Selection Guide

Allen-Bradley

ArmorBlock I/O Modules

Bulletin 1732

Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://www.rockwellautomation.com/literature/) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence
	SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
	BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

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Table of Contents

ArmorBlock I/O Family

Chapter 1

Overview 3
- ArmorBlock I/O Product Design 4
- Armor WeldBlock Product Design 4

The ArmorBlock I/O System 4
- Features and Benefits 4

ArmorBlock and Armor WeldBlock I/O Module Connections 7
Specify an ArmorBlock I/O System 8

Select a Network

Chapter 2

NetLinx Open Network Architecture 9
DeviceNet 10
- DeviceNet I/O Modules 11

EtherNet/IP 11
- EtherNet/IP I/O Modules 13

Select I/O Modules

Chapter 3

Digital Modules 15
- Digital DC Combination I/O Modules 16
- Digital DC Input Modules 16
- Digital DC Output Modules 17
- Digital DC Self-configurable Modules 18

Analog Modules 19
- Analog I/O Modules 20
- Thermocouple/RTD Modules 20

Specialty Modules 21
- IO-Link Master Module 21

Select Cables and Accessories for I/O Modules

Chapter 4

Select Cables 23
- Verify Number and Type of Connectors on Module 24
- Select Network Cables 25
- Select I/O Cables 26
- Select Auxiliary Power Cables 27

Select Accessories 27
- T-Port 27
- Cold-Junction Compensation (CJC) Terminal Chamber 28
- Sealing Caps 28
- Labels 28

Network Configuration Examples 29

DeviceNet I/O Module Specifications

Appendix A

- Digital DC Combination I/O Modules 31
- Digital DC Input Modules 33
- Digital DC Output Modules 36

Digital DC Self-configurable I/O Modules 38

Appendix B

EtherNet/IP I/O Module Specifications

Digital DC Combination I/O Modules 41
Digital DC Input Modules 44
Digital DC Output Modules 46
Digital DC Self-configurable Modules 49
Analog I/O Modules 52
Thermocouple/RTD Modules 54
Specialty Modules 58

Appendix C

Cable Specifications

Selecting the Connector..... 62
IEC Enclosure Classification 64

Appendix D

System Configuration Tools

ProposalWorks..... 65
Integrated Architecture Builder..... 66

Appendix E

Related Documentation

List of Publications 67

ArmorBlock I/O Family

Overview

The ArmorBlock I/O family offers economical, hardened, 24V DC digital I/O blocks that are suitable for On-Machine use. These products are perfect for material handling and automotive applications.

The ArmorBlock I/O modules have a compact style with a low profile. Each module is sealed in an industrially hardened housing and contains I/O circuits, a built-in power supply, and a built-in network adapter that provides DeviceNet and EtherNet/IP.

The sealed water- and corrosion-proof housing eliminates enclosure costs and allows the I/O to be mounted directly on equipment (without a control cabinet) near sensors and actuators for shorter cable runs.

On-Machine solutions reduce wiring and system costs, improve Mean Time to Repair (MTTR), enhance control system reliability, increase productivity and provide greater flexibility.

ArmorBlock I/O Product Design

ArmorBlock I/O modules are available with 4, 8, or 16 I/O points. All modules can be horizontally or vertically mounted. The points can be input only, output only, both input-output or self-configuring. The self-configuring modules can have any mix of input and output and feature automatic output monitoring. Electronic fusing, available on selected output modules, provides protection for output load devices and easy resetting. I/O terminations are DC micro (M12) quick-disconnects or pico (M8) quick-disconnects.

Each module is packaged in a rated sealed housing and does not require a separate base. Inputs and outputs are powered by an external 24V DC source which is independent of the network.

Armor WeldBlock Product Design

The 1732 Armor WeldBlock is designed for use in typical welding applications. The design resists the effects of weld slag and magnetic fields found in close proximity to the weld head. The sealed, light-weight metal housing, of nickel-plated aluminum, protects the electronics which are the same as those in other 1732 ArmorBlocks and is ideal for end-of-arm robot applications. Armor WeldBlocks are available in DeviceNet and EtherNet/IP with 24V DC, 16 point inputs only or 16 point self-configuring I/O. I/O and network connections are DC micro (M12).

The ArmorBlock I/O System

Features and Benefits

- **Material:** Polybutylene terephthalate (PBT) is resistant to solvents, shrinks very little during forming, is mechanically strong, heat-resistant up to 150 °C and can be treated with flame retardants to make it noncombustible.

Part	Material
I/O Module	
ArmorBlock housing	(PBT) 'Celanex'
WeldBlock housing	Aluminum Alloy 380
Auxiliary Power Connector	
Housing	PBT (Yellow)
Shell	Brass with Nickel plated finishing
M12 Connector	
Housing insulation	PBT (Black)
Shell	Brass with Nickel plated finishing

- **Sealed Housing:** ArmorBlock I/O modules are rated for IP 69K and Armor WeldBlock modules are rated for IP 67.
- **Network Independence:** Built-in communication adapter takes advantage of the DeviceNet and EtherNet/IP.
- **Density:** 4, 8, or 16 points per block, with one block per network node for greater module density.
- **I/O Flexibility:** Self-configuring blocks with 8 or 16 points let you design your input/output mix to a granularity of one.
- **Protection:** Electronic fusing, available on selected output modules, provides protection for output load devices and easy resetting.
- **Cost-effective:** Industry-standard mini, M12 and M8 connectors lower installation costs and let you replace blocks without rewiring.
- **Integration:** EtherNet/IP modules offer smooth integration into Integrated Architecture systems with full Add-On-Profiles in RSLogix 5000 or Studio 5000, and RSNetWorx for DeviceNet software; no other configuration software is needed.
- **Mounting:** Enclosure rating of IP 67 for Armor WeldBlock and IP 69K for ArmorBlock I/O offers flexibility for modules to be mounted anywhere on a machine, close to the sensors and actuators, for shorter cable runs and lower wiring costs.
- **Conformity:** Complies with Open DeviceNet Vendor Association, Inc. (ODVA) conformance test software.
- **QuickConnect (QC):** A new functionality in OVDA which enables Ethernet/IP devices to quickly power up and join an Ethernet/IP network within 500 msec. Refer to publication ENET-AT001 for more information.
- **High-speed (CIPSync):** High-speed time-stamping inputs (Sequence of Event) and Scheduled Output modules available. Refer to publication 1732E-UM003 for more information.
- **Fast Conversion (Analog):** Increase Machine Performance with A/D or D/A data refresh rate of less than 2 ms.
- **High Accuracy (Analog):** Increase Machine Precision control with high accuracy of 0.1% Full Scale and sensitivity of 16-Bit Data Resolution.
- **IO-Link Technology:** IO-Link Master provide detailed diagnostics and machine health status of the IO-Link enabled sensors connected to it to improve uptime and increase productivity.
- **Field Calibration via AOP (Analog):** Ease of calibration on all analog channels to ensure optimum accuracy at all time.

ArmorBlock I/O Module Feature Summary

Module types	Digital DC Combination I/O
	Digital DC Input
	Digital DC Output
	Digital DC Self-configurable
	Analog I/O
	Thermocouple/RTD
	IO-Link Master
Module density	4, 8 or 16 points
Module features	Channel-level diagnostics (LED indicator and electronic)
	Horizontal and vertical mounting without derating
Specialty features	Diagnostic
	Dual-port EtherNet/IP
	QuickConnect
	Scheduled Output
	Self-configuring
	Sequence of Event (SOE)
	Thermocouple & RTD
	IO-Link
	WeldBlock
Network connectivity	DeviceNet
	EtherNet/IP
Connectors	M8 (pico), M12 (micro) or mini style

General Specifications

Enclosure type rating	Meets IP65/66/67/69K[2] and Type 4X/6P with receptacle dust caps or cable termination. NOTE: This rating is applicable on most 1732 modules. For individual product ratings, see DeviceNet I/O Module Specifications on page 31 and EtherNet/IP I/O Module Specifications on page 41.
Mounting type	On-Machine, Panel
Operating temperature	-20…60 °C (-4…140 °F)
Nonoperating temperature	-40…85 °C (-40…185 °F)
Relative humidity	5...95% noncondensing
Operating shock	30 g
Nonoperating shock	50 g
Vibration	5 g @ 10…500 Hz
Emissions	IEC 61000-6-4 CISPR 11/22, Class A
Certifications[1]	c-UL-us, c-UR-us, CE, RCM, KC, EtherNet/IP, ODVA

(1) When product is marked, see www.rockwellautomation.com/products/certification for Declarations of Conformity, Certificates, and other certification details.

(2) Armor Weldblock I/O modules meet IP67 rating only.

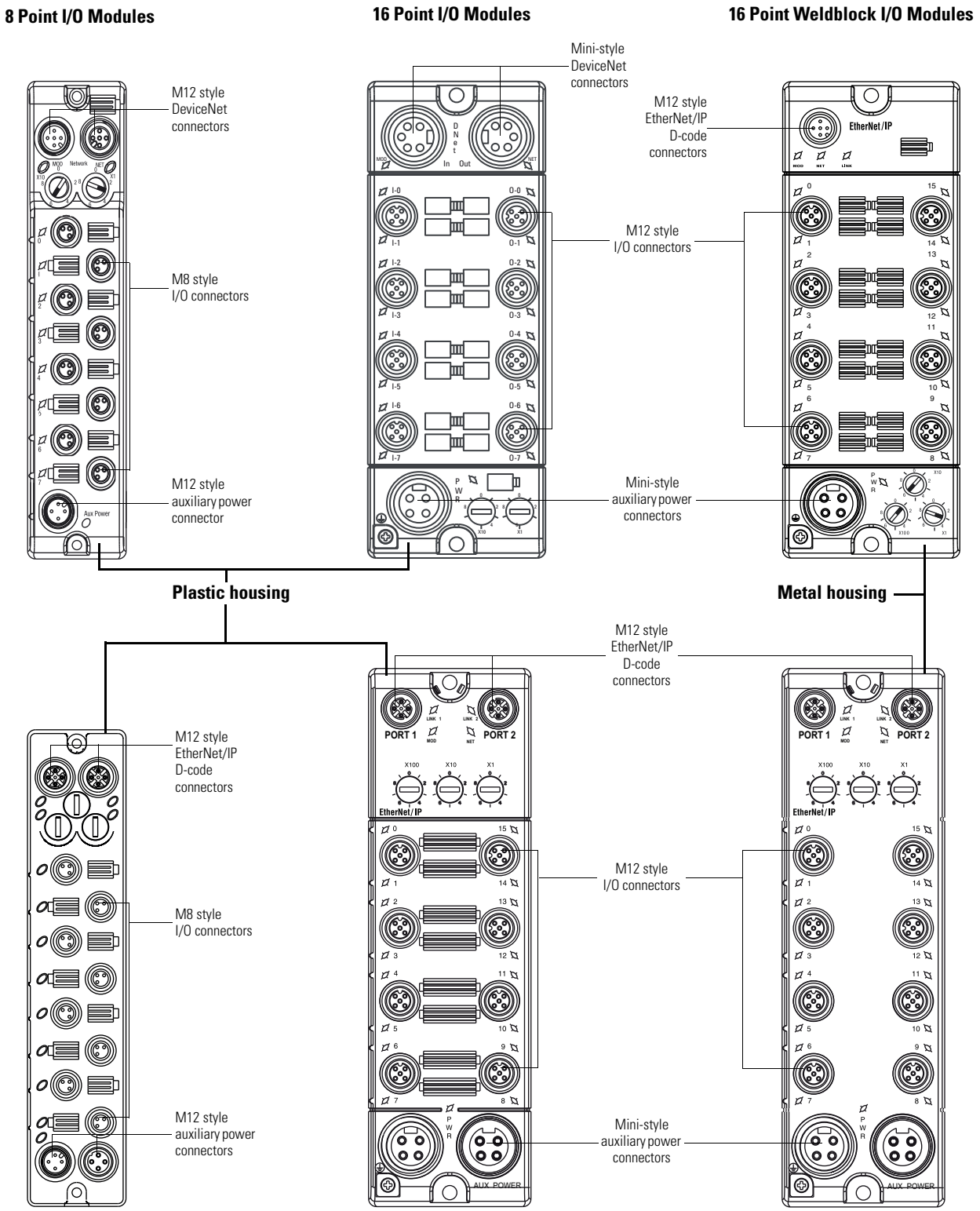
Dimensions and Weights

Description	Dimensions (HxWxD), Approx.	Weight[1]
4/8 point ArmorBlock I/O modules	179 x 37 x 43.25 mm (7.05 x 1.46 x 1.70 in.)	0.20 kg (0.45 lb)
16 point ArmorBlock I/O modules	179 x 65 x 43.25 mm (7.05 x 2.56 x 1.70 in.)	0.34 kg (0.75 lb)

(1) Non-Weldblock.

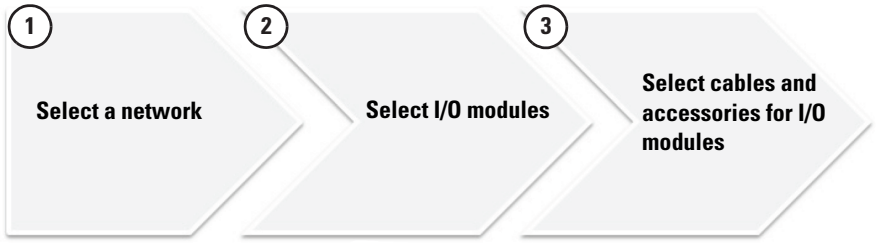
ArmorBlock and Armor WeldBlock I/O Module Connections

The following diagrams are examples of the network, I/O, power connections, and module dimensions that are available on ArmorBlock and Armor WeldBlock I/O modules. For specific connections available on a particular module, refer to the installation instructions for that module.



Specify an ArmorBlock I/O System

Follow these steps as you specify your ArmorBlock I/O system:



Step	See page
1 Select a network Each network has its own benefits and supports specific applications. • DeviceNet • EtherNet/IP	 10 11
2 Select I/O modules Some have additional features such as diagnostics, Quick Connect, some are self-configurable, and some are suitable for high-speed applications. • your application • number of points needed • number of points available per module • appropriate catalog number	15
3 Select cables and accessories for I/O modules Select accessories such as cables, connector caps, and labels for your I/O modules.	 23

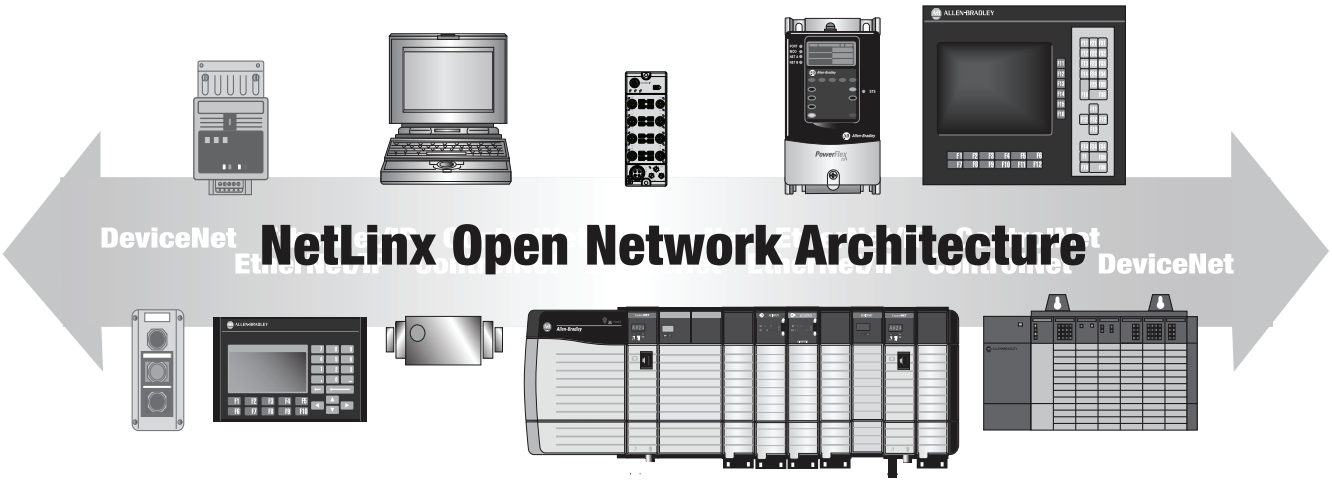
Select a Network

All ArmorBlock I/O modules feature a built-in network adapter that communicates with one of the following networks:

Type of Network	See page
DeviceNet	10
EtherNet/IP	11

NetLinx Open Network Architecture

NetLinx Open Network Architecture is the Rockwell Automation strategy of using open networking technology for seamless, top-floor to shop-floor integration. The NetLinx-based networks – DeviceNet and EtherNet/IP – both use the Common Industrial Protocol (CIP), so they speak a common language and share a universal set of communication services. NetLinx architecture, part of the Integrated Architecture platform, seamlessly integrates all the components in an automation system from a few devices on one network to multiple devices on multiple networks including access to the Internet – helping you to improve flexibility, reduce installation costs, and increase productivity.



You can configure your system for information exchange between a range of devices and computing platforms and operating systems.

Application Requirements	Network	Select
• Plant management (material handling) • Configuration, data collection, and control on a single, high-speed network • Time-critical applications with no established schedule • Data sent regularly • Internet/Intranet connection	EtherNet/IP	1732E modules
• Connections of low-level devices plant-floor controllers • Data sent as needed • More diagnostics for improved data collection and fault detection • Less wiring and reduced start-up time than a traditional, hard-wired system	DeviceNet	1732D modules

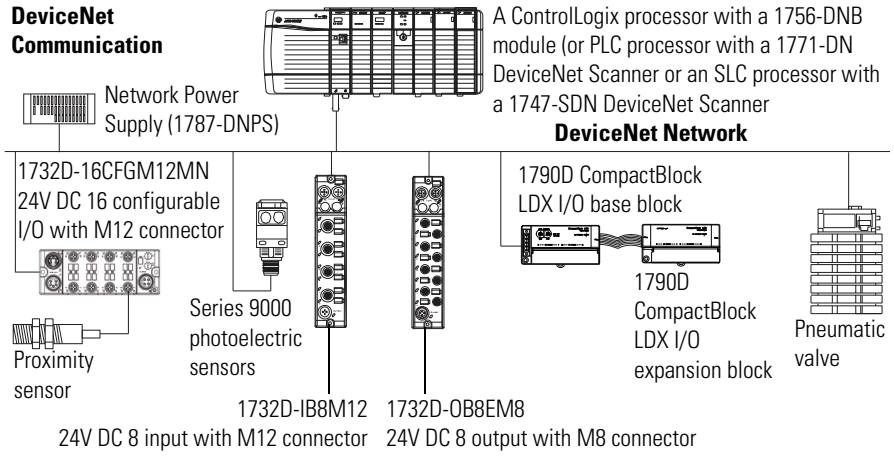
DeviceNet

The DeviceNet Network provides open, device-level control and information networking for simple industrial devices. It supports communication between sensors and actuators and higher-level devices such as programmable controllers and computers. With power and signal in a single cable, it offers simple and cost-effective wiring options.

It uses the proven Common Industrial Protocol (CIP) to provide the control, configure, and data collection capabilities for industrial devices. You can connect devices directly to plant-floor controllers without hard-wiring each device into an I/O module.

A DeviceNet network supports a linear topology.

DeviceNet Linear Topology Example



General Specifications

Attribute	Value
Voltage, DeviceNet, max	25V DC
Voltage, DeviceNet, min	11V DC
Current, DeviceNet	100 mA plus sum of sensor and output currents
Network length/ Communication rate	500 m (1640 ft) @ 125 Kbps for thick cable, flat media length 375 m (1230 ft) 200 m (656 ft) @ 250 Kbps for thick cable, flat media length 150 m (492 ft) 100 m (328 ft) @ 500 Kbps for thick cable, flat media length 75 m (246 ft)

DeviceNet I/O Modules

Type	Catalog Number	See Page
Digital DC Combination I/O Modules	1732D-8I8O1212D	16
	1732D-8X81212D	
	1732D-8X81212HD	
Digital DC Input Modules	1732D-IB8M8(1)	16
	1732D-IB8M12(1)	
	1732D-IB16M12M12(1)	
	1732D-IB16M12MINI	
	1732D-IBDPM12MND	
	1732D-IB161212D	
	1732D-IB161212W(1)	
Digital DC Output Modules	1732D-OB8EM8(1)	17
	1732D-OB8EM12(1)	
	1732D-OB16M12M12	
	1732D-OB16M12MINI	
Digital DC Self-configurable I/O Modules	1732D-8CFGM8	18
	1732D-8CFGM12	
	1732D-16CFGM12M12	
	1732D-16CFGM12MN	
	1732D-16CFG1212W	

(1) Products are in end-of-life lifecycle status. Refer to Rockwell Automation Product Lifecycle Status webpage (http://www.rockwellautomation.com/global/solutions-services/capabilities/migration-solutions/product-search/overview.page?) for planned discontinued date.

EtherNet/IP

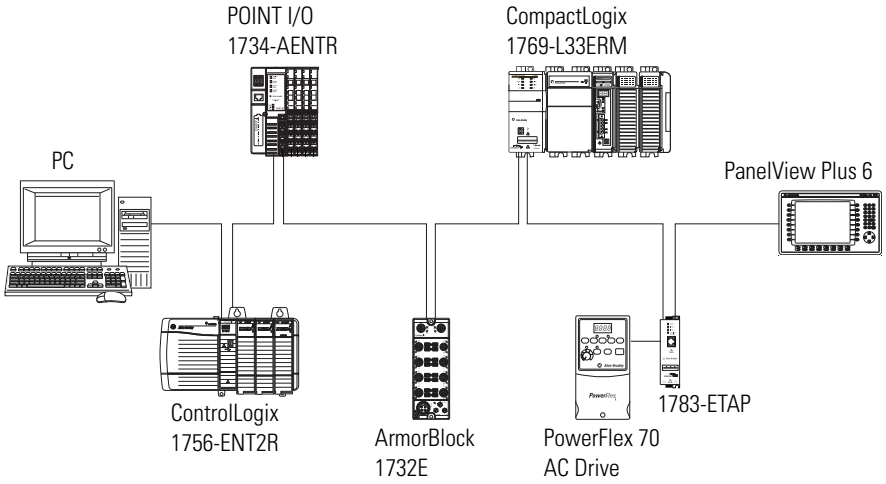
The EtherNet/IP Network provides plant-wide network systems using open, industry-standard networking technologies. It enables real-time control and information in discrete, continuous process, batch, safety, drive, motion, and high availability applications. The EtherNet/IP network connects devices such as motor starters and sensors to controllers and HMI devices and on into the enterprise. It supports non-industrial and industrial communications on a common network infrastructure.

The EtherNet/IP network offers a full suite of control, configuration, and data collection services by layering the Common Industrial Protocol over the standard protocols used by the Internet (TCP/IP and UDP). EtherNet/IP uses TCP/IP for general messaging/information exchange services and UDP/IP for I/O messaging services for control applications.

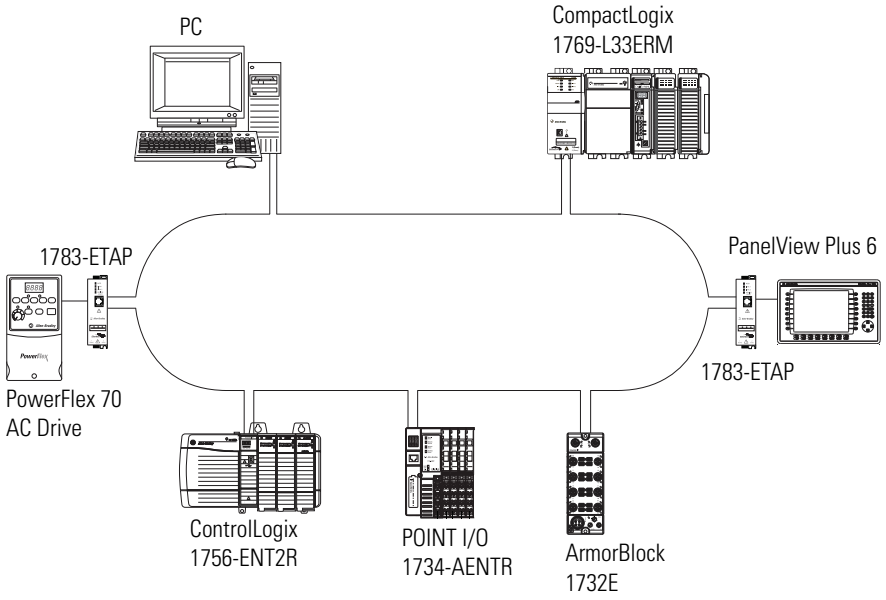
The application of the CIP Safety protocol enables the simultaneous transmission of safety and standard control data and diagnostics information.

An EtherNet/IP network supports linear, ring and star topologies.

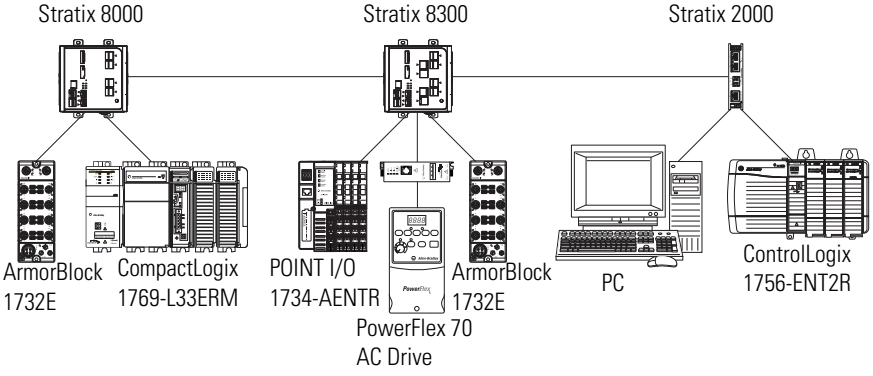
EtherNet/IP Linear Topology Example



EtherNet/IP Device Level Ring (DLR) Topology Example



EtherNet/IP Star Topology Example



General Specifications

Attribute	Value
Communication rate	EtherNet/IP 10/100 Mbps Full or half-duplex 100 meter per segment

EtherNet/IP I/O Modules

Type	Catalog Number	See Page
Digital DC Combination I/O Modules	1732E-8X8M12DR	16
	1732E-12X4M12QCDR	
	1732E-12X4M12P5QCDR	
Digital DC Input Modules	1732E-IB16M12[1]	16
	1732E-IB16M12W[1]	
	1732E-IB16M12DR	
	1732E-IB16M12R	
	1732E-IB8M8SOER	
	1732E-IB16M12SOEDR	
Digital DC Output Modules	1732E-OB8M8SR	17
	1732E-OB16M12	
	1732E-OB16M12DR	
	1732E-OB16M12R	
Digital DC Self-configurable I/O Modules	1732E-8CFGM8R	18
	1732E-16CFGM12	
	1732E-16CFGM12W	
	1732E-16CFGM12R	
	1732E-16CFGM12QCR	
	1732E-16CFGM12QCWR	
	1732E-16CFGM12P5QCR	
	1732E-16CFGM12P5QCWR	
Analog I/O Modules	1732E-IF4M12R	20
	1732E-OF4M12R	
Thermocouple/RTD Modules	1732E-IR4IM12R	20
	1732E-IT4IM12R	
IO-Link Master Module	1732E-8IOLM12R	21

(1) Products are in end-of-life lifecycle status. Refer to Rockwell Automation Product Lifecycle Status webpage (http://www.rockwellautomation.com/global/solutions-services/capabilities/migration-solutions/product-search/overview.page?) for planned discontinued date.

Notes:

Select I/O Modules

The ArmorBlock family of I/O modules includes:

Type of I/O modules	See page
Digital DC Combination I/O Modules	16
Digital DC Input Modules	16
Digital DC Output Modules	17
Digital DC Self-configurable Modules	18
Analog I/O Modules	20
Thermocouple/RTD Modules	20
IO-Link Master Module	21

Digital Modules

Digital I/O modules have digital I/O circuits that interface to on/off sensors (pushbuttons and limit switches) and actuators (motor starters, pilot lights, and annunciators).

These outputs are controlled by the PLC controller while the inputs control the state of corresponding bits in the PLC.

Features

- Modules with diagnostics detect, indicate, and report the following faults:
  - open output (including sensor source voltage) field devices or wiring
  - shorted output (including sensor source voltage) field devices or wiring
- Selectable input filter times available: 0, 1, 2, 4, 8 or 16 ms
- LED for each channel indicating status of:
  - corresponding input device
  - output signal

Most output modules have built-in surge suppression to reduce the effects of high-voltage transients. However, we recommend that you use an additional suppression device if an output is being used to control inductive devices, such as:

- relays
- motor starters
- solenoids
- motors

Additional suppression is especially important if your inductive device is in series with or parallel to hard contacts, such as push buttons or selector switches.

Digital DC Combination I/O Modules

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, Max.	Surge/Inrush Output Current Rating per Point, Max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	Daisychain Support for Auxiliary power	Network Current Draw	I/O Connectors
DeviceNet	1732D-8I8O1212D	Electronically fused by point[1]	8 (1 on each connector and powered by network)	8 (1 on each connector and powered by network)	0.5 A/4.0 A	1.2 A	62 mA @ 25V DC	N.A.	N.A.	0.1 A + I/O (1.0 A max.)	(8) M12
	1732D-8X81212D	Electronically fused by point[1]	8 (2 each on 4 connectors and powered by network)	8 (2 each on 4 connectors)	0.5 A/4.0 A	1.2 A	62 mA @ 25V DC	4.0 A	No	0.1 A + I/O (1.0 A max.)	(8) M12
	1732D-8X81212HD	Electronically fused by point[1]	8 (2 each on 4 connectors and powered by network)	8 (2 each on 4 connectors)	1.4 A/8.0 A	3.1 A	62 mA @ 25V DC	8.0 A	No		

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.[2]	Daisychain Support for Auxiliary Power	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-8X8M12DR	Electronically fused by point[1]	8 inputs, with sensor sources diagnostics	8 outputs with diagnostics	0.5 A/4.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	4.0 A	No	2 EtherNet/IP ports[3]	(8) M12
	1732E-12X4M12QCDR / 1732E-12X4M12P5QCDR	Electronically fused by point[1]	12 inputs, with sensor sources diagnostics	4 outputs with diagnostics	0.5 A/2.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	2.0 A	Yes	2 EtherNet/IP ports[2][4]	(8) M12

(1) Each output is individually fused.

(2) Pins 2, 3 for sensor source and module power plus pins 1, 4 for output loads.

(3) Configured as embedded switch. Supports star, tree, linear, and ring topologies.

(4) Supports QuickConnect. Refer to publication ENET-AT001 for more information.

Digital DC Input Modules

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	Daisychain Support for Auxiliary Power	Network Current Draw	I/O Connectors
DeviceNet	1732D-IB8M8	N.A.	8	0	–	–	50 mA @ 30V DC	0.45 A	No	100 mA	(8) M8
	1732D-IB8M12										(4) M12
	1732D-IB16M12M12	N.A.	16	0	–	–	50 mA @ 30V DC	0.9 A	No	75 mA	(8) M12
	1732D-IB16M12MINI										
	1732D-IBDPM12MND	N.A.	16 powered by network	0	–	–	62 mA @ 25V DC	N.A.	N.A.	75 mA + I/O (0.5 A max.)	(8) M12
	1732D-IB161212D	N.A.	16 powered by network	0	–	–	62 mA @ 25V DC	N.A.	N.A.	75 mA + I/O (0.5 A max.)	(8) M12
	1732D-IB161212W	N.A.	16	0	–	–	50 mA @ 25V DC	0.9 A	No	75 mA	(8) M12

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	Daisychain Support for Auxiliary Power	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-IB16M12	N.A.	16	0	–	–	50 mA @ 30V DC	1.1 A	No	–	(8) M12
	1732E-IB16M12W	N.A.	16	0	–	–	50 mA @ 30V DC	1.1 A	No	–	(8) M12
	1732E-IB16M12DR	N.A.	16 inputs, with sensor source diagnostics	0	–	–	50 mA @ 30V DC	1.2 A	No	2 EtherNet/IP ports[2]	(8) M12
	1732E-IB16M12R	N.A.	16	0	–	–	50 mA @ 30V DC	1.2 A	No	2 EtherNet/IP ports[2]	(8) M12
	1732E-IB8M8SOER	N.A.	8[1]	0	–	–	50 mA @ 30V DC	4.0 A	Yes	2 EtherNet/IP ports[2]	(8) M8
	1732E-IB16M12SOEDR	N.A.	16 inputs, with sensor source diagnostics[1]	0	–	–	50 mA @ 30V DC	1.2 A	No	2 EtherNet/IP ports[2]	(8) M12

(1) Supports Sequence of Events (SOE).

(2) Configured as embedded switch. Supports star, tree, linear, and ring topologies.

Digital DC Output Modules

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	Daisychain Support for Auxiliary Power	Network Current Draw	I/O Connectors
DeviceNet	1732D-OB8EM8	Electronically fused by point[1]	0	8	0.5 A/4.0 A	1.2 A	–	4.0 A	No	100 mA	(8) M8
	1732D-OB8EM12	Electronically fused by point[1]									(4) M12
	1732D-OB16M12M12	Electronically fused by point[1]	0	16	2.0 A/4.0 A	4.8 A	–	8.0 A	No	100 mA	(8) M12
	1732D-OB16M12MINI	Electronically fused by point[1]									

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	Daisychain Support for Auxiliary Power	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-OB8M8SR	Not protected	0	8[2]	0.5 A/4.0 A	1.2 A for 10 ms, repeatable every 2 s	–	4.0 A	Yes	2 EtherNet/IP ports[4]	(8) M8
	1732E-OB16M12	Electronically fused by point[1]	0	16	2.0 A/8.0 A[3]	6.0 A for 10 ms, repeatable every 2 s	–	8.0 A	No	–	(8) M12
	1732E-OB16M12DR	Electronically fused by point[1]	0	16 outputs with diagnostics	0.5 A/8.0 A	1.2 A for 10 ms, repeatable every 2 s	–	8.0 A	No	2 EtherNet/IP ports[3]	(8) M12
	1732E-OB16M12R	Electronically fused by point[1]	0	16	2.0 A/8.0 A[2]	4.8 A for 10 ms, repeatable every 2 s	–	8.0 A	No	2 EtherNet/IP ports[3]	(8) M12

(1) Each output is individually fused.

(2) CIP Sync module provides scheduled output functionality.

(3) Maximum current on all I/O connectors exceeds total for the module.

(4) Configured as embedded switch. Supports star, tree, linear, and ring topologies.

Digital DC Self-configurable Modules

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	Network Current Draw	I/O Connectors
DeviceNet	1732D-8CFGM8	Electronically fused by point(1)	8 self-configuring(2)		0.5 A/4.0 A	1.2 A	50 mA @ 30V DC	4.0 A	100 mA	(8) M8
	1732D-8CFGM12	Electronically fused by point(1)								(4) M12
	1732D-16CFGM12M12	Electronically fused by point(1)	16 self-configuring(1)		0.5 A/4.0 A	1.2 A	50 mA @ 30V DC	8.0 A(3)	100 mA	(8) M12
	1732D-16CFGM12MN	Electronically fused by point(1)								
	1732D-16CFG1212W	Electronically fused by point(1)	16 self-configuring(1)		0.5 A/4.0 A	1.2 A	50 mA @ 30V DC	8.0 A(2)	100 mA	(8) M12

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-8CFGM8R	Not protected	8 self-configuring(1)		0.5 A/4.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	4.0 A	2 EtherNet/IP ports(4)	(8) M8
	1732E-16CFGM12	Electronically fused by point(1)	16 self-configuring(1)		0.5 A/8.0 A	3.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A(2)	–	(8) M12
	1732E-16CFGM12W	Electronically fused by point(1)	16 self-configuring(1)		0.5 A/8.0 A	3.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A(2)	–	(8) M12
	1732E-16CFGM12R	Electronically fused by point(1)	16 self-configuring(1)		0.5 A/8.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A(2)	2 EtherNet/IP ports(3)	(8) M12
	1732E-16CFGM12QCR/ 1732E-16CFGM12P5QCR	Electronically fused by point(1)	16 self-configuring(1)		0.5 A/8.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A(2)	2 EtherNet/IP ports(3)(5)	(8) M12
	1732E-16CFGM12QCWR(1) / 1732E-16CFGM12P5QCWR(1)	Electronically fused by point(1)	16 self-configuring(1)		0.5 A/8.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A(2)	2 EtherNet/IP ports(3)(4)	(8) M12

(1) Each output is individually fused.

(2) Each of the self-configuring I/O points can be either an input (sink) or an output (source), for example: 16 points: 13 in/3 out, 6 in/10 out, or 8 points: 6 in/2 out, 1 in/7 out.

(3) Module operation power and input device power are separate from the I/O output power. Both module power and output power consumption totals need to be noted.

(4) Configured as embedded switch. Supports star, tree, linear, and ring topologies.

(5) Supports QuickConnect. Refer to publication ENET-AT001 for more information.

Analog Modules

The ArmorBlock I/O analog and temperature I/O modules support: on-board, channel-level data alarming (four set-points per channel); scaling to engineering units; channel-level diagnostics (electronic bits and LED indicators). Analog and temperature input modules support the following configurable parameters and diagnostics:

- four-alarm and annunciation set-points: low alarm; high alarm; low/low alarm (except 1732E-OF4M12R 2 set-point only).
- under-range detection and electronic reporting
- over-range detection and electronic reporting
- channel signal range and on-board scaling (scaling to any 16-bit integer under-/over-range alarms)
- filter type (notch for A/D, or first-order low-pass digital filter)
- temperature scale (Celsius, Fahrenheit)

Choose analog or temperature I/O modules when you need:

- **Configurable channels** allow the module to be used with a variety of sensors.
- **On-board scaling** eliminates the need to scale the data in the controller. Controller processing time and power are preserved for more important tasks, such as I/O control, communications, or other user-driven functions.
- **On-line configuration**. Modules can be configured in the RUN mode using the programming software or the control program. This allows you to change configuration while the system is operating. For example, the input filter for a particular channel could be changed, or a channel could be disabled based on a batch condition.
- **Over- and under-range detections and indications** eliminates the need to test values in the control program, saving valuable processing power of the controller. In addition, since alarms are handled by the module, the response is faster and only a single bit needs to be monitored to determine if an error condition has occurred.
- **Ability to direct output device operation during an abnormal condition**. Each channel of the output module can be individually configured to hold its last value or assume a user-defined value on either a run-to-program or run-to-fault condition. This feature allows you to set the condition of your analog devices, and therefore your control process, which may help to ensure a reliable shutdown.
- **Selectable input filters** allow you to select from several different filter frequencies for each channel that best meets the performance needs of your application based on environmental limitations. Lower filter settings provide greater noise rejection and resolution. Higher filter settings provide faster performance.
- **Selectable response to broken input sensor**. This feature provides feedback to the controller that a field device is not connected or operating properly. This allows you to specify corrective action based on the bit or channel condition.

- **Field calibration**. Modules can be recalibrated using AOP (Add-On Profiles) for RSLogix 5000 software. This allows you to improve the accuracy of the module for your application.

Analog I/O Modules

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Resolution	Absolute Accuracy	Conversion Rate	Current for Input Device Power per Point, max.	Auxiliary Current per Module, max.	IO Connectors
EtherNet/IP	1732E-IF4M12R	N.A.	4 inputs configurable as voltage or current per channel	0	16 bits	0.1% Full Scale @ 25 °C (77 °F)(1)	≤ 2 ms	20 mA	4.0 A	(4) M12
EtherNet/IP	1732E-OF4M12R	N.A.	0	4 outputs configurable as voltage or current per channel	16 bits	0.1% Full Scale @ 25 °C (77 °F)(1)	≤ 2 ms	–	4.0 A	(4) M12

(1) Includes offset, gain, non-linearity, and repeatability error terms.

Thermocouple/RTD Modules

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Resolution	Absolute Accuracy	Conversion Rate	Sensor Source Current per Point, max.	Auxiliary Current per Module, max.	IO Connectors
EtherNet/IP	1732E-IR4IM12R	N.A.	4 inputs	0	16 bits	0.1% Full Scale @ 25 °C (77 °F)(1)	≤ 2 ms	–	4.0 A	(4) M12
EtherNet/IP	1732E-IT4IM12R	N.A.	4 inputs (Type B/ C/E/J/K/N/R/S/T)	0	16 bits	0.1% Full Scale @ 25 °C (77 °F)(1)	≤ 2 ms	–	4.0 A	(4) M12

(1) Includes offset, gain, non-linearity, and repeatability error terms.

Specialty Modules

The 8 Channel IO-Link Master module provides eight channels that can be individually configured as IO-Link-enabled, Digital Input, Digital Output or Disabled. The IO-Link Master module can be configured to fit any IO-Link and/or discrete application.

The module can be used in one of the following modes:

- as IO-Link Master,
- as standard digital input or standard digital output modules,
- as mixed IO-Link Master and standard digital input or standard digital output modules.
- Individual channels can also be disabled if not in use.

IO-Link Master Module

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Module, max.	Surge/Inrush Output Current Rating per Point, max.	Sensor Source Current per Channel, max.	Auxiliary Current per Module, max.	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-8IOLM12R	Not protected	8 Type 1 inputs	8	0.5 A/4.0 A	0.3 A for 10 ms, repeatable every 3 s	500 mA @ 24V DC	4.0 A	2 EtherNet/IP ports[1]	(4) M12

(1) Configured as embedded switch. Supports star, tree, linear, and ring topologies.

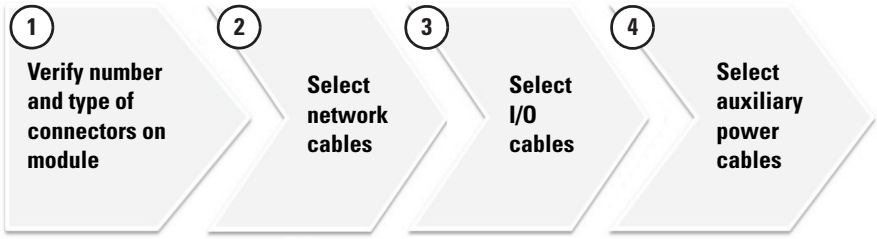
Notes:

Select Cables and Accessories for I/O Modules

Select Cables

For additional configurations, materials, and specifications, refer to the On-Machine Connectivity catalog, publication M117-CA001. For more information on cable descriptions, refer to Appendix C on page 61.

Follow these steps to select the appropriate cables for your ArmorBlock I/O modules:

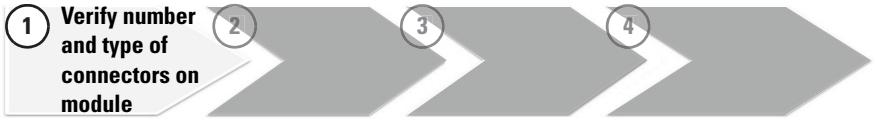


Step	See page
1 Verify number and type of connectors on module	
Check how many network, I/O, and auxiliary power connectors your I/O module has.	24
2 Select network cables	
Select appropriate network cables required for your application and network configuration.	
• Cables for DeviceNet (Flat Trunk, Thick Round, and Thin Round) – Flat Trunk Configuration Example, see page 29 – Thick Round Configuration Example, see page 29 – Thin Round Configuration Example, see page 30	26
• Cables for EtherNet/IP – EtherNet/IP Configuration Example, see page 30	26
3 Select I/O cables	
Select appropriate I/O cables required for your application.	26
4 Select auxiliary power cables	
Select power cables and t-ports for your application.	27

Alternatively, you can use software tools such as **IAB** (Integrated Architecture Builder) or **ProposalWorks** to help you choose the appropriate cables for your application. For more information, refer to Appendix D on page 65.

For more information on how a DeviceNet or EtherNet/IP network is typically configured, refer to Network Configuration Examples on page 29.

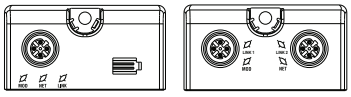
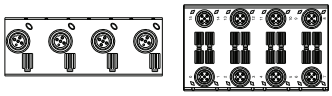
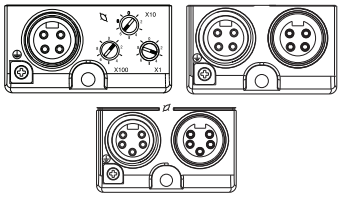
Verify Number and Type of Connectors on Module



Network, I/O, and Auxiliary Power Connector Types and Quantity on Modules

Catalog Number	Network Connectors (1 or 2)	I/O Connectors (4 or 8)	Auxiliary Power Connectors (1 or 2)
DeviceNet Modules			
1732D-8I8O1212D	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	– (I/O powered by network)
1732D-8X81212D	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-8X81212HD	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-IB8M8	M12 (Micro) – (1) Female and (1) Male	3-Pin M8 (Pico) – (8) Female	4-Pin M12 (Micro) – (1) Male
1732D-IB8M12	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin M12 (Micro) – (1) Male
1732D-IB16M12M12	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-IB16M12MINI	Mini – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-IBDPM12MND	Mini – (1) Male	5-Pin M12 (Micro) – (8) Female	–
1732D-IB161212D	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	–
1732D-IB161212W	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-OB8EM8	M12 (Micro) – (1) Female and (1) Male	3-Pin M8 (Pico) – (8) Female	4-Pin M12 (Micro) – (1) Male
1732D-OB8EM12	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (4) Female	4-Pin M12 (Micro) – (1) Male
1732D-OB16M12M12	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-OB16M12MINI	Mini – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-8CFGM8	M12 (Micro) – (1) Female and (1) Male	3-Pin M8 (Pico) – (8) Female	4-Pin M12 (Micro) – (1) Male
1732D-8CFGM12	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (4) Female	4-Pin M12 (Micro) – (1) Male
1732D-16CFGM12M12	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-16CFGM12MN	Mini – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732D-16CFG1212W	M12 (Micro) – (1) Female and (1) Male	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
EtherNet/IP Modules			
1732E-8IOLM12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (4) Female	4-Pin M12 (Micro) – (1) Male and (1) Female
1732E-8X8M12DR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-12X4M12QCDR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male and (1) Female
1732E-IB16M12	D-code M12 – (1) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-IB16M12W	D-code M12 – (1) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-IB16M12DR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-IB16M12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-IB8M8SOER	D-code M12 – (2) Female	3-Pin M8 (Pico) – (8) Female	4-Pin M12 (Micro) – (1) Male and (1) Female
1732E-IB16M12SOEDR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male

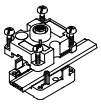
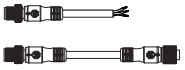
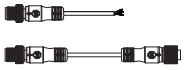
Network, I/O, and Auxiliary Power Connector Types and Quantity on Modules

Catalog Number	 Network Connectors (1 or 2)	 I/O Connectors (4 or 8)	 Auxiliary Power Connectors (1 or 2)
1732E-OB8M8SR	D-code M12 – (2) Female	3-Pin M8 (Pico) – (8) Female	4-Pin M12 (Micro) – (1) Male and (1) Female
1732E-OB16M12	D-code M12 – (1) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-OB16M12DR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-OB16M12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-8CFGM8R	D-code M12 – (2) Female	3-Pin M8 (Pico) – (8) Female	4-Pin M12 (Micro) – (1) Male and (1) Female
1732E-16CFGM12	D-code M12 – (1) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-16CFGM12W	D-code M12 – (1) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-16CFGM12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male
1732E-16CFGM12QCR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male and (1) Female
1732E-16CFGM12QCWR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	4-Pin Mini – (1) Male and (1) Female
1732E-16CFGM12P5QCR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	5-Pin Mini – (1) Male and (1) Female
1732E-16CFGM12P5QCWR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	5-Pin Mini – (1) Male and (1) Female
1732E-12X4M12P5QCDR	D-code M12 – (2) Female	5-Pin M12 (Micro) – (8) Female	5-Pin Mini – (1) Male and (1) Female
1732E-IF4M12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (4) Female	4-Pin M12 (Micro) – (1) Male and (1) Female
1732E-OF4M12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (4) Female	4-Pin M12 (Micro) – (1) Male and (1) Female
1732E-IR4IM12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (4) Female	4-Pin M12 (Micro) – (1) Male and (1) Female
1732E-IT4IM12R	D-code M12 – (2) Female	5-Pin M12 (Micro) – (4) Female	4-Pin M12 (Micro) – (1) Male and (1) Female

Select Network Cables

For specific catalog numbers of the cables, refer to the On-Machine Connectivity catalog, publication M117-CA001, at the chapter and page numbers listed in the table below.

DeviceNet Connections – (Mini) or M12 (Micro)

	Flat Trunk Cable			
				
Connector Style	**Insulation Displacement Connectors (IDC)**	**Drop Cable**	**Thick Round**	**Thin Round**
Mini	See KwikLink□ General Purpose Flat Media on page 6-14.	See KwikLink□ General Purpose Flat Media on page 6-15.	See Cordsets & Patchcords, Round Media Cable Spools on page 6-31...32.	See Cordsets & Patchcords, Round Media Cable Spools on page 6-33...34.
M12 (Micro)			–	

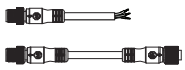
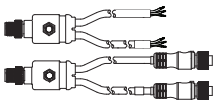
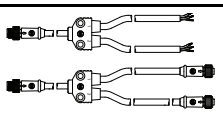
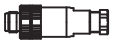
EtherNet/IP Connections – M12 D-code

M12 Cordset	**M12 Patchcord**	**M12 to RJ45 Patchcord**
See Cordsets & Patchcords on page 7-11.		
Note: 1732E-xxxxxxR I/O modules (ArmorBlock I/O with dual-port EtherNet/IP) can be daisy-chained to another 1732E I/O module by using a cable with male connectors on both ends.		

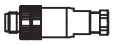
Select I/O Cables

For specific catalog numbers of the cables, refer to the On-Machine Connectivity catalog, publication M117-CA001, at the chapter and page numbers listed in the tables below.

Digital I/O Connections – M12 (DC Micro) or M8 (Pico)

				
Connector Style	**Cordsets and Patchcords (One end device per I/O connector)**	**V-Cables (Two end devices per I/O connector)**	**Y-Cables (Two end devices per I/O connector)**	**Field Attachable Connector**
M12 (DC Micro)	See Cordsets and Patchcords, DC Micro Style on page 3-44...59.	See V-Cables, DC Micro Style on page 3-60...65.	See Y-Cables, DC Micro Style on page 3-66...67.	See Field Attachable, DC Micro Style on page 3-74...75.
M8 (Pico)	See Cordsets and Patchcords, Pico Style on page 3-106...117.	–	–	See Field Attachable, Pico Style on page 3-126...127.

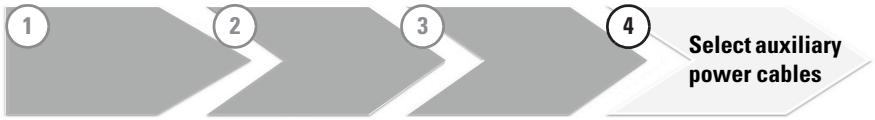
Analog I/O Connections – M12 (DC Micro)

ArmorBlock Catalog Number	Recommended Male Cordset	Recommended Patchcord	 Recommended Field Attachable Connector
1732E-IR4IM12R 1732E-IF4M12R 1732E-OF4M12R	889D-M4SC–[1]	889D-F4SCDM–[2]	889D-M4DC-SH
1732E-IT4IM12R	–	–	871A-TS4CJC-DM (Cold-Junction Compensation)

(1) Length in meters (2, 5, and 10 standard).

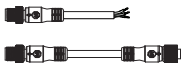
(2) Length in meters (1, 2, 3, 5, and 10 standard).

Select Auxiliary Power Cables



For specific catalog numbers of the cables, refer to the On-Machine Connectivity catalog, publication M117-CA001, at the chapter and page numbers listed in the table below.

Auxiliary Power Connections – Mini or M12 (DC Micro)

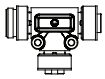
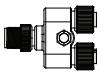
Connector Style	 Cordsets and Patchcord
Mini	See Cordsets & Patchcords, Auxiliary Power on page 6-55...58.
M12 (DC Micro)	

Select Accessories

T-Port

T-ports can be used as an alternative method to connect the I/O module to the network or power trunk line. They can also be used to provide an additional connection to daisy-chain with another I/O module. This is useful if your I/O module has only one network or auxiliary power connector. For information on how T-ports are used in a typical configuration, refer to Network Configuration Examples on page 29.

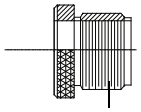
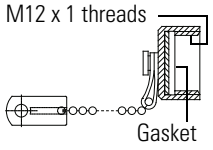
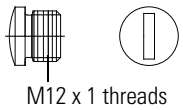
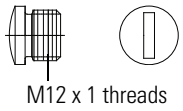
For specific catalog numbers of the accessories, refer to the On-Machine Connectivity catalog, publication M117-CA001, at the chapter and page numbers listed in the table below.

T-Port Use	 Mini	 M12 (Micro)
Device Drop (Network or I/O)	See T-Port, Round Media on page 6-41...42.	–
Auxiliary Power	See Trunk Tee, Auxiliary Power on page 6-61...62.	

Cold-Junction Compensation (CJC) Terminal Chamber

Face of Terminal Chamber	Style	Cable Jacket Diameter – mm (in.)	Rating	Catalog Number
	Straight	3.0...6.5 (0.12...0.26)	250V, 4 A	871A-TS4CJC-DM
	Right angle			871A-TR4CJC-DM
For use with ArmorBlock 24V DC, Thermocouple, 4 point module				1732E-IT4IM12R

Sealing Caps

Connector Style	Material	Thread Type	Dimensions [mm (in.)]	Catalog Number	Thread Type	Dimensions [mm (in.)]	Catalog Number
DC Micro	Aluminum	External	 M12 x 1 threads	1485A-C3	Internal	 M12 x 1 threads Gasket	889A-DCAP
	Plastic		 M12 x 1 threads	1485A-M12	–	–	–
Pico	Plastic	External	 M12 x 1 threads	889A-PMCAP	–	–	–

Labels

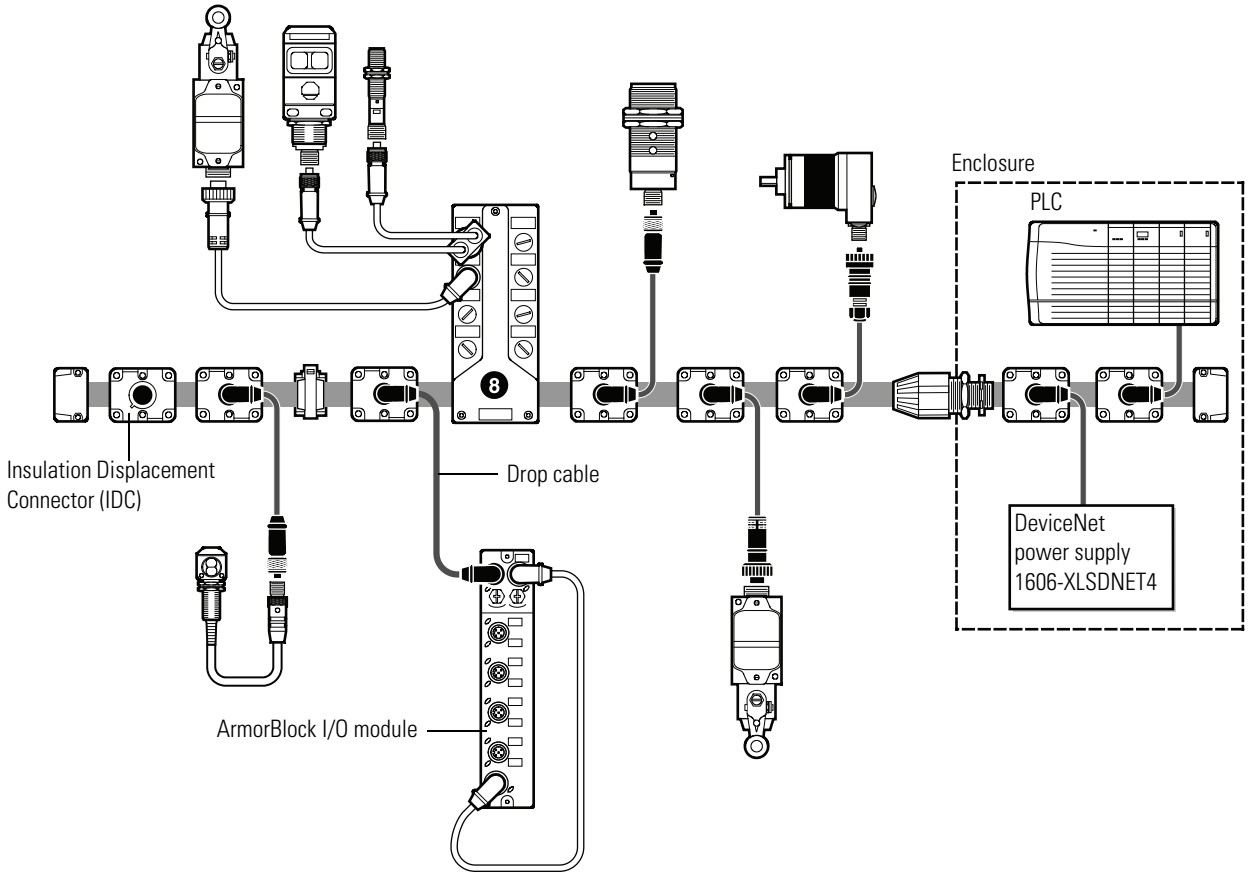
Each module comes with a set of labels (one per I/O connector). Additional labels are available for purchase if required.

Catalog Number	Description
1492-MD6X9	Snap-in individual marker card[1]

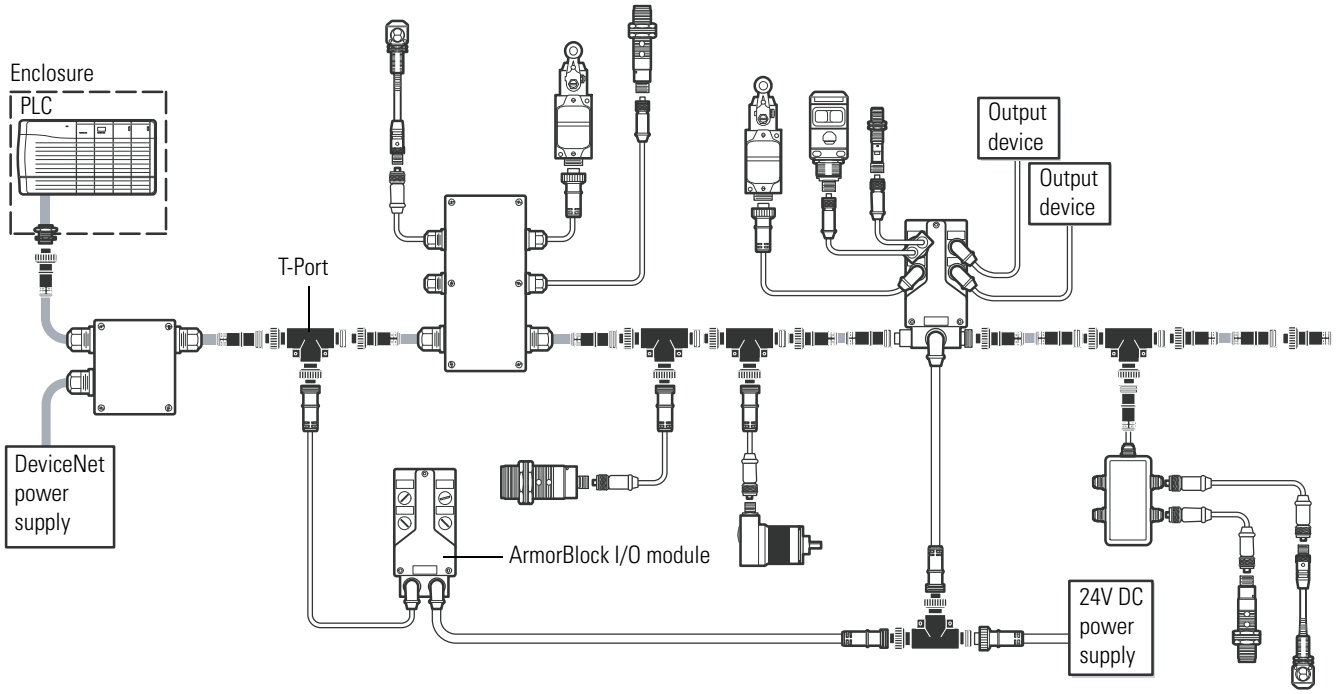
(1) Provides labelling for the terminal blocks to allow for easy identification and description.

Network Configuration Examples

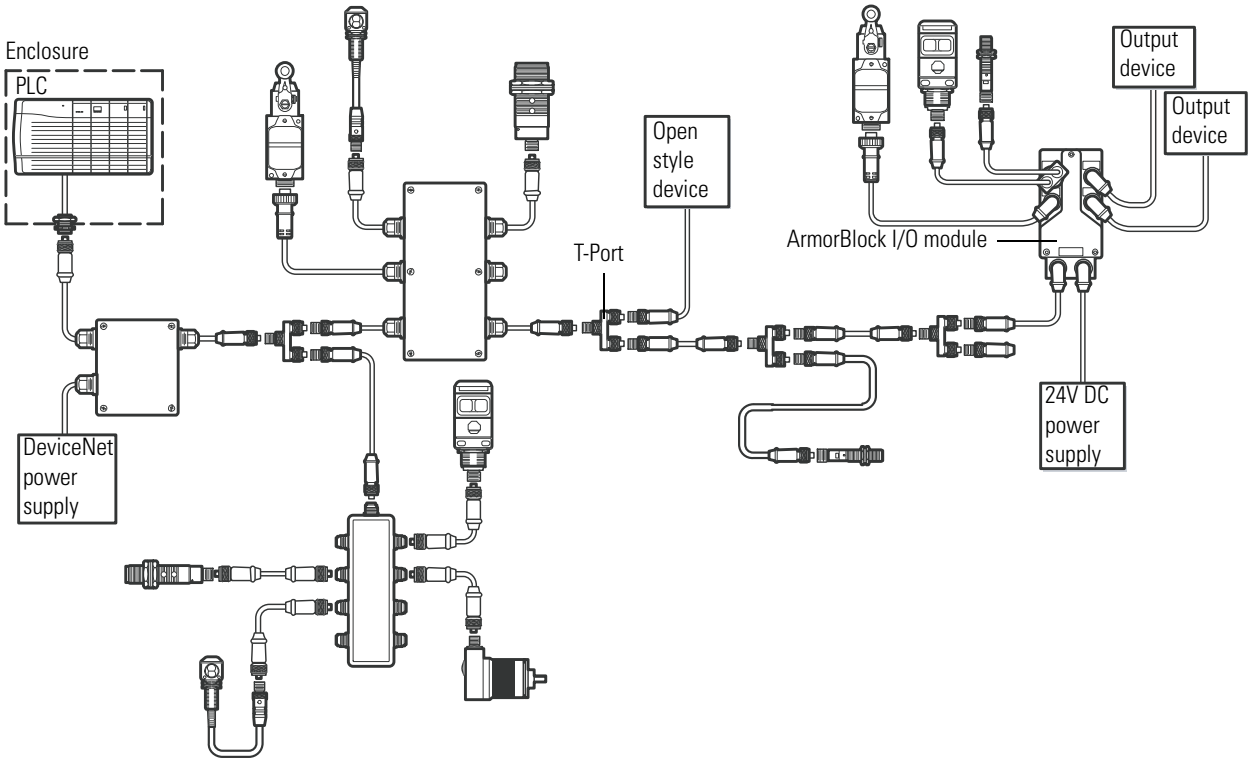
DeviceNet Flat Trunk Configuration Example



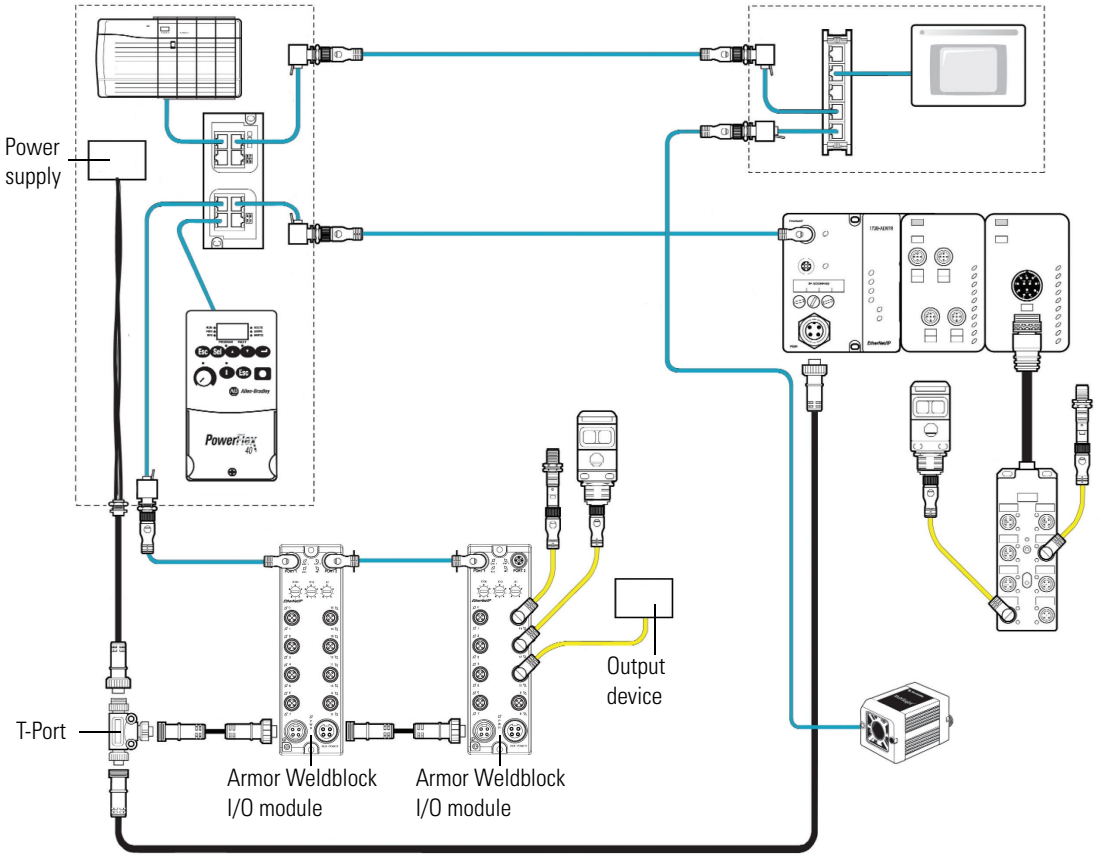
DeviceNet Thick Round Trunk Configuration Example



DeviceNet Thin Round Trunk Configuration Example



EtherNet/IP Configuration Example



DeviceNet I/O Module Specifications

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).

Digital DC Combination I/O Modules

General Specifications

Attribute	1732D-8I8O1212D	1732D-8X81212D	1732D-8X81212HD
Digital Inputs			
Number of inputs	8, Sink		
Inputs type	Powered by network, with sensor source short circuit detection and protection, open wire detection.		
Voltage, input, off-state, range	0...5V		
Voltage, input, on-state, range	11...25V		
Current, input, off-state, range	0...1.5 mA		
Current, input, on-state, range	2...5 mA		
Voltage, sensor source, range	11...25V		
Current per module, sensor source, max	500 mA		
Input delay time[1] OFF to ON ON to OFF	0...16000 µs		
Digital Outputs			
Number of outputs	8, Source, electronically fused by point		
Outputs type	Powered by network, with output short circuit detection and protection.		
Voltage drop, output, on-state, max	0.5V DC		
Voltage blocking, off-peak, min	25V DC	30V DC	
Current, output, on-state, range	1...500 mA		1...1400 mA
Current per module, max (all outputs)	4 A		8 A
Current leakage, output, off-state, max	50 µA		
Surge current per output, max	1.2 A for 10 ms, repeatable every 2 s		3.2 A for 10 ms, repeatable every 2 s
Auxiliary Power			
Current, auxiliary power, max	N.A.	4 A	8 A
Voltage, auxiliary power, range	N.A.	12...30V DC	

General Specifications

Attribute	1732D-8I8O1212D	1732D-8X81212D	1732D-8X81212HD
General Information			
Isolation voltage	**Input:** No isolation between inputs and sensor power to network **Output:** No isolation between individual outputs or between outputs and network	**Input:** No isolation between inputs and sensor power to network **Output:** 50V (continuous), basic insulation type, outputs and output power to network No isolation between individual inputs or outputs or between outputs and output power Type tested @ 707V DC for 60 s	
Power consumption	2.2 W	3.3 W	2 W
Power dissipation	7.5 BTU/hr	11.2 BTU/hr	6.8 BTU/hr
Pilot duty rating	DC-14		
Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination.		
Wiring category[2]	1 – on power ports 1 – on signal ports 1 – on communications ports	1 – on power ports 1 – on signal ports 2 – on communications ports	
Indicators	Module status – green/red Network status – green/red I/O status – yellow	Module status – green/red Network status – green/red Auxiliary power – green I/O status – yellow	
Publication	1732D-IN010	1732D-IN009	1732D-IN011

(1) Input OFF to ON or ON to OFF delay is time from a valid input signal to recognition by the module.

(2) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732D-8I8O1212D, 1732D-8X81212D, 1732D-8X81212HD

Attribute	1732D-8I8O1212D	1732D-8X81212D	1732D-8X81212HD
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): -20…60 °C (-4…140 °F)		
Temperature, non-operating	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -45…85 °C (-49…185 °F)		
Temperature, surrounding air, max	60 °C (140 °F)		
Relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Damp Heat): 5…95% non-condensing		
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz		
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g		
Shock, non-operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g		
Emissions	IEC 61000-6-4		
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 8 kV air discharges		

Environmental Specifications – 1732D-8I8O1212D, 1732D-8X81212D, 1732D-8X81212HD

Attribute	1732D-8I8O1212D	1732D-8X81212D	1732D-8X81212HD
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz		
EFT/B immunity	IEC 61000-4-4: ±2 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±2 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±3 kV @ 5 kHz on communication ports		
Surge transient immunity	IEC 61000-4-5: ±2 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±2 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports		
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz		

Certifications – 1732D-8I8O1212D, 1732D-8X81212D, 1732D-8X81212HD

Certification (when product is marked)(1)	1732D-8I8O1212D	1732D-8X81212D	1732D-8X81212HD
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657.		
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)		
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions		
ODVA	ODVA conformance tested to DeviceNet specifications		
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3		

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Digital DC Input Modules

General Specifications

Attribute	1732D-IBDPM12MND	1732D-IB161212D, 1732D-IB161212W	1732D-IB16M12MINI, 1732D-IB16M12M12	1732D-IB8M12, 1732D-IB8M8
Digital Inputs				
Number of inputs	16, Sink			8, Sink
Inputs type	Powered by network, with sensor source short circuit detection and protection, open wire protection.		Powered by auxiliary power, with sensor source short circuit protection.	
Voltage, input, off-state, range	0...5V			
Voltage, input, on-state, range	11...25V DC		11...30V DC	
Current, input, off-state, range	0...1.5 mA			

General Specifications

Attribute	1732D-IBDPM12MND	1732D-IB161212D, 1732D-IB161212W	1732D-IB16M12MINI, 1732D-IB16M12M12	1732D-IB8M12, 1732D-IB8M8
Current, input, on-state, range	2...5 mA			
Voltage, sensor source, range	11...25V DC		11...30V DC	
Current per input, sensor source, max	30 mA		50 mA	
Current per module, sensor source, max	500 mA		800 mA	400 mA
Input delay time[1] OFF to ON ON to OFF	0...16000 µs			
Auxiliary Power				
Current, auxiliary power, max	575 mA		900 mA	450 mA
Voltage, auxiliary power, range	N.A.		12...30V DC	
General Information				
Isolation voltage	No isolation between inputs and sensor power to network		50V (continuous), basic insulation type, inputs and sensor power to network Type tested @ 707V DC for 60 s	
Pilot duty rating	Not rated			
Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination.			
Wiring category[2]	1 – on signal ports 2 – on communications ports	1 – on power ports 1 – on signal ports 1 – on communication ports – **1732D-IB161212W, 1732D-IB16M12MINI, 1732D-IB16M12M12** 2 – on communication ports – **1732D-IB161212D only**		1 – on power ports 1 – on signal ports 2 – on communication ports
Indicators	Module status – green/red Network status – green/red I/O status – yellow		Module status – red/green Network status – red/green Auxiliary power – green I/O status – yellow	
Publication	1732D-IN007	1732D-IN012 – **1732D-IB161212D** 1732D-IN002 – **1732D-IB161212W**	1732D-IN002	1732D-IN001

(1) Input OFF to ON or ON to OFF delay is time from a valid input signal to recognition by the module.

(2) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications –
1732D-IBDPM12MND, 1732D-IB161212D, 1732D-IB161212W, 1732D-IB16M12MINI, 1732D-IB16M12M12, 1732D-IB8M12, 1732D-IB8M8

Attribute	1732D-IBDPM12MND	1732D-IB161212D, 1732D-IB161212W	1732D-IB16M12MINI, 1732D-IB16M12M12	1732D-IB8M12, 1732D-IB8M8
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): -20…60 °C (-4…140 °F)			
Temperature, non-operating	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)			
Temperature, surrounding air, max.	60 °C (140 °F)			
Relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Damp Heat): 5…95% non-condensing			
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz			
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g			
Shock, non-operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g			
Emissions	IEC 61000-6-4			
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 8 kV air discharges			IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz		IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports		
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±2 kV line-line(DM) and ±2 kV line-earth(CM) on power ports – **1732D-IB161212W only** ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports – **1732D-IB161212W only** ±2 kV line-earth(CM) on communications ports		
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz			

Certifications –
1732D-IBDPM12MND, 1732D-IB161212D, 1732D-IB161212W, 1732D-IB16M12MINI, 1732D-IB16M12M12, 1732D-IB8M12, 1732D-IB8M8

Certification (when product is marked)[1]	Attribute
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
ODVA	ODVA conformance tested to DeviceNet specifications
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Digital DC Output Modules

General Specifications

Attribute	1732D-OB16M12MINI, 1732D-OB16M12M12	1732D-OB8EM12, 1732D-OB8EM8
Digital Outputs		
Number of outputs	16, Source, electronically fused per point	8, Source, electronically fused per point
Outputs type	Powered by auxiliary power, with output short circuit protection.	
Voltage drop, output, on-state, max	0.5V DC	
Voltage blocking, off-peak, min	30V DC	
Current, output, on-state, range	1...2000 mA	1...500 mA
Current per module, max (all outputs)	8 A	
Current leakage, output, off-state, max	50 μA	
Surge current per output, max	4.8 A for 10 ms, repeatable every 2 s	1.2 A for 10 ms, repeatable every 2 s
Auxiliary Power		
Current, auxiliary power, max	8 A	4 A
Voltage, auxiliary power, range	12...30V DC	
General Information		
Isolation voltage	50V (continuous), basic insulation type, outputs and output power to network No isolation between individual outputs or between outputs and output power Type tested @ 707V DC for 60 s	
Pilot duty rating	DC-14	
Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination.	

General Specifications

Attribute	1732D-OB16M12MINI, 1732D-OB16M12M12	1732D-OB8EM12, 1732D-OB8EM8
Wiring category[1]	1 – on power ports 1 – on signal ports 1 – on communication ports	1 – on power ports 1 – on signal ports 2 – on communication ports
Indicators	Module status – red/green Network status – red/green Auxiliary power – green I/O status – yellow	
Publication	1732D-IN002	1732D-IN001

[1] Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732D-OB16M12MINI, 1732D-OB16M12M12, 1732D-OB8EM12, 1732D-OB8EM8

Attribute	1732D-OB16M12MINI, 1732D-OB16M12M12	1732D-OB8EM12, 1732D-OB8EM8
Temperature, operating	IEC60068-2-1 (Test Ad, Operating Cold), IEC60068-2-2, (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20…60 °C (-4…140 °F)	
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -40 … 85 °C (-40 … 185°F)	
Temperature, surrounding air, max	60 °C (140 °F)	
Relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Damp Heat): 5…95% non-condensing	
Vibration	IEC 60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz	
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g	
Shock, nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g	
Emissions	IEC 61000-6-4	
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 8 kV air discharges	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communications ports	
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communications ports	
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MH	

Certifications – 1732D-OB16M12MINI, 1732D-OB16M12M12, 1732D-OB8EM12, 1732D-OB8EM8

Certification (when product is marked)[1]	Attribute
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
ODVA	ODVA conformance tested to DeviceNet specifications
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Digital DC Self-configurable I/O Modules

General Specifications

Attribute	1732D-16CFGM12MN, 1732D-16CFGM12M12	1732D-16CFG1212W	1732D-8CFGM12, 1732D-8CFGM8
Digital Inputs			
Number of inputs	16, Sink, self-configuring		8, Sink, self-configuring
Inputs type	Powered by auxiliary power, with sensor source short circuit protection.		
Voltage, input, off-state, range	0...5V		
Voltage, input, on-state, range	11...30V DC		
Current, input, off-state, range	0...1.5 mA		
Current, input, on-state, range	2...5 mA		
Voltage, sensor source, range	11...30V DC		
Current per input, sensor source, max	50 mA		
Current per module, sensor source, max	800 mA		400 mA
Input delay time[1] OFF to ON ON to OFF	0...16000 µs		
Digital Outputs			
Number of outputs	16, Source self-configuring, electronically fused per point.		8, Source, self-configuring, electronically fused per point.
Outputs type	Powered by auxiliary power, with output short circuit protection.		
Current, output, on-state, range	1...500 mA		
Current per module, max (all outputs)	8 A		
Current leakage, output, off-state, max	50 µA		
Surge current per output, max	1.2 A for 10 ms, repeatable every 2 s		
Auxiliary Power			

General Specifications

Attribute	1732D-16CFGM12MN, 1732D-16CFGM12M12	1732D-16CFG1212W	1732D-8CFGM12, 1732D-8CFGM8
Current, auxiliary power, max	8 A		4 A
Voltage, auxiliary power, range	12...30V DC		11...30V DC
General Information			
Isolation voltage	50V (continuous), basic insulation type, outputs and output power to network, inputs and sensor power to network No isolation between individual inputs or outputs or between outputs and output power Type tested @ 707V DC for 60 s		
Pilot duty rating	DC-14		
Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination.		
Wiring category[2]	1 – on power ports 1 – on signal ports 1 – on communication ports		1 – on power ports 1 – on signal ports 2 – on communication ports
Indicators	Module status – red/green Network status – red/green Auxiliary power – green I/O status – yellow		
Publication	1732D-IN002	–	1732D-IN001

(1) Input OFF to ON or ON to OFF delay is time from a valid input signal to recognition by the module.

(2) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732D-16CFGM12MN, 1732D-16CFGM12M12, 1732D-16CFG1212W, 1732D-8CFGM12, 1732D-8CFGM8

Attribute	1732D-16CFGM12MN, 1732D-16CFGM12M12	1732D-16CFG1212W	1732D-8CFGM12, 1732D-8CFGM8
Temperature, operating	IEC60068-2-1 (Test Ad, Operating Cold), IEC60068-2-2, (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20…60 °C (-4…140 °F)		
Temperature, storage	IEC 60068-2-1 (Test Ab, Unpackaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -40 … 85 °C (-40 … 185°F)		
Temperature, surrounding air, max	60 °C (140 °F)		
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5…95% non-condensing		
Vibration	IEC 60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz		
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g		
Shock, nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g		
Emissions	IEC 61000-6-4		
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 8 kV air discharges		IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges

Environmental Specifications – 1732D-16CFGM12MN, 1732D-16CFGM12M12, 1732D-16CFG1212W, 1732D-8CFGM12, 1732D-8CFGM8

Attribute	1732D-16CFGM12MN, 1732D-16CFGM12M12	1732D-16CFG1212W	1732D-8CFGM12, 1732D-8CFGM8
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports		
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±2 kV line-line(DM) and ±2 kV line-earth(CM) on power ports – **1732D-16CFG1212W only** ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports – **1732D-16CFG1212W only** ±2 kV line-earth(CM) on communication ports		
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz		

Certifications – 1732D-16CFGM12MN, 1732D-16CFGM12M12, 1732D-16CFG1212W, 1732D-8CFGM12, 1732D-8CFGM8

Certification (when product is marked)[1]	Attribute
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
ODVA	ODVA conformance tested to DeviceNet specifications
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

EtherNet/IP I/O Module Specifications

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: For 1732E-8CFGM8R, 1732E-IB8M8SOER, 1732E-OB8M8SR, 1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR, 1732E-16CFGM12QCR, 1732E-16CFGM12P5QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCWR – To comply with UL restrictions, this equipment must be powered from a source compliant with the following: Limited Voltage/Current.

ATTENTION: For 1732E-IF4M12R, 1732E-OF4M12R, 1732E-IR4IM12R, 1732E-IT4IM12R – To comply with UL restrictions, this equipment must be powered from a source compliant with the following: Limited Voltage/Limited Current.

Digital DC Combination I/O Modules

General Specifications

Attribute	1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR	1732E-8X8M12DR
Digital Inputs		
Number of inputs	12, Sink	8, Sink
Inputs type	Powered by auxiliary power, with sensor source short circuit detection and protection, open wire detection.	
Voltage, input, off-state, range	0…5V	
Voltage, input, on-state, range	12...30V DC	11...30V DC
Current, input, off-state, range	0...1.5 mA	
Current, input, on-state, range	2...5 mA	
Voltage, sensor source, range	10...30V DC	
Current per input, sensor source, max	50 mA	
Current per module, sensor source, max	2 A	4 A
Input delay time[1] OFF to ON ON to OFF	0, 1, 2, 4, 8, 16 ms	0...16000 µs
Digital Outputs		
Number of outputs	4, Source, electronically fused per point	8, Source, electronically fused per point

General Specifications

Attribute	1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR	1732E-8X8M12DR
Outputs type	Powered by auxiliary power, with output short circuit detection and protection, open wire detection.	
Voltage drop, output, on-state, max	0.5V DC	
Voltage blocking, off-peak, min	30V DC	
Current, output, on-state, range	1...500 mA	
Current per module, max (all outputs)	2 A	4 A
Current leakage, output, off-state, max	500 μA	
Surge current per output, max	1.2 A for 10 ms, repeatable every 2 s	
Auxiliary Power		
Current, auxiliary power, max	2 A	4 A
Voltage, auxiliary power, range	12...30V DC	
General Information		
Isolation voltage	**Input:** 50V (continuous), basic insulation type, inputs and sensor power to network Type tested @ 707V DC for 60 s **Output:** 50V (continuous), basic insulation type, outputs and output power to network No isolation between individual outputs or between outputs and output power Type tested @ 707V DC for 60 s	
Current, Ethernet system power, max	1 A	0.8 A
Pilot duty rating	Not rated	
Enclosure type rating	Meets IP65/66/67/69K with receptacle dust caps or cable termination.	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination.
Wiring category[2]	1 – on power ports 1 – on signal ports 1 – on communication ports	
Indicators	Module status – red/green Network status – red/green Link status – green/yellow Auxiliary power – green I/O status – yellow/red	
Publication	1732E-IN010	1732E-IN004

(1) Input OFF to ON or ON to OFF delay is time from a valid input signal to recognition by the module

(2) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR, 1732E-8X8M12DR

Attribute	1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR	1732E-8X8M12DR
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): -20…60 °C (-4…140 °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 Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -40…85 °C (-40…185 °F)	

Environmental Specifications – 1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR, 1732E-8X8M12DR

Attribute	1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR	1732E-8X8M12DR
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5…95% noncondensing	
Vibration	IEC 60068-2-6 (Test Fc, Operating): 5 g @ 10... 500 Hz	
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g	
Shock, non-operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g	
Emissions	IEC 61000-6-4	
ESD Immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges	
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 Mhz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz – **1732E-12X4M12P5QCDR only**	
EFT/B immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communications ports	
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports	
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz	

Certifications – 1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR, 1732E-8X8M12DR

Certification (when product is marked)[1]	1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR	1732E-8X8M12DR
c-UR-us	UL Recognized Component, certified for US and Canada. See UL File E322657.	–
c-UL-us	–	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)	
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions	
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Digital DC Input Modules

General Specifications

Attribute	1732E-IB16M12 1732E-IB16M12W	1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12SOEDR	1732E-IB8M8SOER
Digital Inputs			
Number of inputs	16, Sink		8, Sink
Inputs type	Powered by auxiliary power, with sensor source short circuit protection.	Powered by auxiliary power, with sensor source short circuit protection, open wire detection.	Powered by auxiliary power, sensor source unprotected, no detection.
Voltage, input, off-state, range	0...5V		
Voltage, input, on-state, range	11...30V DC		
Current, input, off-state, range	0...1.5 mA		
Current, input, on-state, range	2...5 mA		
Voltage, sensor source, range	11...30V DC	10...30V DC	
Current per input, sensor source, max	50 mA		
Current per module, sensor source, max	800 mA		400 mA
Input delay time[1] OFF to ON ON to OFF	0...16000 µs		0 (default), 2, 4, 8, and 16 ms
Auxiliary Power			
Current, auxiliary power, max	8 A		4 A
Voltage, auxiliary power, range	12...30V DC		
General Information			
Isolation voltage	50V (continuous), basic insulation type, inputs and sensor power to network Type tested @ 707V DC for 60 s		
Current, Ethernet system power, max	1.1 A	1.2 A	0.3 A
Pilot duty rating	Not rated		
Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination		Meets IP65/66/67/69K with receptacle dust caps or cable termination and NEMA Type1
Wiring category[2]	1 – on power ports 1 – on signal ports 1 – on communication ports		
Indicators	Module status – red/green Network status – red/green Link status – green/yellow Auxiliary power – green I/O status – yellow I/O status – yellow/red – **1732E-IB16M12DR and 1732E-IB16M12SOEDR only**		
Publication	1732E-IN002	1732E-IN004	1732E-IN007

(1) Input OFF to ON or ON to OFF delay is time from a valid input signal to recognition by the module

(2) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications –
1732E-IB16M12, 1732E-IB16M12W, 1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12SOEDR, 1732E-IB8M8SOER

Attribute	1732E-IB16M12, 1732E-IB16M12W	1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12SOEDR	1732E-IB8M8SOER
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): -20…60 °C (-4…140 °F)		
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40…85 °C (-40…185 °F)		
Temperature, ambient, max	–		60 °C (140 °F)
Temperature, surrounding, max	60 °C (140 °F)		–
Relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Damp Heat): 5…95% non-condensing		
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz		
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g		
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g		
Emissions	IEC 61000-6-4		
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 8 kV air discharges	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges	
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz		
EFT/B Immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±4 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports	
Surge Transient Immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports		
Conducted RF Immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz		

Certifications –
1732E-IB16M12, 1732E-IB16M12W, 1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12SOEDR, 1732E-IB8M8SOER

Certification (when product is marked)[1]	1732E-IB16M12, 1732E-IB16M12W	1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12SOEDR	1732E-IB8M8SOER
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657		–
c-UR-us	–		UL Recognized Component Industrial Control Equipment, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)		
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions		
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.		
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3		

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Digital DC Output Modules

General Specifications

Attribute	1732E-OB16M12	1732E-OB16M12R	1732E-OB16M12DR	1732E-OB8M8SR
Digital Outputs				
Number of outputs	16, Source, electronically fused by point			8, Source, unprotected
Outputs type	Powered by auxiliary power, with short circuit protection.		Powered by auxiliary power, with short circuit protection, open wire detection.	Powered by auxiliary power, output unprotected.
Current per module, max (all outputs)	8 A			4 A
Current leakage, output, off-state, max	50 μA		500 μA	50 μA
Surge current per output, max	6 A for 10 ms, repeatable every 2 s	4.8 A for 10 ms, repeatable every 2 s	1.2 A for 10 ms, repeatable every 2 s	
Auxiliary Power				
Current, auxiliary power, max	8 A			4 A
Voltage, auxiliary power, range	12...30V DC			
General Information				
Isolation voltage	50V (continuous), basic insulation type, outputs and output power to network No isolation between individual outputs or between outputs and output power Type tested @ 707V DC for 60 s			
Pilot duty rating	DC-14	Not rated		DC-14

General Specifications

Attribute	1732E-OB16M12	1732E-OB16M12R	1732E-OB16M12DR	1732E-OB8M8SR
Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination.			Meets IP65/66/67/69K with receptacle dust caps or cable termination and NEMA Type1
Wiring category[1]	1 – on power ports 1 – on signal ports 1 – on communication ports			
Indicators	Module status – red/green Network status – red/green Link status – green/yellow Auxiliary power – green I/O status – yellow I/O status – yellow/red – **1732E-OB16M12DR only**			
Publication	1732E-IN002	1732E-IN004		1732E-IN007

[1] Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732E-OB16M12, 1732E-OB16M12R, 1732E-OB16M12DR, 1732E-OB8M8SR

Attribute	1732E-OB16M12	1732E-OB16M12R	1732E-OB16M12DR	1732E-OB8M8SR
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): -20…60 °C (-4…140 °F)			
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40…85 °C (-40…185 °F)			
Temperature, ambient, max	–			60 °C (140 °F)
Temperature, surrounding air, max	60 °C (140 °F)			–
Relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Damp Heat): 5…95% non-condensing			
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz			
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g			
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g			
Emissions	IEC 61000-6-4			
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 8 kV air discharges	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges		
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz			

Environmental Specifications – 1732E-OB16M12, 1732E-OB16M12R, 1732E-OB16M12DR, 1732E-OB8M8SR

Attribute	1732E-OB16M12	1732E-OB16M12R	1732E-OB16M12DR	1732E-OB8M8SR
EFT/B immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±4 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports		
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports			
Conducted RF Immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz			

Certifications – 1732E-OB16M12, 1732E-OB16M12R, 1732E-OB16M12DR, 1732E-OB8M8SR

Certification (when product is marked)[1]	1732E-OB16M12	1732E-OB16M12R	1732E-OB16M12DR	1732E-OB8M8SR
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657.			–
c-UR-us	–			UL Recognized Component, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)			
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions			
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.			
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3			

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Digital DC Self-configurable Modules

General Specifications

Attribute	1732E-16CFGM12, 1732E-16CFGM12W	1732E-16CFGM12R	1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR 1732E-16CFGM12P5QCWR	1732E-8CFGM8R
Digital Inputs				
Number of inputs	16, Sink, self-configuring			8, Sink, self-configuring, unprotected
Inputs type	Powered by auxiliary power, with sensor source short circuit protection.			Powered by auxiliary power, sensor source unprotected against short circuit.
Voltage, input, off-state, range	0...5V DC			
Voltage, input, on-state, range	11...30V DC		12...30V DC	11...30V DC
Current, input, off-state, range	0...1.5 mA			0…90 μA
Current, input, on-state, range	2...5 mA			180 μA…5 mA
Voltage, sensor source, range	11...30V DC	10...30V DC		
Current per input, sensor source, max	50 mA			
Current per module, sensor source, max	800 mA			400 mA
Input delay time[1] OFF to ON ON to OFF	0...16000 μs		0, 1, 2, 4, 8, 16 ms	0 ms (default), 2 ms, 4 ms, 8 ms, 16 ms
Digital Outputs				
Number of outputs	16, Source, self-configuring, electronically fused by point			8, Source, self-configuring, unprotected)
Outputs type	Powered by auxiliary power, with output short circuit protection.			Powered by auxiliary power, unprotected against short circuit.
Current, output, on-state, range	1...500 mA			
Current per module, max (all outputs)	8 A			4 A
Current leakage, output, off-state, max	50 μA			
Surge current per output, max	3.2 A for 10 ms, repeatable	1.2 A for 10 ms, repeatable every 2 s		
Auxiliary Power				
Current, auxiliary power, max	8 A		10 A	4 A
Voltage, auxiliary power, range	12...30V DC			
General Information				
Isolation voltage	50V (continuous), basic insulation type, outputs and output power to network, inputs and sensor power to network No isolation between individual inputs or outputs or between outputs and output power Type tested @ 707V DC for 60 s			
Pilot duty rating	DC-14	Not rated		DC-14

General Specifications

Attribute	1732E-16CFGM12, 1732E-16CFGM12W	1732E-16CFGM12R	1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR 1732E-16CFGM12P5QCWR	1732E-8CFGM8R
Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination.		Meets IP65/66/67/69K and Type 4X with receptacle dust caps or cable termination	Meets IP65/66/67/69K with receptacle dust caps or cable termination and NEMA Type1
Wiring category[2]	1 – on power ports 1 – on signal ports 1 – on communication ports			
Indicators	Module status – red/green Network status – red/green Link status – green/yellow Auxiliary power – green I/O status – yellow			
Publication	1732E-IN002	1732E-IN004	1732E-IN010	1732E-IN007

(1) Input OFF to ON or ON to OFF delay is time from a valid input signal to recognition by the module.

(2) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732E-16CFGM12, 1732E-16CFGM12W, 1732E-16CFGM12R, 1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR, 1732E-16CFGM12P5QCWR, 1732E-8CFGM8R

Attribute	1732E-16CFGM12, 1732E-16CFGM12W	1732E-16CFGM12R	1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR 1732E-16CFGM12P5QCWR	1732E-8CFGM8R
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): -20…60 °C (-4…140 °F)			
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40…85 °C (-40…185 °F)			
Temperature, ambient, max	–		60 °C (140 °F)	
Temperature, surrounding air, max	60 °C (140 °F)		–	
Relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Damp Heat): 5…95% non-condensing			
Vibration	IEC60068-2-6 (Test Fc, Operating): 5 g @ 10…500 Hz			
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g			
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g			
Emissions	IEC 61000-6-4			
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 8 kV air discharges	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges		

Environmental Specifications – 1732E-16CFGM12, 1732E-16CFGM12W, 1732E-16CFGM12R, 1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR, 1732E-16CFGM12P5QCWR, 1732E-8CFGM8R

Attribute	1732E-16CFGM12, 1732E-16CFGM12W	1732E-16CFGM12R	1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR 1732E-16CFGM12P5QCWR	1732E-8CFGM8R
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz – **1732E-16CFGM12P5QCR, 1732E-16CFGM12P5QCWR only**			
EFT/B Immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±4 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports		
Surge Transient Immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports			
Conducted RF Immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz			

Certifications – 1732E-16CFGM12, 1732E-16CFGM12W, 1732E-16CFGM12R, 1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR, 1732E-16CFGM12P5QCWR, 1732E-8CFGM8R

Certification (when product is marked)[1]	1732E-16CFGM12, 1732E-16CFGM12W	1732E-16CFGM12R	1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR 1732E-16CFGM12P5QCWR	1732E-8CFGM8R
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E322657.		–	
c-UR-us	–		UL Recognized Component Industrial Control Equipment, certified for US and Canada. See UL File E322657.	
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)			
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions			
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.			
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3			

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Analog I/O Modules

General Specifications

Attribute	1732E-IF4M12R	1732E-OF4M12R
Analog Inputs		
Number of inputs	4	N.A.
Input type	Configurable as voltage or current inputs	
Voltage, input, range	0…10V, 0…5V, ±5V, ±10V (bipolar range)	
Current, input, range	0…20 mA, 4…20 mA	
Notch Filter	1 kHz per channel	
Input impedance	125 kΩ per channel	
Overload support, current	32 mA	
Overload support, voltage	30V continuous	
Analog Outputs		
Number of outputs	N.A.	4
Outputs type		Configurable as voltage or current outputs
Output range, current		0...20 mA, 4...20 mA
Output range, voltage		±10V, 10 mW
Short circuit protection, current, max		20 mA (0...20 mA mode)
Short circuit protection, voltage, max		20 mA per channel
Auxiliary Power		
Voltage, auxiliary power, range	12...30V DC	
General Information		
Resolution	16 bits	
Data format	16-bit sign magnitude	
Conversion rate	1.005 kHz per channel	≤ 2ms
Accuracy	0.1% Full Scale @ 25 °C (77 °F)	
Accuracy drift with temperature, max	40 ppm % Full Scale /°C @ 25 °C (77 °F)	
Calibration required	Factory calibrated. Calibration is also supported through RSLogix 5000.	
Isolation voltage	50V (continuous), basic insulation type, inputs and sensor power to network Type tested @ 707V DC for 60 s	50V (continuous), basic insulation type, outputs and output power to network No isolation between individual outputs or between outputs and output power Type tested @ 707V DC for 60 s
Power consumption	3 W @ 24V DC, typical 3.5 W, max (module unloaded)	
Pilot duty rating	Not rated	
Enclosure type rating	Meets IP65/66/67/69K with receptacle dust caps or cable termination and NEMA Type1	

General Specifications

Attribute	1732E-IF4M12R	1732E-OF4M12R
Wiring category[1]	1 – on power ports 1 – on signal ports 1 – on communication ports	
Indicators	Module status – red/green Network status – red/green Link status – green/yellow Auxiliary power – green I/O status – red/green	
Publication	1732E-IN006	

(1) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732E-IF4M12R, 1732E-OF4M12R

Attribute	1732E-IF4M12R	1732E-OF4M12R
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): -20…60 °C (-4…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)	
Temperature, ambient, max	60 °C (140 °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	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g	
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g	
Emissions	IEC 61000-6-4	
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges	
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz	
EFT/B Immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communication ports	
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports	
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz	

Certifications – 1732E-IF4M12R, 1732E-OF4M12R

Certification (when product is marked)[1]	Attribute
c-UR-us	UL Recognized Component, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Thermocouple/RTD Modules

General Specifications

Attribute	1732E-IR4IM12R	1732E-IT4IM12R
Analog Inputs		
Number of inputs	4, isolated	
Current per input, sensor source, max	50 mA	
Auxiliary Power		
Current, auxiliary power, max	4 A	
Voltage, auxiliary power, range	12...30V DC	
General Information		
Resolution	16 bits	
Data format	16-bit sign magnitude	Signed integer
Accuracy	0.1% Full Scale @ 25 °C (77 °F)	
Accuracy drift with temperature, max.	30 ppm % Full Scale /°C @ 25 °C (77 °F)	
Calibration	Factory calibrated. Calibration is also supported through RSLogix 5000.	
Rejection mode, common mode	120 dB @ 50/60 Hz	
Rejection mode, normal mode	100 dB @ 50/60 Hz	
Sample Rate Filters[1]	50 Hz 60 Hz 250 Hz 500 Hz	
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 Type tested @ 707V DC for 60 s	

General Specifications

Attribute	1732E-IR4IM12R	1732E-IT4IM12R
Current, Ethernet, system power, max		
Power consumption	3W @ 24V DC, typical 3.5 W, max (module unloaded)	
Pilot duty rating	Not rated	
Enclosure type rating	Meets IP65/66/67/69K with receptacle dust caps or cable termination and NEMA Type1	
Wiring category[2]	1 – on power ports 1 – on signal ports 1 – on communication ports	
Indicators	Module status – red/green Network status – red/green Link status – green/yellow Auxiliary power – green I/O status – yellow	
Publication	1732E-IN005	

(1) Sample Rate/Notch Filter Frequency, selectable per channel.

(2) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

General Specifications

1732E-IT4IM12R only				
Thermocouple type, input range	**Type**	**Material**	**Temperature Range °C (°F)**	**Voltage Range (mV)**
	B	Pt/30% Rh vs. Pt/5% Rh	40...1820 (104...3308)	0...13.820
	C	W/5% Re vs. W/26% Re	0...2320 (32.4208)	0...37.107
	E	Ni/Cr vs. Cu/Ni	-270...1000 (-454...1832)	-9.835...76.373
	J	Ni/Cr vs. Cu/Ni	-210...1200 (-346...2192)	-8.095...69.553
	K	Ni/Cr vs. Ni/Al	-270...1372 (-454...2501.6)	-6.458...54.886
	N	Ni/14.2%, Cr/1.4%Si vs. Ni/4.4%, Si/0.1%Mg	-270...1300 (-454...2372)	-4.345...47.513
	R	Pt/13% Rh vs. Pt	-50...1768 (-58...3214.4)	-0.226...21.101
	S	Pt/10% Rh vs. Pt	-50...1768 (-58...3214.4)	-0.236...18.639
	T	Cu vs. Cu/Ni	-270...400 (-454...752)	-6.258...20.872
CJC Terminal Chamber recommended	Rockwell Automation 871A-TS4CJC-DM, 871A-TR4CJC-DM			
Cold junction compensation range	0...70 °C (32...158 °F) for 302 type thermistors			
Cold junction compensation modes	Average Channels or Independent Channels, and CJC Offset (For more information, see the User Manual, publication 1732E-UM004)			
Thermistor types supported	Thermometrics MF65F302V/W or DC95F302V/W			

General Specifications

Input voltage range	±78.125 mV or 0...78.125 mV depending on the Thermocouple type			
1732E-IR4IM12R only				
Sensor type, input range	**RTD type**		**Temperature Range (°C)**	**Voltage Range (mV)**
	100 Ω Pt 385	0...390.48 Ω	-200...850 (-328...1562)	0...156.25
	200 Ω Pt 385	0...781 Ω	-200...850 (-328...1562)	0...312.5
	100 Ω Pt 3916	0...337.03 Ω	-200...630 (-328...1166)	0...156.25
	200 Ω Pt 3916	0...674.06 Ω	-200...630 (-328...1166)	0...312.5
	10 Ω Cu 427	0...19.116 Ω	-320...500 (-544...932)	0...19.53
	120 Ω ni 672	0...445.10 Ω	-70...445 (-94...833)	0...156.25
	100 Ω Ni 618	0...198.88 Ω	-60...180 (-76...356)	0...78.125
	120 Ω Ni 618	0...238.65 Ω	-90...140 (-130...284)	0...78.125

Environmental Specifications – 1732E-IR4IM12R, 1732E-IT4IM12R

Attribute	**1732E-IR4IM12R**	**1732E-IT4IM12R**
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): -20…60 °C (-4…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)	
Temperature, ambient, max	60 °C (140 °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	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g	
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g	
Emissions	IEC 61000-6-4	
ESD Immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges	
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz	

Environmental Specifications – 1732E-IR4IM12R, 1732E-IT4IM12R

Attribute	1732E-IR4IM12R	1732E-IT4IM12R
EFT/B Immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal port ±3 kV @ 5 kHz on communication ports	
Surge Transient Immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports	
Conducted RF Immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz	

Certifications – 1732E-IR4IM12R, 1732E-IT4IM12R

Certification (when product is marked)[1]	1732E-IR4IM12R	1732E-IT4IM12R
c-UR-us	UL Recognized Component, certified for US and Canada. See UL File E322657	
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)	
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.	

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Specialty Modules

General Specifications – 1732E-8IOLM12R

Attribute	Value
Communication rate, Ethernet	10/100 Mbps, Full or half-duplex 100 meter per segment
Voltage, power, max	28.8V DC
Voltage, power, min	20V DC
Auxiliary Power	
Current, Auxiliary Power, module only (no Digital Output loads, no Sensor Voltage Loads, and no power daisy-chain loads)	30 mA @ 24V DC
Current, Auxiliary Power, max per module (module plus Digital Output Loads, plus Sensor Voltage Loads, plus power daisy-chain loads)	4 A
IO-Link	
IO-Link device supported	Version 1.0, 1.1
IO-Link port type	Class A
Transmission rate	4.8 kbps (COM 1)/ 38.4 kbps (COM2) / 230 kbps (COM3)
Digital Input	
On-state voltage, min	15V DC
On-state current, min	2.0 mA
Off-state voltage, max	5V DC
Off-state current, max	1.5 mA
Input delay time	0 ms…65 ms, with 1 ms increments
Sensor Source Voltage (SSV) voltage, min	1V
Sensor Source Voltage (SSV) available current, per channel, max	500 mA
Sensor Source Voltage (SSV) available current, per connector, max	1 A
Short circuit detection	Per port
Digital Output	
On-state voltage, min	15V DC
On-state voltage, max	28.8V DC
On-state voltage, nom	24V DC
On-state current, per output, max	250 mA
On-state current, total for all channels combined, max	2 A (250 mA X 8 outputs)
Off-state current leakage, per output, max	500 μA
Surge current, per output, max	0.3 A for 10 ms, repeatable every 3 seconds.

General Specifications – 1732E-8IOLM12R

Attribute	Value
Short circuit detection	Per channel
General Information	
Isolation voltage	50V (continuous), Basic Insulation Type, outputs and output power to Network. 50V Basic Insulation Type between the field network connections. 50V Basic Insulation Type between module power and output power. No isolation between individual I/Os or between I/Os and output power. No isolation between both network channels at the CPU/DLR power side.
Pilot duty rating	DC-14
Enclosure type rating	Meets IP65/66/67/69K
Wiring category[1]	1 – on power ports 1 – on signal ports 1 – on communication ports
Status indicators	Module status – red/green Network status – red/green Link status – green/yellow Power status – green I/O LED – yellow/green/red
Publication	1732E-IN001

(1) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications – 1732E-8IOLM12R

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): -20…60 °C (-4…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)
Temperature, ambient (UL)	60 °C (140 °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	IEC60068-2-27 (Test Ea, Unpackaged Shock): 30 g
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged Shock): 50 g
Emissions	CISPR 11 (IEC 61000-6-4): Class A
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...1000 MHz 10V/m with 1 kHz sine-wave 80% AM from 1000...2000 MHz 10V/m with 200 Hz SQ-wave 100% Pulse modulated at 50% duty cycle @ 900 MHz Pulse 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz Pulse 10V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz

Environmental Specifications – 1732E-8IOLM12R

Attribute	Value
EFT/B Immunity	IEC 61000-4-4: ±3 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on power ports ±1 kV line-earth(CM) on signal ports ±2 kV line-earth(CM) on communication ports
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz

Certifications – 1732E-8IOLM12R

Certification (when product is marked)[1]	Value
c-UR-us	UL Recognized Component, certified for US and Canada. See UL File E322657.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.

(1) See the Product Certification link at http://www.rockwellautomation.com/products/certification/ for Declarations of Conformity, Certificates, and other certification details.

Cable Specifications

Cordsets and Field Attachables

Specifications	**Female Cordset**	**Male Cordset**	**Patchcords**	**Splitters**	**V-Cables**
Description	• Cable with integral female connector on one end	• Cable with integral male connector on one end	• Cable with integral connector on each end	• Cable with single male connector attached to two female connectors	• Cable with single male connector attached to two female connectors
Features	• Straight or right angle • Multiple standard lengths • Braided and unbraided • Standard and LED versions • Female connector provides direct interface to sensors and other field devices	• Straight or right angle • Multiple standard lengths • Male connector provides interface to distribution boxes or DC micro ArmorBlock DeviceNet I/O	• Straight or right angle • Multiple standard lengths • Direct connection between field devices and distribution boxes or Allen-Bradley ArmorBlock DeviceNet I/O	• Straight or right angle connectors • Multiple standard lengths • Direct connection between field devices and distribution boxes or Allen-Bradley ArmorBlock DeviceNet I/O	• Straight or right angle connectors • Multiple standard lengths • Direct connection between field devices and distribution boxes or Allen-Bradley ArmorBlock DeviceNet I/O
Available Models	• Mini • Mini Illuminated • Mini Coiled • Mini-Plus • DC Micro • DC Micro Illuminated • DC Micro Coiled • AC Micro • AC Micro Coiled • EAC Micro • Pico • Pico Illuminated • M23	• Mini • DC Micro • AC Micro	• Mini to Mini • Mini-Plus • DC Micro • DC Micro to Pico • AC Micro • EAC Micro • Pico • M23	• DC Micro Splitter • AC Micro Splitter • DC Micro to Pico Splitter	• DC Micro to DC Micro V-Cables • DC Micro to Conductor V-Cables • DC Micro to Pico V-Cables
Specifications	**Receptacles**	**Bulkhead Pass-Thru**	**Terminal Chambers**	**Accessories**	
Description	• Panel mount connector with flying lead	• Panel mount connector, male to female	• Field installable connectors	• Sealing caps, coupling adaptors, and other connection systems accessories	
Features	• Male and female configurations • 1/2 in. NPT, 1/4 in. NPT or M14 threads • Threaded metal housing	• 4- and 5-pin configurations • 1/2 in. NPT, 1/4 in. NPT or M14 threads • Threaded metal housing	• Screw, solder, or insulation displacement connector styles • Straight or right angle • Multiple sizes for varying cable jacket diameters	• Rugged durable construction • Versions to interface with male or female connectors • Multiple sizes for various connector types	
Available Models	• Mini Receptacle • DC Micro • AC Micro • EAC Micro • Pico • M23	• Mini Bulkhead Pass-thru • DC Micro Bulkhead Pass-thru.	• Mini • DC Micro • AC Micro • Pico	• Sealing caps • Coupling adaptors • Mounting nuts • Sealing washers	

Selecting the Connector

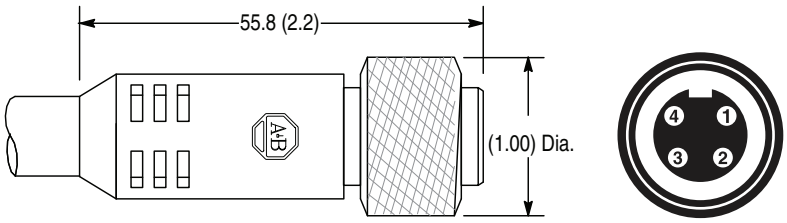
Various Names of Connectors

Company Name	Naming Convention						
Rockwell Automation	Pico	DC Micro	AC Micro	EAC Micro	Mini	Mini-Plus	M23
Woodhead/Brad Harrison	Nano-Change	Micro-Change Single Keyway	Micro-Change Dual Keyway	Micro-Change Reverse Keyway	Mini-Change A-Size	Mini-Change B-Size & C-Size	M23
Turck	Picofast	Eurofast	Microfast	Eurofast Reverse Key	Minifast	–	Multifast
Crouse-Hinds	NanoLine	Micro-Mini DC DIN	Micro-Mini Dual Key	Micro-Mini AC DIN	MiniLine Style I	Mini Line Style II & Style III	–
Lumberg	Pico Style	Micro DC Style	Micro AC Style	Micro Style Reverse Key	Mini Style	Mini Style	M23
Other Names	M8	M12	–	–	–	–	–
Standard Connector Threads	M8 x 1	M12 x 1	1/2 in.-20UN	M12 x 1	7/8 in.-16UN	1 in.-16UN 1 1/8 in.-16UN	M23

Connector Specifications

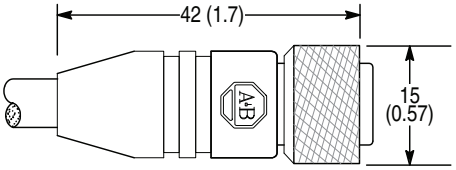
Mini QD

- 3-pin, 4-pin, 5-pin and 6-pin
- Straight and right angle
- Illuminated and non-illuminated
- 6 ft, 12 ft, and 20 ft lengths (standard)
- Alternate wire color codes available
- Heavy duty STOOW-A or general purpose cable



M12 DC Micro QD

- 4-pin or 5-pin
- Straight and right angle
- Illuminated and non-illuminated
- 2 m, 5 m, and 10 m lengths (standard)
- Stranded aluminum shield
- M12 x 1 thread (IEC standard)
- Single keyway

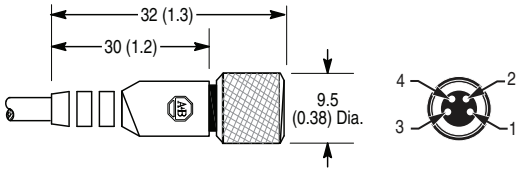


AC Micro QD

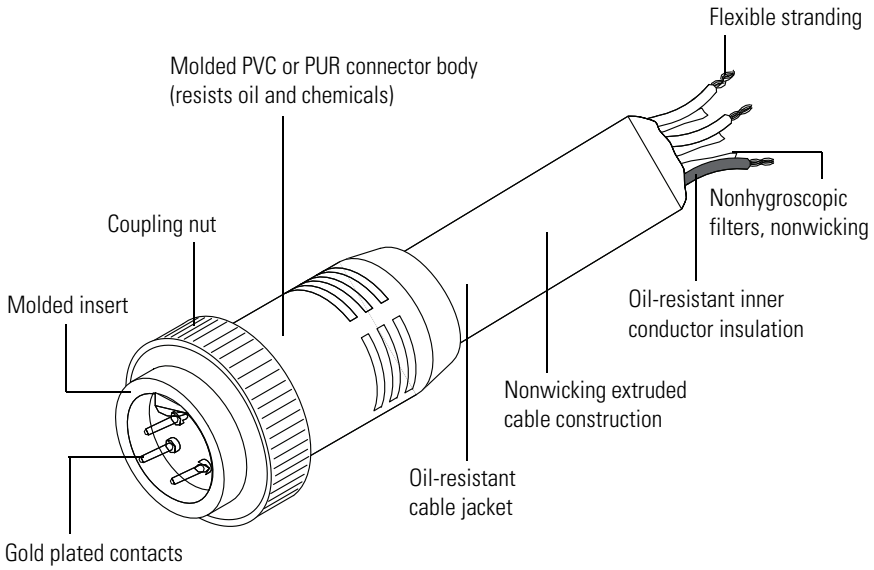
- 3-pin, 4-pin, 5-pin or 6-pin
- Straight and right angle
- Illuminated and non-illuminated
- 2 m, 5 m, and 10 m lengths (standard)
- 1/2 in.-20 thread (English)
- Dual keyway

M8 Pico QD

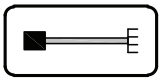
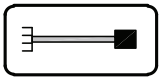
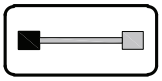
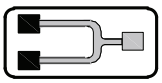
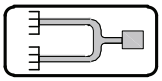
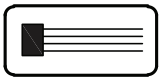
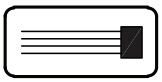
- 3-pin or 4-pin
- Straight and right angle
- Illuminated and non-illuminated
- Snap-on or thread-on
- 2 m, 5 m, and 10 m lengths (standard)



Cordset diagram



Cable Naming Conventions

Sensor End				Input/Output
Cordsets				
	=		=	Female (standards) Female connector with cut cable at other end
	=		=	Male Male connector with cut cable at other end
Patchcords				
	=	 	=	Patchcord Female connector for sensor end, Male connector for input/output end
Y Cables				
	=		=	Y Cable 2 female connectors or flying (wire) leads for separate sensors connected to male connector for input/output
	=			
Receptacles				
	=		=	Female Panel mount female connector with wire leads at other end
	=		=	Male Panel mount male connector with wire leads at other end

IEC Enclosure Classification

The degree of protection is indicated by two letters (IP) and two numerals. International Standard IEC 529 contains descriptions and associated test requirements that define the degree of protection each numeral specifies. The table on this page indicates the general degree of protection – refer to the **Abridged Descriptions of IEC Enclosure Test Requirements** starting below. **For complete test requirements refer to IEC 60529**.

First Numeral[1]		**Second Numeral**[1]	
Protection of persons against access to hazardous parts and protection against penetration of solid foreign objects.		Protection against ingress of water under test conditions specified in IEC 60529.	
0	Non-protected	0	Non-protected
1	Back of hand; objects greater than 50 mm in diameter	1	Vertically falling drops of water
2	Finger; objects greater than 12.5 mm in diameter	2	Vertically falling drops of water with enclosure tilted 15°
3	Tools or objects greater than 2.5 mm in diameter	3	Spraying water at any angle up to 60° from the vertical
4	Tools or objects greater than 1.0 mm in diameter	4	Splashing water against enclosure from any direction
5	Dust-protected (dust may enter during specified test but must not interfere with operation of the equipment or impair safety)	5	Water jets directed at enclosure
6	Dust-tight (no dust observable inside enclosure at end of test)	6	Powerful water jets directed at enclosure
		7	Temporary submersion
		8	Continuous submersion
		9K	High-pressure and high-temperature water jets directed at enclosure
Example: IP67 describes an enclosure that is designed to protect against any entry of dust and is able to withstand temporary immersion in water up to 1 m under specified test conditions.			
Note: All first numerals and second numerals up to and including characteristic numeral 6, imply compliance also with the requirements for all lower characteristic numerals in their respective series (first or second). Second numerals 7 and 8 do not imply suitability for exposure to water jets (second characteristic numeral 5 or 6) unless dual coded; e.g., **IP_5** / **IP_7**.			

(1) The IEC standard permits use of certain supplementary letters with the characteristic numerals. If such letters are used, refer to IEC 60529 for the explanation.

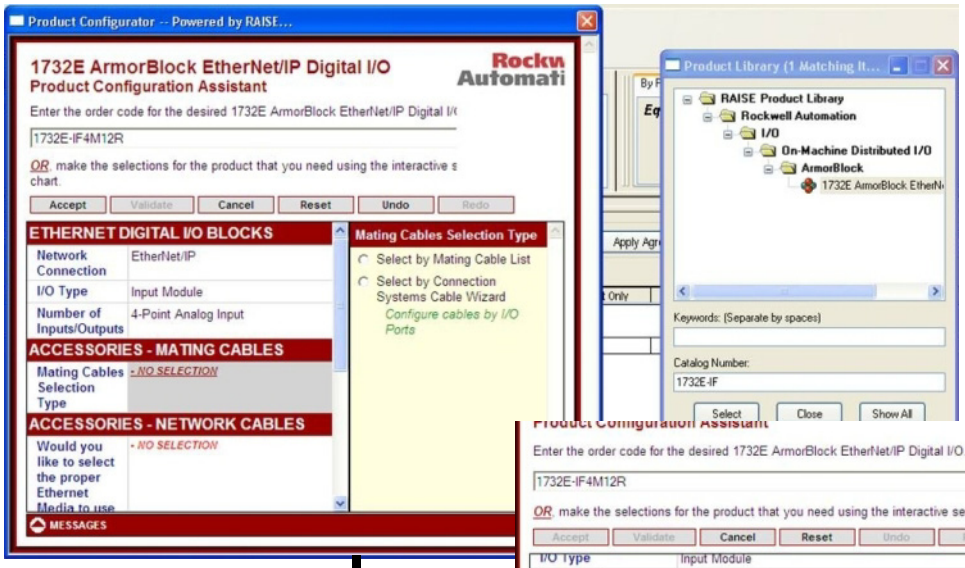
System Configuration Tools

This appendix describes briefly how you can select appropriate cables to connect your ArmorBlock I/O module to your network using two different software tools – Integrated Architecture Builder (IAB) and ProposalWorks.

ProposalWorks

ProposalWorks provides access to information on a broad range of Allen-Bradley products and services. It provides an easy to use interface to make it a snap to determine the exact catalog number for the item you need and to access current list pricing.

Step 1 – Select the ArmorBlock I/O module

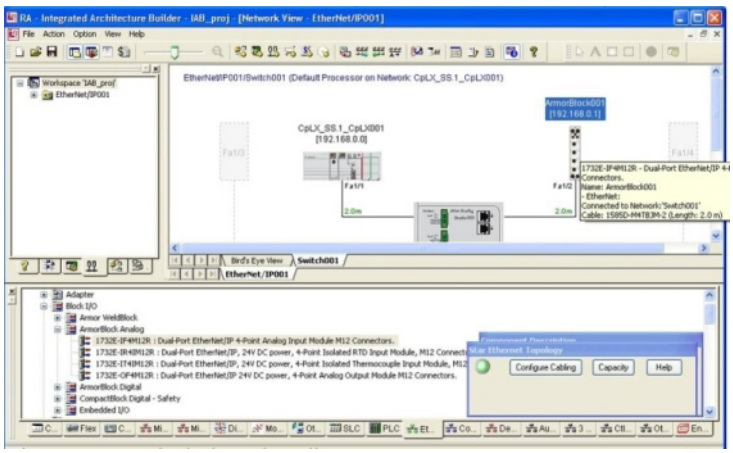


Step 2 – Select Cables

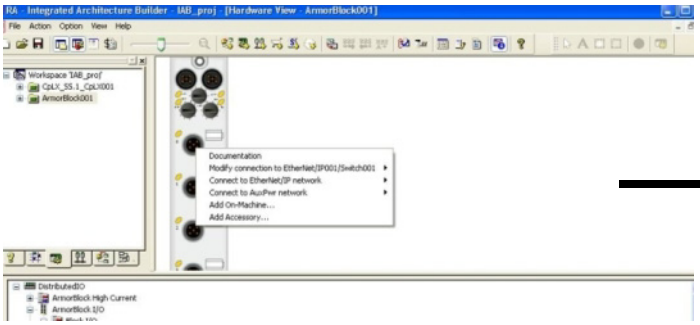
Integrated Architecture Builder

Integrated Architecture Builder (IAB) is a graphical software tool for configuring Logix-based automation systems. It helps you select hardware and generate bills of material for applications that include controllers, I/O, networks, PowerFlex drives, OnMachine cabling and wiring, motion control, and other devices.

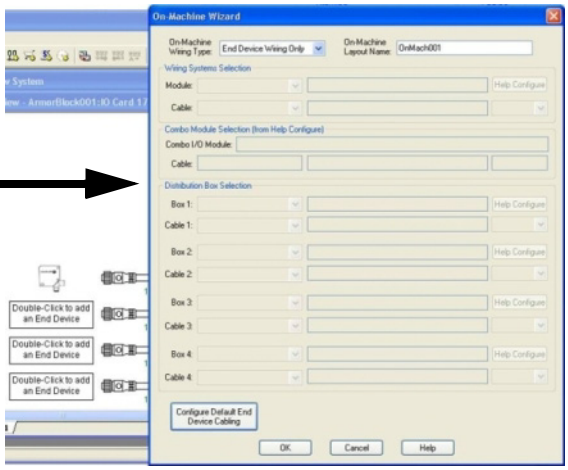
Step 1 – Select the ArmorBlock I/O module



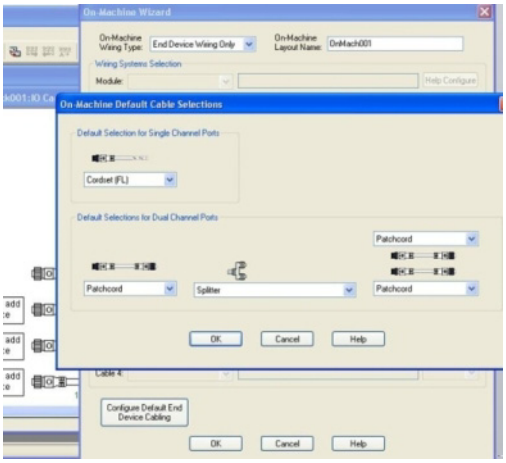
Step 2 – Launch On-Machine Wizard



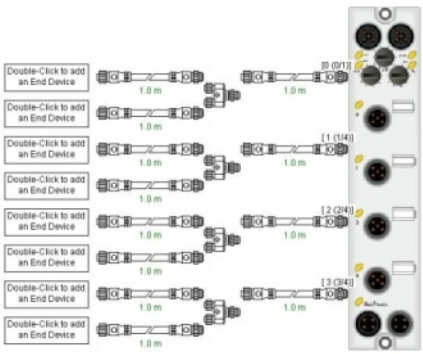
Step 3 – Configure Default End Device Cabling



Step 4 – Select Cables



Step 5 – Configure End Devices



Related Documentation

List of Publications

These documents contain additional information concerning related Rockwell Automation products.

You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

General Information Publications

Description	Publication Number
DeviceNet Media Design Installation Guide	DNET-UM072
EtherNet/IP QuickConnect Application Technique	ENET-AT001
Troubleshoot EtherNet/IP Networks	ENET-AT003
Industrial Automation Wiring and Grounding Guidelines	1770-4.1
On-Machine Connectivity • Cordsets & Field Attachables (page 3-1) • DeviceNet Media System (page 6-1) • EtherNet/IP Media (page 7-1)	M117-CA001
Overview of Sequence of Events / CIP Sync	1732E-UM003

1732 ArmorBlock I/O Related Publications

Module Type	Catalog Number	Description	Publication Number
DeviceNet	1732D-IB8M8	24V DC 8 Input M8	1732D-IN001
	1732D-IB8M12	24V DC 8 Input M12	
	1732D-OB8EM8	24V DC 8 Output M8	
	1732D-OB8EM12	24V DC 8 Output M12	
	1732D-8CFGM8	24V DC 8 Self-configuring M8	
	1732D-8CFGM12	24V DC 8 Self-configuring M12	
	1732D-IB16M12M12	24V DC 16 Input M12	1732D-IN002
	1732D-IB16M12MINI	24V DC 16 Input M12 and MINI	
	1732D-OB16M12M12	24V DC 16 Output M12	
	1732D-OB16M12MINI	24V DC 16 Output M12 and MINI	
	1732D-16CFGM12M12	24V DC 16 Self-configuring M12	
	1732D-16CFGM12MN	24V DC 16 Self-configuring M12 and MINI	
	1732D-IB161212W	24V DC 16 Input M12, Weldblock	
	1732D-16CFG1212W	24V DC Self-configuring M12, Weldblock	
	1732D-IBDPM12MND	24V DC 12 Input M12 and MINI with Diagnostic	1732D-IN007
	1732D-8X81212D	24V DC 8 Input, 8 Output M12 Network and Auxiliary powered with Diagnostic	1732D-IN009
	1732D-8I8O1212D	24V DC 8 Input, 8 Output M12 Network Powered with Diagnostic	1732D-IN010
	1732D-8X81212HD	24V DC 8 Input, 8 Output M12 Network and Auxiliary powered with Diagnostic	1732D-IN011
	1732D-IB161212D	24V DC 16 Input Network powered M12 with Diagnostic	1732D-IN012

1732 ArmorBlock I/O Related Publications

Module Type	Catalog Number	Description	Publication Number
EtherNet/IP	1732E-8IOLM12R	24V DC 8 Input/output IO-Link Master M12 with Dual-Port Ethernet/IP	1732E-IN001 1732E-UM007
	1732E-IB16M12	24V DC 16 Input M12	1732E-IN002
	1732E-IB16M12W	24V DC 16 Input M12, WeldBlock	
	1732E-OB16M12	24V DC 16 Output M12	
	1732E-16CFGM12	24V DC 16 Self-configuring M12	
	1732E-16CFGM12W	24V DC 16 Self-configuring M12, WeldBlock	
	1732E-IB16M12R	24V DC 16 Input M12 with Dual-Port Ethernet/IP	1732E-IN004
	1732E-OB16M12R	24V DC 16 Output M12 with Dual-Port EtherNet/IP	
	1732E-16CFGM12R	24V DC 16 Self-configuring M12 with Dual-Port EtherNet/IP	
	1732E-IB16M12DR	24V DC 16 Input M12 with Dual-Port EtherNet/IP and Diagnostic	
	1732E-OB16M12DR	24V DC 16 Output M12 with Dual-Port EtherNet/IP and Diagnostic	
	1732E-8X8M12DR	24V DC 8 Input, 8 Output M12 with Dual-Port EtherNet/IP and Diagnostic	
	1732E-IB16M12SOEDR	24V DC 16 Input M12 with Dual-Port EtherNet/IP and Diagnostic Sequence of Events	1732E-IN004 1732E-UM002
	1732E-IT4IM12R	24V DC 4 Input, M12 with Dual-Port EtherNet/IP and Thermocouple	1732E-IN005
	1732E-IR4IM12R	24V DC 4 Input, M12 with Dual-Port EtherNet/IP and RTD	1732E-UM004
	1732E-IF4M12R	24V DC 4 Analog Input, M12 with Dual-Port EtherNet/IP	1732E-IN006
	1732E-OF4M12R	24V DC 4 Analog Output, M12 with Dual-Port EtherNet/IP	1732E-UM005
	1732E-IB8M8SOER	24V DC 8 Input, M8 with Dual-Port EtherNet/IP and Sequence of Events	1732E-IN007
	1732E-OB8M8SR	24V DC 8 Output, M8 with Dual-Port EtherNet/IP and Scheduled Sourcing	1732E-UM003
	1732E-8CFGM8R	24V DC 8 Self-configuring M8 with Dual-Port EtherNet/IP	
	1732E-12X4M12QCDR	24V DC 12 Input, 4 Output M12 QuickConnect with Dual-Port EtherNet/IP and Diagnostic, and 4-Pin Mini Auxiliary Power Connector	1732E-IN010
	1732E-16CFGM12QCR	24V DC 16 Self-configuring M12 QuickConnect with Dual-Port EtherNet/IP, , and 4-Pin Mini Auxiliary Power Connector	
	1732E-16CFGM12QCWR	24V DC 16 Self-configuring M12 QuickConnect with Dual-Port EtherNet/IP, and 4-Pin Mini Auxiliary Power Connector, WeldBlock	
	1732E-12X4M12P5QCDR	24V DC 12 Input, 4 Output M12 QuickConnect with Dual-Port EtherNet/IP and Diagnostic, and 5-Pin Mini Auxiliary Power Connector	
	1732E-16CFGM12P5QCR	24V DC 16 Self-configuring M12 QuickConnect with Dual-Port EtherNet/IP, and 5-Pin Mini Auxiliary Power Connector	
	1732E-16CFGM12P5QCWR	24V DC 16 Self-configuring M12 QuickConnect with Dual-Port EtherNet/IP, and 5-Pin Mini Auxiliary Power Connector, WeldBlock	

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products.
At http://www.rockwellautomation.com/support/, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/support/.

Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html, or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication RA-DU002, available at http://www.rockwellautomation.com/literature/.

Rockwell Automation maintains current product environmental information on its website at http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page.

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