Figure 1 - Module Identification
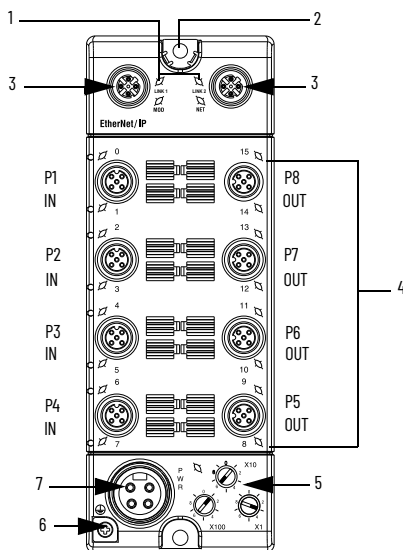
Component Description

	Description		Description
1	Status Indicators	5	Node address switches
2	Functional Earth[(1)]	6	Protective Earth[(2)]
3	EtherNet/IP D-Code M12 connector	7	Auxiliary power
4	M12 I/O connectors		

(1)   Functional Earth grounds the I/O block's EtherNet/IP communication circuitry which is designed to mitigate the effect of noise on the network. See EtherNet/IP Connector on page 6.
(2)   Protective Earth is provided for the grounding of field devices and is internally connected to each Pin 5 of the M12 I/connectors. See I/O Connectors on page 6.

Catalog Number Explanation

Catalog Number	Description	Network Connector	Auxiliary Power
1732E-8X8M12DR	Diagnostic 8-Input/8-Output 24V DC Digital I/O Dual-Port EtherNet Module	Dual D-code M12	Single 4-pin mini

Install the Module

To install the module:

- Set the network address
- Mount the module
- Connect the I/O, Network and Auxiliary cables to the module.

Set the Network Address

The I/O block ships with the rotary switches set to 999 and DHCP enabled.

To change the network address, you can do one of the following:

- Adjust the switch on the front of the module.
- Use a Dynamic Host Configuration Protocol (DHCP) server, such as Rockwell Automation® BootP/DHCP.
- Retrieve the IP address from nonvolatile memory.

The I/O block reads the switches first to determine if the switches are set to a valid number. To set the network address:

1. Rotate the three (3) switches on the front of the module using a small blade screwdriver.
2. Line up the small notch on the switch with the number setting you wish to use.
3. Valid settings range from 001...254.
4. Cycle power.

Set Network Address

Example shows default node
address set at 163.
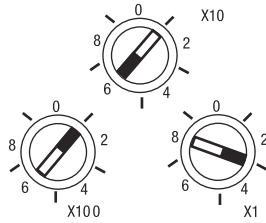
When the switches are set to a valid number, the I/O block's IP address is 192.168.1.xxx (where xxx represents the number set on the switches). The I/O block's subnet mask is 255.255.255.0 and the gateway address is set to 0.0.0.0. When the I/O block uses the network address set on the switches, the I/O block does not have a host name assigned to it or use any Domain Name Server.

If the switches are set to an invalid number (for example, 000 or a value greater than 254 excluding 888), the I/O block checks to see if DHCP is enabled. If DHCP is enabled, the I/O block asks for an address from a DHCP server. The DHCP server also assigns other Transport Control Protocol (TCP) parameters.

If DHCP is not enabled, the I/O block uses the IP address (along with other TCP configurable parameters) stored in nonvolatile memory.
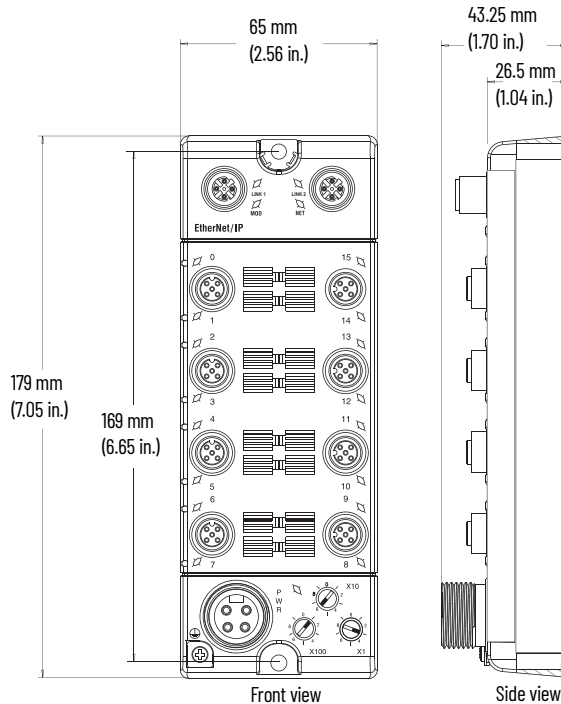
Mount the Module

Two sets of mounting holes are used to mount the module directly to a panel or machine. Mounting holes accommodate #8 (M4) pan head screws. The torque specification is 1.13 N•m (10 lb•in).

Product Dimensions

See Figure 2 for the mounting dimensions illustration to help you mount the module.

**Figure 2 - Module Dimensions**

Mount the Module in High Vibration Areas

If you mount the module in an area that is subject to shock or vibration, we recommend you use a flat and a lock washer to mount the module. Mount the flat and the lock washer as shown in the mounting illustration. Torque the mounting screws to 1.13 N•m (10 in•lb).

**Figure 3 - High Vibration Area Mounting**

Lock washer

Flat washer
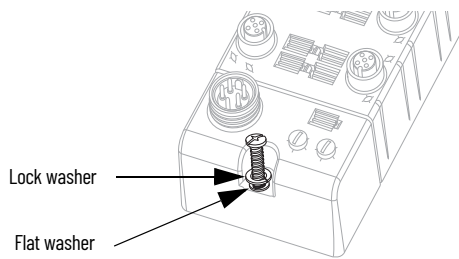
Connect the I/O, Network and Auxiliary Cables to the Module

The ArmorBlock EtherNet/IP family has 5-pin micro-style connectors. We provide caps to cover the unused connectors on your module. Connect the quick-disconnect cord sets you selected for your module to the appropriate ports.
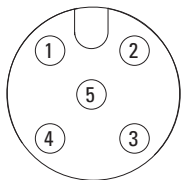
I/O Connectors

See the pinout diagrams for the I/O connectors.

Figure 4 - Micro-style 5-pin input Female Connector
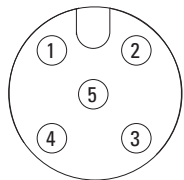
(View into connector)
Pin 1 Sensor source voltage
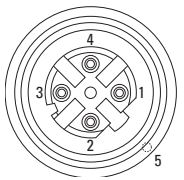Pin 2 Input B
Pin 3 Return
Pin 4 Input A
Pin 5 PE

Figure 5 - Micro-style 5-pin Output Female Connector

(View into connector)
Pin 1 Not used
Pin 2 Output B
Pin 3 Return
Pin 4 Output A
Pin 5 PE

EtherNet/IP Connector

Figure 6 - D-Code Micro Network Female Connector

(View into connector)
Pin 1 M12_Tx+
Pin 2 M12_Rx+
Pin 3 M12_Tx-
Pin 4 M12_Rx-
Pin 5 Connector shell shield FE

> ⚠️ **ATTENTION:** Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP enclosure requirements.

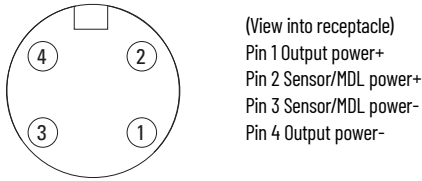| IMPORTANT	Use the 1585D-M4DC-H: Polyamide small body unshielded or the 1585D-M4DC-SH: Zinc die-cast large body shielded mating connectors for the D-Code M12 female network connector. Use two twisted pair CAT5E UTP or STP cables.

D-Code M12 Pin	Wire Color	Signal	8-way Modular RJ45 Pin
1	White-Orange	TX+	1
2	White-Green	RX+	3
3	Orange	TX-	2
4	Green	RX-	6

Auxiliary Power Connector

Attach the mini-style 4-pin connector to the mini-style 4-pin receptacle as shown in Figure 7.

Figure 7 - Mini-style 4-pin Input Male Receptacle

(View into receptacle)
Pin 1 Output power+
Pin 2 Sensor/MDL power+
Pin 3 Sensor/MDL power–
Pin 4 Output power–

Auxiliary Power is based on a 4-pin connector system and is used to provide 24V DC power to I/O modules and other devices. Running separate power to these devices is most typically used for I/O devices with output connections to prevent power supply interruption due to switching of outputs. However, some devices require separate auxiliary power to power them regardless of the presence of outputs.

Depending on the devices used, it may be possible to provide power through only one pair of the four available pins, and in this case the other available pair may be used for single channel E-stop through the use of special E-stop drop or power T-ports and shorting plugs. Allen-Bradley® E-stop T-ports and shorting plugs are red in color for easy identification.

> ⚠ **ATTENTION:** To comply with the CE Low Voltage Directive (LVD), this equipment and all connected I/O must be powered from a source compliant with the following:
> Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).

> ⚠ **ATTENTION:** To comply with UL restrictions, this equipment must be powered from a source compliant with the following: Limited Voltage/Current.

Configure the Module

See Figure 8 for configuration operations.

Figure 8 - Configure Operations

EtherNet/IP D-Code M12 connector

EtherNet/IP D-Code M12 connector

Eight M12 I/O connectors

See Module Identification on page 4

Auxiliary power

Network address switches
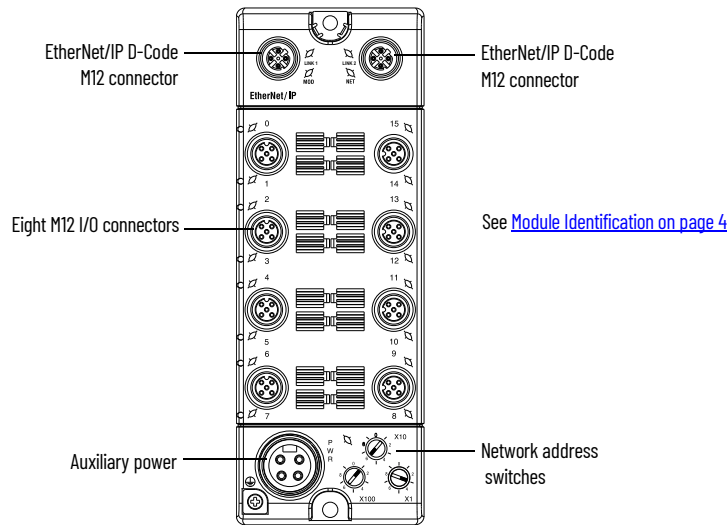
See Essential Components Selection Guide, publication EC-CA100, for Rockwell Automation cable and cord set offerings or use the configuration tools available at rok.auto/systemtools.

Interpret Status Indicators

This module has the following indicators:

- Network, Module, and Link status indicators for EtherNet/IP
- Auxiliary Power indicator
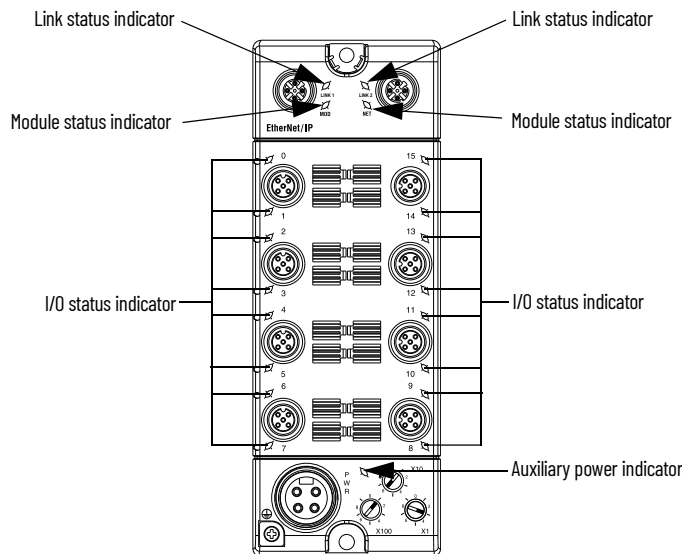- Individual I/O status indicators for inputs and outputs

Figure 9 - Status Indicators

Indicator Status for Modules

Indicator	Status	Description
Module status	Off	No power applied to device.
	Flashing red/green	The module is performing POST (Power-On Self Test), which completes within 30 s.
	Green	Device operating normally.
	Flashing red	Recoverable fault.
	Red	Unrecoverable fault – may require device replacement.
Network status	Off	The device is not initialized or the module does not have an IP address.
	Flashing green	The device has no CIP™ connections. The device has an IP address, but no CIP connections are established.
	Green	The device is online, has an IP address, and CIP connections are established.
	Flashing red	One or more connections have timed out.
	Red	The module has detected that its IP address is already in use.
	Flashing red/green	The module is performing a powerup self-test.
Network link status	Off	No link established.
	Green	Link established on indicated port at 100 Mbps.
	Flashing green	Link activity present on indicated port at 100 Mbps.
	Yellow	Link established on indicated port at 10 Mbps.
	Flashing yellow	Link activity present on indicated port at 10 Mbps.
Auxiliary status	Off	No auxiliary power to device or input not valid.
	Green	Auxiliary power applied to device.
Digital output status	Off	Output not energized.
	Yellow	Output energized.
	Red	Output shorted.
	Flashing red	Output open load.

Indicator Status for Modules (Continued)

Indicator	Status	Description
Digital input status	Off	No valid input.
	Yellow	Valid input.
	Red	Sensor source voltage shorted.
	Flashing red	Sensor source open wire.

Specifications

Input Specifications

Attribute	Value
Number of inputs	8
Input type	Sink, 24V DC
Voltage, off-state input, max	5V DC
Voltage, on-state input, min	12V DC
Voltage, on-state input, nom	24V DC
Voltage, on-state input, max	30V DC
Current, off-state input, max	1.5 mA @ 5V DC
Current, on-state input, max	5 mA @ 30V DC
Voltage, sensor source, min	10V DC
Voltage, sensor source, max	30V DC
Input delay time ON to OFF OFF to ON	0…16000 µs
Isolation voltage	50V (continuous), Basic Insulation Type, Inputs and Sensor Power to Network. No isolation between individual Inputs or between Network channels. Type tested at 707V DC for 60 s.

Output Specifications

Attribute	Value
Number of outputs	8
Output type	Source, 24V DC
Voltage drop, on-state output, max	0.5V DC
Voltage off-peak blocking, min	30V DC
Voltage, on-state output, min	12V DC
Voltage, on-state output, nom	24V DC
Voltage, on-state input, max	30V DC
Current, on-state output, max	0.5 A
Current per module, max	4.0 A
Leakage current, off-state output, max	500 µA
Surge current per output, min	1.2 A for 10 ms, repeatable every 2 s
Pilot duty rating	DC-14
Isolation voltage	50V (continuous), Basic Insulation Type, Outputs and Output Power to Network. No isolation between individual Outputs or between Outputs and Output power or between Network channels. Type tested at 707V DC for 60 s.

General Specifications

Attribute	Value
Voltage, auxiliary power, max	30V DC
Voltage, auxiliary power, min	12V DC
Current, Ethernet system power, max (pins 2, 3 sensor source/module power)	0.8 A
Current, auxiliary power, max per output module (pins 2, 3 sensor source/module power plus pins 1, 4 for output loads)	4 A
Current, sensor source, per input, max	50 mA
Current, sensor source, per connector, max	100 mA
Communication rate	EtherNet/IP 10/100 Mbps Full or half-duplex 100 meter per segment
Isolation voltage	50V (continuous), Basic Insulation Type, Inputs and Sensor Power to Network No isolation between individual Inputs or between Network channels Type tested at 707V DC for 60 s
Status indicators	Module status - red/green Network status - red/green Link status - green/yellow Auxiliary power - green I/O LED - yellow I/O LED - yellow/red
Dimensions (HxWxD), approx.	179 x 65 x 43.25 mm (7.05 x 2.56 x 1.70 in.)
Weight, approx.	340 g (11.99 oz.)
Wiring category[1] [2]	1 – on signal ports 1 – on power ports 1 – on communications port
Enclosure type rating	Meets IP65/66/67/69K (when marked), and Type 4X, 6P with receptacle dust caps or cable termination.
North American temp code	T5
ATEX temp code	T4
IECEx temp code	T4

(1)	Use this conductor category information for planning conductor routing as described in Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.
(2)	Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.

Environmental Specifications

Attribute	Value
Temperature, operating	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0 °C < Ta < +55 °C (+32 °F < Ta < +131 °F)
Temperature, ambient, max	60 °C (140 °F)
Temperature, surrounding air, max.	60 °C (140 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40…+85 °C (-40…+185 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5…95% noncondensing
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz
Shock, operating	EC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g
Shock, nonoperating	EC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g