DATALOGIC

MX-E90
Industrial Vision Processor

DESCRIPTION

This guide covers MX-E90 Industrial Vision Processor models. The MX-E90 series Industrial Vision Processors offer the most powerful and flexible way to solve even complex machine vision applications.

- Rugged IP20 housing
- Low Maintenance
- 16 Inputs and 16 Outputs
- Up to 8 GigE cameras
- Easily Accessed connectors

SYSTEM SPECIFICATIONS

Processor
Intel Core i7
Storage
32 GB RAM – 128 GB SSD
GigE camera ports
For MX-E90-8: 8 (all are PoE capable)
For MX-E90-4: 4 (all are PoE capable)
For MX-E90-2: 2 (all are PoE capable)
All MX-E90 Industrial Vision Processors have the following specifications:

- HD graphics (1920x1200)
- 2 x 10/100/1000 Mbps Base-T Network Interface
- Ethernet/IP, Modbus TCP, OPC, PROFINET communications supported
- 2 x RS232 Serial port
- 16 x Optically Isolated Digital In + 16 x Optically Isolated Digital Out, configurable NPN (sink) or PNP (source) output type.
- Microsoft Windows 10 IoT Enterprise 2016 64-bit

GENERAL VIEW
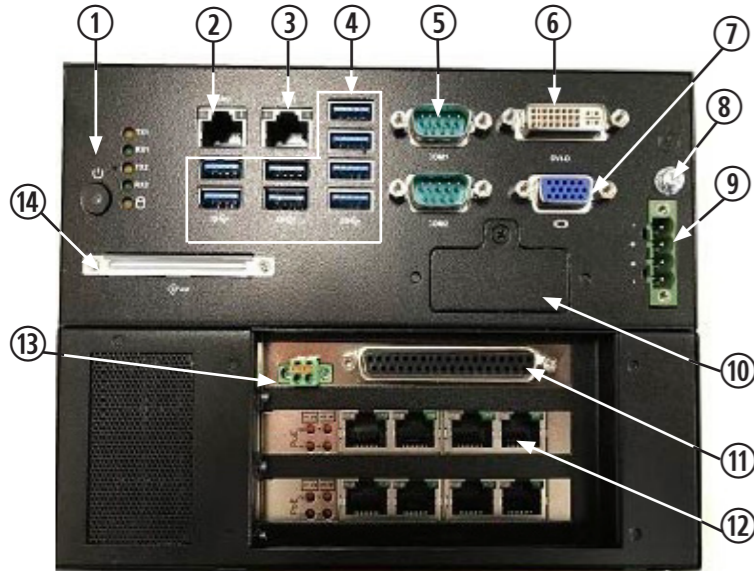
|			
1	Status lights and buttons	8	Chassis Grounding
2	LAN 1	9	Supply Voltage Connection
3	LAN 2	10	USB 2.0 Port for USB Hardware Key
4	USB 3.0: x8	11	37-pin D-Sub Digital I/O
5	COM1 + COM 2 2x RS-232 Serial port	12	Camera connectors: Cam 1-Cam 8 (MX-E90-8), Cam 1-Cam 4 (MX-E90-4), Cam1-Cam2 (MX-E90-2)
6	DVI for Monitor	13	Extra Digital Output Grounding
7	VGA	14	CFast card for extended storage

STATUS LEDS AND BUTTONS (1)
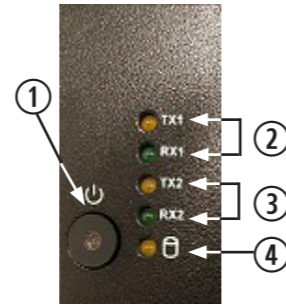
1 Power Button, Green

2 COM1: TX1/RX1 for data transmission, status monitoring

3 COM2: RX2/TX2 for data transmission, status monitoring.

4 HDD LED status, Yellow

Power Button: Press and release to turn on the unit or shut down the OS and switch off the unit. Press and hold to switch off without the OS shutdown.
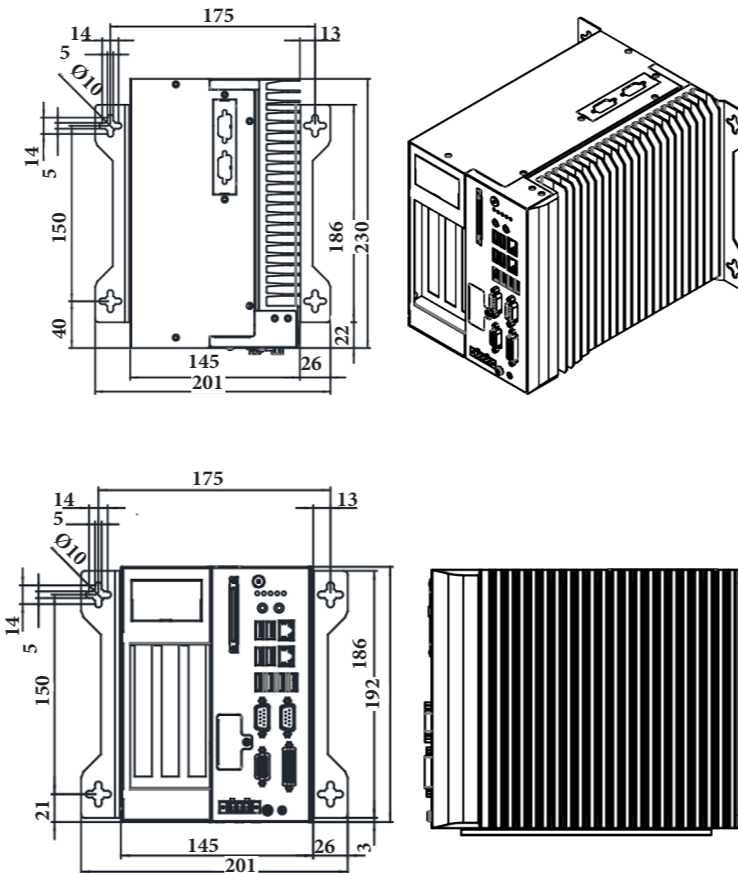
SUPPLY VOLTAGE CONNECTION (9)

Power Connector
+ 24VDC Supply Plus
- 24VDC Supply Minus
Chassis Grounding:
Connect to ground using a conductor with minimum 2.5 mm² cross-section.

Power 24   Supplied Power
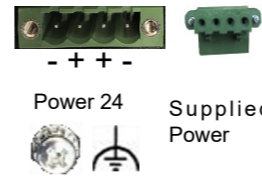
IMPORTANT NOTE: It is advised to use all 4 pins for power connection.

MECHANICAL DIMENSIONS

DIGITAL I/O SPECIFICATIONS

Pin	Color Code	Signal Name
1	Black	Input 1
2	Brown	Input 3
3	Red	Input 5
4	Orange	Input 7
5	Yellow	Input 9
6	Green	Input 11
7	Blue	Input 13
8	Purple	Input 15
9	Gray	Common pin for external source or ground of Input 1 to Input 16
10	White	PCOM0 NPN: common pin for connecting inductive loads of O 1 to O 8 PNP: common pin for external voltage of O 1 to O 8
11	Pink	Output 1
12	Light Green	Output 3
13	Black/White	Output 5
14	Brown/White	Output 7
15	Red/White	Output 9
16	Orange/White	Output 11
17	Green/White	Output 13
18	Blue/White	Output 15
19	Purple/White	PCOM1 NPN: common pin for connecting inductive loads of O 9 to O 16 PNP: common pin for external voltage of O9 to O 16
20	Red/Black	Input 2
21	Orange/Black	Input 4
22	Yellow/Black	Input 6
23	Green/Black	Input 8
24	Gray/Black	Input 10
25	Pink/Black	Input 12
26	Pink/Red	Input 14
27	Pink/Blue	Input 16
28	Pink/Green	Isolated ground
29	Light Blue	Isolated ground
30	Light Blue/Black	Output 2
31	Light Blue/Red	Output 4
32	Light Blue/Blue	Output 6
33	Light Blue/Green	Output 8
34	Gray/Red	Output 10
35	Gray/Green	Output 12
36	Purple/Black	Output 14
37	Blue/Black	Output 16

EXAMPLE I/O DIAGRAMS

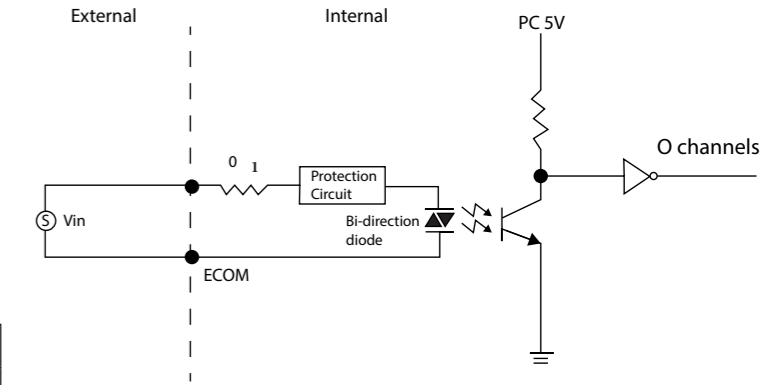**Figure 1 - Input connection**
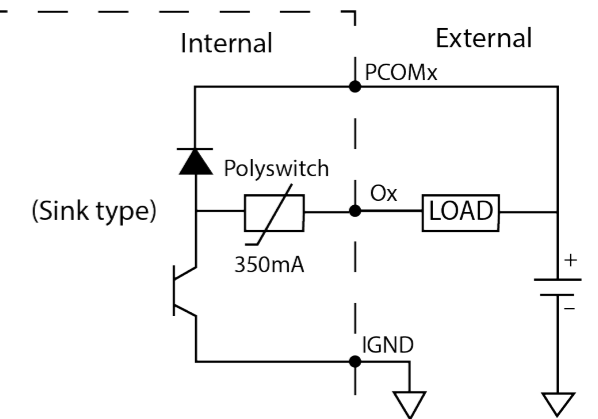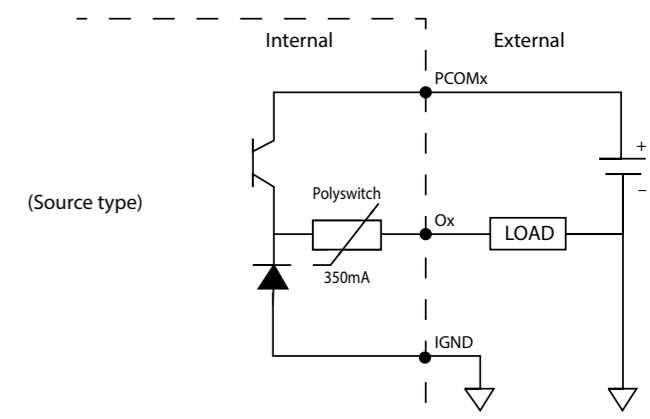

Figure 2 - Output connection (sinking)

Figure 3 - Output connection (sourcing)

ELECTRICAL FEATURES

Supply voltage (Vs)	9 ~ 36VDC
Current Consumption	Nominal: 5.5 A at 24VDC Maximum: 23A at 9VDC; 6A at 36VDC
Digital Inputs	16 opto-isolated, see Digital I/O Specifications.
Input Voltage	Logic 0: 3V max Logic 1: 10V min (30V max) or dry contact.
Input Resistance	3.21kΩ
On Current	>3mA
Off Current	<1mA
Current Maximum	8.5 mA @30VDC
Isolation Protection	2500VDC
Optical isolation response time	100µsec
Overvoltage protection	70VDC
Load Voltage	5 ~ 40VDC
Load Current	350mA (max per channel)
Input current	3.28mA @ 12VDC 6.71mA @24VDC
Digital Outputs	16 opto-isolated (configurable sink-NPN or source-PNP), see Digital I/O Specifications.
Format	Opto-coupler isolated open emitter output
Residual Voltage Output On	2V or less (output current ≤mA)
Optical isolation response time	100µsec
Camera interface	GigE (up to 8 depending on model)
USB Hardware Port	USB 2.0 Port for USB Hardware Key
USB Ports	8x USB 3.0 ports for monitor, mouse and keyboard
Graphic Interface	Intel® HD (1920x1200 resolution) VGA, DVI
Host Communications:	
Serial Communications	2x RS-232 Serial Port (COM 1 + COM 2)
Ethernet	10/100/1000 Mbps Ethernet x 2 Ethernet/RIP, Modbus, TCP, OPC, PROFINET communications supported.

PHYSICAL FEATURES

Dimensions	7.55 w x 5.74 h x 9.05 d (in) 192 w x 145 h x 230 d (mm)
Weight	4450 g
Housing material	Metal

ENVIRONMENTAL FEATURES

Temperature	Operating: 0° to +50° C (+32° to +122° F) Storage: -20° to +70° C (-4° to +158° F)
Relative Humidity	5 to 95%, non condensing
Vibrations (EN60068-2-64)	Random: 5 to 500Hz 3g
Vibrations (EN60068-2-6)	Sine: Ramp to 2g from 5 to 15Hz 15 to 500Hz 2g
Shock resistance (EN60068-2-27)	Half sine: 11ms (50g Max)
Mechanical protection (EN 60529)	IP20

SOFTWARE FEATURES

Minimum Impact Software Version Required	12.2.0

HARDWARE FEATURES

CPU	Intel® Core i7
System Memory	DDR4 RAM 32GB.
Storage	128 GB SSD, 1 CFast slot.

I/O CONFIGURATION

Camera communication uses Cat6 Ethernet cable and provides POE for M1xx and E1xx cameras. Use only Datalogic provided cables.

COMMUNICATIONS

Vision Program Manager (VPM) software installed on the processor is used to create vision programs and configure input and output response. Refer to the Impact Reference Guide for programming details.

DIGITAL I/O CABLES TERMINALS AND CONNECTIONS

Cable	Part Number
Digital I/O 37-pin to Terminal Block 248-0110	606-0675-xx
Digital I/O 37-pin to pigtail (remove one end)	606-0675-xx

Note: Do not disconnect the cable at the connector while power is on.

EXTRA DIGITAL OUTPUT GROUNDING

The spring clamp connector on the I/O Card provides two extra connections that are equivalent to the GND/PCOM pin on the 37-pin connector and are used to increase the current tolerance on the I/O Card. The spring clamp pins should be connected whenever the combined total output current is higher than 3.2A.

The pin assignments are as follows:
Pin 1: PCOM, used in source type (PNP) connections
Pin 2: GND, used in sink type (NPN) connections
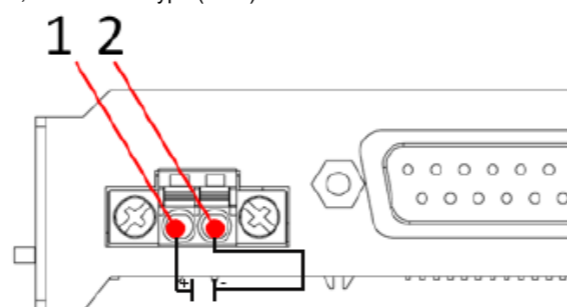
Spring Clamp Connector Pin Definition

SUPPORT THROUGH THE WEBSITE

Datalogic provides several services as well as technical support through its website. Log on to www.datalogic.com.

For quick access, from the home page click on the search icon 🔍, and type in the name of the product you're looking for. This allows you access to download Data Sheets, Manuals, Software & Utilities, and Drawings.
Hover over the Support & Service menu for access to Services and Technical Support.

PATENT

See www.patents.datalogic.com for patent list.
This product is covered by one or more of the following patents:
Utility patents: EP2517148B1, EP2649555B1, US10095951, US8888003, US8915443, US9396404, US9495607, US9798948, ZL200980163411.X, ZL201080071124.9

SEALS

The Industrial Vision Processor has seals in some areas. The seals must not be broken or removed for any reason. The sealed parts may be opened only and exclusively by Datalogic. Breakage of these seals by a customer shall result in immediate cancellation of the warranty on the entire Industrial Vision Processor.

WARRANTY

The warranty period for this product is 24 months. See General Terms and Conditions of Sales at www.datalogic.com for further details.

CE COMPLIANCE

CE marking states the compliance of the product with essential requirements listed in the applicable European directive. Since the directives and applicable standards are subject to continuous updates, and since Datalogic promptly adopts these updates, therefore the EU declaration of conformity is a living document. The EU declaration of conformity is available for competent authorities and customers through Datalogic commercial reference contacts. Since April 20th, 2016 the main European directives applicable to Datalogic products require inclusion of an adequate analysis and assessment of the risk(s). This evaluation was carried out in relation to the applicable points of the standards listed in the Declaration of Conformity. Datalogic products are mainly designed for integration purposes into more complex systems. For this reason, it is under the responsibility of the system integrator to do a new risk assessment regarding the final installation.

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC COMPLIANCE

Modifications or changes to this equipment without the expressed written approval of Datalogic could void the authority to use the equipment.
This device complies with PART 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference which may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EAC COMPLIANCE

Customs Union:
The CU Conformity certification has been achieved; this allows the Product to bear the Eurasian mark of conformity.

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DATALOGIC

MX-E90

PART	部件名称	有毒有害物质或元素					
		铅 (Pb) Lead (Pb)	汞 (Hg) Mercury (Hg)	镉 (Cd) Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
Metal Parts	金属部件	X	X	O	O	O	O
Panel (if any)	面板 (如有)	X	O	O	O	O	O

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○ 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。
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