specified by the manufacturer.

## **Washing**

- 1** 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 belts and plastic plates.
- 4** Clean the electrical cabinet as described on page 41 (once a month).
- 5** Let the machines dry as much as possible before sanitizing.

## **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 ( $\leq 200$  ppm) or a comparable sanitizing agent.
- After sanitizing, rinse the SensorX 302 system 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 39 and put the SensorX 302 system back into operational condition.

## Final Inspection

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

- By stroke of hands make sure that places where visual control is difficult are clean.
- 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.

## Special Cleaning Instructions

Some parts of the SensorX 302 system require special care during cleaning: the conveyor belts, the main display, and the electrical cabinet.

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### Cleaning the Conveyor Belts

The conveyor belts need to be rinsed off at least once every day of operation. More frequent rinsing may be necessary.

Remove the belts and wash thoroughly every day of operation.

- Remove the belts and soak in a detergent bath or spray with detergent. Let the detergent work according to manufacturer's instructions.
- Rinse thoroughly with clean, cold water or soak in clean water.

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

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### Cleaning the Main Display

- 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.

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**WARNING:** Before you start cleaning the display, press the emergency stop button to prevent an accidental start of the conveyors.

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### Cleaning the Electrical Cabinet

Open the electrical cabinet 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 cabinet.
- 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.

---

**WARNING:** Do not use water for cleaning 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 302 system is powered on again.

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# Cleaning Schedule

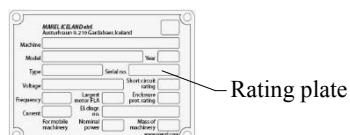
Table 6 Cleaning schedule.

Frequency	Action	Description	Comments
Daily	<b>Preparation</b>	<ul style="list-style-type: none"> <li>Remove any raw material, products or packing material.</li> <li>Put the system in Washing mode to keep the conveyor running while you rinse soils off.</li> </ul>	After preparation the machines should be ready for cleaning.
Daily	<b>Rinsing</b>	<ul style="list-style-type: none"> <li>Rinse off loose soils using water jets or brushes. Do not use high water pressure.</li> </ul>	After rinsing the machines should be free of loose soils.
Daily	<b>Foaming</b>	<ul style="list-style-type: none"> <li>Foam the machines and make sure the foam reaches into all corners and hard-to-reach places.</li> <li>Let the foam work on the machines as specified by the foam manufacturer.</li> </ul>	
Daily	<b>Washing</b>	<ul style="list-style-type: none"> <li>Use a brush to scrub difficult places and wash with a water jet.</li> <li>Wash the conveyors.</li> </ul>	Do not use water pressure on the SensorX main display.
Daily	<b>Sanitizing</b>	<ul style="list-style-type: none"> <li>Make sure the surface is as dry as possible before sanitizing.</li> <li>Sanitize all parts of the machines after cleaning with approved sanitizers.</li> <li>Pay special attention to surfaces in direct contact with the raw material or products.</li> <li>Rinse the machines with clean, cold water before resuming processing.</li> </ul>	
Daily	<b>Final inspection</b>	<ul style="list-style-type: none"> <li>After cleaning quality control personnel should check and evaluate cleaning results.</li> </ul>	Count micro-organisms regularly.
Weekly	<b>Extra cleaning 1</b>	<ul style="list-style-type: none"> <li>Sanitize with chlorine or a comparable sanitizing agent once a week.</li> <li>If chlorine is used, do not leave it on the machines for long (max. 30 minutes).</li> <li>On the day when chlorine is used, you can leave out sanitizing with other agents.</li> </ul>	
Monthly	<b>Extra cleaning 2</b>	<p><b>Note:</b> This action is performed by a certified electrician.</p> <ul style="list-style-type: none"> <li>Open the electrical cabinet and check for soils.</li> <li>Wipe off the soils and sanitize.</li> </ul>	Electrical hazard. Turn off the Mains switch.



# Parts Lists

## Mechanical Parts



**Note:** Before contacting our service personnel or placing an order for spare parts, please note the serial number on the rating plate located on the back of the electrical cabinet.

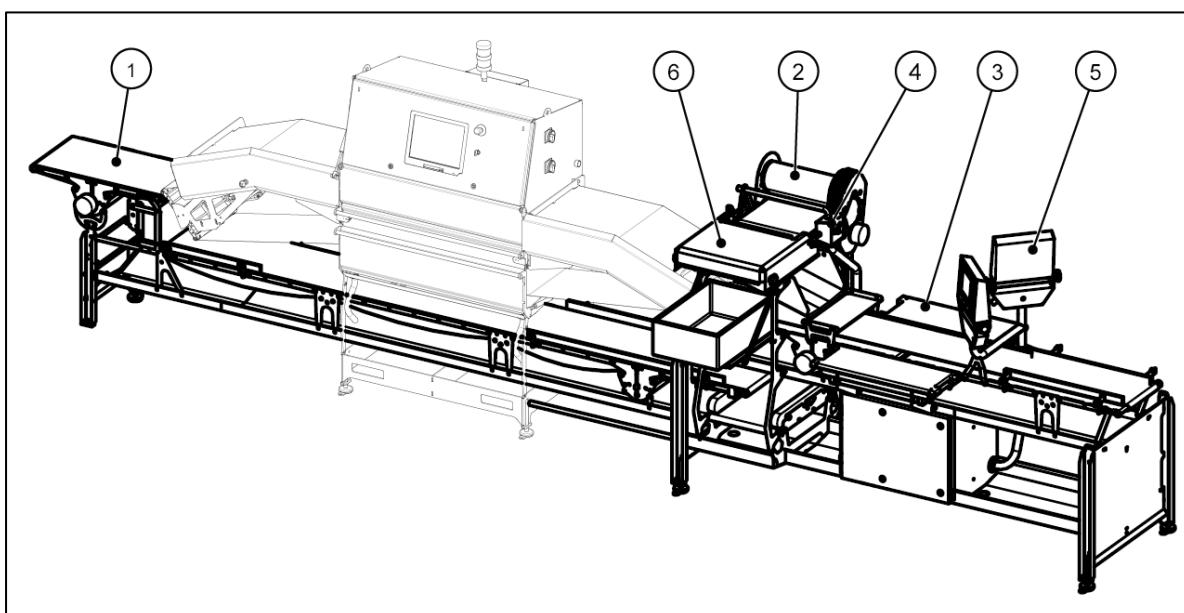


Figure 23 The SensorX 302 system

Item:	Figure / Part number:	Description:
1	See figure 24 - 25	Common parts in conveyors
2	See figure 26 - 27	Elevating conveyor
3	See figure 28	Rework station
4	See figure 29	Control box
5	See figure 30	Rework terminal (accessories)
6	See figure 31	Overflow conveyor (accessories)

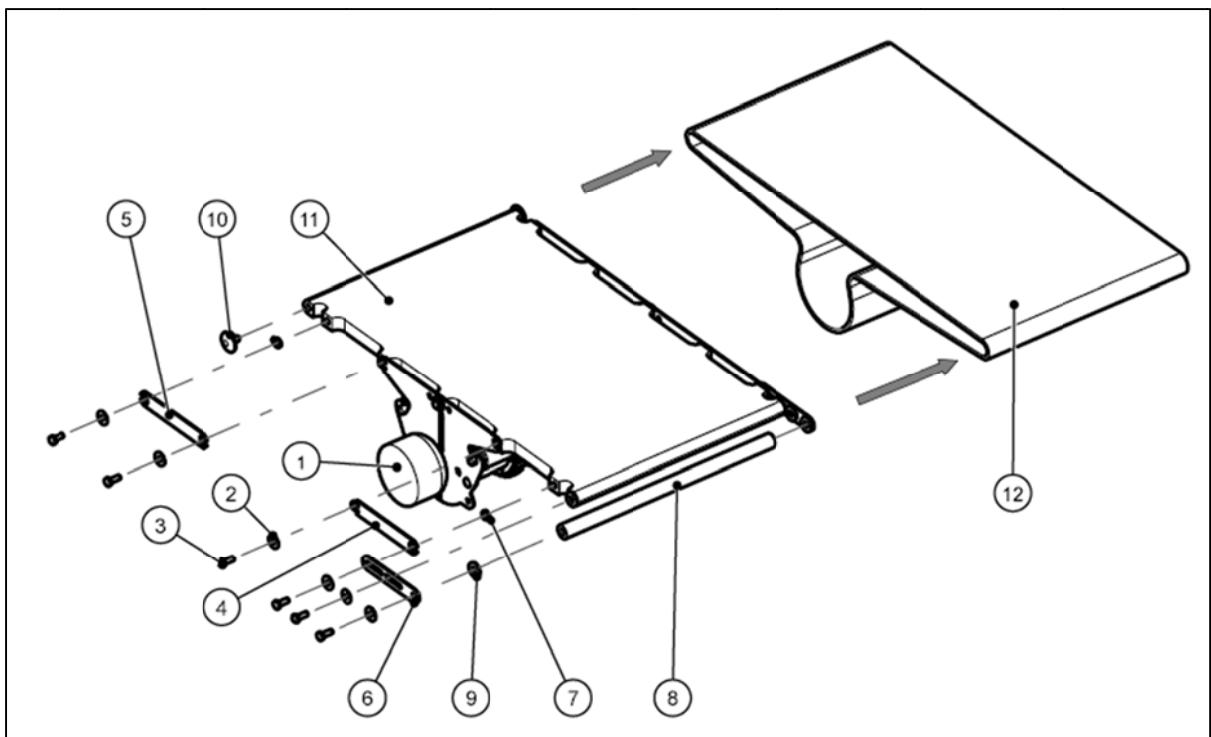


Figure 24 Conveyors, common parts.

Number:	Stock number:	Qty:	Description:
1	See Figure 25	1	Drive unit
2	740-0933-08020	11	Hexagon head screw M8 x 20
3	740-0933-08012	1	Hexagon head screw M8 x 12
4	017-0005-20530150	2	Side reinforcement male/female 150
5	017-0005-20250150	2	Side reinforcement female/female 150
6	017-0005-21400002	2	Roller extension 25/35
7	017-0005-2029	4	Washer
8	017-0006-20810001	1	Belt roller
9	017-0005-2085	4	Spacer
10	017-0003-2384	2	Belt guide
11	017-0005-21240700 017-0005-21241150 017-0005-21241300	1 4 1	Belt plate on outfeed conveyor Belt plate on return and infeed conveyor Belt plate on infeed conveyor
12	730-1500-fgac0406	1	Belt

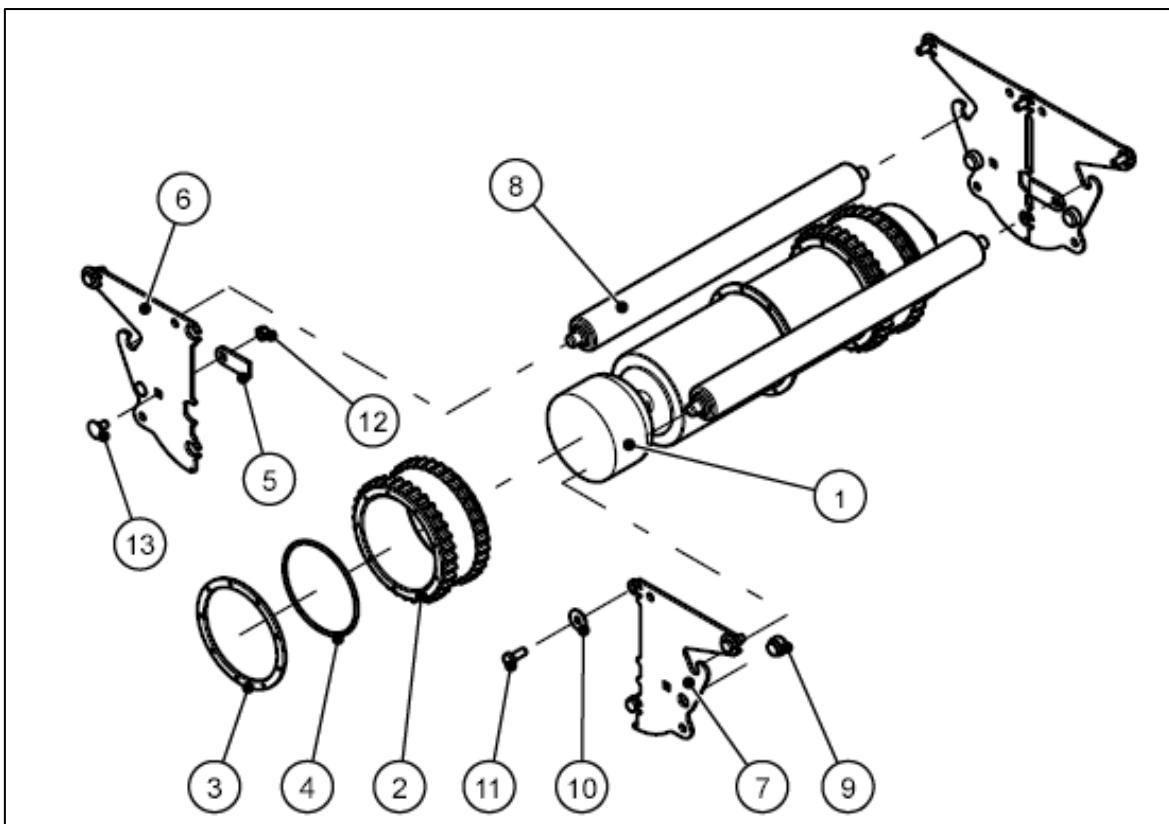


Figure 25 Drive units, common parts.

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	727-1111-40005200ca2	1	Drum motor
	727-1111-1022564	1	Drum motor with encoder bearing
2	018-0014-2019	2	Sprocket
3	018-0014-20050113	4	Pressure ring, cogwheel
4	732-0070-10950x300	4	O-ring
5	017-0005-2039	3	Motor lock
6	017-0005-21270003	2	Motor plate
7	017-0005-21270001	2	Motor plate
8	017-0005-21380400	2	Belt roller
9	017-0005-2073	4	Belt guide
10	740-9021-08	6	Washer M8
11	740-0933-08020	6	Hexagon head screw M8 x 20
12	740-0985-08	3	Nut M8
13	740-0603-08016	1	Mushroom head bolt M8 x 16

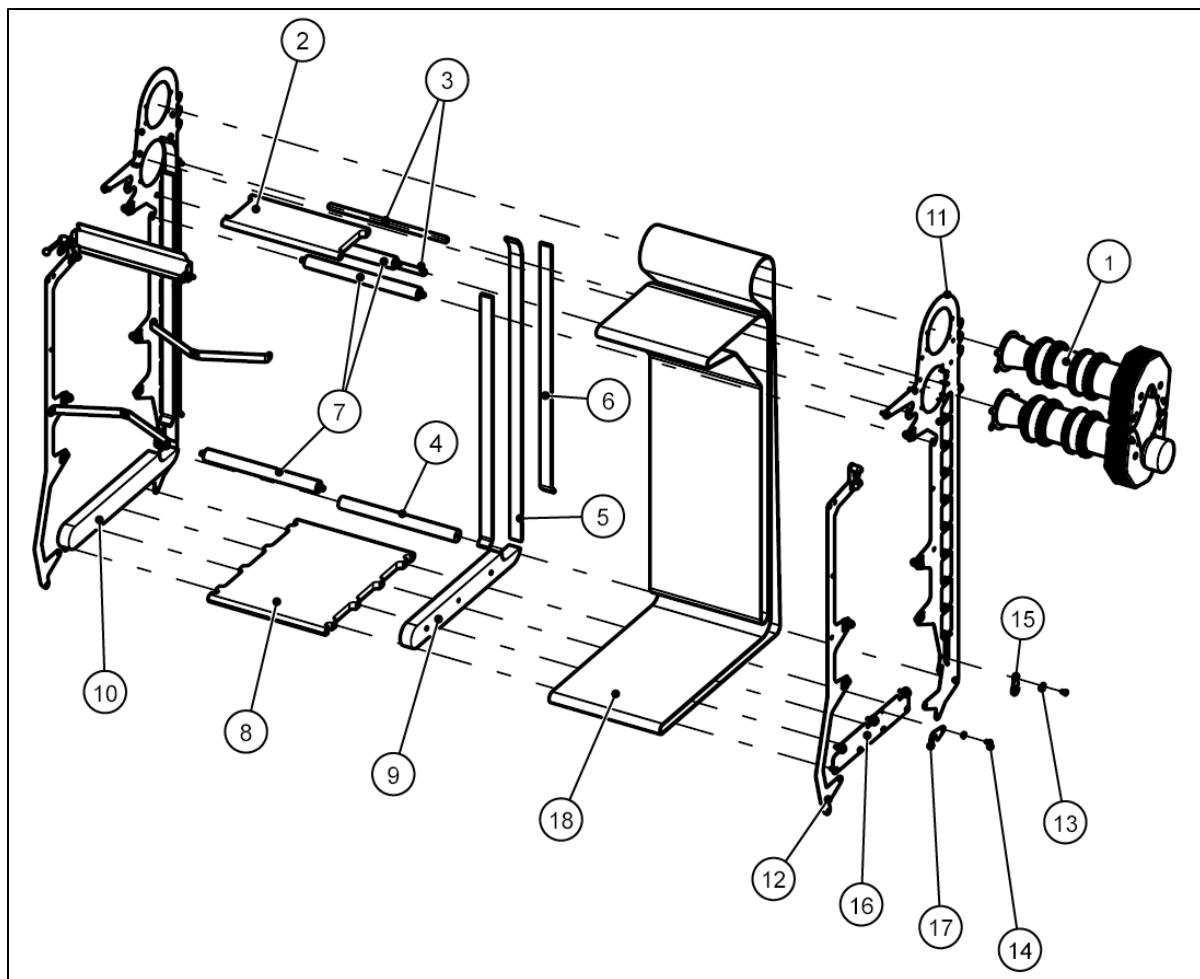


Figure 26 Elevating conveyor.

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	See Figure 27	1	Double-decker drive unit
2	017-0006-2069	1	Nose plate
3	025-0000-22250429	2	Spacing beam
4	017-0005-20410429	1	Belt roller
5	017-0006-20710002	2	Belt guide
6	017-0006-20720002	4	Belt guide
7	017-0005-21380400	3	EC belt roller
8	017-0005-21240550	1	Belt plate
9	017-0006-20660001	1	Incline side guard, right
10	017-0006-20660002	1	Incline side guard, left
11	017-0006-21310002	2	Side plate 1000
12	017-0006-21310012	2	Idle side plate
13	751-6431-MP34301	4	Bearing
14	751-6431-MP34305	4	Hinge bolt

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
15	017-0006-2077	2	Roller hook
16	017-0005-20760002	2	Plate holder
17	017-0005-2079	2	Fastener hook
18	730-1500-1024478	1	Belt

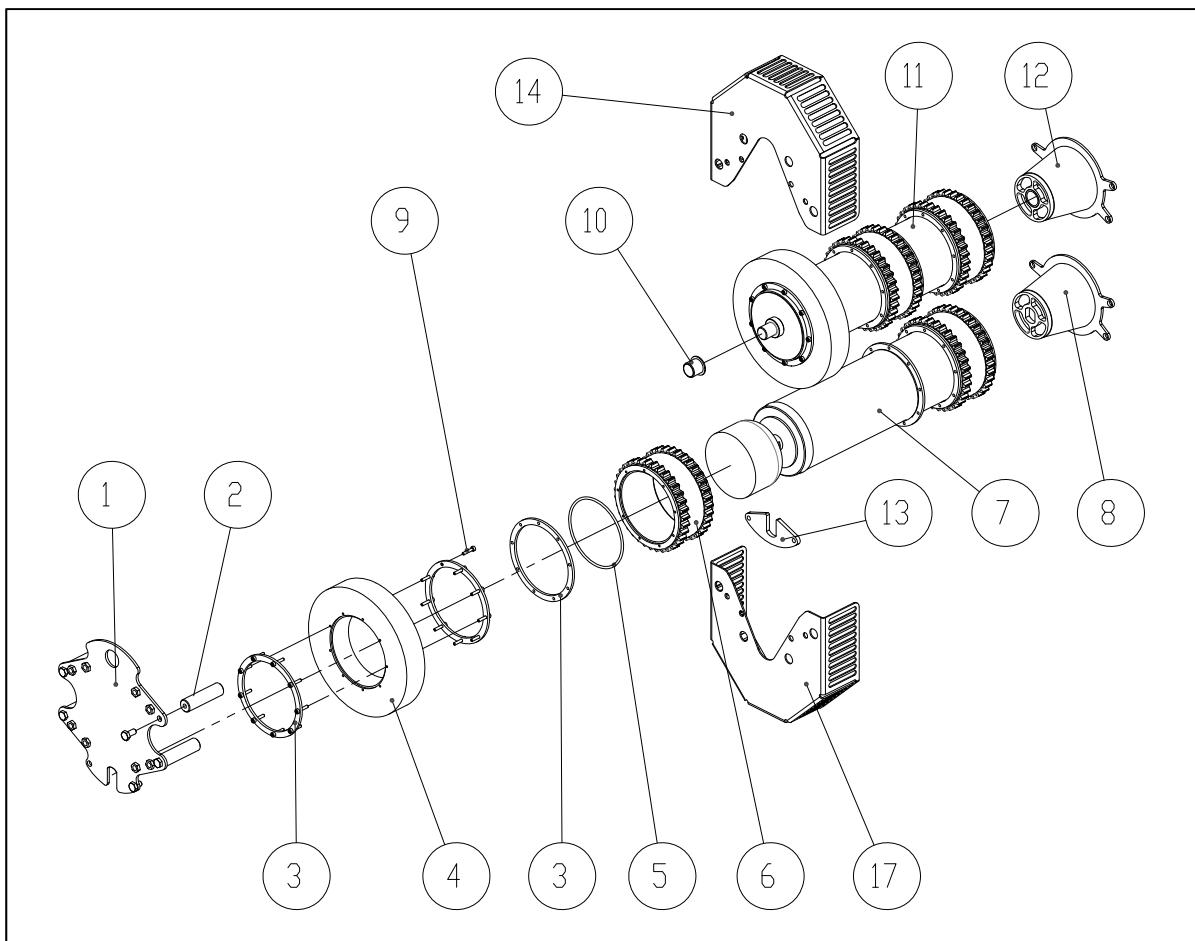


Figure 27 Double-decker drive unit for elevating conveyor.

Number:	Stock number:	Qty:	Description:
1	017-0006-a0180002	1	Drive plate
2	017-0003-23820073	4	Space shaft
3	018-0014-20050113	12	Pressure ring
4	728-3000-1031549	2	Sprocket
5	732-0070-10950x300	12	O-ring
6	018-0014-2019	4	Sprocket
7	727-1111-40005200ca2	1	Drum motor
8	017-0006-a0320001	1	Drive fastener
9	740-0912-04020	108	Socket head cap screw M4 x 20
10	732-1494-jfm202321	2	Bushing
11	017-0006-A0160400	1	Idle drum
12	017-0006-a0320002	1	Drive fastener
13	017-0006-2043	1	Motor fastener
14	017-0006-2075	2	Sprocket shield

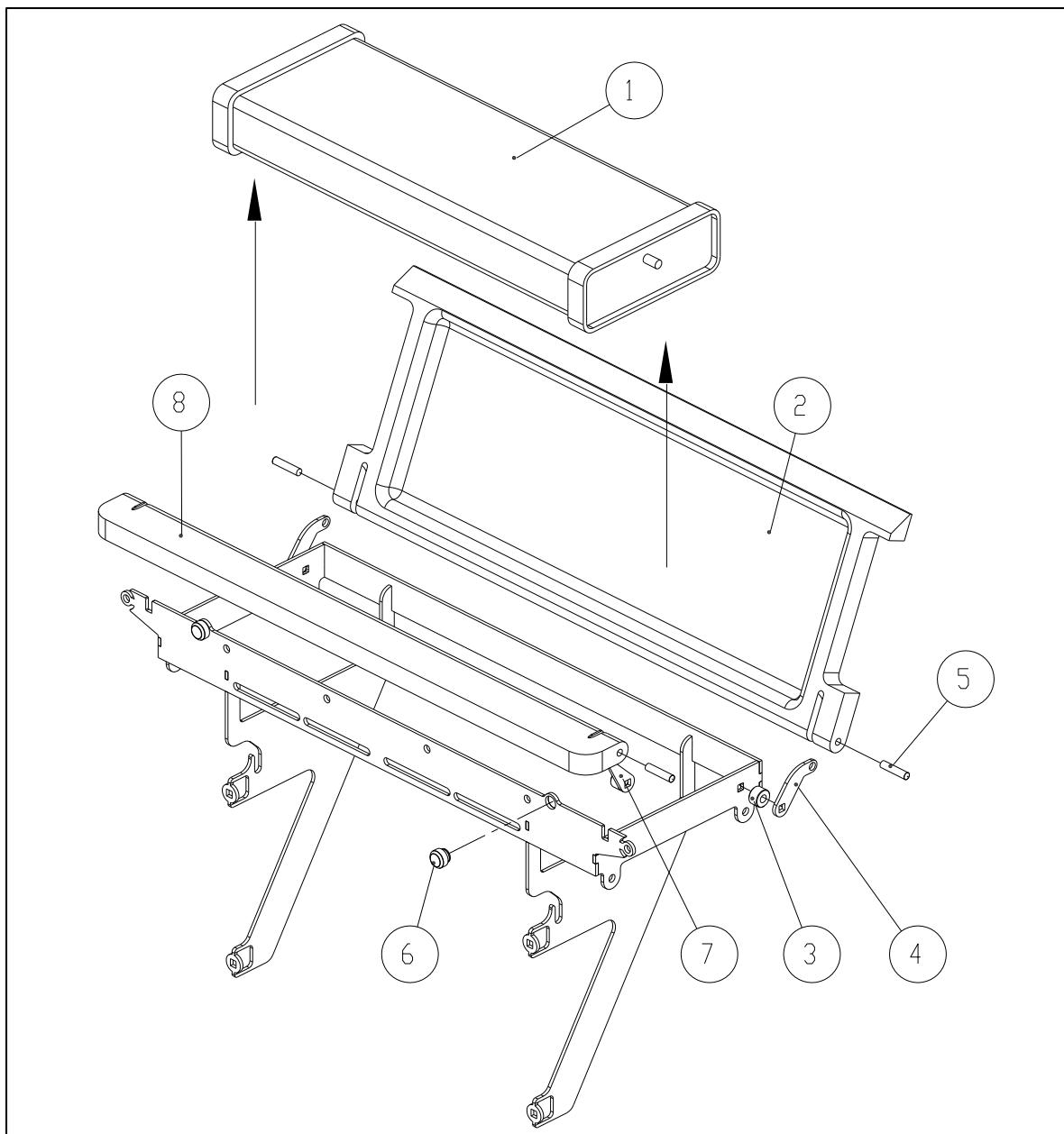


Figure 28 Work station.

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	765-0100-920440	1	Lamp
2	017-0006-2106	1	Table plate, width 300 mm, length 1035 mm
3	025-0001-2076	4	Spacer
4	017-0006-2148	2	Table hinge
5	740-0007-08036	4	Parallel pins
6	017-0005-2073	3	Belt guide
7	017-0006-21760001	2	Hinge
8	017-0006-21060003	1	Product guide

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
18	017-0006-2233	2	Cylinder bracket
19	017-0005-20240250	1	Belt plate, width 300 mm, length 250 mm
20	017-0006-2238	2	Side guide
21	751-8139-802532	2	Rod eye M10
22	004-0012-3122	2	Cylinder bolt
23	751-6432-7026050_E	2	Cylinder
24	017-0006-2237	2	Spacer
25	018-0013-2229	2	Cylinder bolt
26	740-1250-08	4	Washer
27	017-0006-2235	2	Hinge bracket
28	017-0006-2236	2	Hinge Pin
29	740-0985-1004175	5	Self-locking nut M8
30	730-1500-fgac0305	1	Belt

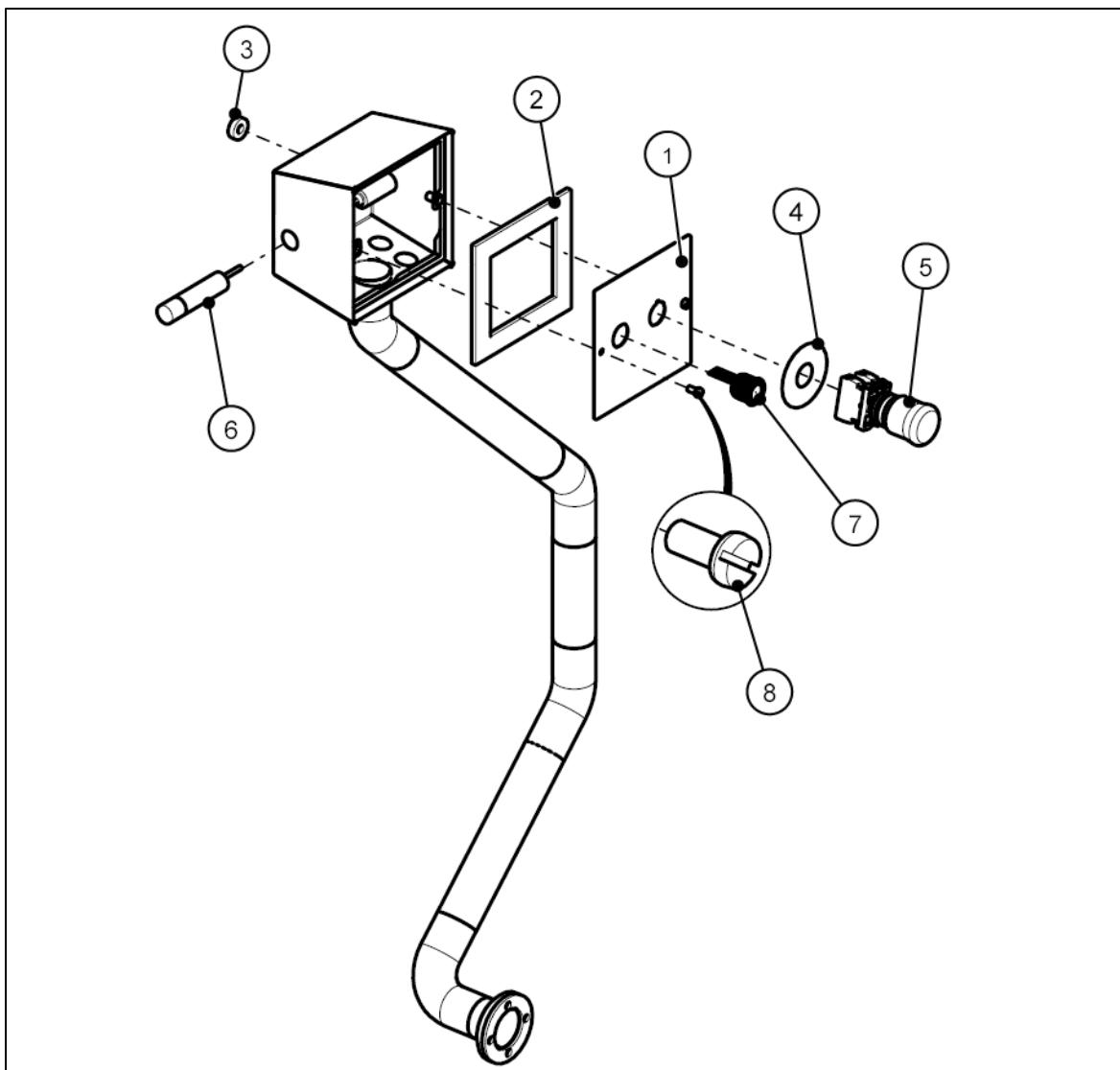


Figure 29 Control box.

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	0001-001-20001-01	1	Lid on connection box
2	722-4902-0032	1	Sealing strip
3	012-0001-2383	2	Spacer
4	717-3400-0014	1	Push button
5	717-3401-13705780	1	Emergency disc
6	717-3407-1012316 717-3407-1012317	1 1	Emitter Receiver
7	717-3400-0014	1	Push button
8	740-0084-05010	2	Screw

## Accessories

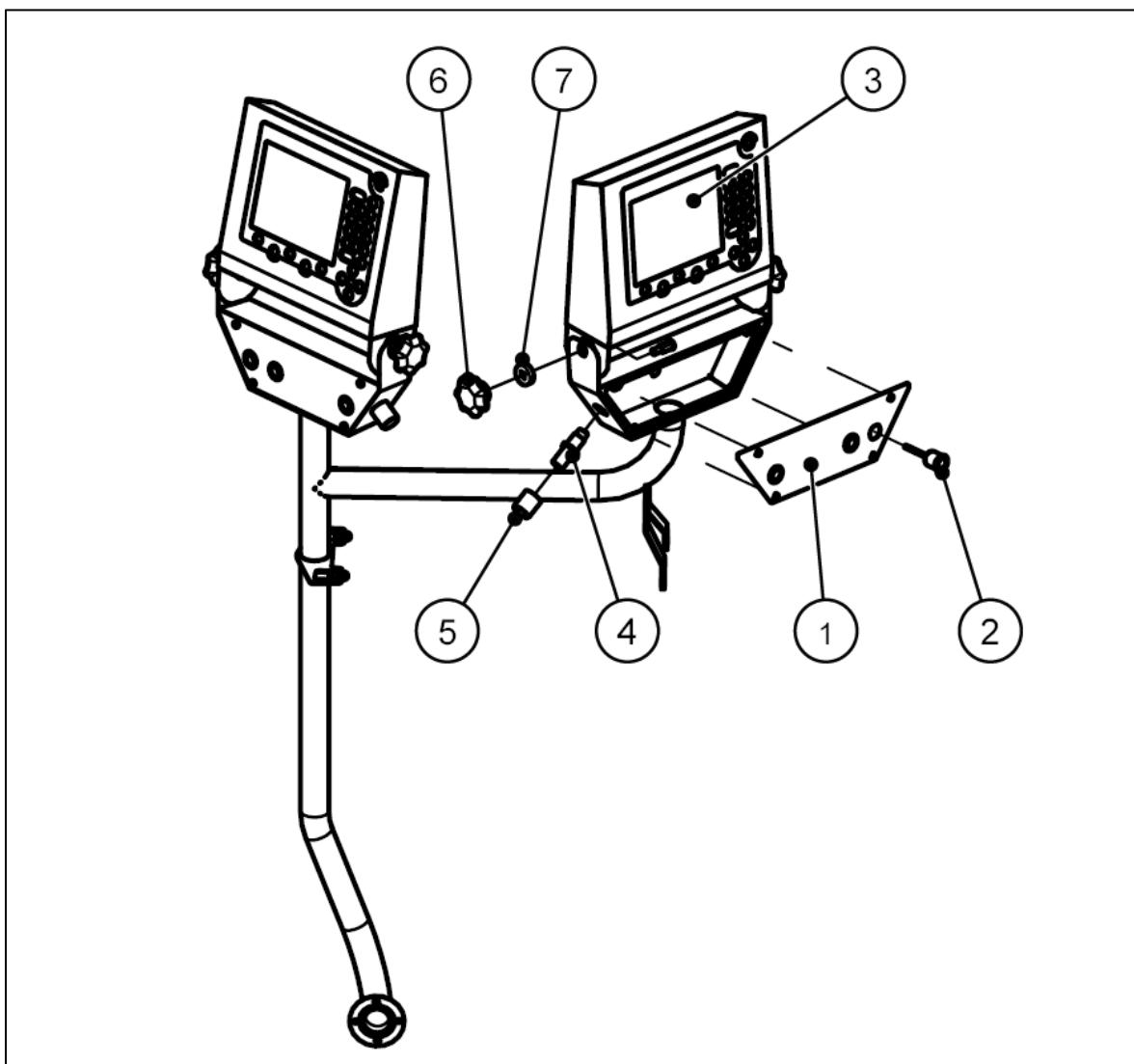


Figure 30 Rework terminal (optional).

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	017-0006-2467-01 017-0006-24670002	2 variants	Cover for connection Cover for connection box Hybrid system
2	717-3400-0014	2-6	Push button
3	ctr-p30t-c	2	M3000 display, CAN powered
4	717-3407-0064	2	Sensor
5	018-0013-2532	2	Plastic cap for sensor
6	001-0009-2279	4	Handle knob
7	001-0009-2280	8	Brake shim

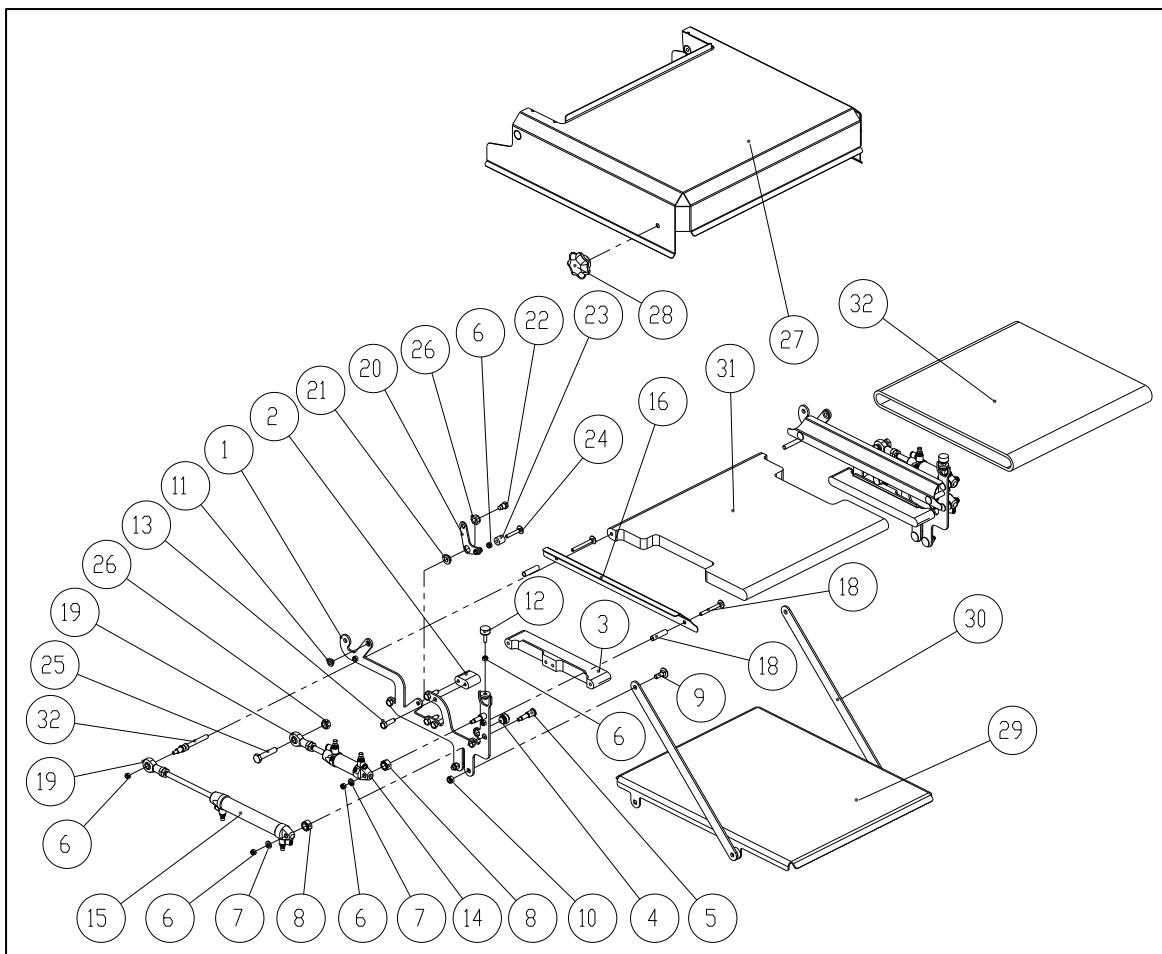


Figure 31 Overflow conveyor.

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	017-0006-22990001	2	Frame plate I
2	017-0006-2302	2	Brake
3	017-0006-2308	2	Belt guide
4	017-0005-2073	2	Belt guide
5	017-0006-2300	4	Cylinder bolt
6	740-0985-1004174	6	Nut M6
7	740-1250-08	6	Washer
8	740-0985-12	4	Nut M12
9	740-0603-1001354	2	Bolt M8
10	740-0985-1004175	4	Nut M8
11	732-0099-0812160206	2	Plastic washer
12	744-0ngi-b2006020	2	Foot-base
13	740-7976-1022442	6	Screw
14	751-6432-1008140	2	Cylinder
15	751-6432-1015797	2	Cylinder

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
16	017-0006-2303	2	Side guide
17	740-0603-1001341	4	Mushroom head square neck bolt
18	702-rrö4-rs1010_0021	4	Pipe
19	751-8139-1008307	4	Rod eye
20	017-0006-2298	2	Bracket
21	732-1415-1025338	2	Washer
22	751-6431-1012566	2	Hinge bolt
23	743-5700-1008632	2	Damper
24	740-0603-1001337	2	Mushroom head square neck bolt
25	740-0931-1002860	2	Bolt
26	740-0985-1004176	4	Nut
27	017-0006-a061	1	Shield
28	001-0009-2279	2	Handle knob
29	017-0006-22660001	1	Shelf plate
30	017-0006-2267	2	Stretching plate
31	017-0006-2301	1	Conveying plate
32	004-0021-25140001	2	Cylinder bolt
33	730-1500-fgac0406202	1	Belt

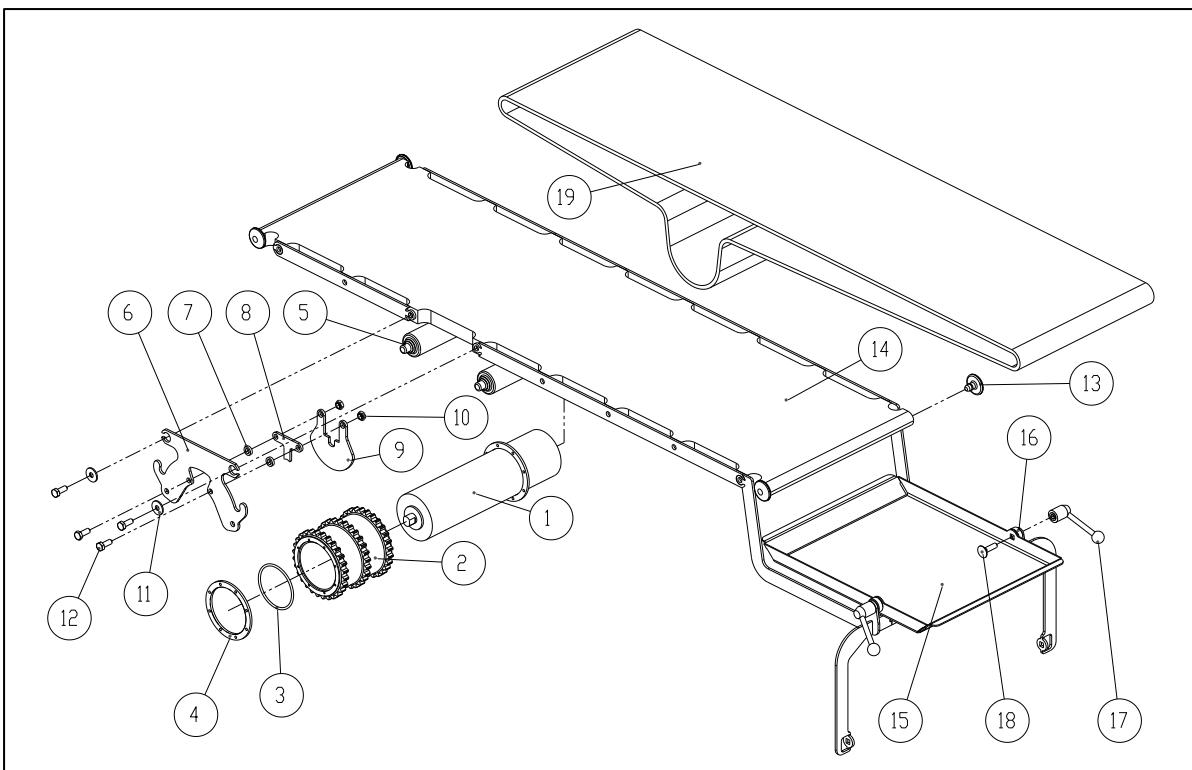


Figure 32 Rework conveyor on SensorX 302H – Hybrid System (accessory).

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	727-1082-1022531	1	Drum motor
2	018-0014-20490028	1	Sprocket
3	732-0070-07897x353	2	O-ring
4	018-0014-20500081	2	Pressure ring
5	017-0005-21380300	2	Belt roller
6	017-0006-2210	2	Motor bracket
7	017-0006-2212	4	Spacer
8	017-0006-22110002	2	Motor fastener
9	017-0006-22110001	2	Motor bracket
10	740-0640-08	4	Press nut M8
11	740-9021-08	2	Washer M8
12	740-0933-08020	4	Hexagon head screw M8 x 20
13	017-0003-2384	5	Belt guide
14	017-0005-20241150	1	Belt plate, width 300 mm, length 1150 mm
15	017-0006-2209	1	Buffer tray
16	017-0003-23110010	2	Spacer
17	743-5700-212521m8	2	Adjustable steel tension lever
18	740-0603-08030	2	Mushroom head bolt M8 x 30
19	730-1500-fgac0305	1	Conveyor belt

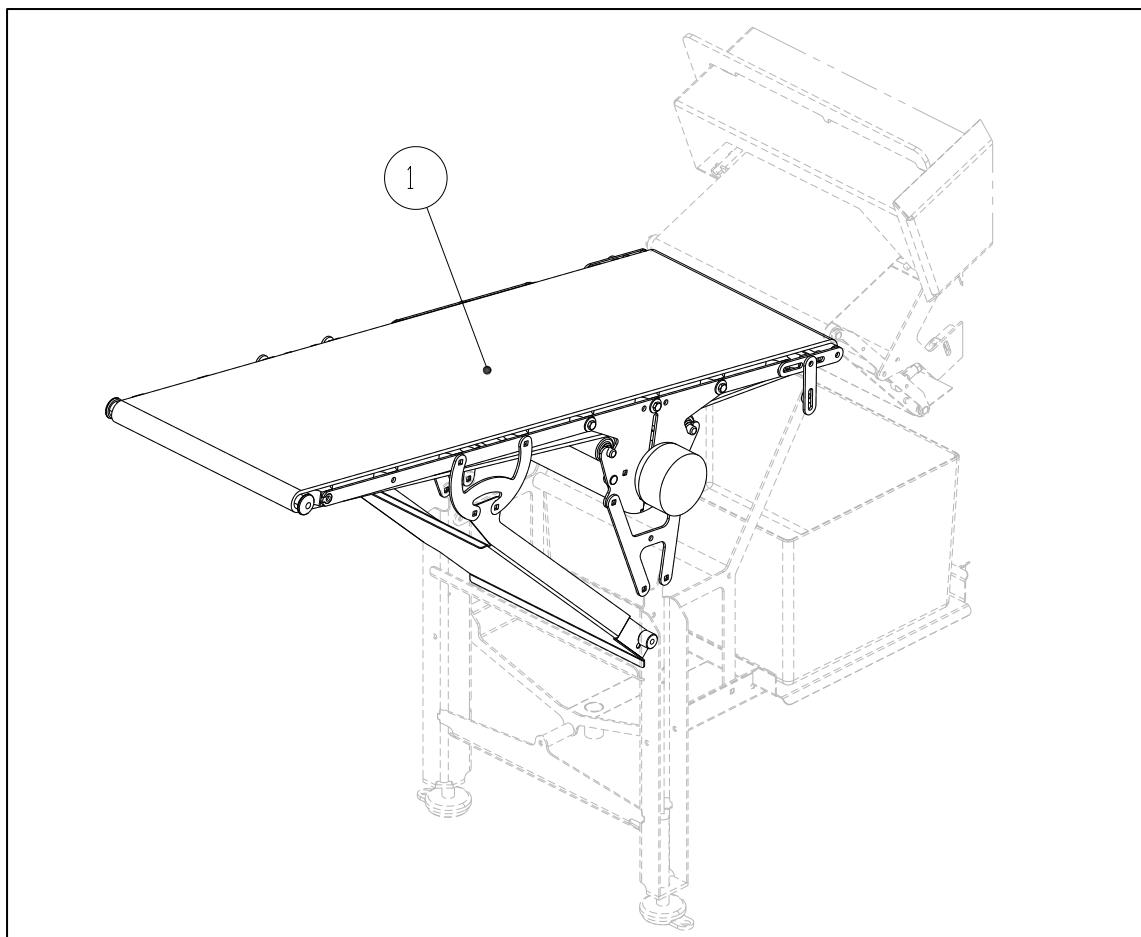


Figure 33 Roller stand.

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	017-0006-10710002	1	Outfeed extension

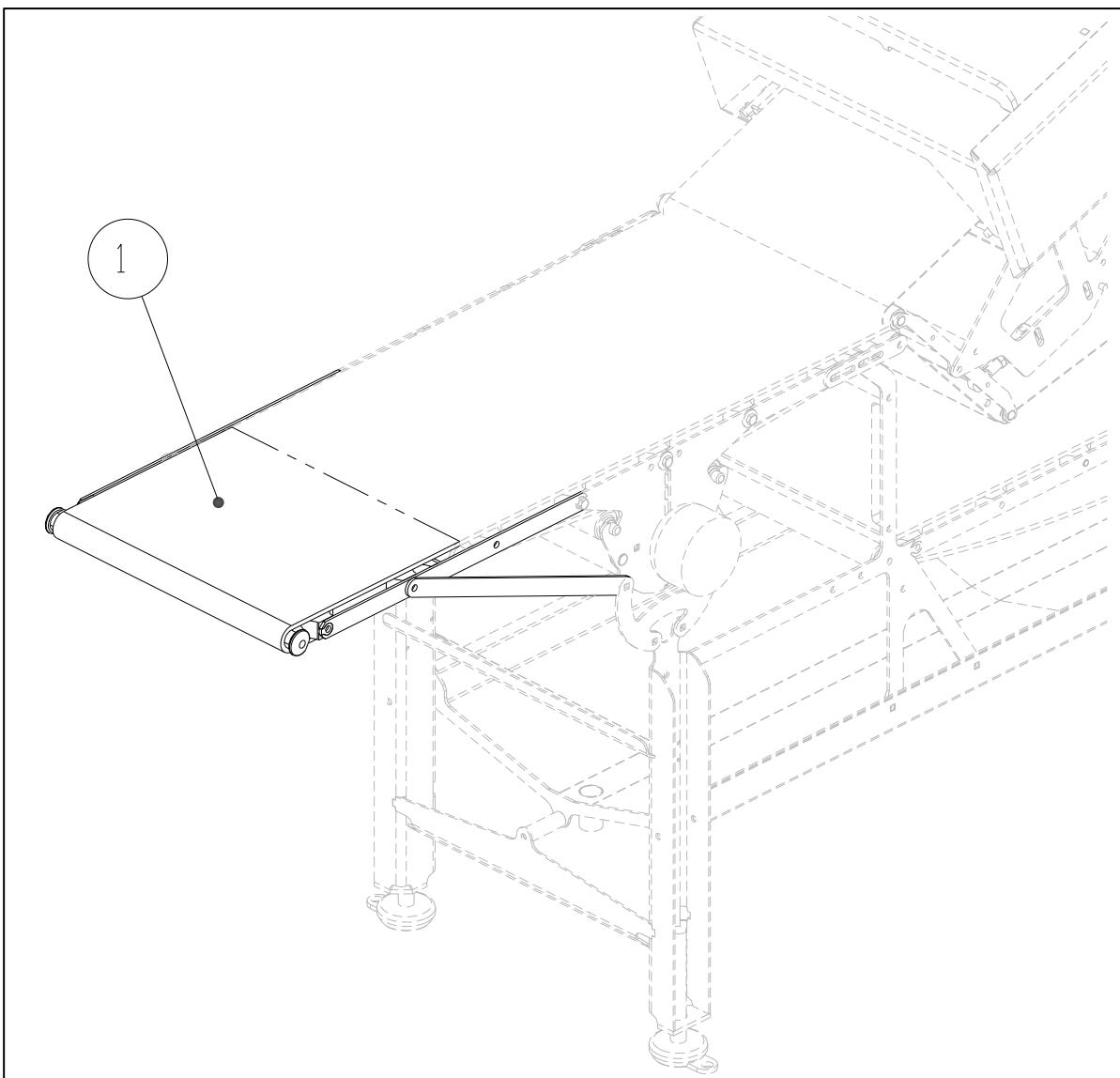


Figure 34 Roller stand.

<b>Number:</b>	<b>Stock number:</b>	<b>Qty:</b>	<b>Description:</b>
1	017-0006-1098	1	Outfeed extension



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## **Electrical Diagrams and Parts Lists**



## Electrical Diagrams

**Customer:** Standard  
**Project Description:** SensorX Conv.Systems  
**Project No:** pdxgr0302  
**Item No:** cus-elcm  
**File & BOM No:** 2012-300-00001-01  
**Project Release Date:** 01.07.2011  
**Last revision Date:** 27.01.2012  
**Top Reference (Plant area):** +X  
**EI-Ratings:**  
**EI-Design engineer** EOTH  
**Design Approved By:** EOTH  
**Desinger Address:** Austurhraun 9-IS-210-Gardabaer-Iceland  
**Tel./Fax** +354-563-8000 / +354-563-8001  
**Homepage:** [www.marel.com](http://www.marel.com)



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Divider	Chapter	Page type	Page title	Page ref	Page Last change	Page No			
A	Project	List	General Descriptions		20.5.2010	2			A
	Project	List	Reference & Revisions		20.5.2010	3			
System	System	Layout	Basic system	=XGR110	12.1.2012	4			
	System	Layout	Basic Feedback 2QC	=XGR110	12.1.2012	5			
	System	Layout	System for FHF-XB	=XGR110	12.1.2012	6			
	System	Layout	Forced inf. 2xQC	=XGR110	12.1.2012	7			
B	System	Layout	Trim system	=XGR110	12.1.2012	8			B
	System	Layout	Trim system	=XGR110	27.1.2012	9			
	System	List	CE nameplate	+.=.	27.1.2012	10			
	Main Cabinet	Power Circuit	Terminal Jumpers		27.1.2012	11			
Networks	Networks	Circuit	CAN single line	=XGR110.AQ08	27.1.2012	12			
	Networks	Circuit	Ethernet single line	=XGR110	27.1.2012	13			
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C	Inverter Cabinet	Layout	Backplate Trim Sys.Opt		27.1.2012	15			C
	XX Cabinet	Layout	Backplate xgr-s301-000	=XGR110.AQ08	27.1.2012	16			
	Inverter Cabinet	Layout	Terminals	=XGR110.AQ08	27.1.2012	17			
	Inverter Cabinet	Layout	Backplate	=XGR110.AQ08	27.1.2012	18			
	Inverter Cabinet	Power Circuit	Mains	=XGR110.AQ08	27.1.2012	19			
	Inverter Cabinet	Power Circuit	Inverters	=XGR110.AQ08	27.1.2012	20			
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D	Inverter Cabinet	Control Circuit	E-Stop Trim Sys Option	=XGR110.AQ08	27.1.2012	22			D
	Inverter Cabinet	Control Circuit	24VDC Displays	=XGR110.AQ08	27.1.2012	23			
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	Inverter Cabinet	Control Circuit	Digital I/O's	=XGR110.AQ08	27.1.2012	27			
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	Inverter Cabinet	Control Circuit	I/O's FHF Option	=XGR110.AQ08	27.1.2012	29			
Cables	Cables	List	Cable list		27.1.2012	30			
E	Components	Components	List	Components list		27.1.2012	36		E
F									F
G									G
	Customer / Project Description: Standard SensorX Conv.Systems	Project No / Project release date pdxgr0302 01.07.2011	Item No / File & BOM No cus-elcm 2012-300-00001-01	Chapter / Page type Project data List	Page Title / Page Last Changed Table of content 27.1.2012	System Top Ref / Page Ref: +X			
0	1	2	3	4	5	6	7	8	9

**General**

Standard	EN60204-1
Isolation Voltage	660V
Protection rating	IP65
Ambient Temperature	-5° ... +35°

**Control cable wire colour/Number comparison table**

This table is a reference between colour and Numbers if shown cable in document is unavailable

Colour Code	Numbers
Blue (0V)	BU
Red (24Vdc)	RD
Green	GN
Yellow	YE
White	WH
Black	BK
Brown	BN
Violet	VI
Orange	OR
Pink	PK
Cyan	CY
Grey	GY
Red/Blue	RD/BU
Green/Red	GN/RD
Yellow/Red	YE/RD
White/Red	WH/RD
Red/Black	RD/BK
Red/Brown	RD/BN
Yellow/Blue	YE/BU
White/Blue	WH/BU
Blue/Black	BU/BK
Orange/Blue	OR/BU
Yellow/Green	YE/GN
White/Green	WH/GN
Orange/Green	OR/GN
Green/Blue	GN/BU
Grey/Blue	GY/BU
Green/Black	GN/BK
Grey/Green	GY/GN
Yellow/Brown	YE/BN
White/Brown	WH/BN
Brown/Black	BN/BK
Grey/Brown	GY/BN
Yellow/Violet	YE/VI
Violet/Black	VI/BK
White/Violet	WH/VI

**Wire colour code**

Power circuit >50V	Black
AC neutral ( N ) :	Light Blue*
Protective earth ( PE ):	Green/Yellow
Control circuit <50V	Dark Blue

\*Black in selectivity voltage circuits

**Standard Signal Names/  
Terminal Numbers**

Signal name	Terminal No.
Power circuit >50V	1-30
0V	31
24Vdc	32
Em-Stop circuit	33-40
Em-Stop Ok	41
Enable	42
Overload	43
Run	44
Run 2 (Optional)	45
Run 3 (Optional)	46
Washing	47

**Ethernet Cable  
Modular RJ-45 plug 8 pin**

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

**Can cable (Combicon Plug)**

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

**Can cable (9pin Plug)**

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

**Other wire colour codes**

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

**Serial Bus**

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



Customer / Project Description:  
**Standard  
SensorX Conv.Systems**

Project No / Project release date  
**pdxgr0302  
01.07.2011**

Item No / File & BOM No  
**cus-elcm  
2012-300-00001-01**

Chapter / Page type  
**Project  
List**

Page Title / Page Last Changed  
**General Descriptions  
20.5.2010**

System Top Ref / Page Ref:  
**+X**

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Appr: EOTH

Scale: 1:1

Page No: 2 / 38



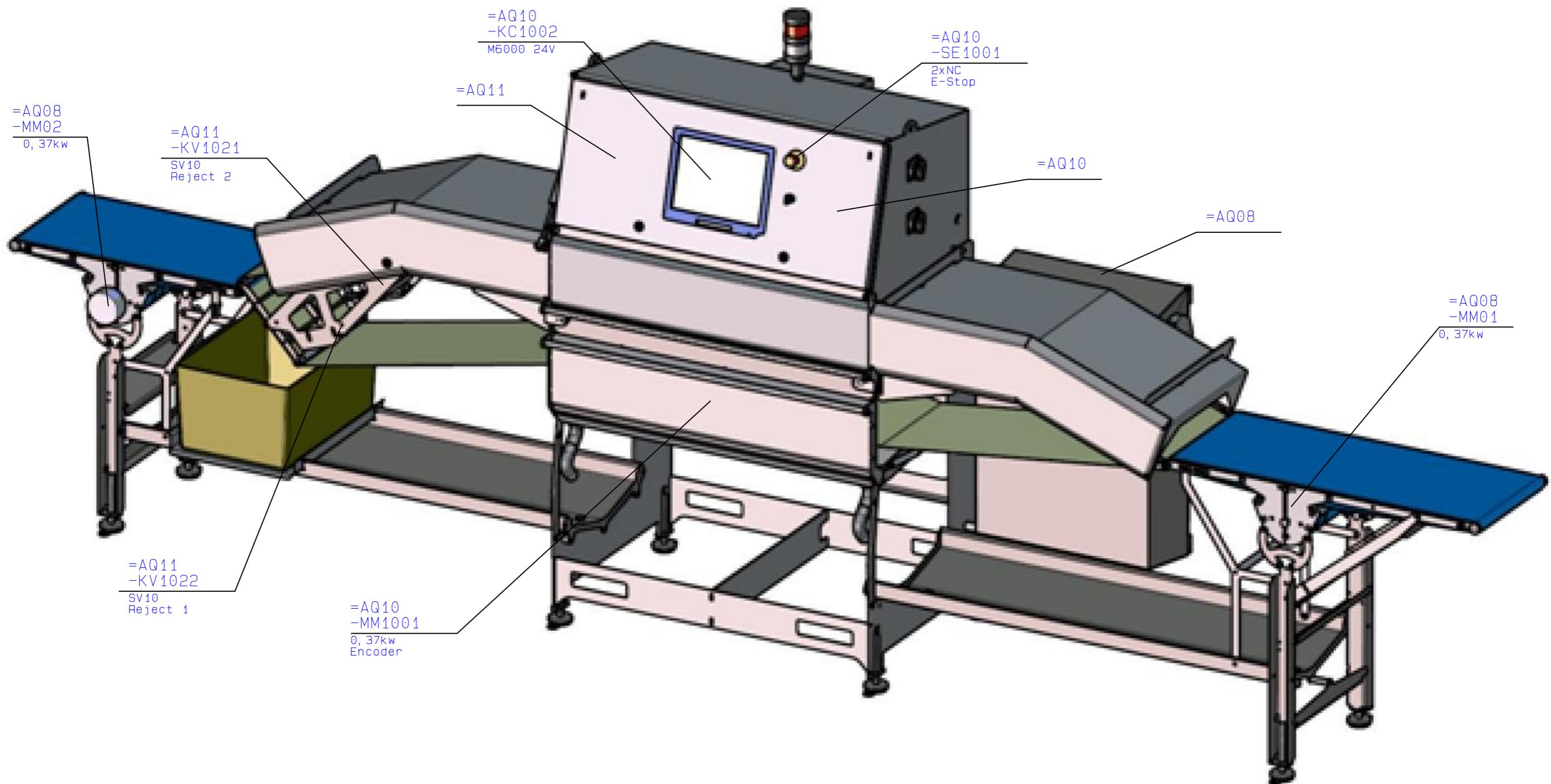


# System

	Customer / Project Description: Standard SensorX Conv.Systems	Project No / Project release date pdxgr0302 01.07.2011	Item No / File & BOM No cus-elcm 2012-300-00001-01	Chapter / Page type	Page Title / Page Last Changed 23.4.2010	System Top Ref / Page Ref: +X
www.marel.com	Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland			+354-563-8000 / +354-563-8001 (Tel/Fax)	Appr: EOTH	Scale: 1:1

xgr-s301-0000  
Basic system

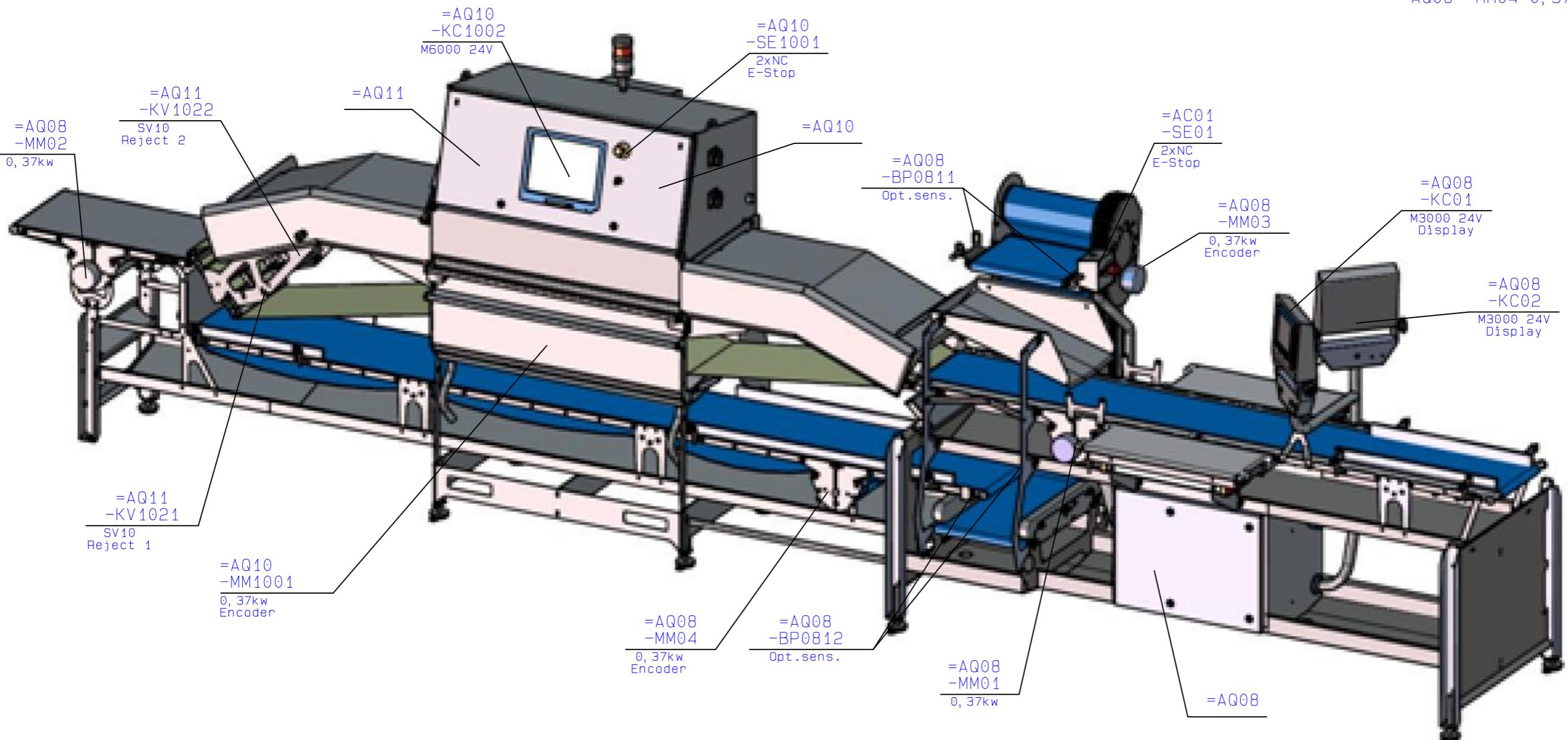
=AQ08 -MM01 0, 37kw  
 =AQ08 -MM02 0, 37kw



# xgr-s302-2000

## Basic Feedback 2QC

=AQ08 -MM01 0, 37kw  
 =AQ08 -MM02 0, 37kw  
 =AQ08 -MM03 0, 37kw Encoder  
 =AQ08 -MM04 0, 37kw Encoder



Customer / Project Description:  
**Standard SensorX Conv.Systems**

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Project No / Project release date  
**pdxgr0302**  
**01.07.2011**

Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland

Item No / File & BOM No  
**cus-elcm**  
**2012-300-00001-01**

Chapter / Page type  
**System Layout**

Page Title / Page Last Changed  
**Basic Feedback 2QC**  
**12.1.2012**

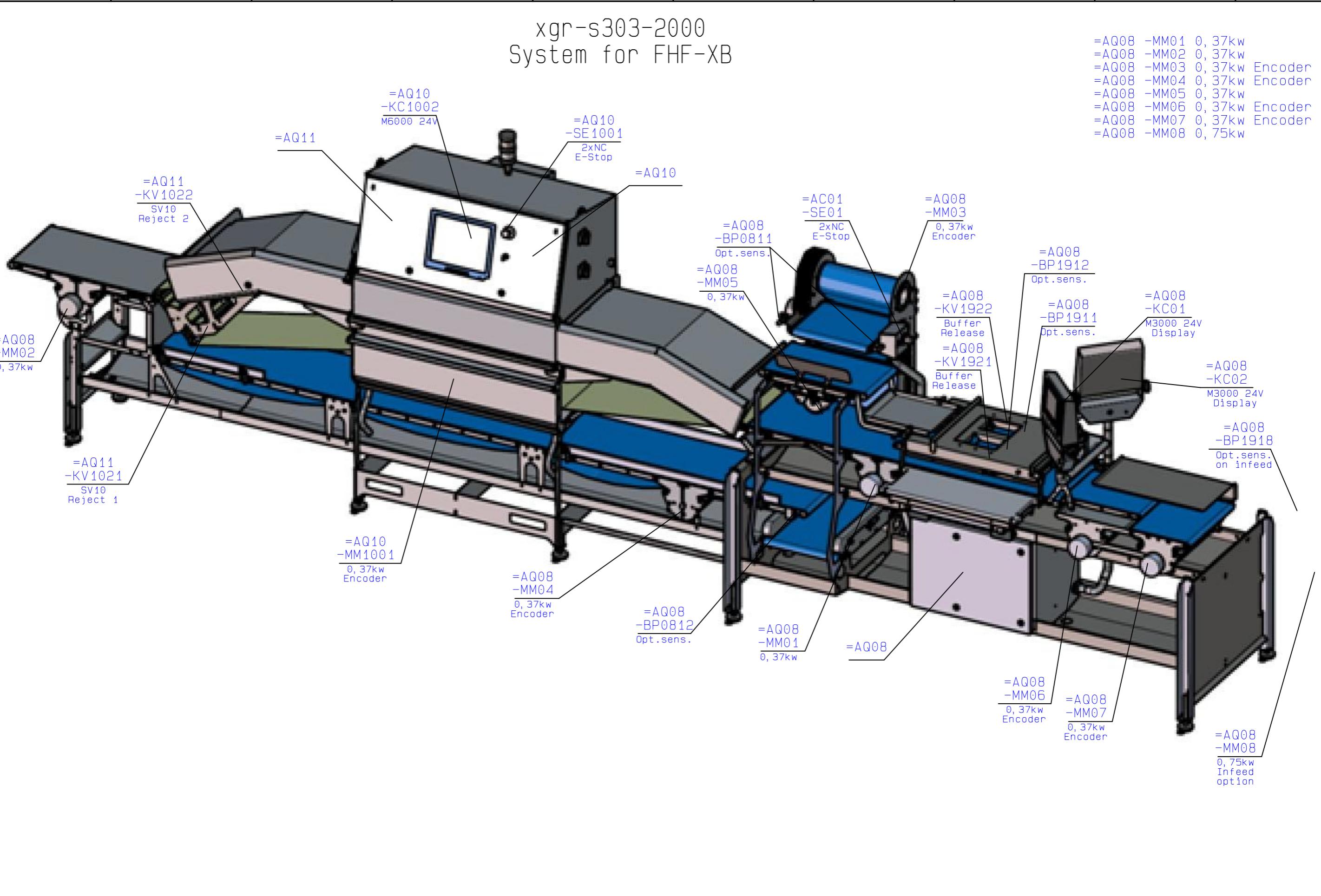
System Top Ref / Page Ref:  
**+X**  
**=XGR110**

0 1 2 3 4 5 6 7 8 9

# xgr-s303-2000

## System for FHF-XB

=AQ08 -MM01 0, 37kw  
 =AQ08 -MM02 0, 37kw  
 =AQ08 -MM03 0, 37kw Encoder  
 =AQ08 -MM04 0, 37kw Encoder  
 =AQ08 -MM05 0, 37kw  
 =AQ08 -MM06 0, 37kw Encoder  
 =AQ08 -MM07 0, 37kw Encoder  
 =AQ08 -MM08 0, 75kw



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**Standard SensorX Conv.Systems**

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**pdxgr0302**  
**01.07.2011**

Item No / File & BOM No  
**cus-elcm**  
**2012-300-00001-01**

Chapter / Page type  
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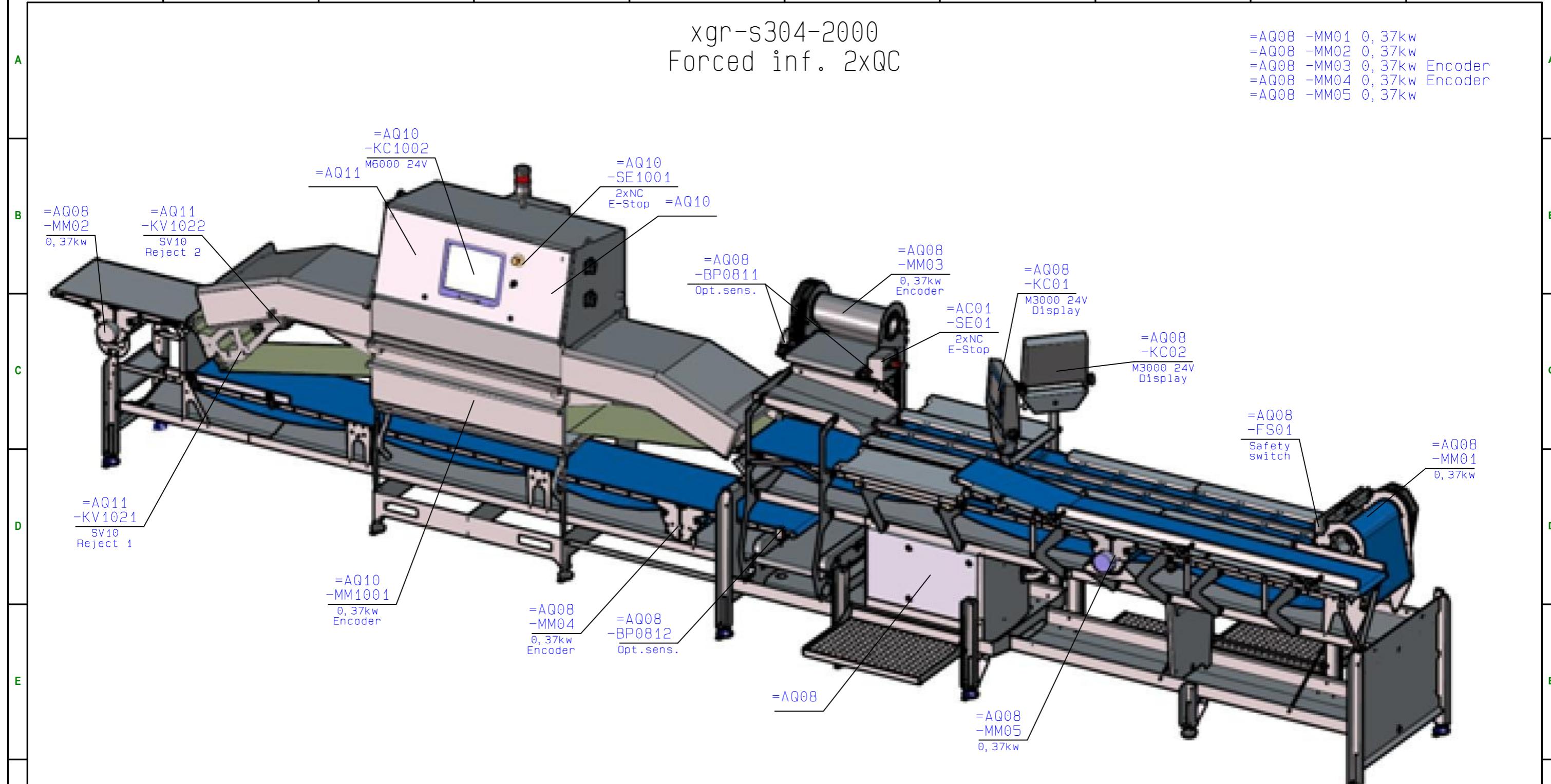
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**12.1.2012**

System Top Ref / Page Ref:  
**+X**  
**=XGR110**

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xgr-s304-2000  
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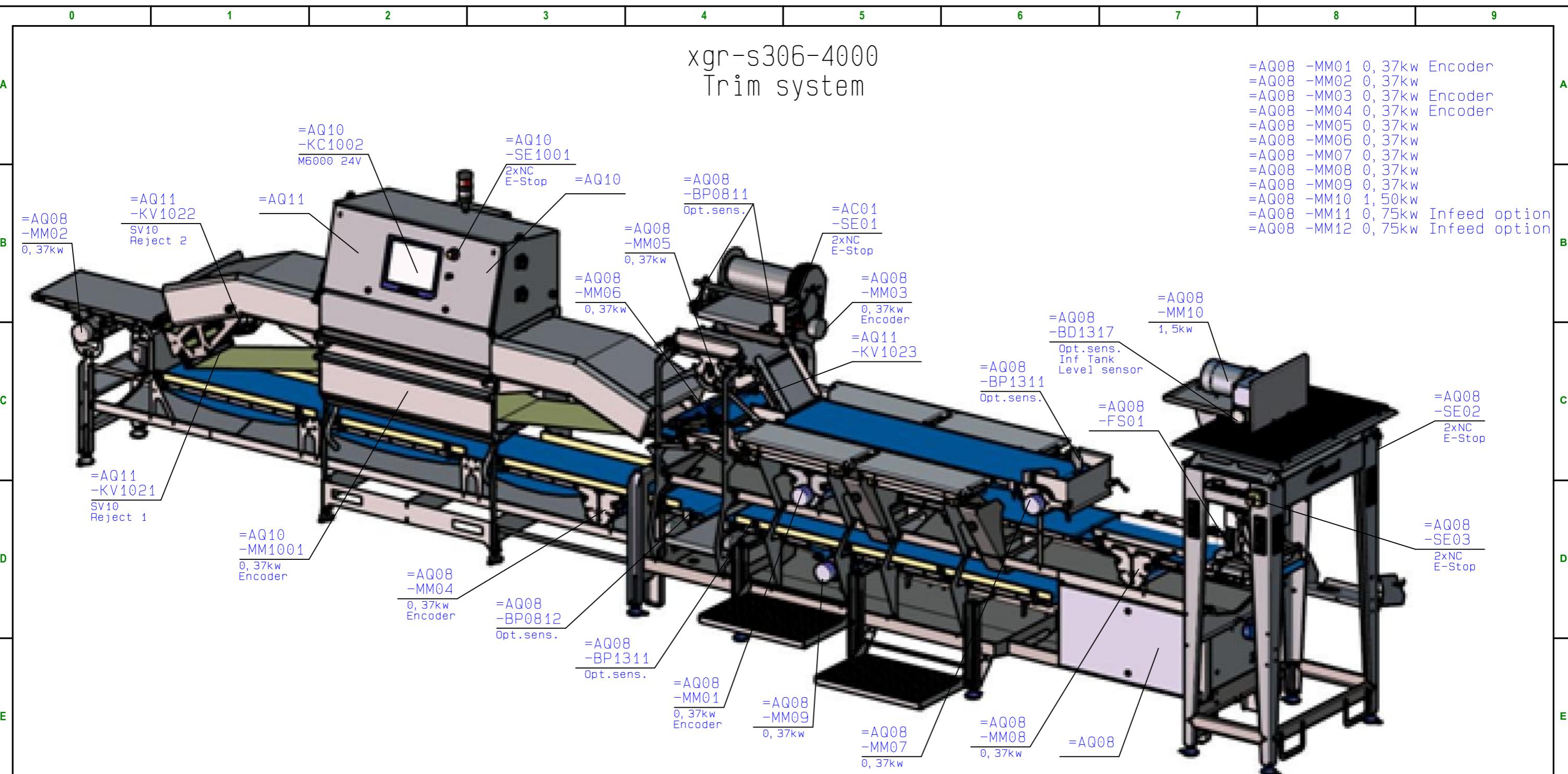
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 =AQ08 -MM03 0, 37kw Encoder  
 =AQ08 -MM04 0, 37kw Encoder  
 =AQ08 -MM05 0, 37kw



0 1 2 3 4 5 6 7 8 9

# xgr-s306-4000

## Trim system



Customer / Project Description:  
**Standard SensorX Conv.Systems**

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Project No / Project release date  
**pdxgr0302**  
**01.07.2011**

Item No / File & BOM No  
**cus-elcm**  
**2012-300-00001-01**

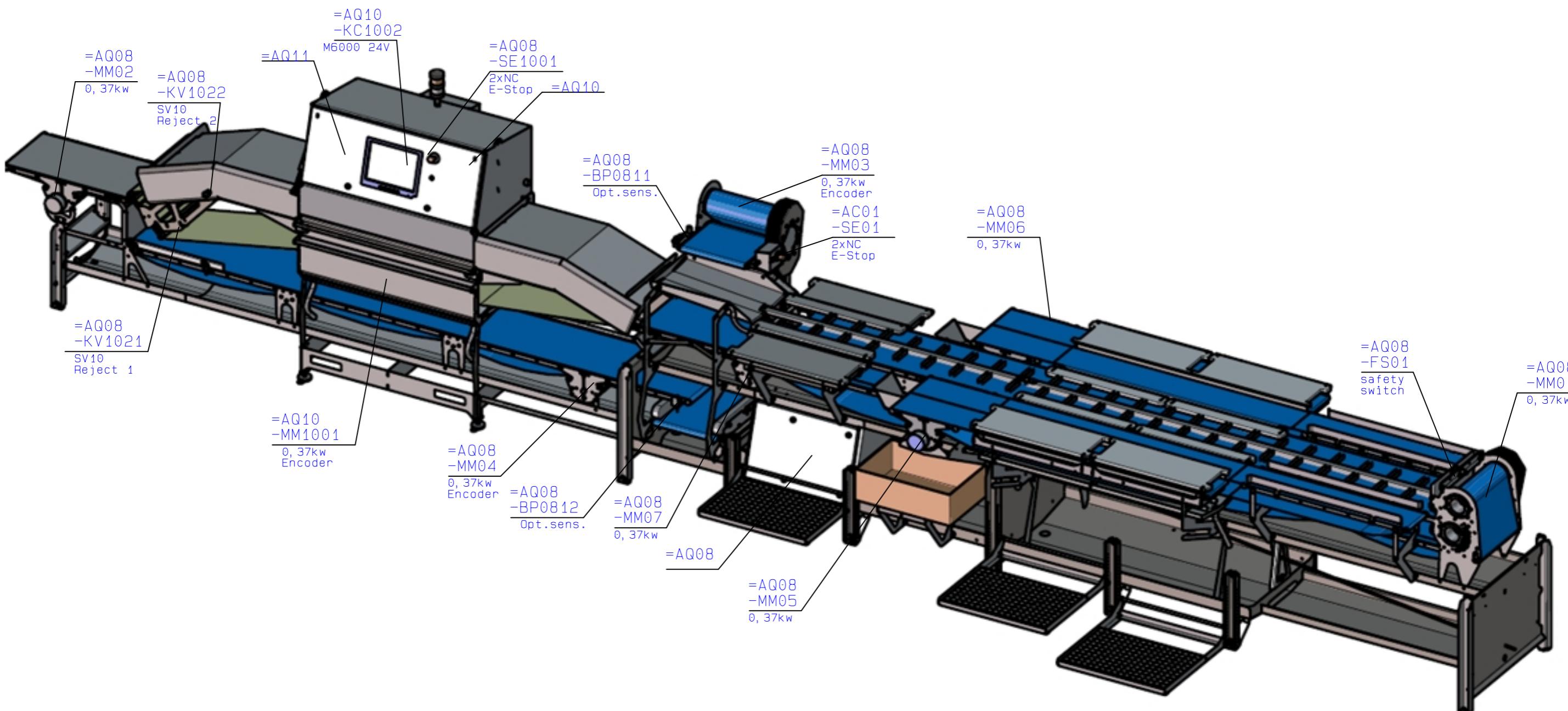
Chapter / Page type  
**System Layout**

Page Title / Page Last Changed  
**Trim system**  
**12.1.2012**

System Top Ref / Page Ref:  
**+X**  
**=XGR110**

xgr-s307-4000  
Forced infeed

=AQ08 -MM01 0, 37kw  
 =AQ08 -MM02 0, 37kw  
 =AQ08 -MM03 0, 37kw  
 =AQ08 -MM04 0, 37kw Encoder  
 =AQ08 -MM05 0, 37kw Encoder  
 =AQ08 -MM06 0, 37kw  
 =AQ08 -MM07 0, 37kw



A

A

B

B

&gt;-AQ10

-AQ08

C

C

Cabinet Nameplate	
Type/Cat No:	AQ
Year:	####
Serial No:	####
Reference No:	Þðxgrj@202 so.NO.
El.Diagram No:	2012-300-00001-01
Belt Type:	N.A.
Belt Size:	N.A.
Electrical Ratings:	1x208-230VAC+N+PE / 6A / 50-60Hz option 3x208-240/400VAC Extra Cab
Interrupting Cabacity of main switch:	400V 25A 13kW 230V 25A 7kW
Largest motor FLA:	2A
Short Circuit Rating:	5kA RMS SYM 600VAC
Made In:	####

D

D

Cabinet Nameplate	
Type/Cat No:	AQ
Year:	####
Serial No:	See AX
Reference No:	Þðxgrj@202 so.NO.
El.Diagram No:	2012-300-00001-01
Belt Type:	N.A.
Belt Size:	N.A.
Electrical Ratings:	3x230/400VAC+N+PE 10/5, 5A / 50-60Hz
Interrupting Cabacity of main switch:	Feed from Main Cab
Largest motor FLA:	2A
Short Circuit Rating:	5kA RMS SYM 600VAC
Made In:	####

E

E

F

F

G

G



Customer / Project Description:  
**Standard**  
**SensorX Conv.Systems**

Project No / Project release date  
**pdxgr0302**  
**01.07.2011**

Item No / File & BOM No  
**cus-elcm**  
**2012-300-00001-01**

Chapter / Page type  
**System**  
**List**

Page Title / Page Last Changed  
**CE nameplate**  
**27.1.2012**

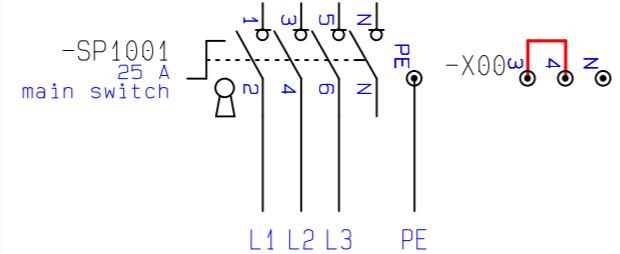
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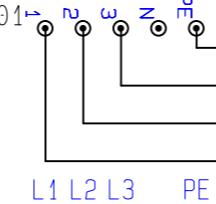
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## CONNECTION / JUMPER DIAGRAMS

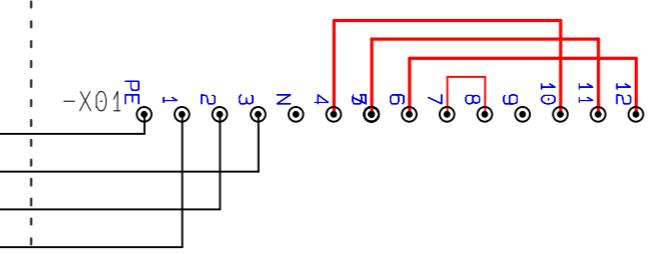
### EXAMPLE 3



Voltage  
selection  
jumper

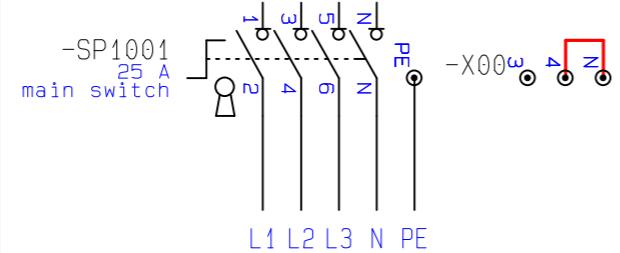


Extra Cabinet Jumpers

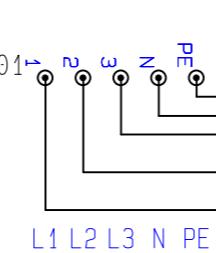


Feed max fuse/Circuit breaker: 25A  
Total Nominal Current consuption: 16A

### EXAMPLE 2



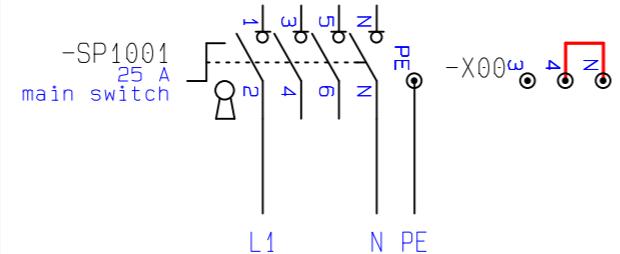
Voltage  
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jumper



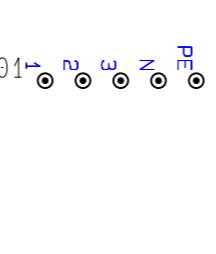
Extra Cabinet Jumpers

Feed max fuse/Circuit breaker: 25A  
Total Nominal Current consuption: 12A

### EXAMPLE 1



Voltage  
selection  
jumper



Feed max fuse/Circuit breaker: 25A  
Total Nominal Current consuption: 6A

A

A

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Customer / Project Description:  
**Standard**  
**SensorX Conv.Systems**

Project No / Project release date  
**pdxgr0302**  
**01.07.2011**

Item No / File & BOM No  
**CUS-elcm**  
**2012-300-00001-01**

Chapter / Page type

Page Title / Page Last Changed  
**17.5.2010**

System Top Ref / Page Ref:  
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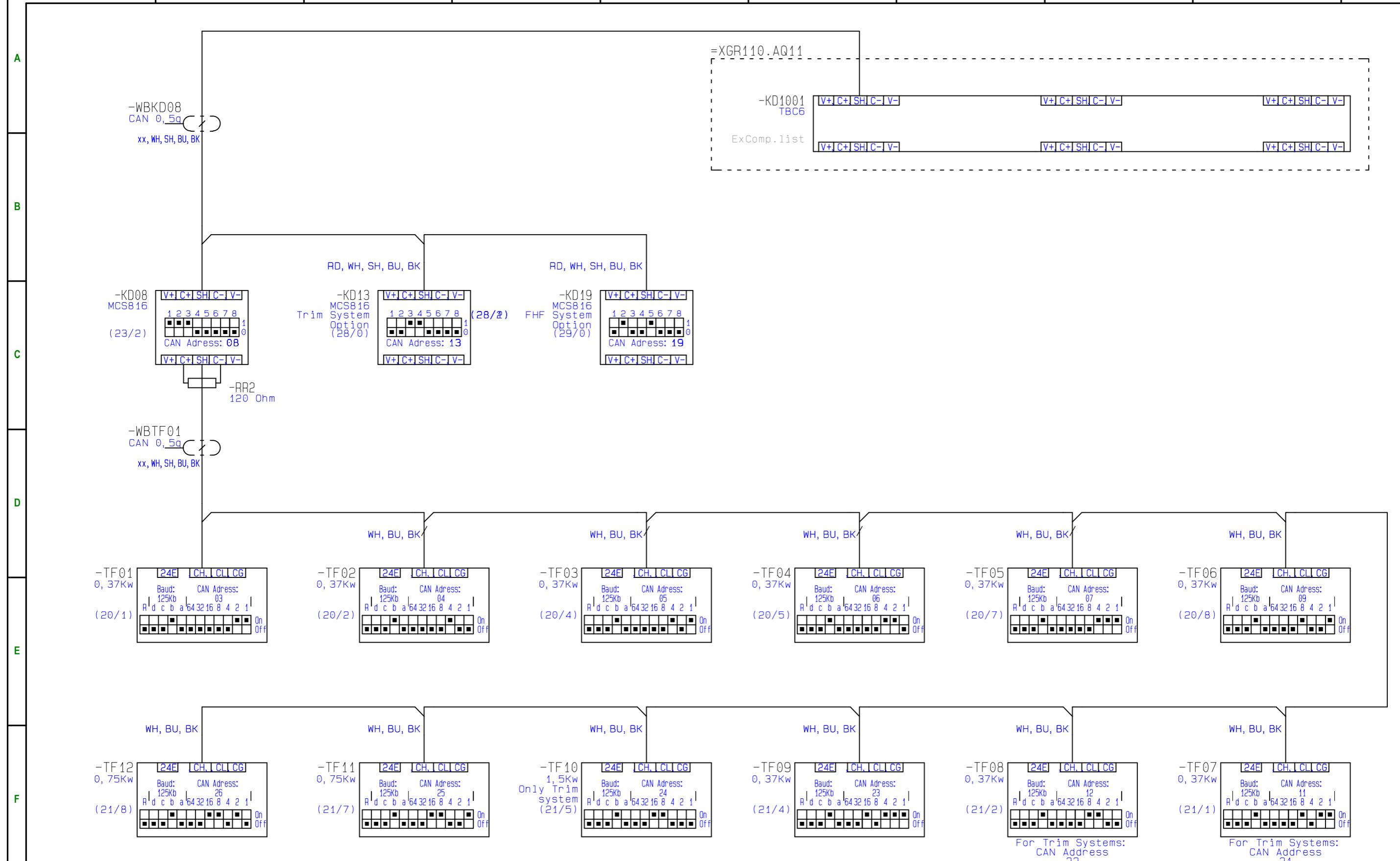
+354-563-8000 / +354-563-8001 (Tel/Fax)

Appr: EOTH

Scale: 1:1

Page No: Net / 38

# Networks



Drives -TF03-TF12 Optional see system layouts for details



Customer / Project Description:  
**Standard SensorX Conv.Systems**

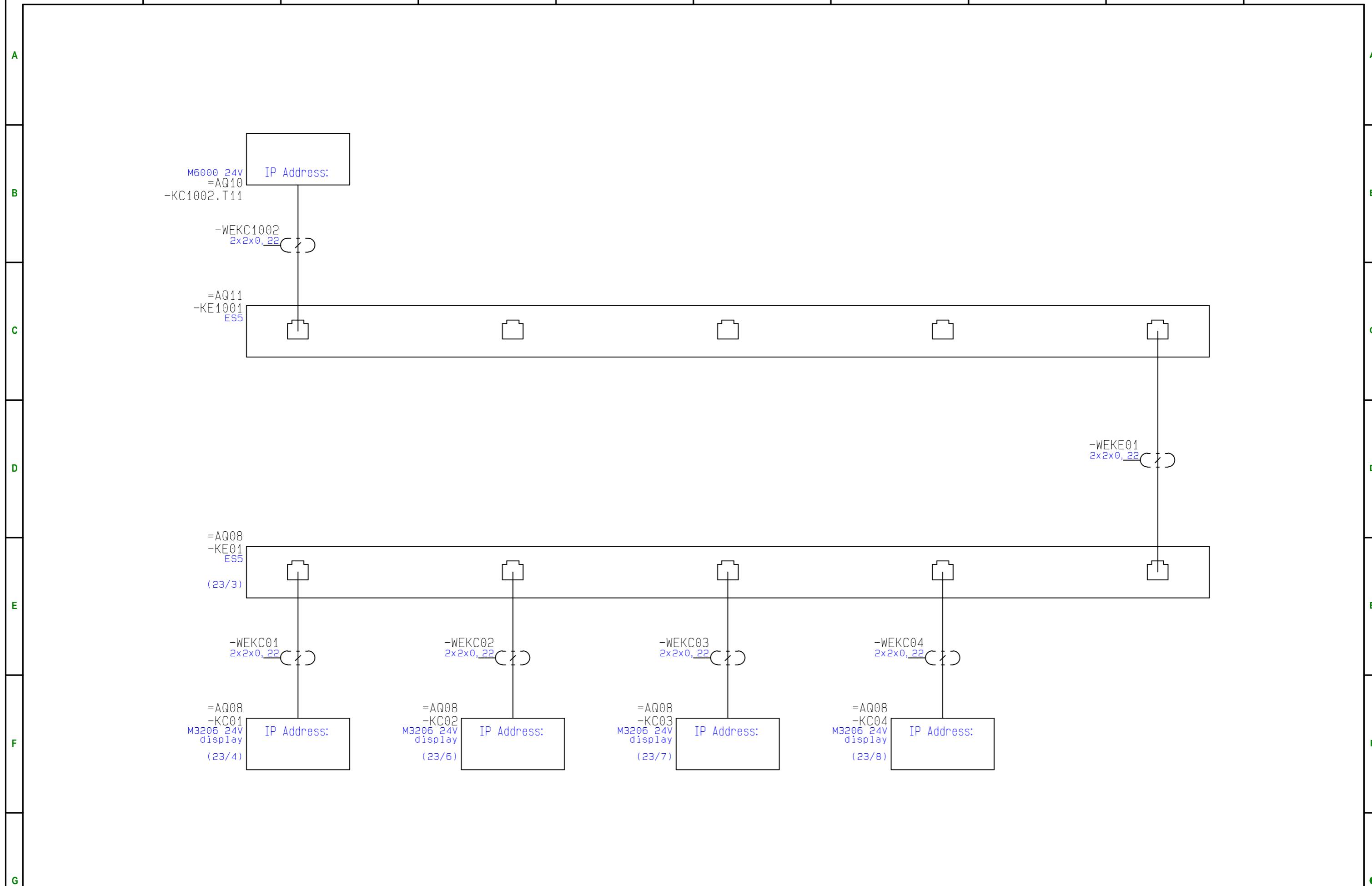
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**pdxgr0302**  
**01.07.2011**

Item No / File & BOM No  
**cus-elcm**  
**2012-300-00001-01**

Chapter / Page type  
**Networks**  
**Circuit**

Page Title / Page Last Changed  
**CAN single line**  
**27.1.2012**

System Top Ref / Page Ref:  
**+X**  
**=XGR110.AQ08**



Customer / Project Description:  
**Standard SensorX Conv.Systems**

Project No / Project release date  
**pdxgr0302**  
**01.07.2011**

Item No / File & BOM No  
**cus-elcm**  
**2012-300-00001-01**

Chapter / Page type  
**Networks**  
**Circuit**

Page Title / Page Last Changed  
**Ethernet single line**  
**27.1.2012**

System Top Ref / Page Ref:  
**+X**  
**=XGR110**

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Customer / Project Description:  
**Standard**  
**SensorX Conv.Systems**

Project No / Project release date  
**pdxgr0302**  
**01.07.2011**

Item No / File & BOM No  
**CUS-elcm**  
**2012-300-00001-01**

Chapter / Page type

Page Title / Page Last Changed  
**15.5.2010**

System Top Ref / Page Ref:  
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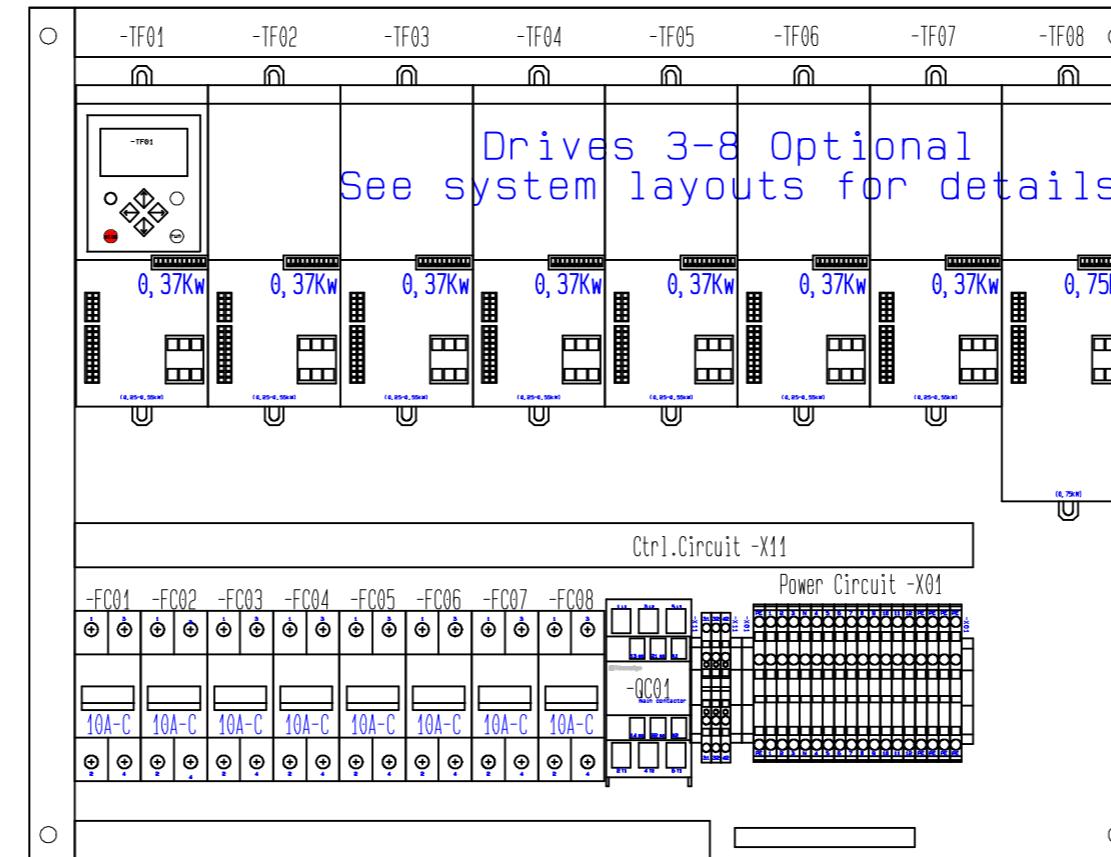
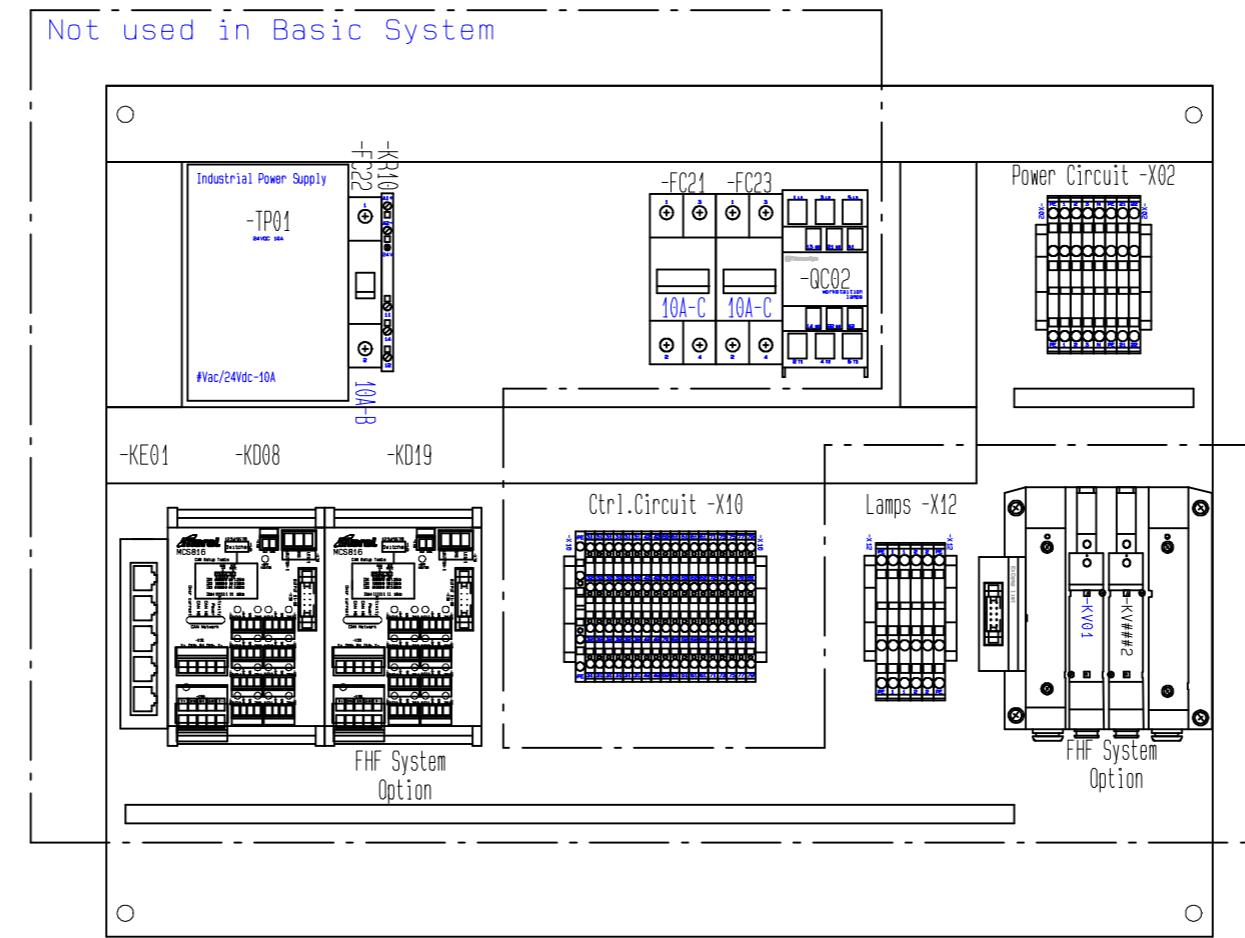
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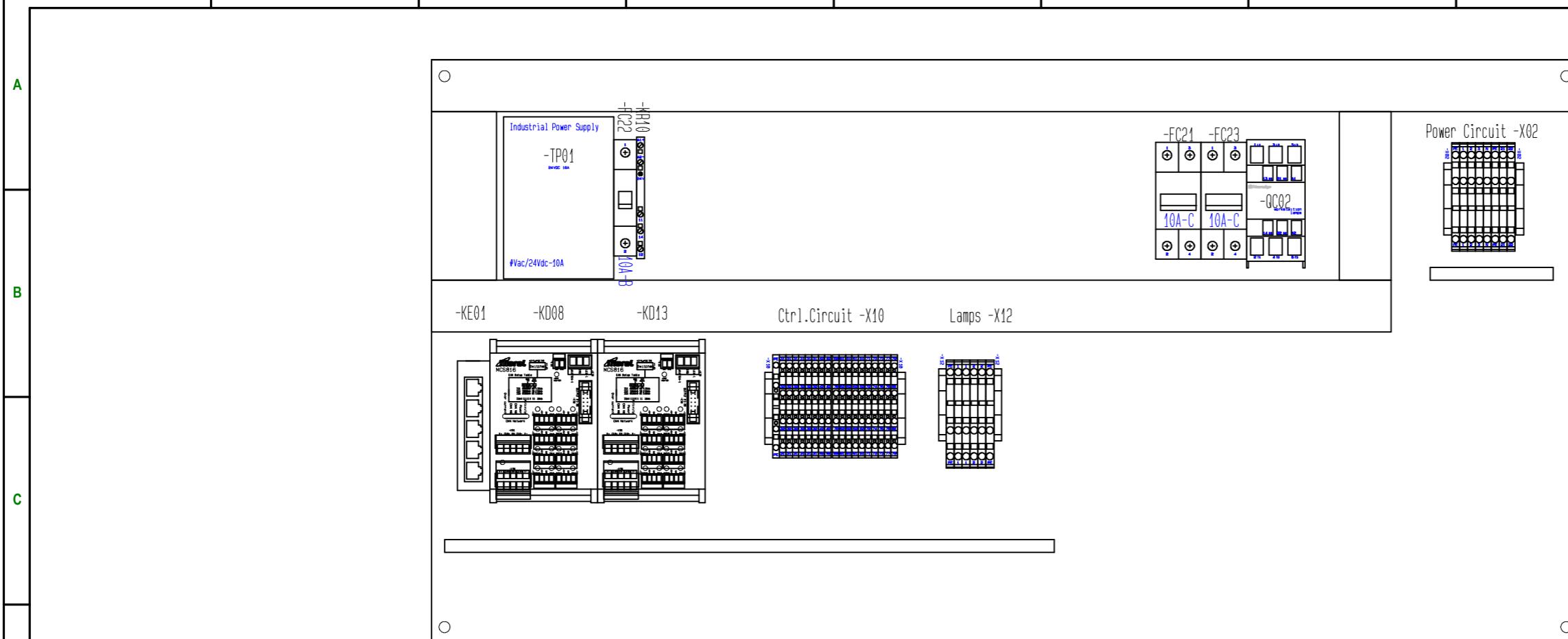
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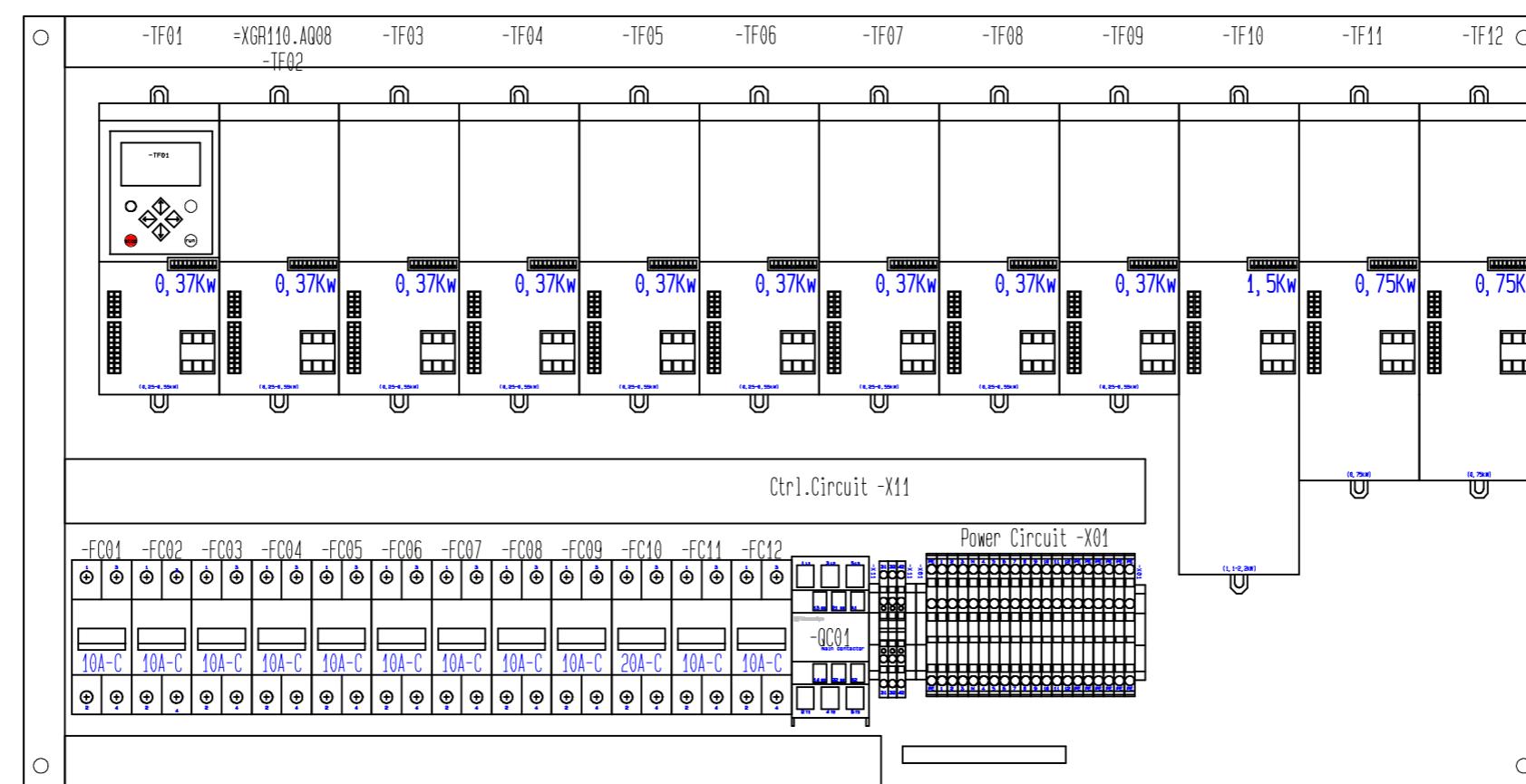
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# Inverter Cabinet





xgr-s306-2000



Customer / Project Description:  
Standard  
SensorX Conv.Systems

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Project No / Project release date  
pdxgr0302  
01.07.2011

Item No / File & BOM No  
cus-elcm  
2012-300-00001-01

Chapter / Page type  
Inverter Cabinet  
Layout

Page Title / Page Last Changed  
Backplate Trim Sys.Opt  
27.1.2012

System Top Ref / Page Ref:  
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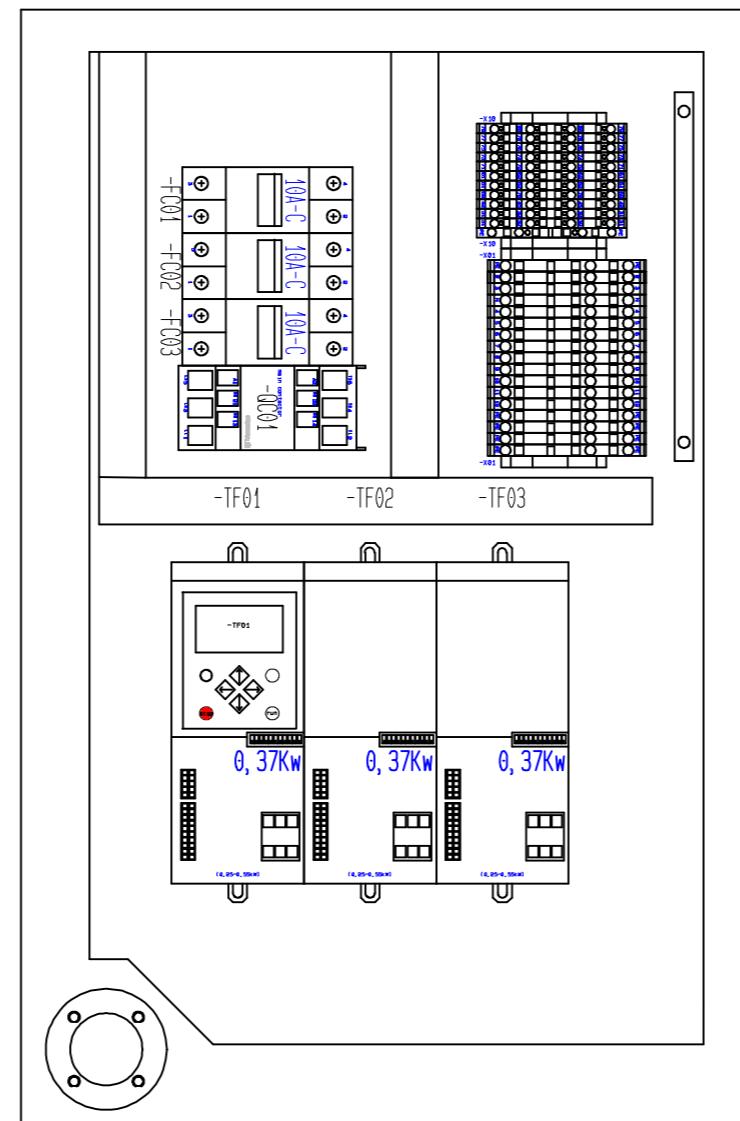
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xgr-s301-0000



Customer / Project Description:  
Standard  
SensorX Conv.Systems

Project No / Project release date  
pdxgr0302  
01.07.2011

Item No / File & BOM No  
cus-elcm  
2012-300-00001-01

Chapter / Page type  
XX Cabinet  
Layout

Page Title / Page Last Changed  
Backplate xgr-s301-000  
27.1.2012

System Top Ref / Page Ref:  
+X  
=XGR110.AQ08

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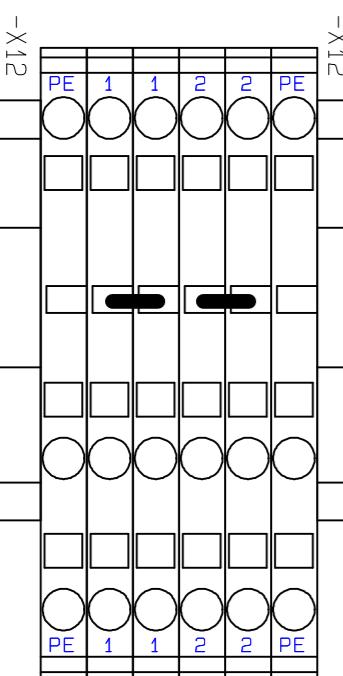
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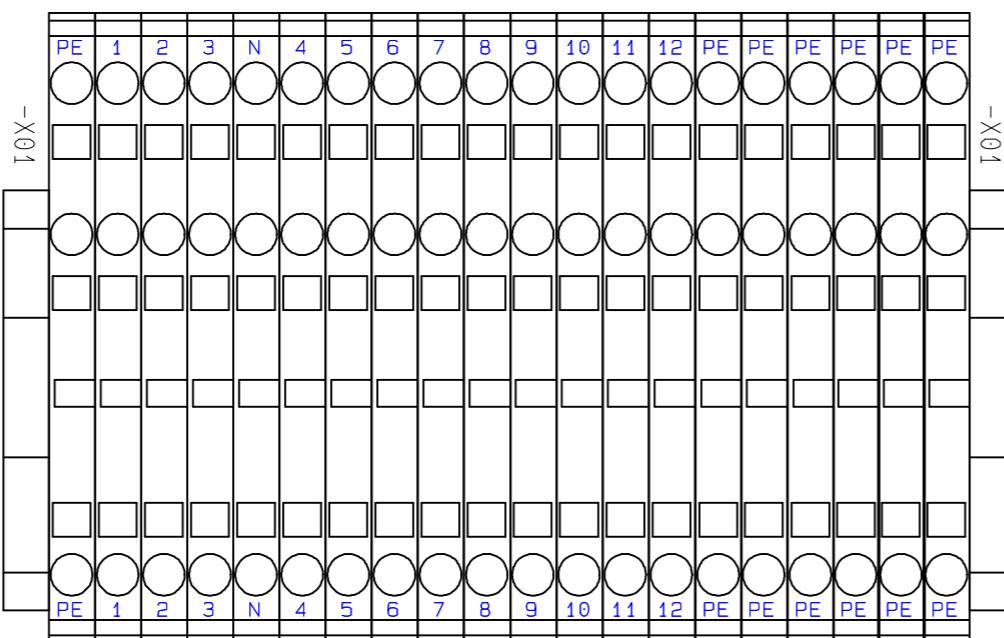
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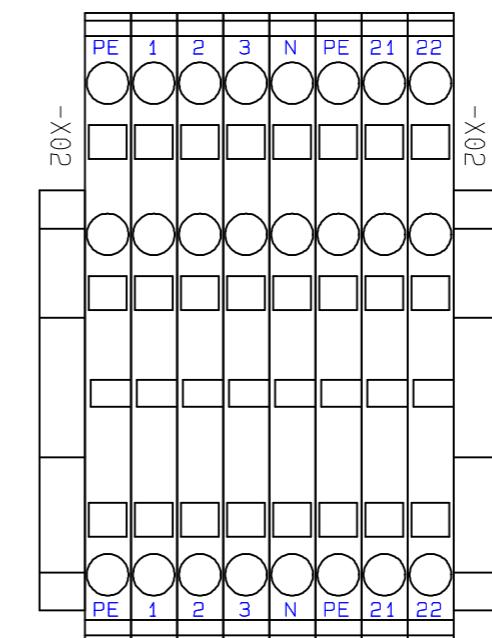
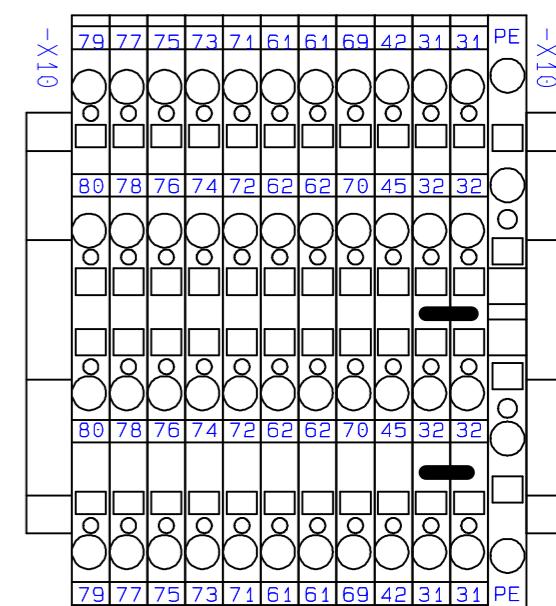
Lamps -X12



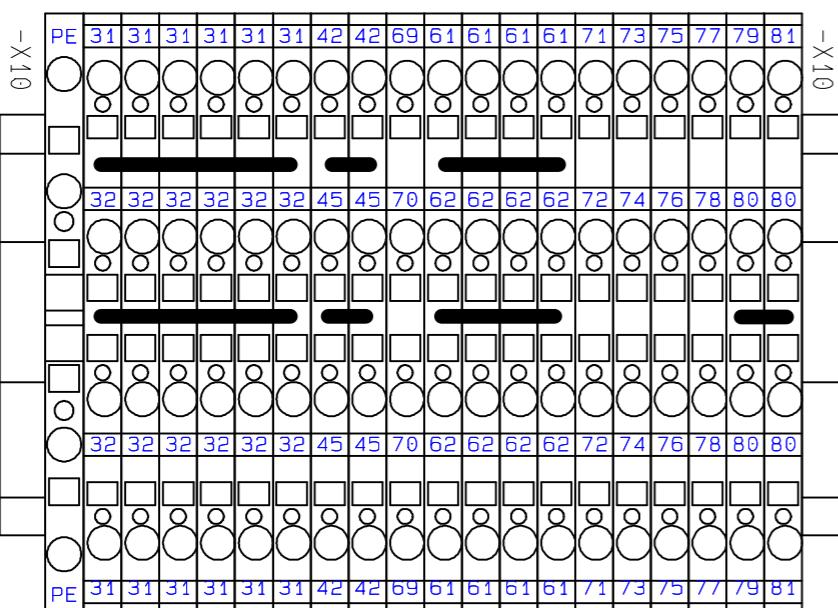
Power Circuit -X01



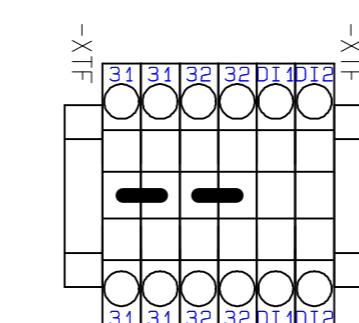
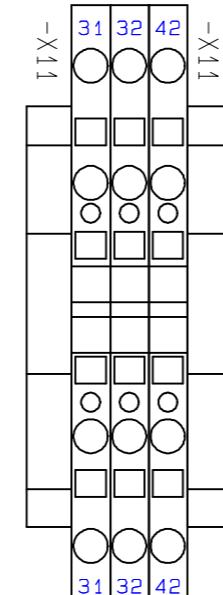
Power Circuit -X02

Control Circuit -X10  
only in xgr-s301-0000

Control Circuit -X10

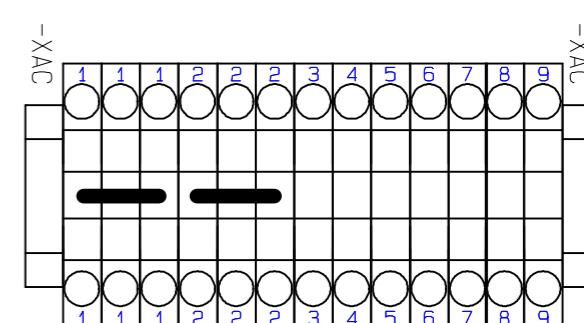


Control Circuit -X11



Control Circuit -XTF

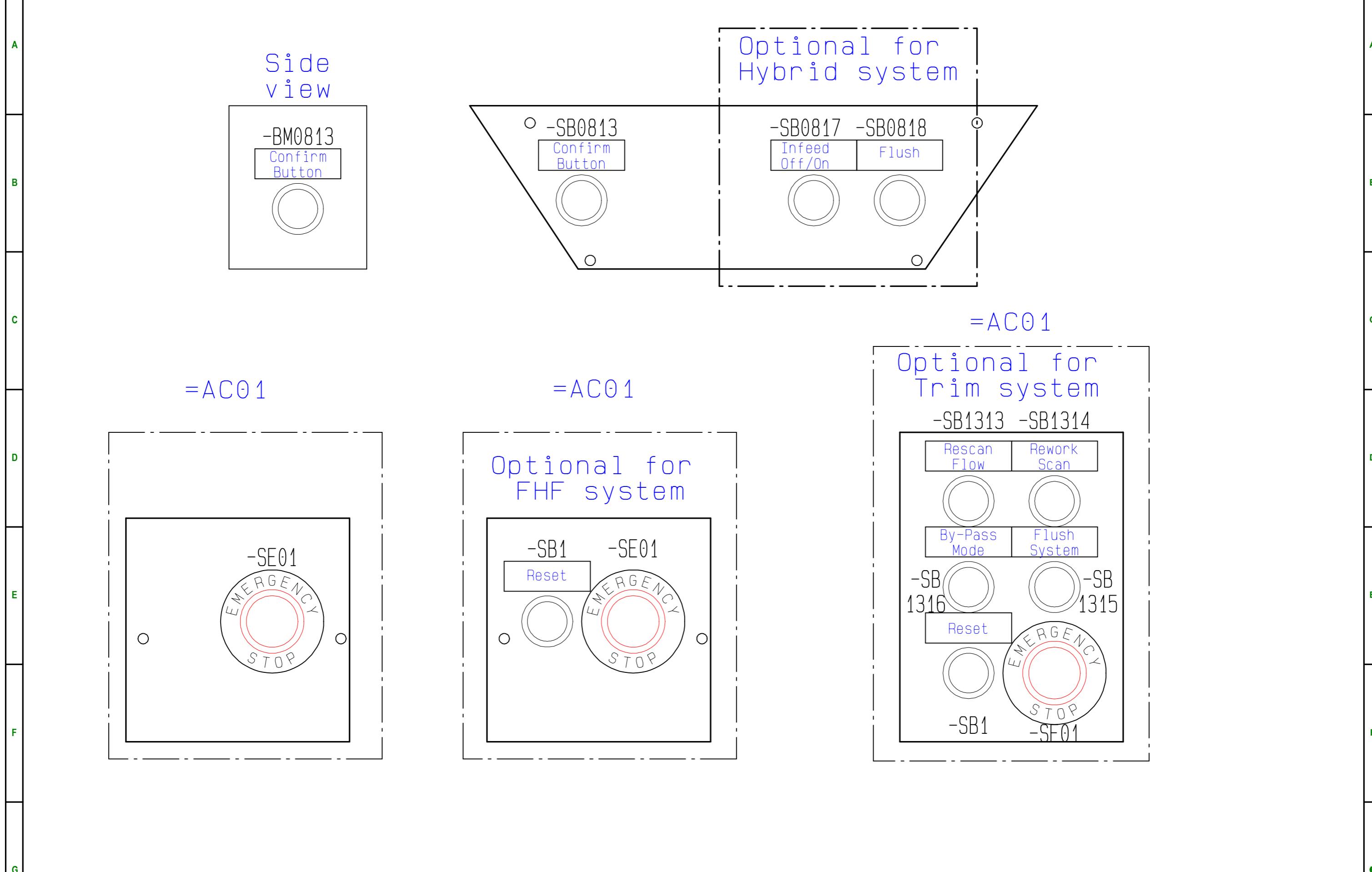
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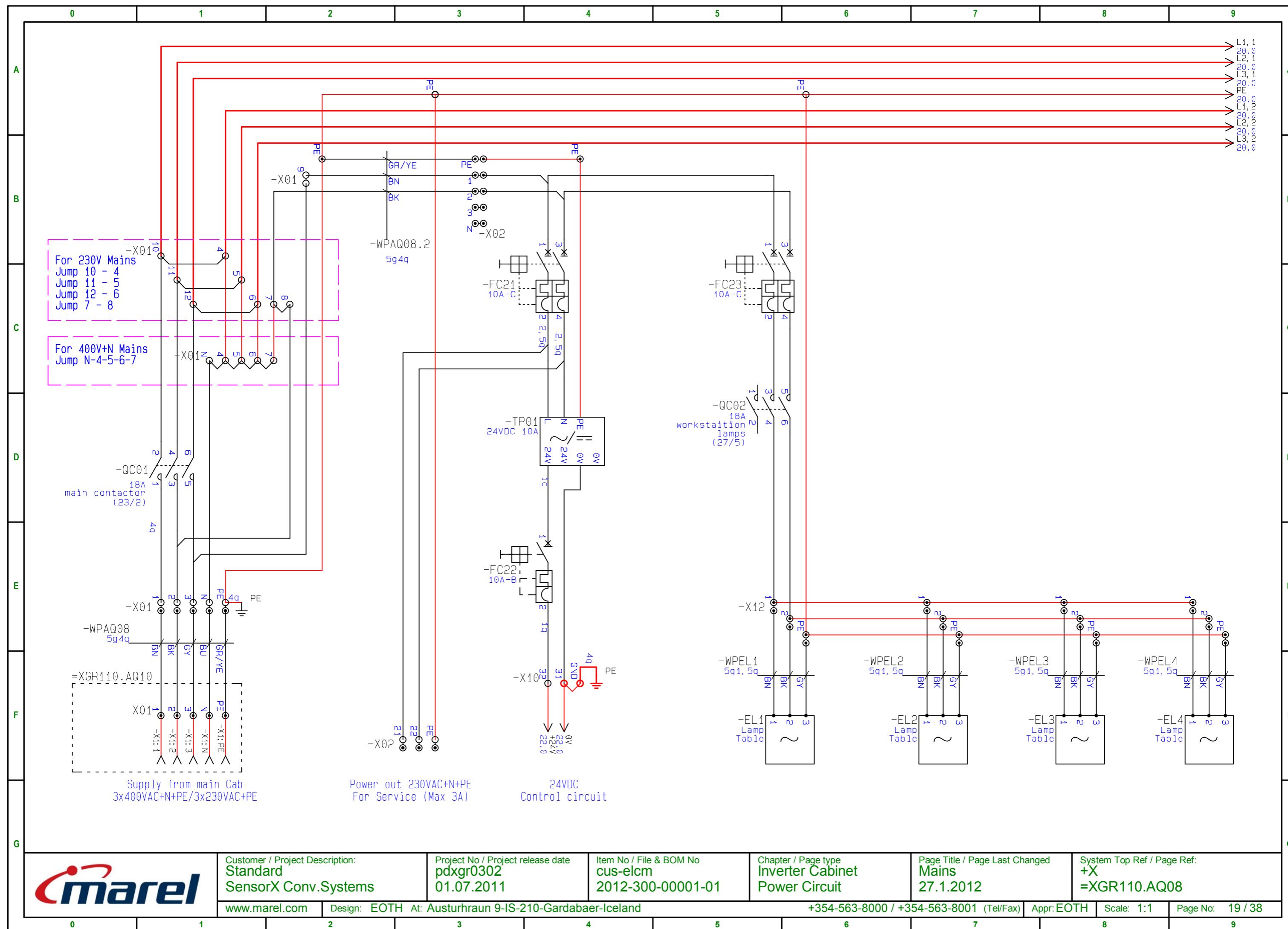


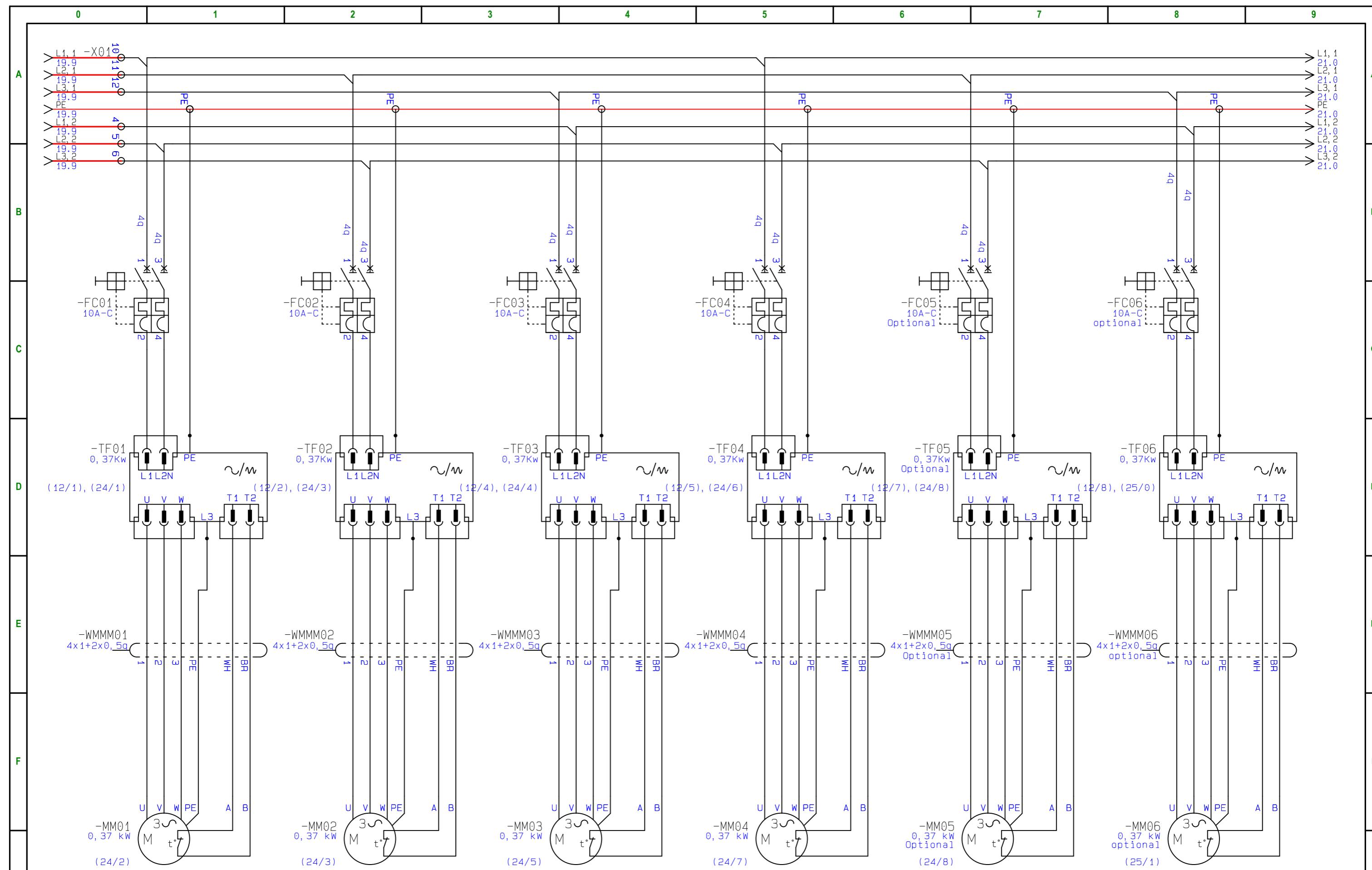
Control Circuit -XAC

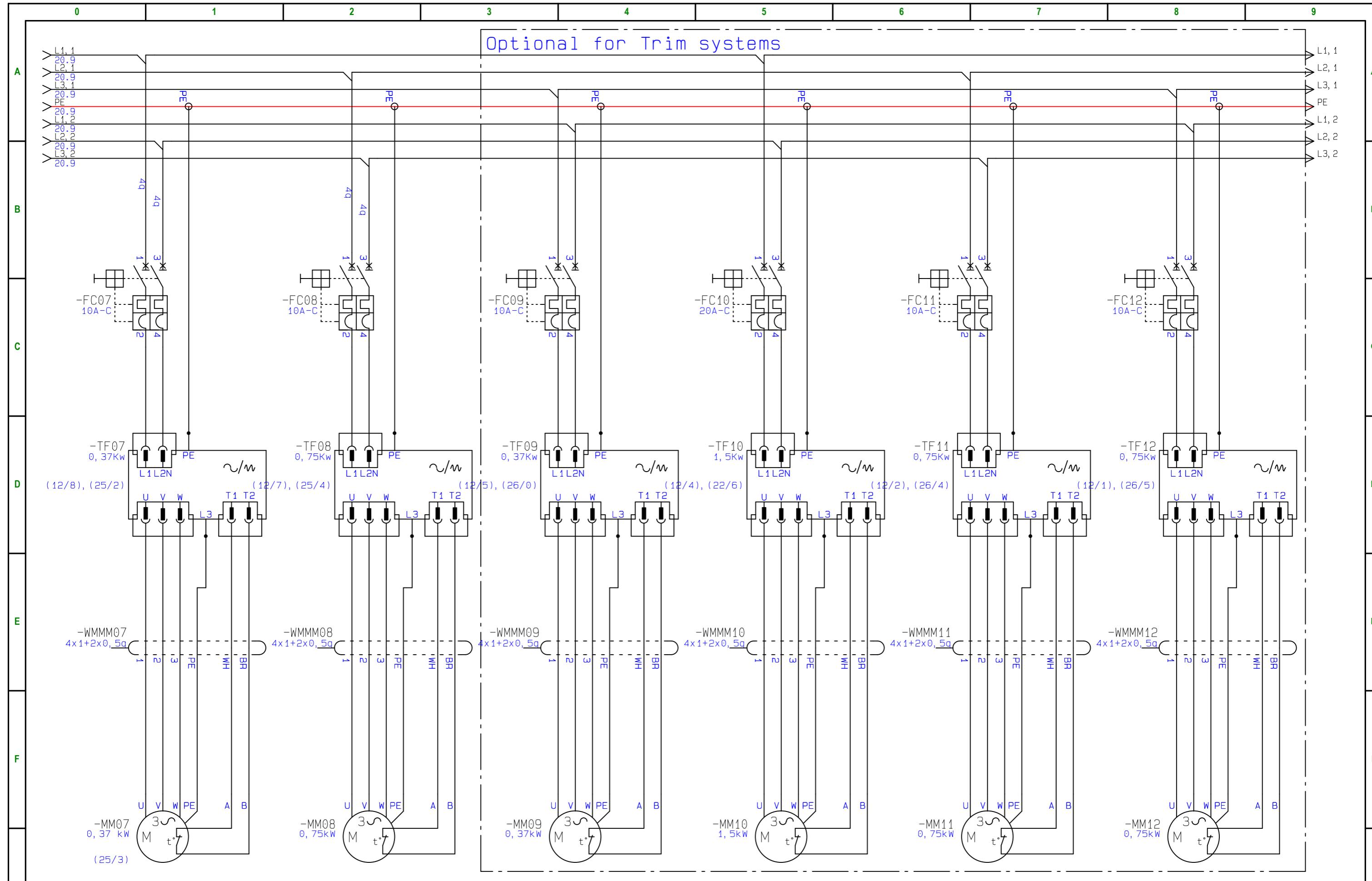
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Standard  
SensorX Conv.SystemsProject No / Project release date  
pdxgr0302  
01.07.2011Item No / File & BOM No  
cus-elcm  
2012-300-00001-01Chapter / Page type  
Inverter Cabinet  
LayoutPage Title / Page Last Changed  
Terminals  
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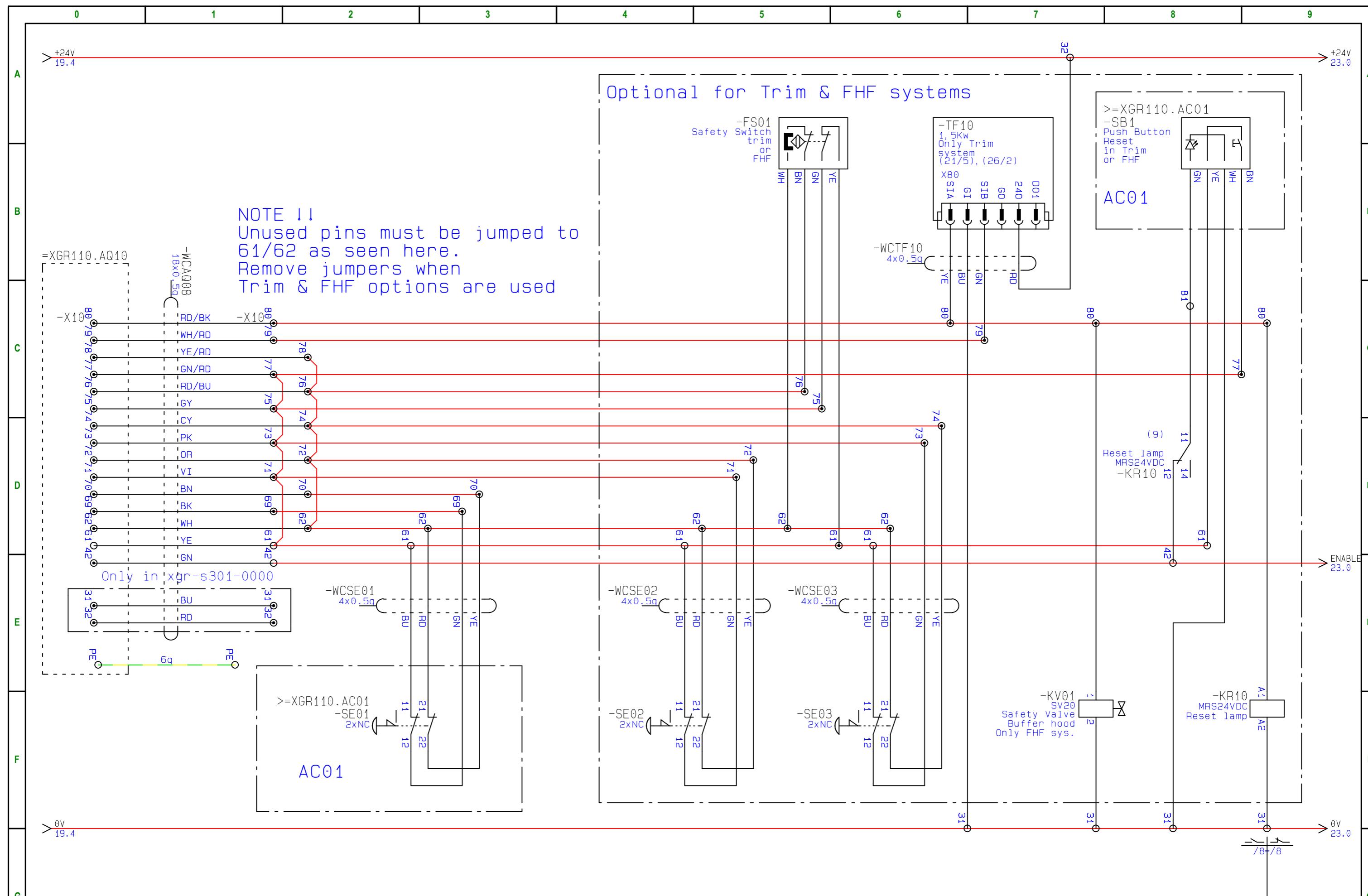
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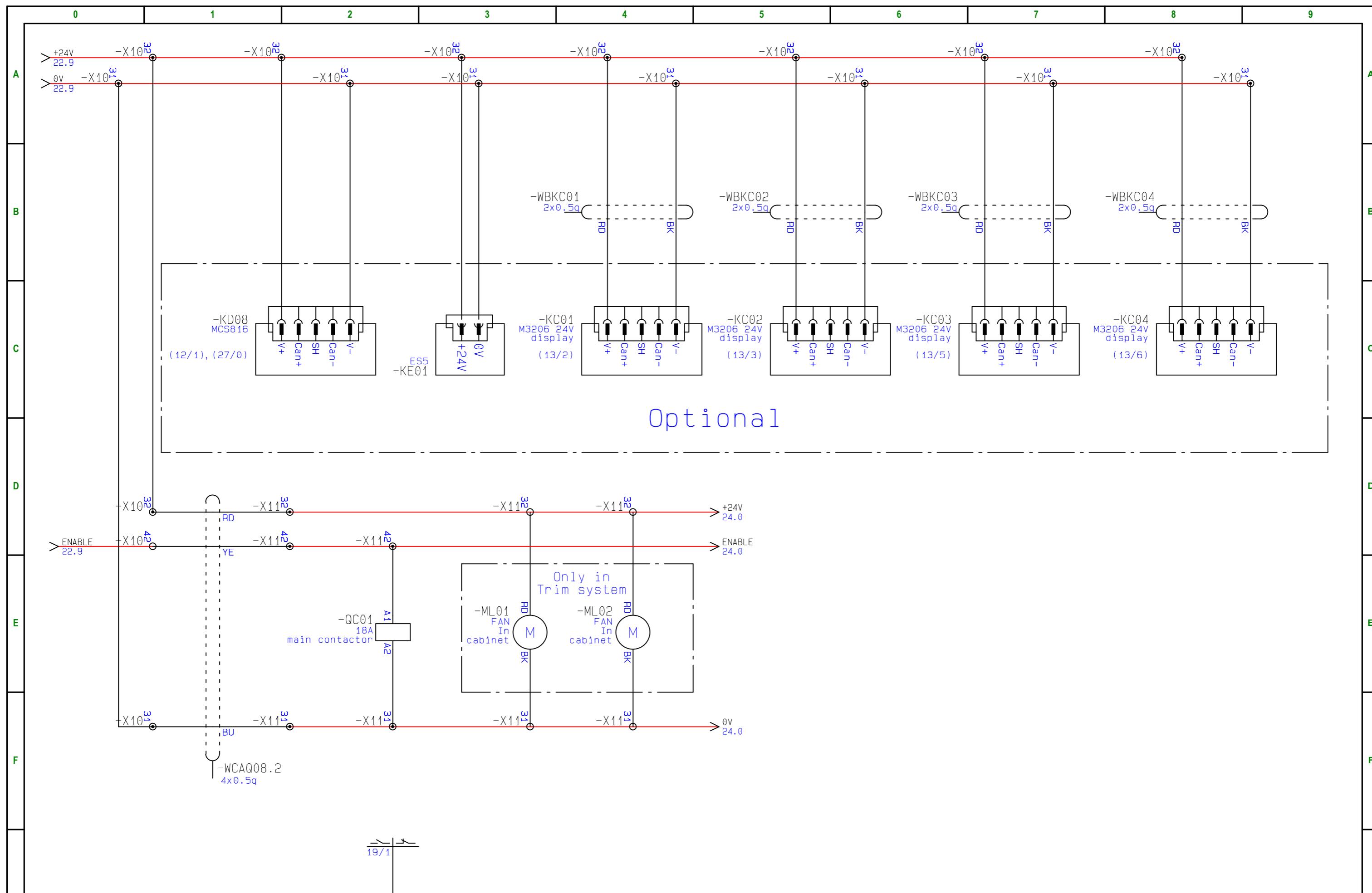












Customer / Project Description:  
Standard  
SensorX Conv.Systems

Project No / Project release date  
pdxgr0302  
01.07.2011

Item No / File & BOM No  
cus-elcm  
2012-300-00001-01

Chapter / Page type  
Inverter Cabinet  
Control Circuit

Page Title / Page Last Changed  
24VDC Displays  
27.1.2012

System Top Ref / Page Ref:  
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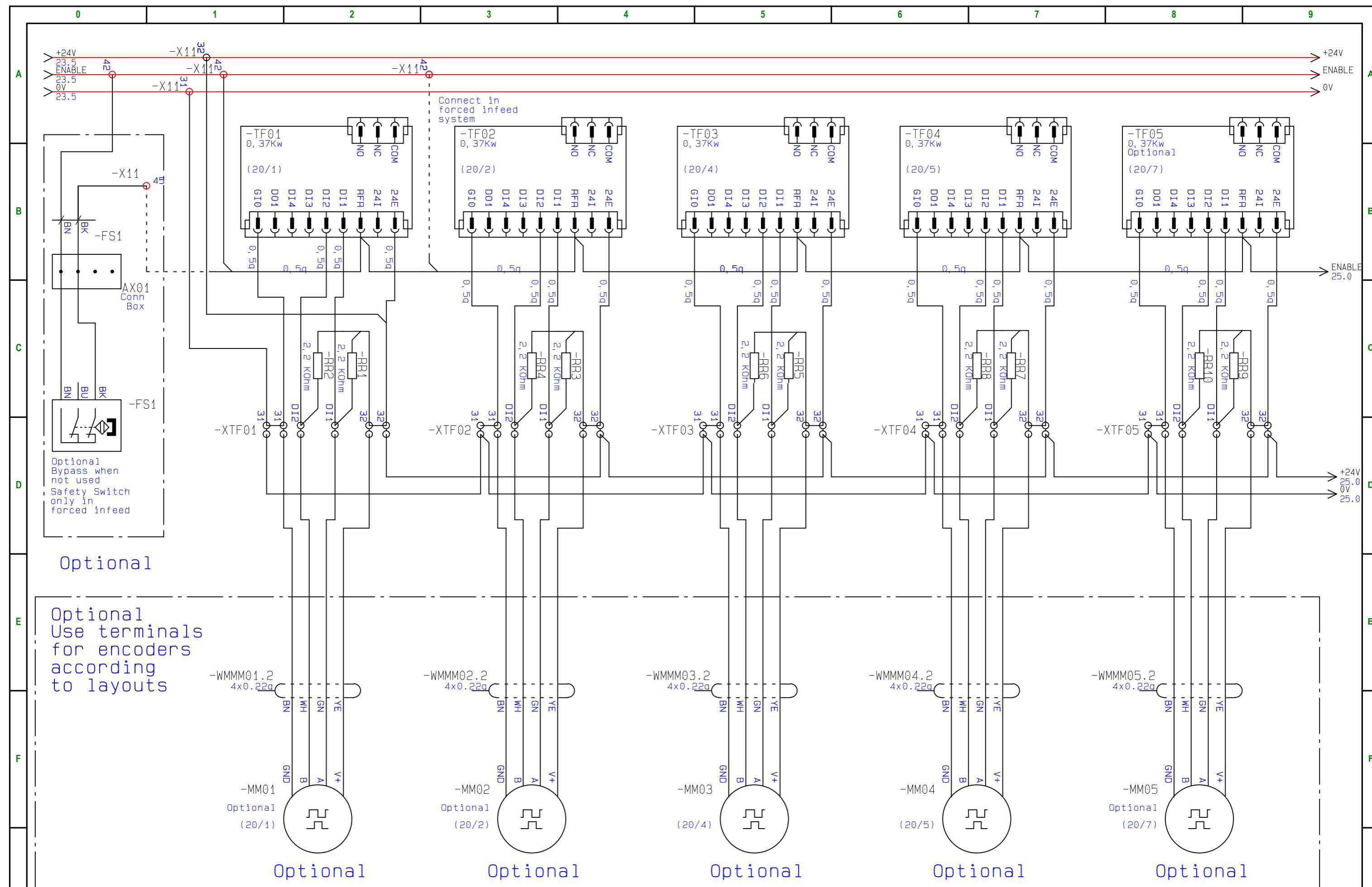
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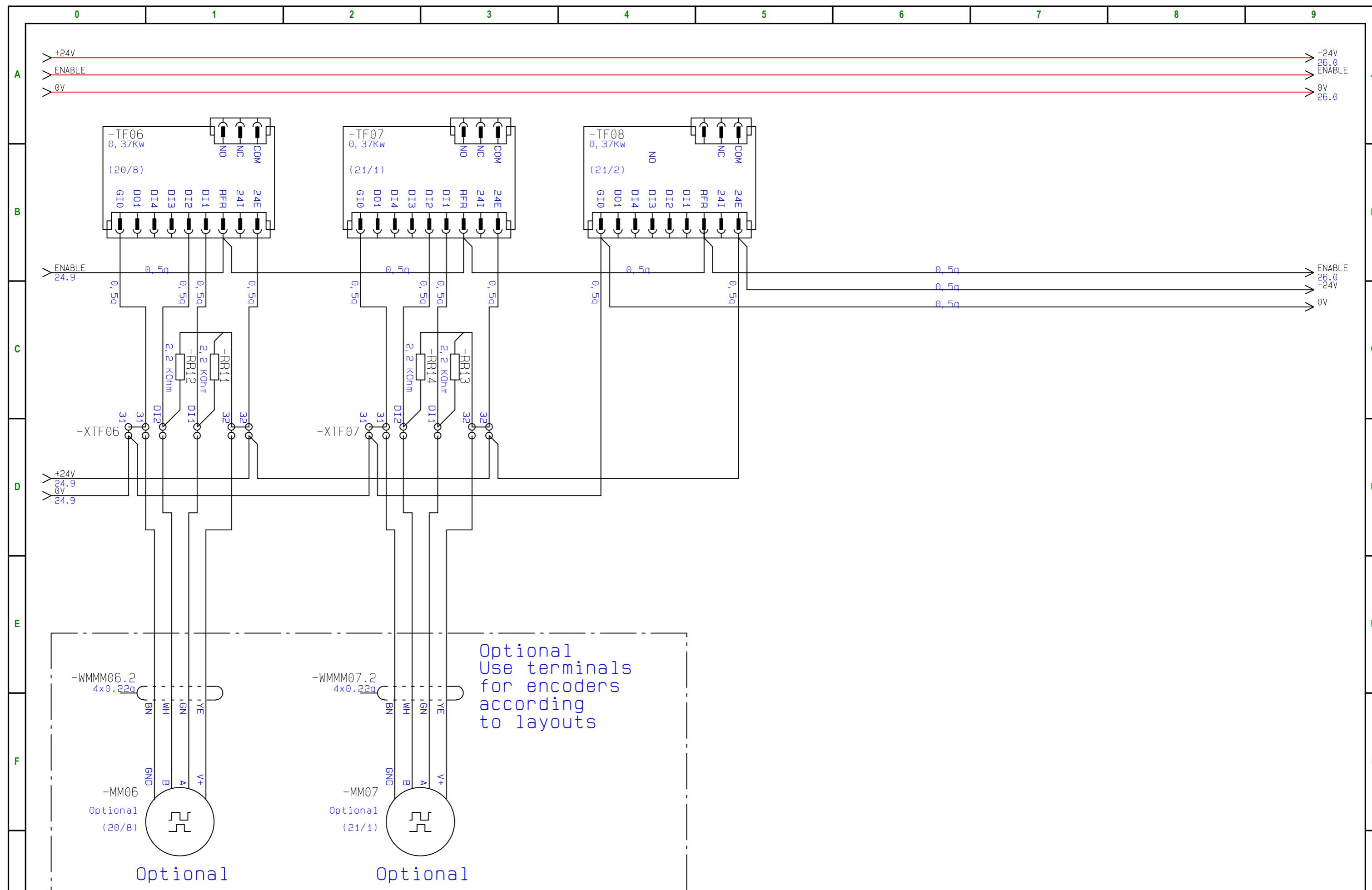
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Scale: 1:1

Page No: 23 / 38





Customer / Project Description:  
Standard  
SensorX Conv.Systems

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Project No / Project release date  
pdxgr0302  
01.07.2011

Item No / File & BOM No  
cus-elcm  
2012-300-00001-01

Chapter / Page type  
Inverter Cabinet  
Control Circuit

Page Title / Page Last Changed  
Inverters  
27.1.2012

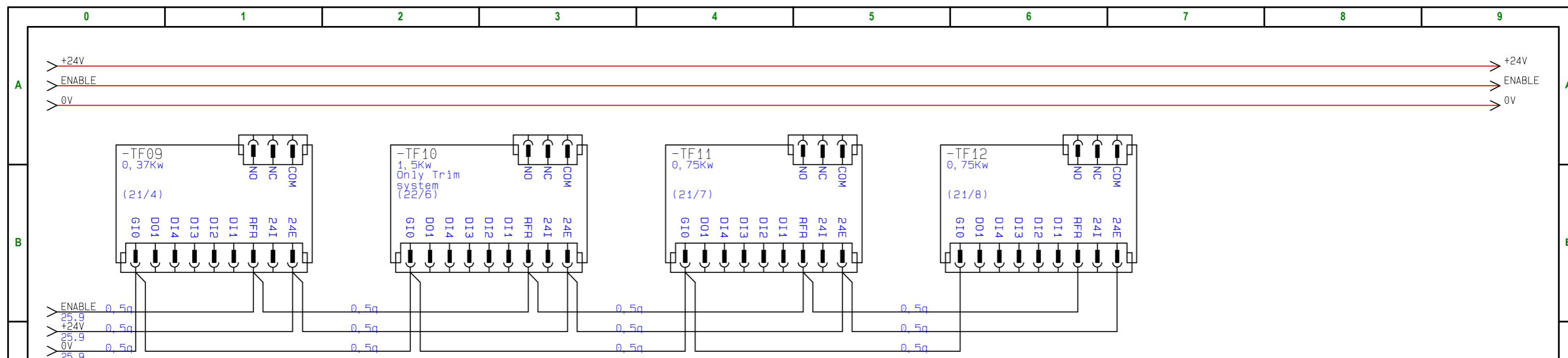
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+354-563-8000 / +354-563-8001 (Tel/Fax)

Appr: EOTH

Scale: 1:1

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Optional for Trim systems



Customer / Project Description:  
Standard  
SensorX Conv.Systems

Project No / Project release date  
pdxgr0302  
01.07.2011

Item No / File & BOM No  
cus-elcm  
2012-300-00001-01

Chapter / Page type  
Inverter Cabinet  
Control Circuit

Page Title / Page Last Changed  
Inverters Trim Sys.Opt  
27.1.2012

System Top Ref / Page Ref:  
+X  
=XGR110.AQ08

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Appr: EOTH

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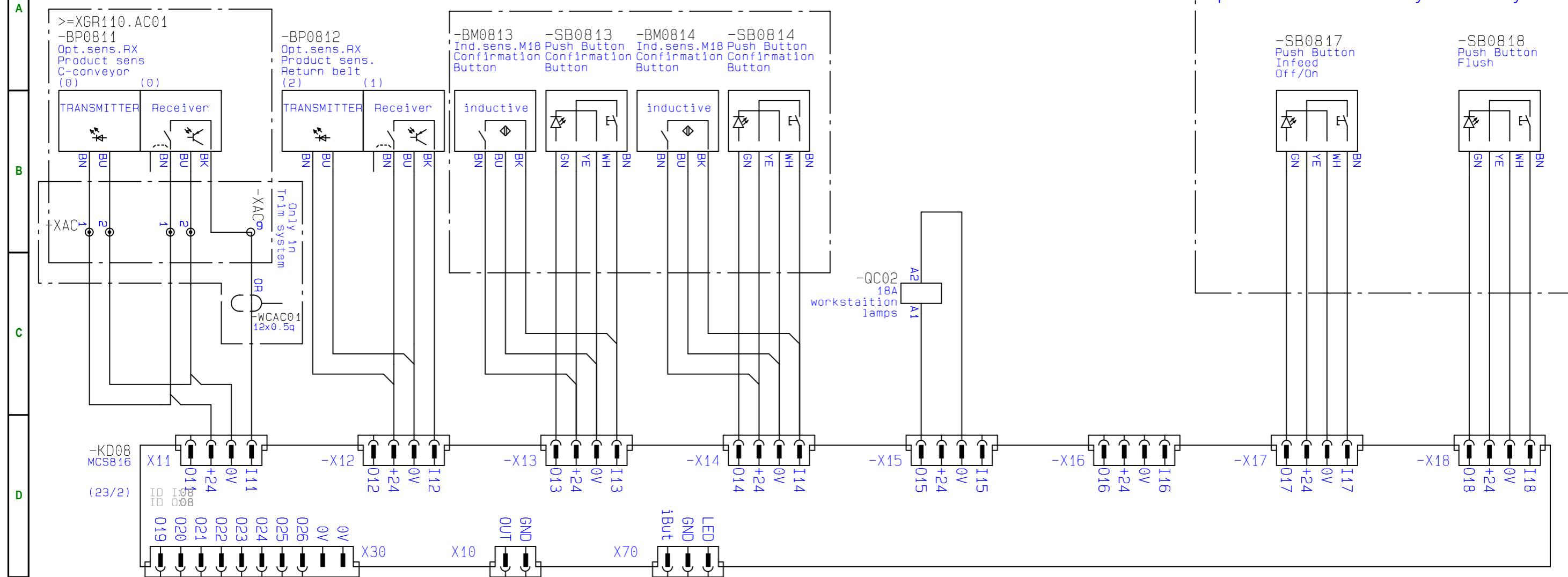
Page No: 26 / 38

0 1 2 3 4 5 6 7 8 9

AC01

Optional

Optinonal for Hybrid system



19/5



Customer / Project Description:  
Standard  
SensorX Conv.Systems

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Project No / Project release date  
pdxgr0302  
01.07.2011

Item No / File & BOM No  
cus-elcm  
2012-300-00001-01

Chapter / Page type  
Inverter Cabinet  
Control Circuit

Page Title / Page Last Changed  
Digital I/O's  
27.1.2012

System Top Ref / Page Ref:  
+X  
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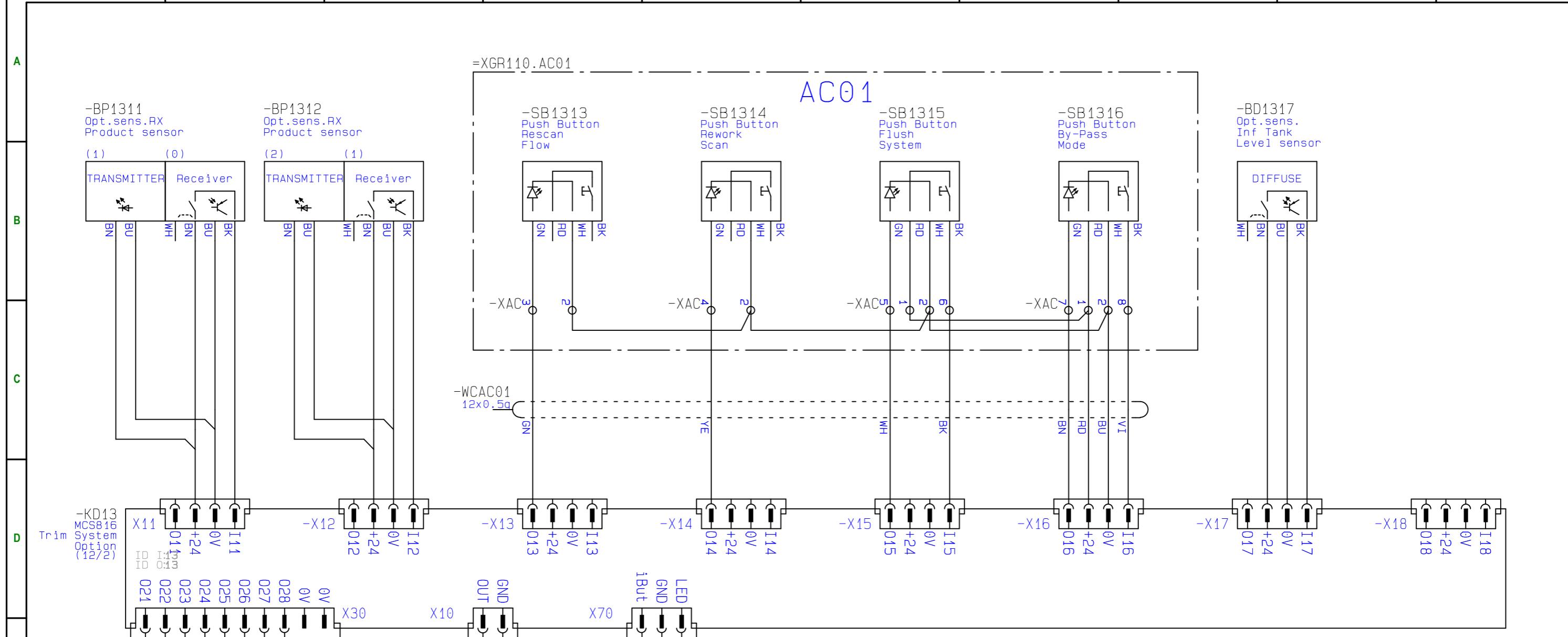
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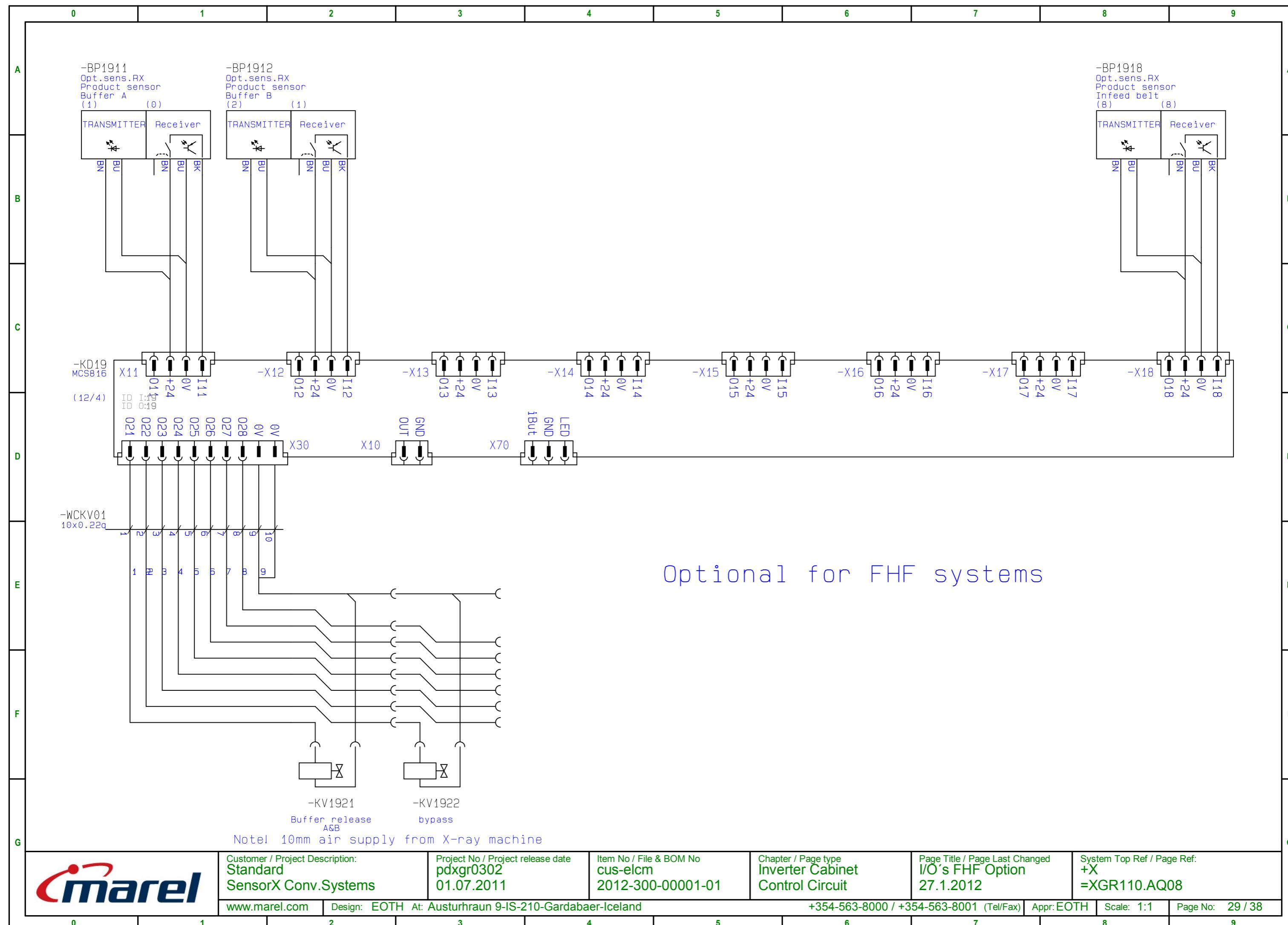
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Scale: 1:1

Page No: 27 / 38

0 1 2 3 4 5 6 7 8 9





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GA  
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G**Cables**

Customer / Project Description: <b>Standard SensorX Conv.Systems</b>	Project No / Project release date <b>pdxgr0302 01.07.2011</b>	Item No / File & BOM No <b>cus-elcm 2012-300-00001-01</b>	Chapter / Page type	Page Title / Page Last Changed <b>23.4.2010</b>	System Top Ref / Page Ref: <b>+X</b>
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0	1	2	3	4	5	6	7	8	9			
CABLE			Connection point A			Connection point B						
Cable Name	Type/Dimention	Wire	Designation	Connection	Plug	Page	Designation	Connection	Plug	Page	Comment	
A	-WEKC01	2x2x0,22	WH/OR	=XGR110.AQ08-KE01	1	Port 1	13/2	=XGR110.AQ08-KC01	TX+	Ethernet	13/2	
	-WEKC01	2x2x0,22	OR	=XGR110.AQ08-KE01	2	Port 1	13/2	=XGR110.AQ08-KC01	TX-	Ethernet	13/2	
	-WEKC01	2x2x0,22	WH/GN	=XGR110.AQ08-KE01	3	Port 1	13/2	=XGR110.AQ08-KC01	RX+	Ethernet	13/2	
	-WEKC01	2x2x0,22	GN	=XGR110.AQ08-KE01	6	Port 1	13/2	=XGR110.AQ08-KC01	RX-	Ethernet	13/2	
B	-WEKC02	2x2x0,22	WH/OR	=XGR110.AQ08-KE01	1	Port 2	13/3	=XGR110.AQ08-KC02	TX+	Ethernet	13/3	
	-WEKC02	2x2x0,22	OR	=XGR110.AQ08-KE01	2	Port 2	13/3	=XGR110.AQ08-KC02	TX-	Ethernet	13/3	
	-WEKC02	2x2x0,22	WH/GN	=XGR110.AQ08-KE01	3	Port 2	13/3	=XGR110.AQ08-KC02	RX+	Ethernet	13/3	
	-WEKC02	2x2x0,22	GN	=XGR110.AQ08-KE01	6	Port 2	13/3	=XGR110.AQ08-KC02	RX-	Ethernet	13/3	
C	-WEKC03	2x2x0,22	WH/OR	=XGR110.AQ08-KE01	1	Port 3	13/5	=XGR110.AQ08-KC03	TX+	Ethernet	13/5	
	-WEKC03	2x2x0,22	OR	=XGR110.AQ08-KE01	2	Port 3	13/5	=XGR110.AQ08-KC03	TX-	Ethernet	13/5	
	-WEKC03	2x2x0,22	WH/GN	=XGR110.AQ08-KE01	3	Port 3	13/5	=XGR110.AQ08-KC03	RX+	Ethernet	13/5	
	-WEKC03	2x2x0,22	GN	=XGR110.AQ08-KE01	6	Port 3	13/5	=XGR110.AQ08-KC03	RX-	Ethernet	13/5	
D	-WEKC04	2x2x0,22	WH/OR	=XGR110.AQ08-KE01	1	Port 4	13/6	=XGR110.AQ08-KC04	TX+	Ethernet	13/6	
	-WEKC04	2x2x0,22	OR	=XGR110.AQ08-KE01	2	Port 4	13/6	=XGR110.AQ08-KC04	TX-	Ethernet	13/6	
	-WEKC04	2x2x0,22	WH/GN	=XGR110.AQ08-KE01	3	Port 4	13/6	=XGR110.AQ08-KC04	RX+	Ethernet	13/6	
	-WEKC04	2x2x0,22	GN	=XGR110.AQ08-KE01	6	Port 4	13/6	=XGR110.AQ08-KC04	RX-	Ethernet	13/6	
E	-WEKE01	2x2x0,22	WH/OR				=XGR110.AQ08-KE01	1	Port 5	13/8		
	-WEKE01	2x2x0,22	GN				=XGR110.AQ08-KE01	6	Port 5	13/8		
	-WEKE01	2x2x0,22	WH/GN				=XGR110.AQ08-KE01	3	Port 5	13/8		
	-WEKE01	2x2x0,22	OR				=XGR110.AQ08-KE01	2	Port 5	13/8		
F	-FS1		BN	=XGR110.AQ08-X11	42		24/0	=XGR110.AQ08-FS1	BN		24/0	
	-FS1		BK	=XGR110.AQ08-X11	45		24/1					
	-WBKC01	2x0.5q	BK	=XGR110.AQ08-X10	31		23/4	=XGR110.AQ08-KC01	V-		23/4	
	-WBKC01	2x0.5q	RD	=XGR110.AQ08-X10	32		23/4	=XGR110.AQ08-KC01	V+		23/4	
G	-WBKC02	2x0.5q	BK	=XGR110.AQ08-X10	31		23/6	=XGR110.AQ08-KC02	V-		23/6	
	-WBKC02	2x0.5q	RD	=XGR110.AQ08-X10	32		23/5	=XGR110.AQ08-KC02	V+		23/5	
	-WBKC03	2x0.5q	BK	=XGR110.AQ08-X10	31		23/7	=XGR110.AQ08-KC03	V-		23/7	
	-WBKC03	2x0.5q	RD	=XGR110.AQ08-X10	32		23/7	=XGR110.AQ08-KC03	V+		23/7	
H	-WBKC04	2x0.5q	BK	=XGR110.AQ08-X10	31		23/9	=XGR110.AQ08-KC04	V-		23/9	
	-WBKC04	2x0.5q	RD	=XGR110.AQ08-X10	32		23/8	=XGR110.AQ08-KC04	V+		23/8	
	-WBKD08	CAN 0,5q	WH	=XGR110.AQ11-KD1001	C+	CAN	12/5	=XGR110.AQ08-KD08	C+	-X50	12/1	
	-WBKD08	CAN 0,5q	BU	=XGR110.AQ11-KD1001	C-	CAN	12/5	=XGR110.AQ08-KD08	C-	-X50	12/1	
I	-WBKD08	CAN 0,5q	SH	=XGR110.AQ11-KD1001	SH	CAN	12/5	=XGR110.AQ08-KD08	SH	-X50	12/1	
	-WBKD08	CAN 0,5q	xx	=XGR110.AQ11-KD1001	V+	CAN	12/5	=XGR110.AQ08-KD08	V+	-X50	12/1	
	-WBKD08	CAN 0,5q	BK	=XGR110.AQ11-KD1001	V-	CAN	12/5	=XGR110.AQ08-KD08	V-	-X50	12/1	
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www.marel.com			Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland				+354-563-8000 / +354-563-8001 (Tel/Fax)		Appr: EOTH	Scale: 1:1	Page No: 30 / 38	
0	1	2	3	4	5	6	7	8	9			

0	1	2	3	4	5	6	7	8	9			
CABLE			Connection point A			Connection point B						
Cable Name	Type/Dimention	Wire	Designation	Connection	Plug	Page	Designation	Connection	Plug	Page	Comment	
A	-WBTF01	CAN 0,5q	WH	=XGR110.AQ08-KD08	C+	-X51	12/1	=XGR110.AQ08-TF01	CH	CAN	12/1	
	-WBTF01	CAN 0,5q	BU	=XGR110.AQ08-KD08	C-	-X51	12/1	=XGR110.AQ08-TF01	CL	CAN	12/1	
	-WBTF01	CAN 0,5q	SH	=XGR110.AQ08-KD08	SH	-X51	12/1					
	-WBTF01	CAN 0,5q	xx	=XGR110.AQ08-KD08	V+	-X51	12/1	=XGR110.AQ08-TF01	24E	CAN	12/1	
	-WBTF01	CAN 0,5q	BK	=XGR110.AQ08-KD08	V-	-X51	12/1	=XGR110.AQ08-TF01	CG	CAN	12/1	
B	-WCAC01	12x0.5q	RD	=XGR110.AC01-XAC	1		28/6	=XGR110.AQ08-KD13	+24V:-X16		28/6	
	-WCAC01	12x0.5q	BU	=XGR110.AC01-XAC	2		28/6	=XGR110.AQ08-KD13	0V:-X16		28/6	
	-WCAC01	12x0.5q	GN	=XGR110.AC01-XAC	3		28/3	=XGR110.AQ08-KD13	O13:-X13		28/3	
	-WCAC01	12x0.5q	YE	=XGR110.AC01-XAC	4		28/4	=XGR110.AQ08-KD13	O14:-X14		28/4	
	-WCAC01	12x0.5q	WH	=XGR110.AC01-XAC	5		28/5	=XGR110.AQ08-KD13	O15:-X15		28/5	
	-WCAC01	12x0.5q	BK	=XGR110.AC01-XAC	6		28/5	=XGR110.AQ08-KD13	I15:-X15		28/5	
	-WCAC01	12x0.5q	BN	=XGR110.AC01-XAC	7		28/6	=XGR110.AQ08-KD13	O16:-X16		28/6	
C	-WCAC01	12x0.5q	VI	=XGR110.AC01-XAC	8		28/7	=XGR110.AQ08-KD13	I16:-X16		28/7	
	-WCAC01	12x0.5q	OR	=XGR110.AQ08-KD08	I11:-X11		27/1	=XGR110.AQ08-XAC	9		27/1	
	-WCAQ08	18x0.5q	BU	=XGR110.AQ10-X10	31		22/0	=XGR110.AQ10-X10	31		22/1	
	-WCAQ08	18x0.5q	RD	=XGR110.AQ10-X10	32		22/0	=XGR110.AQ10-X10	32		22/1	
	-WCAQ08	18x0.5q	GN	=XGR110.AQ10-X10	42		22/0	=XGR110.AQ08-X10	42		22/1	
D	-WCAQ08	18x0.5q	WH	=XGR110.AQ10-X10	62		22/0	=XGR110.AQ08-X10	62		22/2	
	-WCAQ08	18x0.5q	BK	=XGR110.AQ10-X10	69		22/0	=XGR110.AQ08-X10	69		22/1	
	-WCAQ08	18x0.5q	BN	=XGR110.AQ10-X10	70		22/0	=XGR110.AQ08-X10	70		22/2	
	-WCAQ08	18x0.5q	VI	=XGR110.AQ10-X10	71		22/0	=XGR110.AQ08-X10	71		22/1	
	-WCAQ08	18x0.5q	OR	=XGR110.AQ10-X10	72		22/0	=XGR110.AQ08-X10	72		22/2	
	-WCAQ08	18x0.5q	PK	=XGR110.AQ10-X10	73		22/0	=XGR110.AQ08-X10	73		22/1	
	-WCAQ08	18x0.5q	CY	=XGR110.AQ10-X10	74		22/0	=XGR110.AQ08-X10	74		22/2	
	-WCAQ08	18x0.5q	GY	=XGR110.AQ10-X10	75		22/0	=XGR110.AQ08-X10	75		22/1	
	-WCAQ08	18x0.5q	RD/BU	=XGR110.AQ10-X10	76		22/0	=XGR110.AQ08-X10	76		22/2	
	-WCAQ08	18x0.5q	GN/RD	=XGR110.AQ10-X10	77		22/0	=XGR110.AQ08-X10	77		22/1	
E	-WCAQ08	18x0.5q	YE/RD	=XGR110.AQ10-X10	78		22/0	=XGR110.AQ08-X10	78		22/2	
	-WCAQ08	18x0.5q	WH/RD	=XGR110.AQ10-X10	79		22/0	=XGR110.AQ08-X10	79		22/1	
	-WCAQ08	18x0.5q	RD/BK	=XGR110.AQ10-X10	80		22/0	=XGR110.AQ08-X10	80		22/1	
	-WCAQ08	18x0.5q	YE	=XGR110.AQ10-X10	61		22/0	=XGR110.AQ08-X10	61		22/1	
	-WCAQ08.2	4x0.5q	BU	=XGR110.AQ08-X10	31		23/1	=XGR110.AQ08-X11	31		23/2	
F	-WCAQ08.2	4x0.5q	RD	=XGR110.AQ08-X10	32		23/1	=XGR110.AQ08-X11	32		23/2	
	-WCAQ08.2	4x0.5q	YE	=XGR110.AQ08-X10	42		23/1	=XGR110.AQ08-X11	42		23/2	
	-WCKV01	10x0.22q	9	=XGR110.AQ08-KD19	0V:-X30		29/1	=XGR110.AQ08-KV1921	9	Pin 9	29/1	
G	-WCKV01	10x0.22q	10	=XGR110.AQ08-KD19	0V:-X30		29/2	=XGR110.AQ08-KV1921	9	Pin 9	29/1	
	-WCKV01	10x0.22q	1	=XGR110.AQ08-KD19	O21:-X30		29/0	=XGR110.AQ08-KV1921	1	Pin 1	29/0	
	-WCKV01	10x0.22q	2	=XGR110.AQ08-KD19	O22:-X30		29/1	=XGR110.AQ08-KV1922	2	Pin 2	29/1	
	-WCKV01	10x0.22q	3	=XGR110.AQ08-KD19	O23:-X30		29/1	=XGR110.AQ08-KV1921	3		29/1	
	-WCKV01	10x0.22q	4	=XGR110.AQ08-KD19	O24:-X30		29/1	=XGR110.AQ08-KV1921	4		29/1	
	-WCKV01	10x0.22q	5	=XGR110.AQ08-KD19	O25:-X30		29/1	=XGR110.AQ08-KV1921	5		29/1	
	-WCKV01	10x0.22q	6	=XGR110.AQ08-KD19	O26:-X30		29/1	=XGR110.AQ08-KV1921	6		29/1	
	-WCKV01	10x0.22q	7	=XGR110.AQ08-KD19	O27:-X30		29/1	=XGR110.AQ08-KV1921	7		29/1	
H	-WCKV01	10x0.22q	8	=XGR110.AQ08-KD19	O28:-X30		29/1	=XGR110.AQ08-KV1921	8		29/1	
			Customer / Project Description: Standard SensorX Conv.Systems		Project No / Project release date pdxgr0302 01.07.2011		Item No / File & BOM No cus-elcm 2012-300-00001-01		Chapter / Page type Cables List		Page Title / Page Last Changed Cable list 27.1.2012	
			System Top Ref / Page Ref: +X									
www.marel.com		Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland		+354-563-8000 / +354-563-8001 (Tel/Fax)		Appr: EOTH		Scale: 1:1		Page No: 31 / 38		
0	1	2	3	4	5	6	7	8	9			

0	1	2	3	4	5	6	7	8	9			
CABLE			Connection point A			Connection point B						
Cable Name	Type/Dimention	Wire	Designation	Connection	Plug	Page	Designation	Connection	Plug	Page	Comment	
A	-WCSE01	4x0.5q	RD	=XGR110.AQ08-X10	62	22/3	=XGR110.AC01-SE01	21		22/3		
	-WCSE01	4x0.5q	YE	=XGR110.AQ08-X10	70	22/3	=XGR110.AC01-SE01	22		22/3		
	-WCSE01	4x0.5q	BU	=XGR110.AQ08-X10	61	22/2	=XGR110.AC01-SE01	11		22/2		
	-WCSE01	4x0.5q	GN	=XGR110.AQ08-X10	69	22/3	=XGR110.AC01-SE01	12		22/2		
B	-WCSE02	4x0.5q	RD	=XGR110.AQ08-X10	62	22/5	=XGR110.AQ08-SE02	21		22/5		
	-WCSE02	4x0.5q	GN	=XGR110.AQ08-X10	71	22/5	=XGR110.AQ08-SE02	12		22/4		
	-WCSE02	4x0.5q	YE	=XGR110.AQ08-X10	72	22/5	=XGR110.AQ08-SE02	22		22/5		
	-WCSE02	4x0.5q	BU	=XGR110.AQ08-X10	61	22/4	=XGR110.AQ08-SE02	11		22/4		
C	-WCSE03	4x0.5q	RD	=XGR110.AQ08-X10	62	22/6	=XGR110.AQ08-SE03	21		22/6		
	-WCSE03	4x0.5q	GN	=XGR110.AQ08-X10	73	22/6	=XGR110.AQ08-SE03	12		22/6		
	-WCSE03	4x0.5q	YE	=XGR110.AQ08-X10	74	22/6	=XGR110.AQ08-SE03	22		22/6		
	-WCSE03	4x0.5q	BU	=XGR110.AQ08-X10	61	22/6	=XGR110.AQ08-SE03	11		22/6		
D	-WCTF10	4x0.5q	RD	=XGR110.AQ08-TF10	24O	X80	22/7	=XGR110.AQ08-X10	32		22/7	
	-WCTF10	4x0.5q	BU	=XGR110.AQ08-TF10	GI	X80	22/7	=XGR110.AQ08-X10	31		22/7	
	-WCTF10	4x0.5q	YE	=XGR110.AQ08-TF10	SIA	X80	22/6	=XGR110.AQ08-X10	80		22/6	
	-WCTF10	4x0.5q	GN	=XGR110.AQ08-TF10	SIB	X80	22/7	=XGR110.AQ08-X10	79		22/7	
E	-WMMM01	4x1+2x0,5q	PE	=XGR110.AQ08-TF01	L3		20/1	=XGR110.AQ08-MM01	PE		20/1	
	-WMMM01	4x1+2x0,5q	WH	=XGR110.AQ08-TF01	T1		20/1	=XGR110.AQ08-MM01	A		20/1	
	-WMMM01	4x1+2x0,5q	BR	=XGR110.AQ08-TF01	T2		20/1	=XGR110.AQ08-MM01	B		20/1	
	-WMMM01	4x1+2x0,5q	1	=XGR110.AQ08-TF01	U		20/1	=XGR110.AQ08-MM01	U		20/1	
F	-WMMM01	4x1+2x0,5q	2	=XGR110.AQ08-TF01	V		20/1	=XGR110.AQ08-MM01	V		20/1	
	-WMMM01	4x1+2x0,5q	3	=XGR110.AQ08-TF01	W		20/1	=XGR110.AQ08-MM01	W		20/1	
	-WMMM01.2	4x0.22q	BN	=XGR110.AQ08-XTF01	31		24/2	=XGR110.AQ08-MM01	GND		24/2	
	-WMMM01.2	4x0.22q	YE	=XGR110.AQ08-XTF01	32		24/2	=XGR110.AQ08-MM01	V+		24/2	
G	-WMMM01.2	4x0.22q	GN	=XGR110.AQ08-XTF01	DI1		24/2	=XGR110.AQ08-MM01	A		24/2	
	-WMMM01.2	4x0.22q	WH	=XGR110.AQ08-XTF01	DI2		24/2	=XGR110.AQ08-MM01	B		24/2	
	-WMMM02	4x1+2x0,5q	PE	=XGR110.AQ08-TF02	L3		20/2	=XGR110.AQ08-MM02	PE		20/2	
	-WMMM02	4x1+2x0,5q	WH	=XGR110.AQ08-TF02	T1		20/3	=XGR110.AQ08-MM02	A		20/3	
H	-WMMM02	4x1+2x0,5q	BR	=XGR110.AQ08-TF02	T2		20/3	=XGR110.AQ08-MM02	B		20/3	
	-WMMM02	4x1+2x0,5q	1	=XGR110.AQ08-TF02	U		20/2	=XGR110.AQ08-MM02	U		20/2	
	-WMMM02	4x1+2x0,5q	2	=XGR110.AQ08-TF02	V		20/2	=XGR110.AQ08-MM02	V		20/2	
	-WMMM02	4x1+2x0,5q	3	=XGR110.AQ08-TF02	W		20/2	=XGR110.AQ08-MM02	W		20/2	
I	-WMMM02.2	4x0.22q	BN	=XGR110.AQ08-XTF08	31		24/3	=XGR110.AQ08-MM02	GND		24/3	
	-WMMM02.2	4x0.22q	YE	=XGR110.AQ08-XTF08	32		24/4	=XGR110.AQ08-MM02	V+		24/4	
	-WMMM02.2	4x0.22q	GN	=XGR110.AQ08-XTF08	DI1		24/3	=XGR110.AQ08-MM02	A		24/3	
	-WMMM02.2	4x0.22q	WH	=XGR110.AQ08-XTF08	DI2		24/3	=XGR110.AQ08-MM02	B		24/3	
J												
			Customer / Project Description: Standard SensorX Conv.Systems		Project No / Project release date pdxgr0302 01.07.2011		Item No / File & BOM No cus-elcm 2012-300-00001-01		Chapter / Page type Cables List		Page Title / Page Last Changed Cable list 27.1.2012	
www.marel.com			Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland			+354-563-8000 / +354-563-8001 (Tel/Fax)			Appr: EOTH		Scale: 1:1	Page No: 32 / 38
0	1	2	3	4	5	6	7	8	9			

0	1	2	3	4	5	6	7	8	9			
CABLE			Connection point A			Connection point B						
Cable Name	Type/Dimention	Wire	Designation	Connection	Plug	Page	Designation	Connection	Plug	Page	Comment	
A	-WMMM03	4x1+2x0,5q	PE	=XGR110.AQ08-TF03	L3	20/4	=XGR110.AQ08-MM03	PE		20/4		
	-WMMM03	4x1+2x0,5q	WH	=XGR110.AQ08-TF03	T1	20/4	=XGR110.AQ08-MM03	A		20/4		
	-WMMM03	4x1+2x0,5q	BR	=XGR110.AQ08-TF03	T2	20/4	=XGR110.AQ08-MM03	B		20/4		
	-WMMM03	4x1+2x0,5q	1	=XGR110.AQ08-TF03	U	20/4	=XGR110.AQ08-MM03	U		20/4		
	-WMMM03	4x1+2x0,5q	2	=XGR110.AQ08-TF03	V	20/4	=XGR110.AQ08-MM03	V		20/4		
	-WMMM03	4x1+2x0,5q	3	=XGR110.AQ08-TF03	W	20/4	=XGR110.AQ08-MM03	W		20/4		
B	-WMMM03.2	4x0.22q	BN	=XGR110.AQ08-XTF10	31	24/5	=XGR110.AQ08-MM03	GND		24/5		
	-WMMM03.2	4x0.22q	YE	=XGR110.AQ08-XTF10	32	24/5	=XGR110.AQ08-MM03	V+		24/5		
	-WMMM03.2	4x0.22q	GN	=XGR110.AQ08-XTF10	DI1	24/5	=XGR110.AQ08-MM03	A		24/5		
	-WMMM03.2	4x0.22q	WH	=XGR110.AQ08-XTF10	DI2	24/5	=XGR110.AQ08-MM03	B		24/5		
C	-WMMM04	4x1+2x0,5q	PE	=XGR110.AQ08-TF04	L3	20/5	=XGR110.AQ08-MM04	PE		20/5		
	-WMMM04	4x1+2x0,5q	WH	=XGR110.AQ08-TF04	T1	20/6	=XGR110.AQ08-MM04	A		20/6		
	-WMMM04	4x1+2x0,5q	BR	=XGR110.AQ08-TF04	T2	20/6	=XGR110.AQ08-MM04	B		20/6		
	-WMMM04	4x1+2x0,5q	1	=XGR110.AQ08-TF04	U	20/5	=XGR110.AQ08-MM04	U		20/5		
	-WMMM04	4x1+2x0,5q	2	=XGR110.AQ08-TF04	V	20/5	=XGR110.AQ08-MM04	V		20/5		
	-WMMM04	4x1+2x0,5q	3	=XGR110.AQ08-TF04	W	20/5	=XGR110.AQ08-MM04	W		20/5		
D	-WMMM04.2	4x0.22q	BN	=XGR110.AQ08-XTF12	31	24/6	=XGR110.AQ08-MM04	GND		24/6		
	-WMMM04.2	4x0.22q	YE	=XGR110.AQ08-XTF12	32	24/7	=XGR110.AQ08-MM04	V+		24/7		
	-WMMM04.2	4x0.22q	GN	=XGR110.AQ08-XTF12	DI1	24/7	=XGR110.AQ08-MM04	A		24/7		
	-WMMM04.2	4x0.22q	WH	=XGR110.AQ08-XTF12	DI2	24/6	=XGR110.AQ08-MM04	B		24/7		
E	-WMMM05	4x1+2x0,5q	PE	=XGR110.AQ08-TF05	L3	20/7	=XGR110.AQ08-MM05	PE		20/7	Optional	
	-WMMM05	4x1+2x0,5q	WH	=XGR110.AQ08-TF05	T1	20/7	=XGR110.AQ08-MM05	A		20/7	Optional	
	-WMMM05	4x1+2x0,5q	BR	=XGR110.AQ08-TF05	T2	20/7	=XGR110.AQ08-MM05	B		20/7	Optional	
	-WMMM05	4x1+2x0,5q	1	=XGR110.AQ08-TF05	U	20/7	=XGR110.AQ08-MM05	U		20/7	Optional	
	-WMMM05	4x1+2x0,5q	2	=XGR110.AQ08-TF05	V	20/7	=XGR110.AQ08-MM05	V		20/7	Optional	
	-WMMM05	4x1+2x0,5q	3	=XGR110.AQ08-TF05	W	20/7	=XGR110.AQ08-MM05	W		20/7	Optional	
F	-WMMM05.2	4x0.22q	BN	=XGR110.AQ08-XTF14	31	24/8	=XGR110.AQ08-MM05	GND		24/8		
	-WMMM05.2	4x0.22q	YE	=XGR110.AQ08-XTF14	32	24/9	=XGR110.AQ08-MM05	V+		24/8		
	-WMMM05.2	4x0.22q	GN	=XGR110.AQ08-XTF14	DI1	24/8	=XGR110.AQ08-MM05	A		24/8		
	-WMMM05.2	4x0.22q	WH	=XGR110.AQ08-XTF14	DI2	24/8	=XGR110.AQ08-MM05	B		24/8		
G	-WMMM06	4x1+2x0,5q	PE	=XGR110.AQ08-TF06	L3	20/8	=XGR110.AQ08-MM06	PE		20/8	optional	
	-WMMM06	4x1+2x0,5q	WH	=XGR110.AQ08-TF06	T1	20/9	=XGR110.AQ08-MM06	A		20/9	optional	
	-WMMM06	4x1+2x0,5q	BR	=XGR110.AQ08-TF06	T2	20/9	=XGR110.AQ08-MM06	B		20/9	optional	
	-WMMM06	4x1+2x0,5q	1	=XGR110.AQ08-TF06	U	20/8	=XGR110.AQ08-MM06	U		20/8	optional	
	-WMMM06	4x1+2x0,5q	2	=XGR110.AQ08-TF06	V	20/8	=XGR110.AQ08-MM06	V		20/8	optional	
	-WMMM06	4x1+2x0,5q	3	=XGR110.AQ08-TF06	W	20/8	=XGR110.AQ08-MM06	W		20/8	optional	
H	-WMMM06.2	4x0.22q	BN	=XGR110.AQ08-XTF06	31	25/1	=XGR110.AQ08-MM06	GND		25/1		
	-WMMM06.2	4x0.22q	YE	=XGR110.AQ08-XTF06	32	25/1	=XGR110.AQ08-MM06	V+		25/1		
	-WMMM06.2	4x0.22q	GN	=XGR110.AQ08-XTF06	DI1	25/1	=XGR110.AQ08-MM06	A		25/1		
	-WMMM06.2	4x0.22q	WH	=XGR110.AQ08-XTF06	DI2	25/1	=XGR110.AQ08-MM06	B		25/1		
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		Customer / Project Description: Standard SensorX Conv.Systems		Project No / Project release date pdxgr0302 01.07.2011		Item No / File & BOM No cus-elcm 2012-300-00001-01		Chapter / Page type Cables List		Page Title / Page Last Changed Cable list 27.1.2012		System Top Ref / Page Ref: +X
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0	1	2	3	4	5	6	7	8	9			

0	1	2	3	4	5	6	7	8	9				
CABLE			Connection point A			Connection point B							
Cable Name	Type/Dimention	Wire	Designation	Connection	Plug	Page	Designation	Connection	Plug	Page	Comment		
A	-WMMM07	4x1+2x0,5q	PE	=XGR110.AQ08-TF07	L3	21/1	=XGR110.AQ08-MM07	PE		21/1			
	-WMMM07	4x1+2x0,5q	WH	=XGR110.AQ08-TF07	T1	21/1	=XGR110.AQ08-MM07	A		21/1			
	-WMMM07	4x1+2x0,5q	BR	=XGR110.AQ08-TF07	T2	21/1	=XGR110.AQ08-MM07	B		21/1			
	-WMMM07	4x1+2x0,5q	1	=XGR110.AQ08-TF07	U	21/1	=XGR110.AQ08-MM07	U		21/1			
	-WMMM07	4x1+2x0,5q	2	=XGR110.AQ08-TF07	V	21/1	=XGR110.AQ08-MM07	V		21/1			
	-WMMM07	4x1+2x0,5q	3	=XGR110.AQ08-TF07	W	21/1	=XGR110.AQ08-MM07	W		21/1			
B	-WMMM07.2	4x0.22q	BN	=XGR110.AQ08-XTF07	31	25/2	=XGR110.AQ08-MM07	GND		25/2			
	-WMMM07.2	4x0.22q	YE	=XGR110.AQ08-XTF07	32	25/3	=XGR110.AQ08-MM07	V+		25/3			
	-WMMM07.2	4x0.22q	GN	=XGR110.AQ08-XTF07	DI1	25/3	=XGR110.AQ08-MM07	A		25/3			
	-WMMM07.2	4x0.22q	WH	=XGR110.AQ08-XTF07	DI2	25/2	=XGR110.AQ08-MM07	B		25/2			
C	-WMMM08	4x1+2x0,5q	PE	=XGR110.AQ08-TF08	L3	21/2	=XGR110.AQ08-MM08	PE		21/2			
	-WMMM08	4x1+2x0,5q	WH	=XGR110.AQ08-TF08	T1	21/3	=XGR110.AQ08-MM08	A		21/3			
	-WMMM08	4x1+2x0,5q	BR	=XGR110.AQ08-TF08	T2	21/3	=XGR110.AQ08-MM08	B		21/3			
	-WMMM08	4x1+2x0,5q	1	=XGR110.AQ08-TF08	U	21/2	=XGR110.AQ08-MM08	U		21/2			
	-WMMM08	4x1+2x0,5q	2	=XGR110.AQ08-TF08	V	21/2	=XGR110.AQ08-MM08	V		21/2			
	-WMMM08	4x1+2x0,5q	3	=XGR110.AQ08-TF08	W	21/2	=XGR110.AQ08-MM08	W		21/2			
D	-WMMM09	4x1+2x0,5q	PE	=XGR110.AQ08-TF09	L3	21/4	=XGR110.AQ08-MM09	PE		21/4			
	-WMMM09	4x1+2x0,5q	WH	=XGR110.AQ08-TF09	T1	21/4	=XGR110.AQ08-MM09	A		21/4			
	-WMMM09	4x1+2x0,5q	BR	=XGR110.AQ08-TF09	T2	21/4	=XGR110.AQ08-MM09	B		21/4			
	-WMMM09	4x1+2x0,5q	1	=XGR110.AQ08-TF09	U	21/4	=XGR110.AQ08-MM09	U		21/4			
	-WMMM09	4x1+2x0,5q	2	=XGR110.AQ08-TF09	V	21/4	=XGR110.AQ08-MM09	V		21/4			
	-WMMM09	4x1+2x0,5q	3	=XGR110.AQ08-TF09	W	21/4	=XGR110.AQ08-MM09	W		21/4			
E	-WMMM10	4x1+2x0,5q	PE	=XGR110.AQ08-TF10	L3	21/5	=XGR110.AQ08-MM10	PE		21/5			
	-WMMM10	4x1+2x0,5q	WH	=XGR110.AQ08-TF10	T1	21/6	=XGR110.AQ08-MM10	A		21/6			
	-WMMM10	4x1+2x0,5q	BR	=XGR110.AQ08-TF10	T2	21/6	=XGR110.AQ08-MM10	B		21/6			
	-WMMM10	4x1+2x0,5q	1	=XGR110.AQ08-TF10	U	21/5	=XGR110.AQ08-MM10	U		21/5			
	-WMMM10	4x1+2x0,5q	2	=XGR110.AQ08-TF10	V	21/5	=XGR110.AQ08-MM10	V		21/5			
	-WMMM10	4x1+2x0,5q	3	=XGR110.AQ08-TF10	W	21/5	=XGR110.AQ08-MM10	W		21/5			
F	-WMMM11	4x1+2x0,5q	PE	=XGR110.AQ08-TF11	L3	21/7	=XGR110.AQ08-MM11	PE		21/7			
	-WMMM11	4x1+2x0,5q	WH	=XGR110.AQ08-TF11	T1	21/7	=XGR110.AQ08-MM11	A		21/7			
	-WMMM11	4x1+2x0,5q	BR	=XGR110.AQ08-TF11	T2	21/7	=XGR110.AQ08-MM11	B		21/7			
	-WMMM11	4x1+2x0,5q	1	=XGR110.AQ08-TF11	U	21/7	=XGR110.AQ08-MM11	U		21/7			
	-WMMM11	4x1+2x0,5q	2	=XGR110.AQ08-TF11	V	21/7	=XGR110.AQ08-MM11	V		21/7			
	-WMMM11	4x1+2x0,5q	3	=XGR110.AQ08-TF11	W	21/7	=XGR110.AQ08-MM11	W		21/7			
G	-WMMM12	4x1+2x0,5q	PE	=XGR110.AQ08-TF12	L3	21/8	=XGR110.AQ08-MM12	PE		21/8			
	-WMMM12	4x1+2x0,5q	WH	=XGR110.AQ08-TF12	T1	21/9	=XGR110.AQ08-MM12	A		21/9			
	-WMMM12	4x1+2x0,5q	BR	=XGR110.AQ08-TF12	T2	21/9	=XGR110.AQ08-MM12	B		21/9			
	-WMMM12	4x1+2x0,5q	1	=XGR110.AQ08-TF12	U	21/8	=XGR110.AQ08-MM12	U		21/8			
	-WMMM12	4x1+2x0,5q	2	=XGR110.AQ08-TF12	V	21/8	=XGR110.AQ08-MM12	V		21/8			
	-WMMM12	4x1+2x0,5q	3	=XGR110.AQ08-TF12	W	21/8	=XGR110.AQ08-MM12	W		21/8			
			Customer / Project Description: Standard SensorX Conv.Systems		Project No / Project release date pdxgr0302 01.07.2011		Item No / File & BOM No cus-elcm 2012-300-00001-01		Chapter / Page type Cables List		Page Title / Page Last Changed Cable list 27.1.2012		System Top Ref / Page Ref: +X
www.marel.com			Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland				+354-563-8000 / +354-563-8001 (Tel/Fax)				Appr: EOTH	Scale: 1:1	Page No: 34 / 38
0	1	2	3	4	5	6	7	8	9				

0	1	2	3	4	5	6	7	8	9		
CABLE			Connection point A			Connection point B					
Cable Name	Type/Dimention	Wire	Designation	Connection	Plug	Page	Designation	Connection	Plug	Page	Comment
A	-WPAQ08	5g4q	BN	=XGR110.AQ08-X01	1	19/1	=XGR110.AQ10-X01	1		19/1	
	-WPAQ08	5g4q	BK	=XGR110.AQ08-X01	2	19/1	=XGR110.AQ10-X01	2		19/1	
	-WPAQ08	5g4q	GY	=XGR110.AQ08-X01	3	19/1	=XGR110.AQ10-X01	3		19/1	
	-WPAQ08	5g4q	BU	=XGR110.AQ08-X01	N	19/1	=XGR110.AQ10-X01	N		19/1	
	-WPAQ08	5g4q	GR/YE	=XGR110.AQ08-X01	PE	19/1	=XGR110.AQ10-X01	PE		19/1	
B	-WPAQ08.2	5g4q	BN	=XGR110.AQ08-X01	9	19/2	=XGR110.AQ08-X02	1		19/3	
	-WPAQ08.2	5g4q	GR/YE	=XGR110.AQ08-X01	PE	19/2	=XGR110.AQ08-X02	PE		19/3	
	-WPAQ08.2	5g4q	BK	=XGR110.AQ08-X01	7	19/2	=XGR110.AQ08-X02	2		19/3	
C	-WPEL1	5g1,5q	BK	=XGR110.AQ08-X02	2	19/6	=XGR110.AQ08-EL1	2		19/6	
	-WPEL1	5g1,5q	GY	=XGR110.AQ08-X02	PE	19/6	=XGR110.AQ08-EL1	3		19/6	
	-WPEL1	5g1,5q	BN	=XGR110.AQ08-X12	1	19/5	=XGR110.AQ08-EL1	1		19/5	
D	-WPEL2	5g1,5q	BN	=XGR110.AQ08-X02	1	19/7	=XGR110.AQ08-EL2	1		19/7	
	-WPEL2	5g1,5q	BK	=XGR110.AQ08-X02	2	19/7	=XGR110.AQ08-EL2	2		19/7	
	-WPEL2	5g1,5q	GY	=XGR110.AQ08-X02	PE	19/7	=XGR110.AQ08-EL2	3		19/7	
E	-WPEL3	5g1,5q	BN	=XGR110.AQ08-X02	1	19/8	=XGR110.AQ08-EL3	1		19/8	
	-WPEL3	5g1,5q	BK	=XGR110.AQ08-X02	2	19/8	=XGR110.AQ08-EL3	2		19/8	
	-WPEL3	5g1,5q	GY	=XGR110.AQ08-X02	PE	19/8	=XGR110.AQ08-EL3	3		19/8	
F	-WPEL4	5g1,5q	BN	=XGR110.AQ08-X02	1	19/9	=XGR110.AQ08-EL4	1		19/9	
	-WPEL4	5g1,5q	BK	=XGR110.AQ08-X02	2	19/9	=XGR110.AQ08-EL4	2		19/9	
	-WPEL4	5g1,5q	GY	=XGR110.AQ08-X02	PE	19/9	=XGR110.AQ08-EL4	3		19/9	
G											
		Customer / Project Description: Standard SensorX Conv.Systems		Project No / Project release date pdxgr0302 01.07.2011		Item No / File & BOM No cus-elcm 2012-300-00001-01		Chapter / Page type Cables List		Page Title / Page Last Changed Cable list 27.1.2012	
										System Top Ref / Page Ref: +X	
www.marel.com		Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland		+354-563-8000 / +354-563-8001 (Tel/Fax)		Appr: EOTH		Scale: 1:1		Page No: 35 / 38	
0	1	2	3	4	5	6	7	8	9		

0	1	2	3	4	5	6	7	8	9
Description		Item No.	Comment		Description		Item No.	Comment	
A	Terminal Feed through 2,5qx4	715-3303-11608570000	Conrol Circuit		Cable ctrl 0,5q 02x scr pur	718-3702-00105	Conrol Circuit		A
	Terminal Feed through 2,5qx4 PE	715-3302-11608660000	Conrol Circuit		Cable ctrl 0,5q 04x scr pur	718-3702-0011	Conrol Circuit		
	Terminal Feed through 2,5qx4 Endplate	715-3303-11608800000			Cable ctrl 0,5q 06x scr pur	718-3702-0013	Conrol Circuit		
	Terminal mini Feed through 2,5qx2	715-3302-11720920000	Conrol Circuit		Cable ctrl 0,5q 08x scr pur	718-3702-0014	Conrol Circuit		
	Terminal mini Feed through 2,5qx2 Endplate	715-3303-11720960000			Cable ctrl 0,5q 12x scr pur	718-3702-0009	Conrol Circuit		
	Terminal Feed through 2,5q three level (LLL)	715-3302-11782300000	Conrol Circuit		Cable ctrl 0,5q 18x scr	718-3702-0010	Conrol Circuit		
	Terminal Feed through 2,5q three level Endplate	715-3303-11782340000			Cable CAN 2x2x0,5q pur	718-3702-y2422pur	CAN bus		
B	Terminal Diode	715-3302-11650350000	Conrol Circuit		Cable CAN 2x2x1,5q TRUNK	718-3702-y1815pvc	CAN bus		B
	Terminal Feed through 4qx3	715-3302-17904180000	Power Circuit		Cable ethernet pur Netbus F5P2	718-3702-f5p2pur	Ethernet		
	Terminal Feed through 4qx3 BL	715-3302-17904190000	Power Circuit		Cable motor 4x1q+2x0,5q pur gray	718-3701-0042	Motors on Inverters		
	Terminal Feed through 4qx3 PE	715-3302-17904170000	Power Circuit		Cable power 3g1,5q	718-3701-0032	Power Circuit		
	Terminal Feed through 4qx3 Endplate	715-3302-17904100000			Cable power 5g1,5q	718-3701-0033	Power Circuit		
	Terminal block stop 15mm	715-3303-17920340000							
	Terminal block stop 35mm	715-3303-1954000000							
C	Terminal block stop 35mm Screw	715-3303-11062000000							C
	Terminal cross-connections 2,5qx1	715-3302-11720700000							
	Terminal cross-connections 2,5qx2	715-3302-11608860000							
	Terminal cross-connections 2,5qx50	715-3302-11697540000							
	Terminal cross-connections 4qx2	715-3302-11608860000							
	Terminal cross-connections 4qx10	715-3302-11609030000							
	Terminal jumper 2,5qx2	715-3302-11677120000							
D	Plug to I/O unit 2pin	715-3002-1000							D
	Plug to I/O unit 2pin mini	715-3002-1001							
	Plug to I/O unit 3pin	715-3002-1002							
	Plug to I/O unit 3pin mini	715-3002-1003							
	Plug to I/O unit 4pin	715-3002-1004							
	Plug to I/O unit 4pin mini	715-3002-1005							
	Plug to I/O unit 5pin	715-3002-1007	(CAN)						
E	Plug to I/O unit 5pin mini	715-3002-1008							E
	Plug to I/O unit 5pin x2	715-3002-1105	(CAN dual)						
	Plug to I/O unit 6pin	715-3002-1010							
	Plug to I/O unit 6pin mini	715-3002-1011							
	Plug to I/O unit 8pin	715-3002-1013							
	Plug to I/O unit 8pin mini	715-3002-1014							
	Plug to I/O unit 10pin	715-3002-1015							
F	Plug to I/O unit 12pin	715-3002-1016							F
G									G

# Components



Customer / Project Description: Standard SensorX Conv.Systems  
 Project No / Project release date: pdxgr0302 01.07.2011  
 Item No / File & BOM No: cus-elcm 2012-300-00001-01  
 Chapter / Page type: Chapter / Page Last Changed: 20.5.2010  
 System Top Ref / Page Ref: +X  
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0	1	2	3	4	5	6	7	8	9		
Reference		Name	Quantity	Description		Electrical data	Item No.	Ref.	Index	Comment	
<b>A</b>	=XGR110	-WEKC01	-	Cable ethernet pur Netbus F5P2		2x2x0,22	718-3702-f5p2pur	/13/2	WE0001		
	=XGR110	-WEKC02	-	Cable ethernet pur Netbus F5P2		2x2x0,22	718-3702-f5p2pur	/13/3	WE0001		
	=XGR110	-WEKC03	-	Cable ethernet pur Netbus F5P2		2x2x0,22	718-3702-f5p2pur	/13/5	WE0001		
	=XGR110	-WEKC04	-	Cable ethernet pur Netbus F5P2		2x2x0,22	718-3702-f5p2pur	/13/6	WE0001		
	=XGR110	-WEKE01	-	Cable ethernet pur Netbus F5P2		2x2x0,22	718-3702-f5p2pur	/13/8	WE0001		
	=XGR110.AC01	-BP0811	1	Sensor optical product Tx 12mm steel		Opt.sens.TX	717-3407-0048		BP0002		
<b>B</b>	=XGR110.AC01	-BP0811	1	Sensor optical product Rx (+Tx) 12mm steel 90°		Opt.sens.RX	717-3407-0049	/27/0	BP0001	Product sens C-conveyor	
	=XGR110.AC01	-SB1	1	Push Button 22mm RD led cable		Push Button	717-3400-0013	/22/8	SB0007		
	=XGR110.AC01	-SE01	1	Em.stop switch box 2NC		2xNC	717-3400-1012258	/22/2	SE0002		
	=XGR110.AQ08	-BD1317	1	Sensor optical product Rx/Tx Diffuse 5m		Opt.sens.	717-3407-0021	/28/7	BD0008	Inf Tank Level sensor	
	=XGR110.AQ08	-BM0813	1	Sensor Inductiv M18		Ind.sens.M18	717-3407-0064	/27/2	BM0008	Confirmation Button	
	=XGR110.AQ08	-BM0814	1	Sensor Inductiv M18		Ind.sens.M18	717-3407-0064	/27/3	BM0008	Confirmation Button	
<b>C</b>	=XGR110.AQ08	-BP0812	1	Sensor optical product Tx 12mm steel		Opt.sens.TX	717-3407-0048		BP0002		
	=XGR110.AQ08	-BP0812	1	Sensor optical product Rx (+Tx) 12mm steel 90°		Opt.sens.RX	717-3407-0049	/27/2	BP0001		
	=XGR110.AQ08	-BP1311	1	Sensor optical product Tx 12mm steel		Opt.sens.TX	717-3407-0048		BP0002		
	=XGR110.AQ08	-BP1311	1	Sensor optical product Rx (+Tx) 12mm steel 90°		Opt.sens.RX	717-3407-0049	/28/0	BP0001	Product sensor	
	=XGR110.AQ08	-BP1312	1	Sensor optical product Tx 12mm steel		Opt.sens.TX	717-3407-0048		BP0002		
	=XGR110.AQ08	-BP1312	1	Sensor optical product Rx (+Tx) 12mm steel 90°		Opt.sens.RX	717-3407-0049	/28/1	BP0001	Product sensor	
<b>D</b>	=XGR110.AQ08	-BP1911	1	Sensor optical product Tx 5mm steel		Opt.sens.TX	717-3407-xuah0203		BP0011		
	=XGR110.AQ08	-BP1911	1	Sensor optical product Rx (+Tx) 5mm steel		Opt.sens.RX	717-3407-xuah0224	/29/0	BP0010	Product sensor Buffer A	
	=XGR110.AQ08	-BP1912	1	Sensor optical product Rx (+Tx) 5mm steel		Opt.sens.RX	717-3407-xuah0224	/29/2	BP0010	Product sensor Buffer B	
	=XGR110.AQ08	-BP1912	1	Sensor optical product Tx 5mm steel		Opt.sens.TX	717-3407-xuah0203		BP0011		
	=XGR110.AQ08	-BP1918	1	Sensor optical product Rx (+Tx) 12mm steel 90°		Opt.sens.RX	717-3407-0049	/29/8	BP0001	Product sensor Infeed belt	
	=XGR110.AQ08	-BP1918	1	Sensor optical product Tx 12mm steel		Opt.sens.TX	717-3407-0048		BP0002		
<b>E</b>	=XGR110.AQ08	-EL1	1	Fluorocent Lamp 2x15w		Lamp	765-0100-920440	/19/6	EL0001	Table	
	=XGR110.AQ08	-EL2	1	Fluorocent Lamp 2x15w		Lamp	765-0100-920440	/19/7	EL0001	Table	
	=XGR110.AQ08	-EL3	1	Fluorocent Lamp 2x15w		Lamp	765-0100-920440	/19/8	EL0001	Table	
	=XGR110.AQ08	-EL4	1	Fluorocent Lamp 2x15w		Lamp	765-0100-920440	/19/9	EL0001	Table	
	=XGR110.AQ08	-FC01	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/20/1	FC0035		
	=XGR110.AQ08	-FC02	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/20/2	FC0035		
<b>F</b>	=XGR110.AQ08	-FC03	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/20/4	FC0035		
	=XGR110.AQ08	-FC04	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/20/5	FC0035		
	=XGR110.AQ08	-FC05	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/20/7	FC0035	Optional	
	=XGR110.AQ08	-FC06	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/20/8	FC0035	optional	
	=XGR110.AQ08	-FC07	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/21/1	FC0035		
	=XGR110.AQ08	-FC08	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/21/2	FC0035		
<b>G</b>	=XGR110.AQ08	-FC09	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/21/4	FC0035		
	=XGR110.AQ08	-FC10	1	Circuit-breaker 2pol. 20A-C IEC/UL		20A-C	717-4402-1023416	/21/5	FC0037		
	=XGR110.AQ08	-FC11	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/21/7	FC0035		
	=XGR110.AQ08	-FC12	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/21/8	FC0035		
	=XGR110.AQ08	-FC21	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/19/4,14/0	FC0035		
	=XGR110.AQ08	-FC22	1	Circuit-breaker 1pol. 10A-B		10A-B	717-4402-101106	/19/4,14/0	FC0002		
<b>H</b>	=XGR110.AQ08	-FC23	1	Circuit-breaker 2pol. 10A-C IEC/UL		10A-C	717-4402-1023414	/19/6,14/1	FC0035		
	=XGR110.AQ08	-FS01	1	Safety Switch Magnet Steel		Magnet	717-3407-3042000vh		FS0003		
	=XGR110.AQ08	-FS01	1	Safety Switch 2nc 4 wire Steel		Safety Switch	717-3407-171v62v01	/22/5	FS0001	trim or FHF	
	=XGR110.AQ08	-KC01	1	M3206 Controller, CAN powered		M3206 24V	ctr-p3206t-c	/13/2,23/2	KC0043	display	
	=XGR110.AQ08	-KC02	1	M3206 Controller, CAN powered		M3206 24V	ctr-p3206t-c	/13/3,23/3	KC0043	display	
	=XGR110.AQ08	-KC03	1	M3206 Controller, CAN powered		M3206 24V	ctr-p3206t-c	/13/5,23/5	KC0043	display	
<b>I</b>	=XGR110.AQ08	-KC04	1	M3206 Controller, CAN powered		M3206 24V	ctr-p3206t-c	/13/6,23/6	KC0043	display	
	=XGR110.AQ08	-KD08	1	I/O MCS816		MCS816	elm-ecan-mcs816	/12/1,23/1,2	KD0006		
		Customer / Project Description: Standard SensorX Conv.Systems		Project No / Project release date pdxgr0302 01.07.2011	Item No / File & BOM No cus-elcm 2012-300-00001-01	Chapter / Page type Components List	Page Title / Page Last Changed Components list 27.1.2012	System Top Ref / Page Ref: +X			
0	1	2	3	4	5	6	7	8	9		

0	1	2	3	4	5	6	7	8	9	
Reference		Name	Quantity	Description		Electrical data	Item No.	Ref.	Index	Comment
A	=XGR110.AQ08	-KD13	1	I/O MCS816		MCS816	elm-ecan-mcs816	/12/2,28/2	KD0006	Trim System Option
	=XGR110.AQ08	-KD19	1	I/O MCS816		MCS816	elm-ecan-mcs816	/12/4,29/4,1	KD0006	FHF System Option
	=XGR110.AQ08	-KE01	1	EI mod ethernet switch 5 port		ES5	elm-enet-es5	/13/2,23/2,1	KE0001	
	=XGR110.AQ08	-KR10	1	Terminal Relay 24 VDC 1p		MRS24VDC	717-3406-1mrz24vdc	/22/9	KR0001	Reset lamp
	=XGR110.AQ08	-KV01	1	Bracket for Pn. Unit. SV20		SV20	004-0021-2754		KV0040	
	=XGR110.AQ08	-KV01	1	Filter/reg.&soft start SV20		SV20	752-sv20-evt5do02f	/22/7	KV0037	Safety Valve Buffer hood Only
	=XGR110.AQ08	-KV01	1	Pn. Regulator & filter		SV20	752-sv20-f02d		KV0038	
	=XGR110.AQ08	-KV01	1	Manometer W/switch 0-10 Bar			752-0690-gp461001		BA0002	
B	=XGR110.AQ08	-KV1921	1	Valve SV30		SV30	750-sv30-31005fu	/29/2	KV0021	Buffer release A&B
	=XGR110.AQ08	-KV1921	1	Valve SV30 base		SV30	750-sv30-501ac8		KV0022	
	=XGR110.AQ08	-KV1922	1	Valve SV30 base		SV30	750-sv30-501ac8		KV0022	
	=XGR110.AQ08	-KV1922	1	Valve SV30		SV30	750-sv30-31005fu	/29/3	KV0021	bypass
	=XGR110.AQ08	-ML01	1	Fan 60x60x25		FAN	727-4900-jf0625b	/23/3	ML0002	
C	=XGR110.AQ08	-ML02	1	Fan 60x60x25		FAN	727-4900-jf0625b	/23/4	ML0002	
	=XGR110.AQ08	-MM01	1	Motor, for part No see Mec.Part List				/20/1,24/1	MM0001	Optional
	=XGR110.AQ08	-MM02	1	Motor, for part No see Mec.Part List				/20/2,24/2	MM0001	Optional
	=XGR110.AQ08	-MM03	1	Motor, for part No see Mec.Part List				/20/4,24/4	MM0001	
	=XGR110.AQ08	-MM04	1	Motor, for part No see Mec.Part List				/20/5,24/5	MM0001	
	=XGR110.AQ08	-MM05	1	Motor, for part No see Mec.Part List				/20/7,24/7	MM0001	Optional
	=XGR110.AQ08	-MM06	1	Motor, for part No see Mec.Part List				/20/8,25/8	MM0001	optional
D	=XGR110.AQ08	-MM07	1	Motor, for part No see Mec.Part List				/21/1,25/1	MM0001	Optional
	=XGR110.AQ08	-QC01	1	Contactor 18A 3P+1NO+1NC, Uc 24V DC 7,5kW		18A	717-3406-1lc1d183bl	/19/2,23/2,1	QC0001	main contactor
	=XGR110.AQ08	-QC02	1	Contactor 18A 3P+1NO+1NC, Uc 24V DC 7,5kW		18A	717-3406-1lc1d183bl	/19/5,27/5,1	QC0001	workstation lamps
	=XGR110.AQ08	-RR1	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/2	RR0004	
	=XGR110.AQ08	-RR2	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/2	RR0004	
	=XGR110.AQ08	-RR2	1	Resistor,120 Ohm, 0.25W		120 Ohm	711-2000-21205	/12/1	RR0001	
	=XGR110.AQ08	-RR3	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/4	RR0004	
	=XGR110.AQ08	-RR4	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/3	RR0004	
	=XGR110.AQ08	-RR5	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/5	RR0004	
	=XGR110.AQ08	-RR6	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/5	RR0004	
E	=XGR110.AQ08	-RR7	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/7	RR0004	
	=XGR110.AQ08	-RR8	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/7	RR0004	
	=XGR110.AQ08	-RR9	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/8	RR0004	
	=XGR110.AQ08	-RR10	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/24/8	RR0004	
	=XGR110.AQ08	-RR11	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/25/1	RR0004	
	=XGR110.AQ08	-RR12	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/25/1	RR0004	
	=XGR110.AQ08	-RR13	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/25/3	RR0004	
	=XGR110.AQ08	-RR14	1	Resistor,2,2 KOhm, 0.25W		2,2 KOhm	711-2000-32205	/25/3	RR0004	
	=XGR110.AQ08	-SE01	1	Em.stop switch panel 2xNC		2xNC	717-3405-1m22-pv	/18/4	SE0005	
	=XGR110.AQ08	-SE01	1	Contact NC Cage Clamp panel			717-3404-1m22s-ck01		SC0002	
F	=XGR110.AQ08	-SE01	1	Contact NC Cage Clamp panel			717-3404-1m22s-ck01		SC0002	
	=XGR110.AQ08	-SE01	1	Contact panel adapter			717-3404-1m22-a		SC0004	
	=XGR110.AQ08	-SE01	1	Em.stop switch panel 2xNC		2xNC	717-3405-1m22-pv	/18/7	SE0005	
	=XGR110.AQ08	-SE01	1	Contact panel adapter			717-3404-1m22-a		SC0004	
	=XGR110.AQ08	-SE01	1	Contact NC Cage Clamp panel			717-3404-1m22s-ck01		SC0002	
G	=XGR110.AQ08	-SE01	1	Contact NC Cage Clamp panel			717-3404-1m22s-ck01		SC0002	
	=XGR110.AQ08	-SE02	1	Em.stop switch box 2NC		2xNC	717-3400-1012258	/22/4	SE0002	
	=XGR110.AQ08	-SE03	1	Em.stop switch box 2NC		2xNC	717-3400-1012258	/22/6	SE0002	
	=XGR110.AQ08	-TF01	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;		0,37Kw	725-8400-1020401	/12/1,20/1,2	TF0026	
	=XGR110.AQ08	-TF02	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;		0,37Kw	725-8400-1020401	/12/2,20/2,2	TF0026	
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A	=XGR110.AQ08	-TF03	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;	0,37Kw	725-8400-1020401	/12/4,20/4,2	TF0026		
	=XGR110.AQ08	-TF04	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;	0,37Kw	725-8400-1020401	/12/5,20/5,2	TF0026		
	=XGR110.AQ08	-TF05	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;	0,37Kw	725-8400-1020401	/12/7,20/7,2	TF0026	Optional	
	=XGR110.AQ08	-TF06	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;	0,37Kw	725-8400-1020401	/12/8,20/8,2	TF0026		
	=XGR110.AQ08	-TF07	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;	0,37Kw	725-8400-1020401	/12/8,21/8,2	TF0026		
	=XGR110.AQ08	-TF08	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;	0,37Kw	725-8400-1020401	/12/7,21/7,2	TF0026		
	=XGR110.AQ08	-TF09	1	Inverter Stateline; 0,37 kW; 2,4 A; 1ph 100-230V; CANOpen;	0,37Kw	725-8400-1020401	/12/5,21/5,2	TF0026		
	=XGR110.AQ08	-TF10	1	Inverter Stateline; 1,5 kW; 7,0 A; 1ph 100-230V; CANOpen	1,5Kw	725-8400-1020405	/12/4,21/4,2	TF0030	Only Trim system	
B	=XGR110.AQ08	-TF11	1	Inverter Stateline; 0,75 kW; 4,0 A; 1ph 100-230V; CANOpen	0,75Kw	725-8400-1020403	/12/2,21/2,2	TF0028		
	=XGR110.AQ08	-TF12	1	Inverter Stateline; 0,75 kW; 4,0 A; 1ph 100-230V; CANOpen	0,75Kw	725-8400-1020403	/12/1,21/1,2	TF0028		
	=XGR110.AQ08	-TP01	1	Power supply 115-230VAC/24VDC-10 Amp	24VDC 10A	719-3600-DRA24024A	/19/4,14/0	TP0001		
	=XGR110.AQ08	-WBKC01	-	Cable ctrl 0.5q 02x scr pur	2x0.5q	718-3702-00105	/23/4	WC0007		
	=XGR110.AQ08	-WBKC02	-	Cable ctrl 0.5q 02x scr pur	2x0.5q	718-3702-00105	/23/5	WC0007		
	=XGR110.AQ08	-WBKC03	-	Cable ctrl 0.5q 02x scr pur	2x0.5q	718-3702-00105	/23/7	WC0007		
	=XGR110.AQ08	-WBKC04	-	Cable ctrl 0.5q 02x scr pur	2x0.5q	718-3702-00105	/23/8	WC0007		
	=XGR110.AQ08	-WBKD08	-	Cable CAN 2x2x0,5q pur	CAN 0,5q	718-3702-y2422pur	/12/1	WB0001		
C	=XGR110.AQ08	-WBTF01	-	Cable CAN 2x2x0,5q pur	CAN 0,5q	718-3702-y2422pur	/12/1	WB0001		
	=XGR110.AQ08	-WCAC01	-	Cable ctrl 0.5q 12x scr pur	12x0.5q	718-3702-0009	/27/1,28/1	WC0011		
	=XGR110.AQ08	-WCAQ08	-	Cable ctrl 0.5q 18x scr	18x0.5q	718-3702-0010	/22/1	WC0012		
	=XGR110.AQ08	-WCAQ08.2	-	Cable ctrl 0.5q 04x scr pur	4x0.5q	718-3702-0011	/23/1	WC0008		
	=XGR110.AQ08	-WCKV01	-	Cable flat ribbon 10x0,22q 110mm	10x0.22q	508-0002-064	/29/0	WC0013		
	=XGR110.AQ08	-WCSE01	-	Cable ctrl 0.5q 06x scr pur	6x0.5q	718-3702-0013	/22/2	WC0009		
	=XGR110.AQ08	-WCSE02	-	Cable ctrl 0.5q 06x scr pur	6x0.5q	718-3702-0013	/22/4	WC0009		
	=XGR110.AQ08	-WCSE03	-	Cable ctrl 0.5q 06x scr pur	6x0.5q	718-3702-0013	/22/6	WC0009		
D	=XGR110.AQ08	-WCTF10	-	Cable ctrl 0.5q 04x scr pur	4x0.5q	718-3702-0011	/22/6	WC0008		
	=XGR110.AQ08	-WMMM01	1	Cable motor 4x1q+2x0,5q UL/CSA orange	4x1+2x0,5q	718-3701-0040	/20/1	WM0006		
	=XGR110.AQ08	-WMMM01.2	-	Cable ctrl 0.22q 04x scr	4x0.22q	718-3702-0006	/24/2	WC0001		
	=XGR110.AQ08	-WMMM02	1	Cable motor 4x1q+2x0,5q UL/CSA orange	4x1+2x0,5q	718-3701-0040	/20/2	WM0006		
	=XGR110.AQ08	-WMMM02.2	-	Cable ctrl 0.22q 04x scr	4x0.22q	718-3702-0006	/24/3	WC0001		
	=XGR110.AQ08	-WMMM03	1	Cable motor 4x1q+2x0,5q UL/CSA orange	4x1+2x0,5q	718-3701-0040	/20/4	WM0006		
	=XGR110.AQ08	-WMMM03.2	-	Cable ctrl 0.22q 04x scr	4x0.22q	718-3702-0006	/24/5	WC0001		
	=XGR110.AQ08	-WMMM04	1	Cable motor 4x1q+2x0,5q UL/CSA orange	4x1+2x0,5q	718-3701-0040	/20/5	WM0006		
E	=XGR110.AQ08	-WMMM04.2	-	Cable ctrl 0.22q 04x scr	4x0.22q	718-3702-0006	/24/6	WC0001		
	=XGR110.AQ08	-WMMM05	1	Cable motor 4x1q+2x0,5q UL/CSA orange	4x1+2x0,5q	718-3701-0040	/20/7	WM0006	Optional	
	=XGR110.AQ08	-WMMM05.2	-	Cable ctrl 0.22q 04x scr	4x0.22q	718-3702-0006	/24/8	WC0001		
	=XGR110.AQ08	-WMMM06	1	Cable motor 4x1q+2x0,5q UL/CSA orange	4x1+2x0,5q	718-3701-0040	/20/8	WM0006	optional	
	=XGR110.AQ08	-WMMM06.2	-	Cable ctrl 0.22q 04x scr	4x0.22q	718-3702-0006	/25/1	WC0001		
	=XGR110.AQ08	-WMMM07	1	Cable motor 4x1q+2x0,5q UL/CSA orange	4x1+2x0,5q	718-3701-0040	/21/1	WM0006		
	=XGR110.AQ08	-WMMM07.2	-	Cable ctrl 0.22q 04x scr	4x0.22q	718-3702-0006	/25/2	WC0001		
	=XGR110.AQ08	-WMMM08	1	Cable motor 4x1q+2x0,5q pur gray	4x1+2x0,5q	718-3701-0042	/21/2	WM0005		
F	=XGR110.AQ08	-WMMM09	1	Cable motor 4x1q+2x0,5q pur gray	4x1+2x0,5q	718-3701-0042	/21/4	WM0005		
	=XGR110.AQ08	-WMMM10	1	Cable motor 4x1q+2x0,5q pur gray	4x1+2x0,5q	718-3701-0042	/21/5	WM0005		
	=XGR110.AQ08	-WMMM11	1	Cable motor 4x1q+2x0,5q pur gray	4x1+2x0,5q	718-3701-0042	/21/7	WM0005		
	=XGR110.AQ08	-WMMM12	1	Cable motor 4x1q+2x0,5q pur gray	4x1+2x0,5q	718-3701-0042	/21/8	WM0005		
	=XGR110.AQ08	-WPAQ08	-	Cable power 5g4q	5g4q	718-3701-0031	/19/0	WP0009		
	=XGR110.AQ08	-WPAQ08.2	-	Cable power 5g4q	5g4q	718-3701-0031	/19/2	WP0009		
	=XGR110.AQ08	-WPEL1	-	Cable power 5g1,5q PUR Yellow	5g1,5q	718-3701-0033	/19/5	WP0007		
	=XGR110.AQ08	-WPEL2	-	Cable power 5g1,5q PUR Yellow	5g1,5q	718-3701-0033	/19/6	WP0007		
G	=XGR110.AQ08	-WPEL3	-	Cable power 5g1,5q PUR Yellow	5g1,5q	718-3701-0033	/19/8	WP0007		
	=XGR110.AQ08	-WPEL4	-	Cable power 5g1,5q PUR Yellow	5g1,5q	718-3701-0033	/19/9	WP0007		
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		www.marel.com		Design: EOTH At: Austurhraun 9-IS-210-Gardabaer-Iceland		+354-563-8000 / +354-563-8001 (Tel/Fax)		Appr: EOTH	Scale: 1:1	Page No: 38 / 38
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