

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)

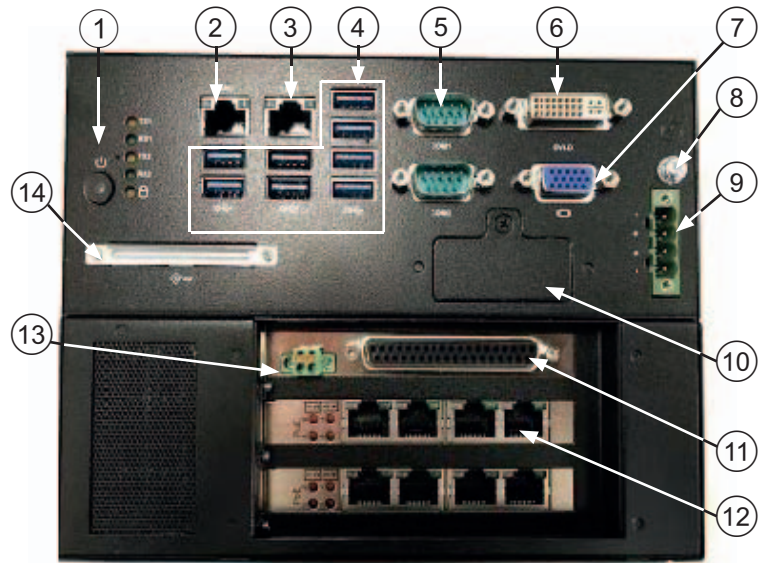
For MX-E90-4: 4 (all are PoE capable)

For MX-E90-2: 2 (all are PoE capable)

All MX-E90 Industrial Vision Processors have the following specifications:

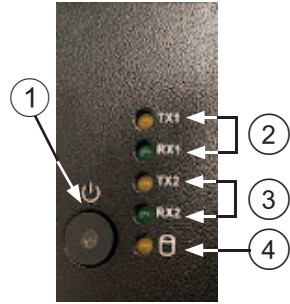
- HD graphics (1920x1200)
- 2 x 10/100/1000 Mbps Base-T Network Interface
- Ethernet/IP, Modbus TCP, OPC, PROFINET communications supported
- 2 x RS232 Serial port
- 16 x Optically Isolated Digital In + 16 x Optically Isolated Digital Out, configurable NPN (sink) or PNP (source) output type.
- Microsoft Windows 10 IoT Enterprise 2021 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 | 3 COM2: RX2/TX2 for data transmission, status monitoring. |
| 2 COM1: TX1/RX1 for data transmission, status monitoring. | 4 HDD LED status, Yellow |

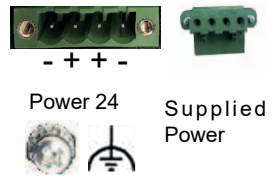
Power Button: Press and release to turn on the unit or shut down the OS and switch off the unit. Press and hold to switch off without the OS shutdown.

SUPPLY VOLTAGE CONNECTION (9)

Power Connector
+ 24VDC Supply Plus
- 24VDC Supply Minus

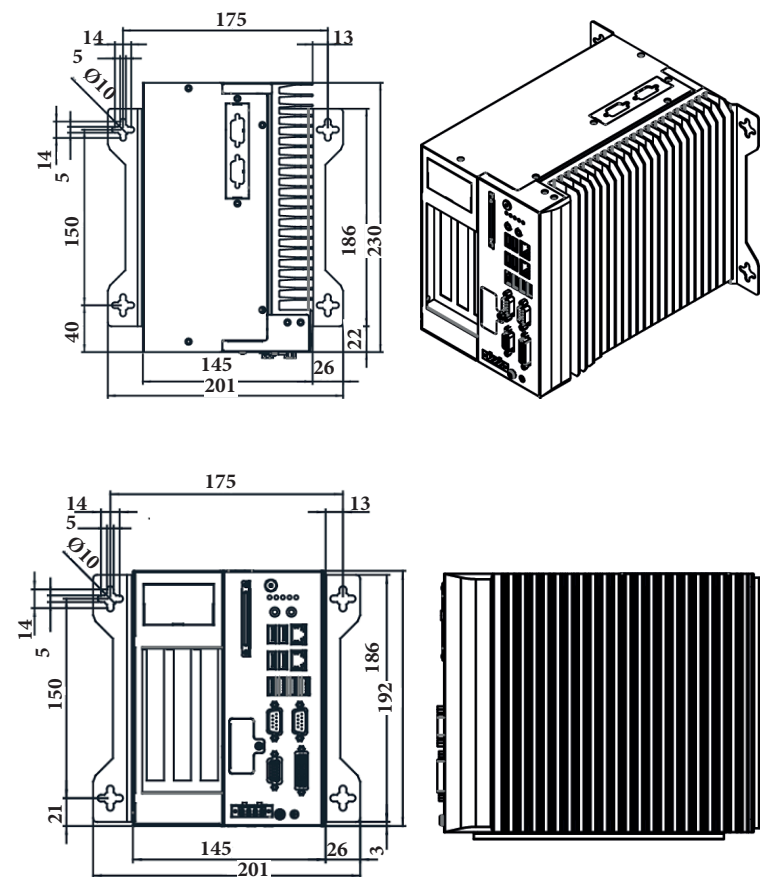
Chassis Grounding:

Connect to ground using a conductor with minimum 2.5 mm² cross-section.



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

MECHANICAL DIMENSIONS



DIGITAL I/O SPECIFICATIONS

PCOM1	015	013	011	09	07	05	03	01	PCOM0	10	9	8	7	6	5	4	3	2	1	11	13	15	17	19
	18	17	16	15	14	13	12	11		29	28	27	26	25	24	23	22	21	20					
	016	014	012	010	08	06	04	02	GND	GND	116	114	112	110	108	106	104	102	100	111	113	115	117	119

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 O 9 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

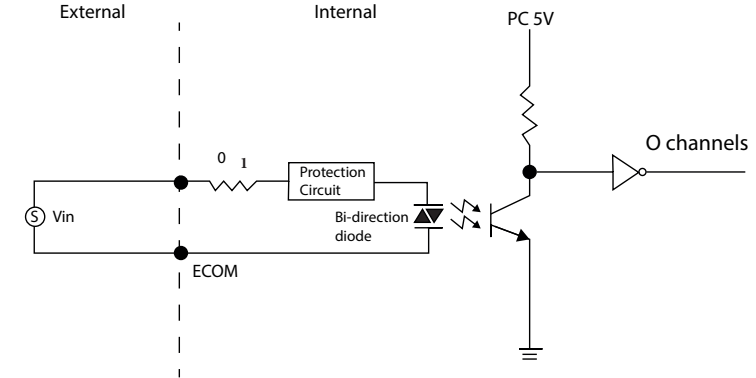


Figure 1 - Input connection

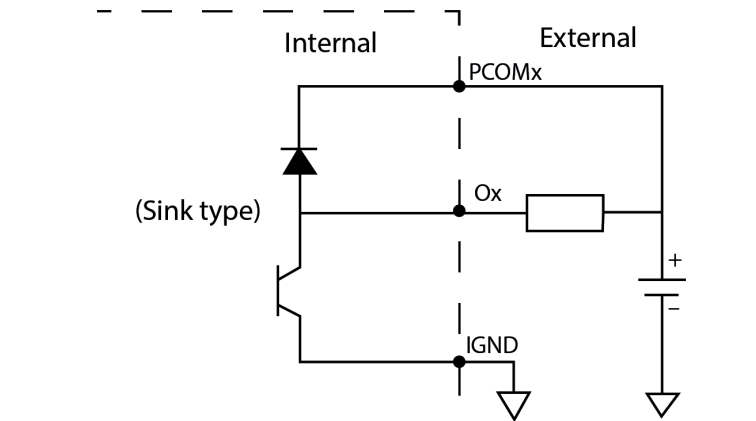


Figure 2 - Output connection (sinking)

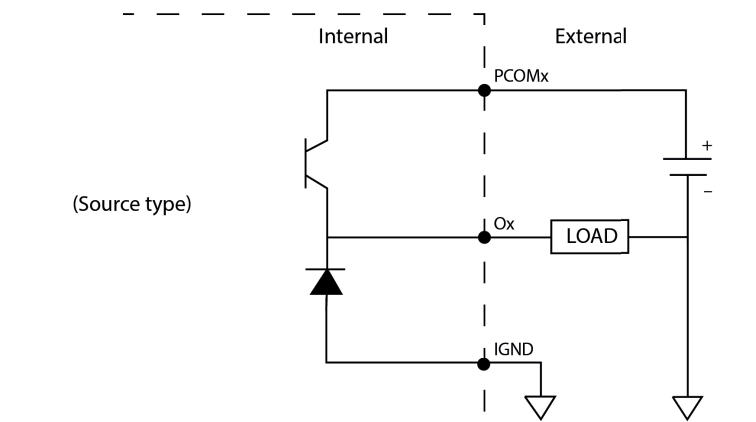


Figure 3 - Output connection (sourcing)

TECHNICAL DATA

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
<u>Host Communications:</u>	
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 Datasensing 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.

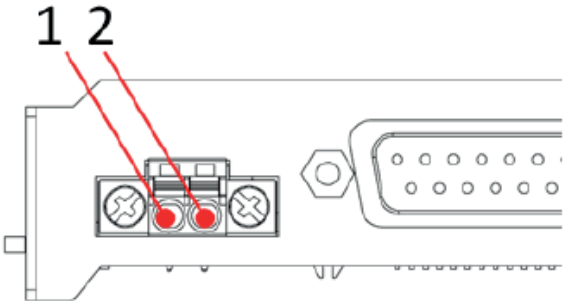
EXTRA DIGITAL OUTPUT GROUNDING

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

Datasensing provides several services as well as technical support through its website.

Log on to www.datasensing.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.

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, EP2946338B1, US10095951,
US10552699, US10762405, 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 Datasensing. 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.datasensing.com for further details.

COMPLIANCE

EUROPEAN DECLARATION OF CONFORMITY

Hereby, Datasensing S.r.l. declares that the full text of the European Declaration of Conformity is available at: www.datasensing.com. Select the link from the downloads section of the product page.

UKCA DECLARATION OF CONFORMITY

Hereby, Datasensing S.r.l. declares that the full text of the UKCA Declaration of Conformity is available at: www.datasensing.com. Select the link from the downloads section of the product page.

FCC

Modifications or changes to this equipment without the expressed written approval of Datasensing 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

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

WEEE

For information about the disposal of Waste Electrical and Electronic Equipment (WEEE), please refer to the website at www.datasensing.com.

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CHINA ROHS TABLE OF RESTRICTED ELEMENTS

MX-E90		DATA LOGIC					
		有毒有害物质或元素					
PART	部件名称	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
Metal Parts	金属部件	X	○	○	○	○	○
Panel (if any)	面板 (如有)	X	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○ 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。

× 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。



说明

本指南涵盖了 MX-E90 工业视觉处理器型号的相关内容。MX-E90 系列工业视觉处理器提供了强大且灵活的方式来解决复杂的机器视觉应用。

- 坚固的 IP20 外壳
- 维护成本低
- 16 个输入和 16 个输出
- 最多 8 台 GigE 相机
- 易于操作的连接器

系统规格

处理器

Intel Core i7

存储

32 GB RAM – 128 GB SSD

GigE 相机端口

对于 MX-E90-8: 8 (全部支持 PoE)

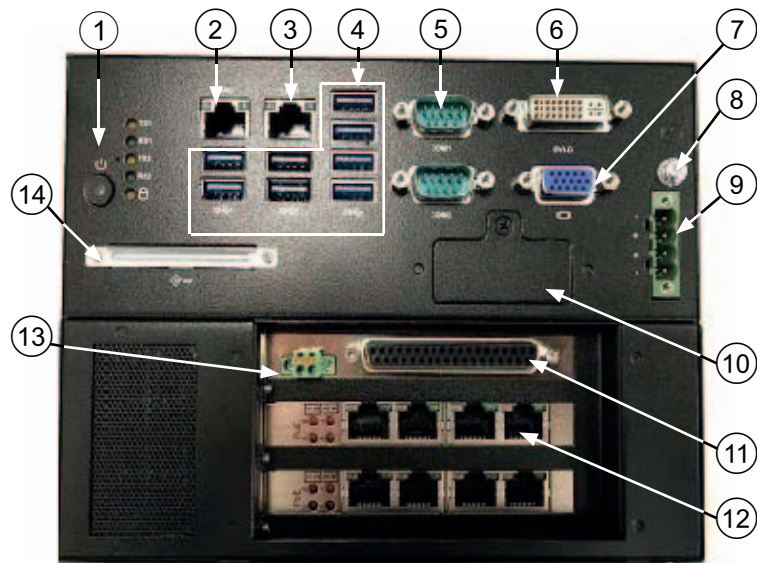
对于 MX-E90-4: 4 (全部支持 PoE)

对于 MX-E90-2: 2 (全部支持 PoE)

所有 MX-E90 工业视觉处理器都具有以下规格:

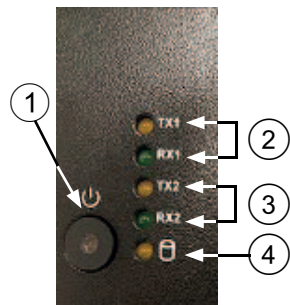
- 高清图形 (1920x1200)
- 2 个 10/100/1000 Mbps Base-T 网络接口
- 支持以太网/IP, Modbus TCP, OPC, PROFINET 通信
- 2 个 RS232 串行端口
- 16 个光隔离数字输入 + 16 个光隔离数字输出, 可配置 NPN (灌电流) 或 PNP (拉电流) 输出类型。
- Microsoft Windows 10 IoT Enterprise 2021 64 位

全视图



- | | | | |
|---|---------------------------------|----|--|
| 1 | 状态灯和按钮 | 8 | 底盘接地 |
| 2 | LAN 1 | 9 | 电源电压连接 |
| 3 | LAN 2 | 10 | 用于 USB 硬件密钥的 USB 2.0 端口 |
| 4 | USB 3.0: 8 个 | 11 | 37 针 D-Sub 数字 I/O |
| 5 | COM1 + COM 2
2 个 RS-232 串行端口 | 12 | 相机连接器: Cam 1 至 Cam 8
(MX-E90-8), Cam 1 至 Cam 4
(MX-E90-4), Cam 1 至 Cam 2
(MX-E90-2) |
| 6 | 监视器 DVI | 13 | 额外的数字输出接地 |
| 7 | VGA | 14 | 用于扩展存储的 Cfast 卡 |

状态 LED 灯和按钮 (1)

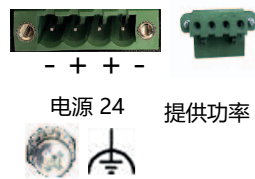


- | | | | |
|---|---------------------------|---|---------------------------|
| 1 | 电源键，绿色 | 3 | COM2：用于数据传输，状态监控的RX2/TX2。 |
| 2 | COM1：用于数据传输，状态监控的TX1/RX1。 | 4 | HDD LED 状态，黄色 |

电源按钮：按下然后松开以打开设备或关停操作系统并关闭设备。按住可在不停操作系统的情况下关闭。

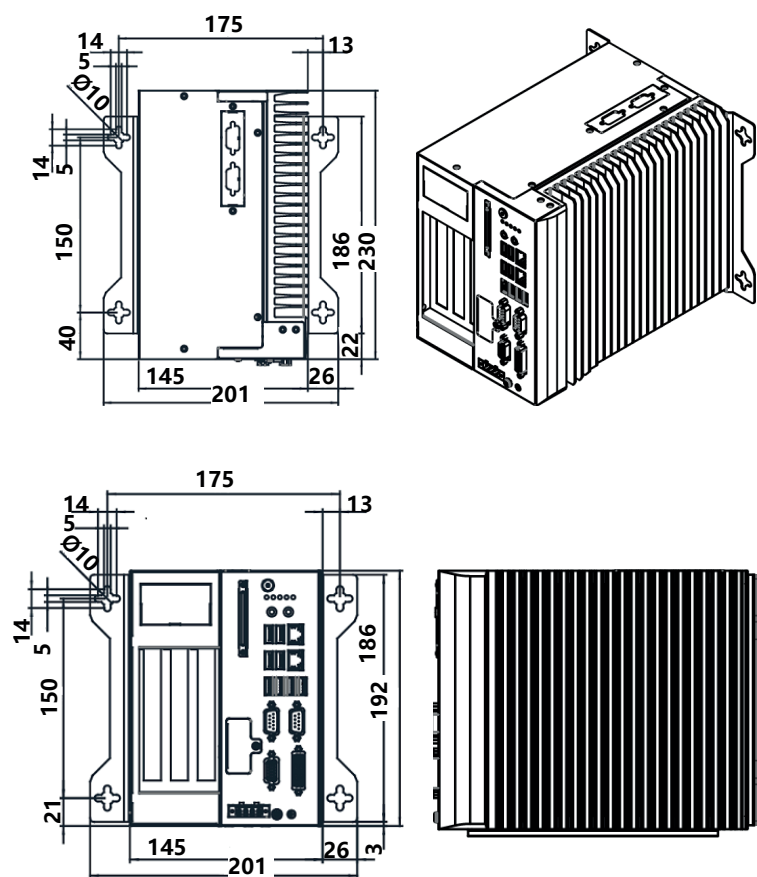
电源电压连接 (9)

电源连接器
+ 24VDC 电源正极
- 24VDC 电源负极
底盘接地：
使用横截面积至少为 2.5 mm² 的导线接地。



重要提示： 建议使用全部 4 个引脚进行电源连接。

机械尺寸



数字 I/O 规格

11	1	20	12
13	2	21	14
15	3	22	16
17	4	23	18
19	5	24	110
111	6	25	112
113	7	26	114
115	8	27	116
ECOM	9	28	GND
PCOM0	10	29	GND
01	11	30	02
03	12	31	04
05	13	32	06
07	14	33	08
09	15	34	010
011	16	35	012
013	17	36	014
015	18	37	016
PCOM1	19		

引脚	颜色代码	信号名称
1	黑	输入1
2	棕色	输入3
3	红色	输入5
4	橙色	输入7
5	黄色	输入9
6	绿色	输入11
7	蓝色	输入13
8	紫色	输入15
9	灰色	输入 1 至输入 16 的外部源或接地的公共引脚
10	白	PCOM0 NPN: 用于连接 O 1 至 O 8 的感性负载的公共引脚 NPN: O 1 至 O 8 的外部电压的公共引脚
11	粉色	输出1
12	浅绿色	输出3
13	黑色/白色	输出5
14	棕色/白色	输出7
15	红色/白色	输出9
16	橙色/白色	输出11
17	绿色/白色	输出13
18	蓝色/白色	输出15
19	紫色/白色	PCOM1 NPN: 用于连接 O 9 至 O 16 的感性负载的公共引脚 NPN: O 9 至 O 16 的外部电压的公共引脚
20	红色/黑色	输入2
21	橙色/黑色	输入4
22	黄色/黑色	输入6
23	绿色/黑色	输入8
24	灰色/黑色	输入10
25	粉色/黑色	输入12
26	粉色/红色	输入14
27	粉色/蓝色	输入16
28	粉色/绿色	隔离接地
29	浅蓝色	隔离接地
30	浅蓝色/黑色	输出2
31	浅蓝色/红色	输出4
32	浅蓝色/蓝色	输出6
33	浅蓝色/绿色	输出8
34	灰色/红色	输出10
35	灰色/绿色	输出12
36	紫色/黑色	输出14
37	蓝色/黑色	输出16

示例 I/O 图

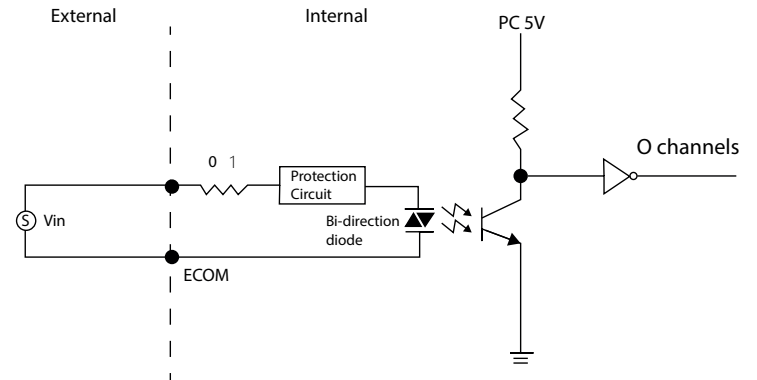


图 1 - 输入连接

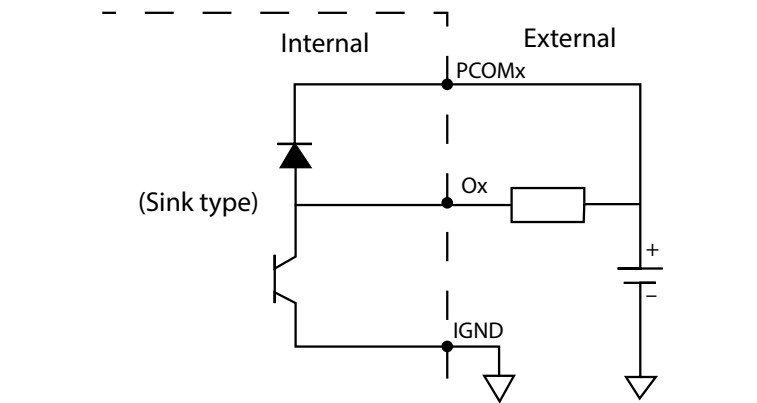


图 2 - 输出连接 (灌电流)

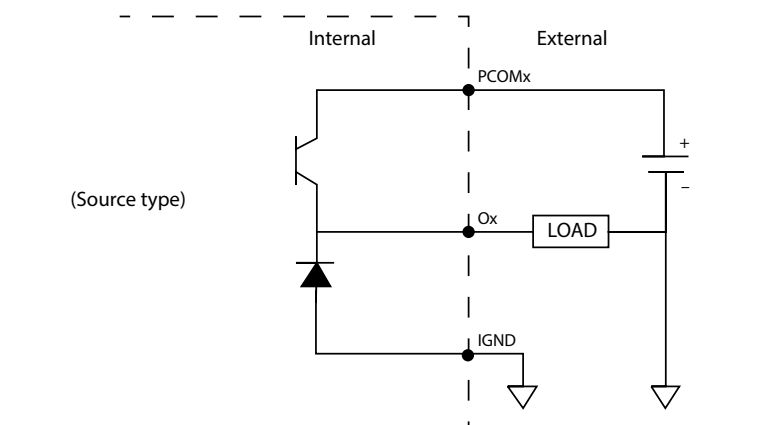


图 3 - 输出连接 (拉电流)

