ArmorBlock I/O Module

Bulletin 1732

Allen-Bradley
by ROCKWELL AUTOMATION

Selection Guide

Original Instructions

What's New

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes. Translated versions are not always available for each revision.

Topic	Page
Updated Certifications	34, 36, 37, 39, 43, 44, 46, 48, 49, 51, 53, 55

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this presentation are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

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ArmorBlock I/O Family

Overview

The ArmorBlock® I/O family is a hardened I/O product for On-Machine™ use. These products are best-suited for packaging, material handling, and automotive applications.

The ArmorBlock I/O has a compact style with a low profile. Each block 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 EtherNet/IP™ or DeviceNet® network capability.

Water-resistant and corrosion-proof, it can mount directly on a machine (without a control cabinet) allowing OEMs and End Users to reduce installation and operating costs. It can also mount close to sensors and actuators offering shorter cable runs and reduced wiring costs.

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

ArmorBlock I/O Product Design

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

Each block 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 Armor™ WeldBlock I/O block is designed for use in typical welding applications. The design resists the effects of weld slag and magnetic fields found close to the weld head. The sealed, light-weight metal housing, of nickel-plated aluminum, helps to protect the electronics, which is identical to ArmorBlock I/O blocks and is ideal for end-of-arm robot applications. Armor WeldBlock I/O blocks 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 little during forming, is mechanically strong, heat-resistant up to 150 °C (302 °F) and can be treated with flame retardants to make it noncombustible.

Part	Material
I/O Block	
ArmorBlock housing	Die-cast zinc – **1732E-16CFGM12M12LDR and 1732E-16CFGM12P5DR only** (PBT) 'Celanex' – **All other modules**
WeldBlock housing	Aluminum alloy 380
IO-Link hub housing	Die-cast zinc
Auxiliary Power Connector	
Housing	PBT (Yellow)
Shell	Brass with nickel plated finish
M12 Connector	
Housing insulation	PBT (Black) Polyamide 6 – **IO-Link hub only**
Shell	Brass with nickel plated finish

- **Sealed Housing:** ArmorBlock I/O and IO-Link blocks are rated for IP69K and Armor WeldBlock blocks are rated for IP67.
- **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 block 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 blocks, 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 blocks offer smooth integration into Integrated Architecture® systems with full Add-on Profile (AOP) in Studio 5000 Logix Designer®, and RSNetWorx™ for DeviceNet software; no other configuration software is needed.
- **Mounting:** Enclosure rating of IP67 for Armor WeldBlock and IP69K for ArmorBlock I/O offers flexibility for blocks to be mounted anywhere on a machine, close to the sensors and actuators, for shorter cable runs and lower cost of wiring.
- **Conformity:** Complies with Open DeviceNet Vendor Association, Inc. (ODVA) conformance test software.
- **QuickConnect (QC):** A new functionality in OVDA that enables EtherNet/IP devices to quickly power-up and join an EtherNet/IP network within 500 ms. For more information, see EtherNet/IP QuickConnect Application Technique, publication ENET-AT001.
- **High-speed (CIP Sync™):** High-speed time-stamping inputs (Sequence of Event) and Scheduled Output blocks are available. For more information, see ArmorBlock EtherNet/IP Dual Port 8-point Sequence of Events Input and Scheduled Output Modules User Manual, publication 1732E-UM003.
- **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 provides diagnostics and machine health status of connected IO-Link enabled sensors to help improve uptime and increase productivity. The IO-Link hub connects additional I/O to the system through an IO-Link master, with enhanced integration when connected to the POINT I/O™ or ArmorBlock IO-Link master.
- **Field Calibration via AOP (Analog):** Ease of calibration on all analog channels to achieve optimum accuracy at all time.

ArmorBlock I/O Block Feature Summary

Block types	Digital DC combination I/O
	Digital DC input
	Digital DC output
	Digital DC self-configurable
	Analog I/O
	Thermocouple/RTD
	IO-Link master
	IO-Link hub
Block density	4, 8, or 16 points
Block features	Channel-level diagnostics (status 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 and RTD
	IO-Link
	WeldBlock
Network connectivity	DeviceNet
	EtherNet/IP
Connectors	M8 (Pico), M12 (micro), mini style, or 7/8"

General Specifications

Enclosure type rating	Meets IP65/66/67/69K and Type 4X/6P with receptacle dust caps or cable termination. NOTE: This rating is applicable on most ArmorBlock I/O blocks. Armor Weldblock I/O blocks meet IP67 rating only. For individual product ratings, see DeviceNet I/O Block Specifications on page 33 and EtherNet/IP I/O Block Specifications on page 41.
Mounting type	On-Machine, panel
Operating temperature(1)	-20...+60 °C (-4...+140 °F)
Nonoperating temperature(1)	-40...+85 °C (-40...+185 °F)
Relative humidity	5...95% noncondensing
Operating shock	30 g
Nonoperating shock(1)	50 g
Vibration(1)	5 g @ 10...500 Hz
Emissions	IEC 61000-6-4 CISPR 11/22, Class A
Certifications(2)	c-UL-us, c-UR-us, CE, RCM, KC, EtherNet/IP, ODVA

(1) These specification values are not applicable to IO-Link hub, 1732E-16CFGM12M12LDR, and 1732E-16CFGM12P5DR. See the individual product specifications for more information.
(2) When product is marked, see rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

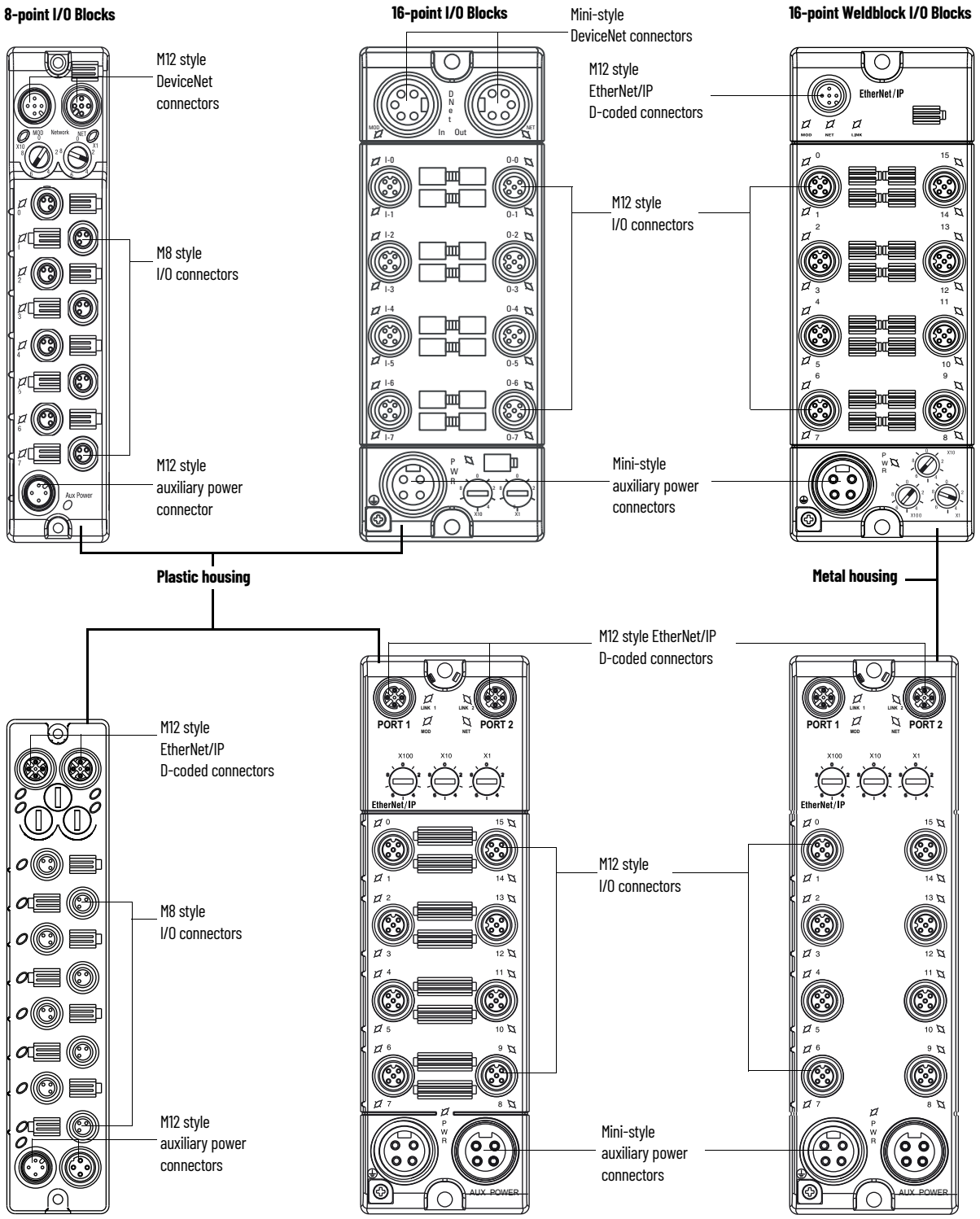
Dimensions and Weights

Description	Dimensions (HxWxD), Approx.	Weight[1]
4/8-point blocks	179 x 37 x 43.25 mm (7.05 x 1.46 x 1.70 in.)	200 g (7.05 oz.)
16-point blocks	179 x 65 x 43.25 mm (7.05 x 2.56 x 1.70 in.)	340 g (11.99 oz.)
16-point blocks with QuickConnect	200 x 60.4 x 45 mm (7.87 x 2.38 x 1.77 in.)	430…510 g (15.2…17.9 oz.)
16-channel configurable die-cast zinc block with M12 power connectors	200 x 60 x 31 mm (7.87 x 2.36 x 1.22 in.)	500 g (17.64 oz.)
16-channel configurable die-cast zinc block with 7/8″ power connectors	206 x 60 x 26 mm (8.11 x 2.36 x 1.02 in.)	520 g (18.34 oz.)
8-channel IO-Link master	179 x 37 x 43.3 mm (7.05 x 1.46 x 1.70 in.)	340 g (11.99 oz.)
16-channel IO-Link hub	158.8 x 59.6 x 30.7 mm (6.25 x 2.35 x 1.21 in.)	380 g (13.40 oz.)
16-channel self-configurable IO-Link hub	158.8 x 59.6 x 30.7 mm (6.25 x 2.35 x 1.21 in.)	390 g (13.76 oz.)

(1) Non-Weldblock

ArmorBlock and Armor WeldBlock I/O Block Connections

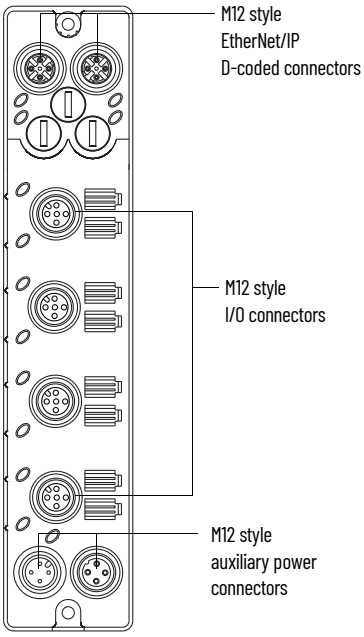
The following diagrams are examples of the network, I/O, power connections, and block dimensions that are available on ArmorBlock and Armor WeldBlock I/O blocks. For specific connections available on a particular block, see the installation instructions for that block.



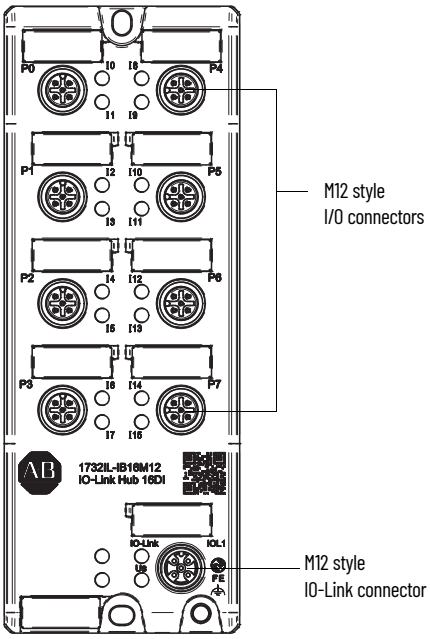
ArmorBlock IO-Link Master and IO-Link Hub Connections

The following diagrams are examples of the network, I/O, power connections, and block dimensions that are available on ArmorBlock IO-Link master and IO-Link hubs. For specific connections available on a particular block, see the installation instructions for that block.

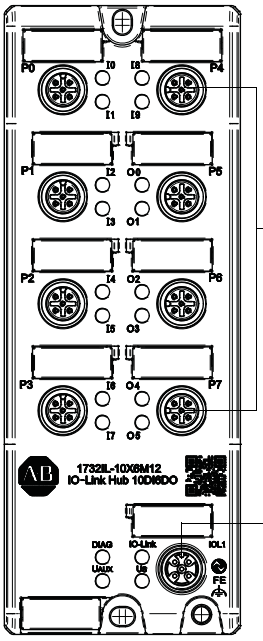
1732E-8IOLM12R
IO-Link Master



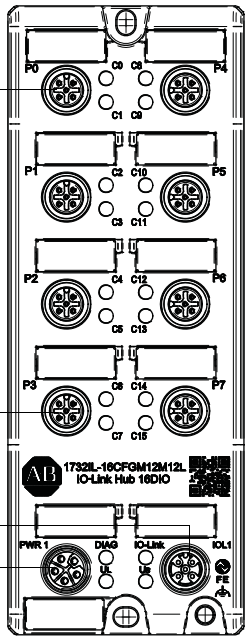
1732IL-IB16M12
IO-Link Hub



1732IL-10X6M12
IO-Link Hub

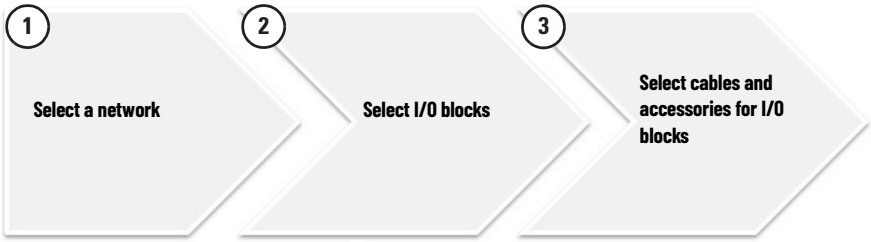


1732IL-16CFGM12M12L
IO-Link Hub



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	 14 15
2 Select I/O blocks Some have additional features such as diagnostics, Quick Connect, self-configurable, and some are suitable for high-speed applications. • Your application • Number of points needed • Number of points available per block • Appropriate catalog number	 17
3 Select cables and accessories for I/O blocks Select accessories such as cables, connector caps, and labels for your I/O blocks.	23

Notes:

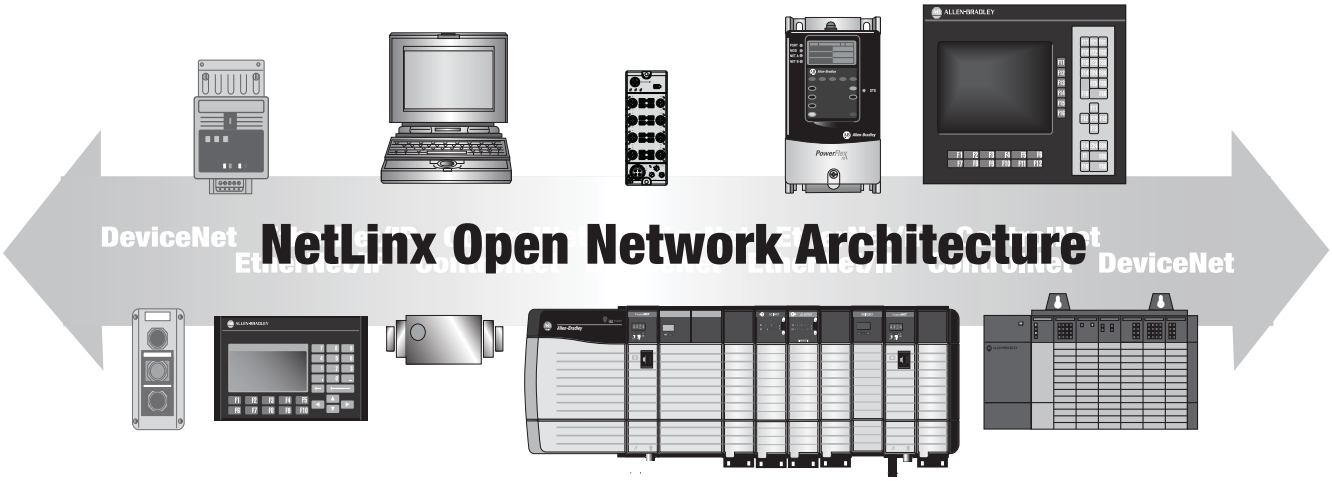
Select a Network

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

Type of Network	See Page
DeviceNet	14
EtherNet/IP	15

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 system, seamlessly integrates the components in an automation system from a few devices on one network to multiple devices on multiple networks including access to the Internet – this helps 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 one high-speed network • Time-critical applications with no established schedule • Data sent regularly • Internet/Intranet connection	EtherNet/IP	1732E blocks
• 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 startup time than a traditional, hard-wired system	DeviceNet	1732D blocks

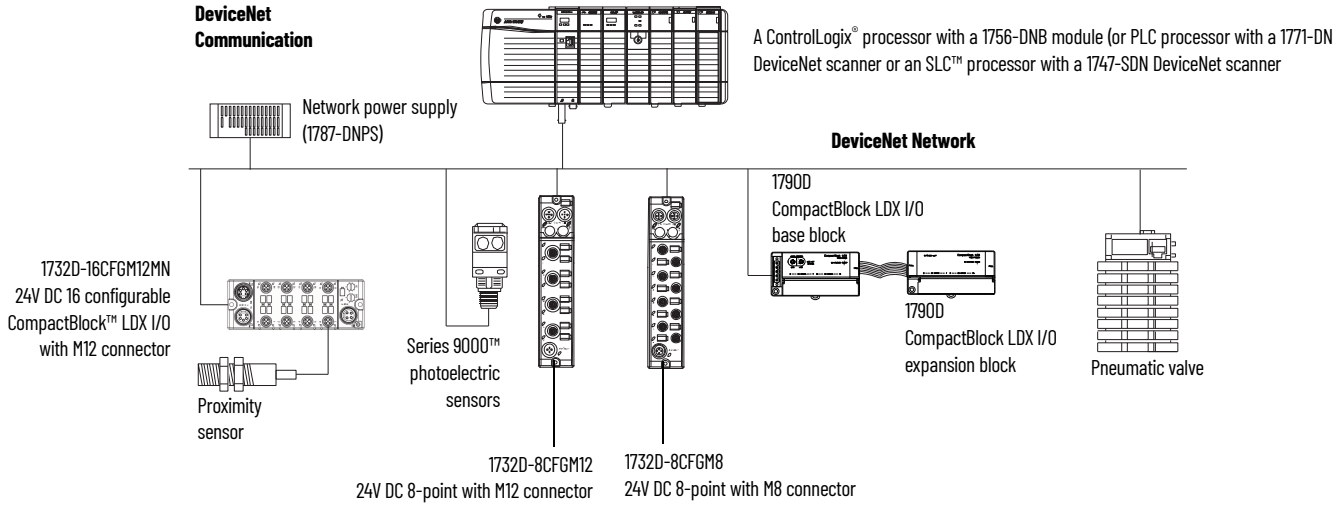
DeviceNet

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 one cable, it offers simple and cost-effective options for wiring.

It uses the proven CIP to provide 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 block.

A DeviceNet network supports a linear topology.

Figure 1 - 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 Blocks

Type	Catalog Number	See Page
Digital DC combination I/O blocks	1732D-8I8O1212D	18
Digital DC input blocks	1732D-IBDPM12MND	18
	1732D-IB161212D	
Digital DC output blocks	1732D-OB16M12M12	19
	1732D-OB16M12MINI	
Digital DC self-configurable blocks	1732D-8CFGM8	20
	1732D-8CFGM12	
	1732D-16CFGM12M12	
	1732D-16CFGM12MN	

EtherNet/IP

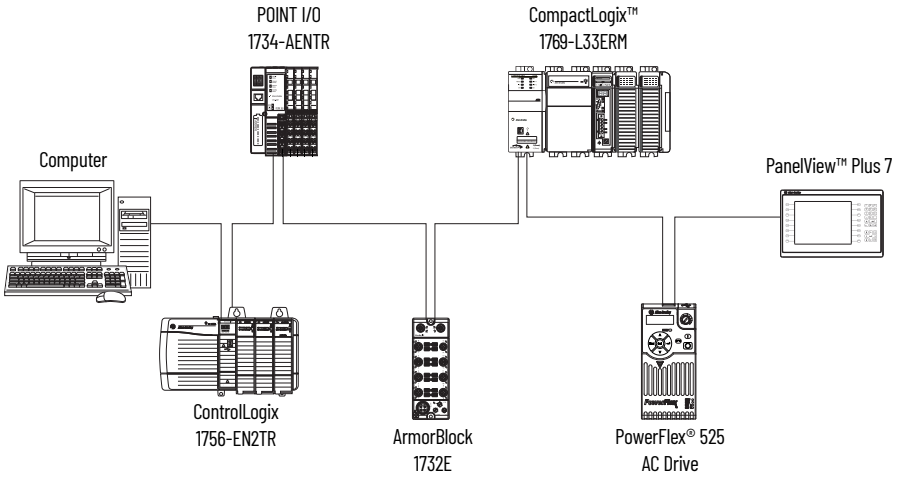
The EtherNet/IP network provides plant-wide network systems using open, industry-standard networking technologies. This enables real-time control and information in discrete, continuous process, batch, safety, drive, motion, and high availability applications. The EtherNet/IP network connects devices, 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.

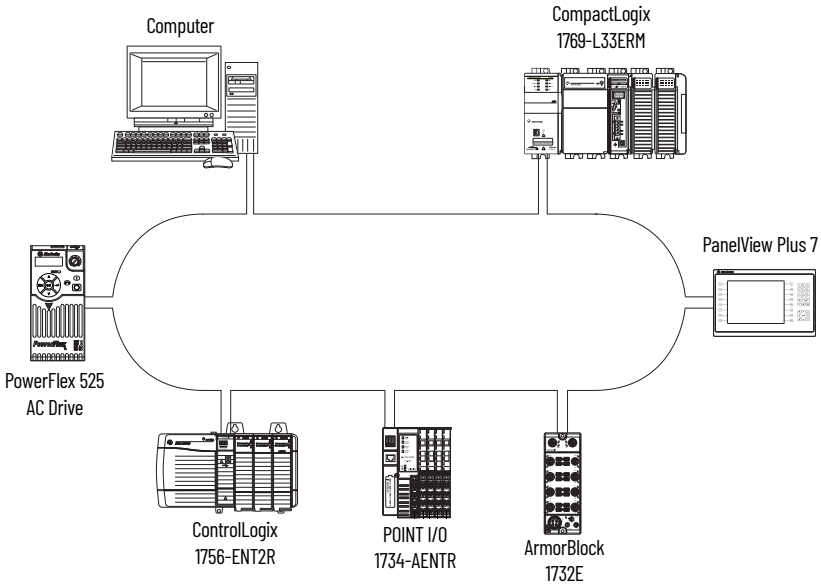
The application of the CIP Safety™ protocol enables the simultaneous transmission of safety and standard control data and diagnostics information.

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

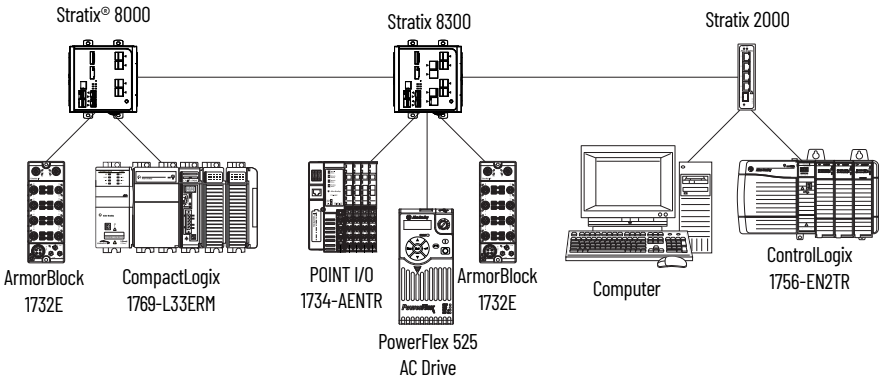
EtherNet/IP Linear Topology Example



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 Blocks

Type	Catalog Number	See Page
Digital DC combination I/O blocks	1732E-8X8M12DR	18
	1732E-12X4M12QCDR	
	1732E-12X4M12P5QCDR	
Digital DC input blocks	1732E-IB16M12DR	18
	1732E-IB16M12R	
	1732E-IB8M8SOER	
	1732E-IB16M12SOEDR	
Digital DC output blocks	1732E-OB8M8SR	19
	1732E-OB16M12DR	
	1732E-OB16M12R	
Digital DC self-configurable blocks	1732E-8CFGM8R	20
	1732E-16CFGM12R	
	1732E-16CFGM12QCR	
	1732E-16CFGM12QCWR	
	1732E-16CFGM12P5QCR	
	1732E-16CFGM12P5QCWR	
	1732E-16CFGM12M12LDR	
	1732E-16CFGM12P5DR	
Analog I/O blocks	1732E-IF4M12R	21
	1732E-OF4M12R	
Thermocouple/RTD blocks	1732E-IR4IM12R	21
	1732E-IT4IM12R	
IO-Link master	1732E-8IOLM12R	22
IO-Link hubs	1732IL-IB16M12	22
	1732IL-10X6M12	
	1732IL-16CFGM12M12L	

Select I/O Blocks

The ArmorBlock family of I/O blocks includes:

Type of I/O Blocks	See Page
Digital DC Combination I/O Blocks	18
Digital DC Input Blocks	18
Digital DC Output Blocks	19
Digital DC Self-configurable Blocks	20
Analog I/O Blocks	21
Thermocouple/RTD Blocks	21
IO-Link Master	22
IO-Link Hubs	22

Digital Blocks

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

The PLC controller controls the outputs while the inputs control the state of corresponding bits in the PLC.

Features

- Blocks 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 the status of:
  - Corresponding input device
  - Output signal

Most output blocks 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 Blocks

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, 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

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, 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
EtherNet/IP	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[3][4]	(8) M12

(1) Each output is individually fused.
(2) Pins 2, 3 for sensor source and block power plus pins 1, 4 for output loads.
(3) Configured as an embedded switch. Supports star, tree, linear, and ring topologies.
(4) Supports QuickConnect. For more information, see EtherNet/IP QuickConnect Application Technique, publication ENET-AT001.

Digital DC Input Blocks

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, Max	Daisychain Support for Auxiliary power	Network Current Draw	I/O Connectors
DeviceNet	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
DeviceNet	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

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, Max	Daisychain Support for Auxiliary Power	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-IB16M12DR	N.A.	16 inputs, with sensor source diagnostics	0	–	–	50 mA @ 30V DC	1.2 A	No	2 EtherNet/IP ports[1]	(8) M12
EtherNet/IP	1732E-IB16M12R	N.A.	16	0	–	–	50 mA @ 30V DC	1.2 A	No	2 EtherNet/IP ports[2]	(8) M12
EtherNet/IP	1732E-IB8M8SOER	N.A.	8[2]	0	–	–	50 mA @ 30V DC	4.0 A	Yes	2 EtherNet/IP ports[2]	(8) M8
EtherNet/IP	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) Configured as an embedded switch. Supports star, tree, linear, and ring topologies.
(2) Supports Sequence of Events (SOE).

Digital DC Output Blocks

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, Max	Daisychain Support for Auxiliary Power	Network Current Draw	I/O Connectors
DeviceNet	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/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, 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[3]	(8) M8
	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[4]	(8) M12
	1732E-OB16M12R	Electronically fused by point[1]	0	16	2.0 A/8.0 A[4]	4.8 A for 10 ms, repeatable every 2 s	–	8.0 A	No	2 EtherNet/IP ports[4]	(8) M12

(1) Each output is individually fused.
(2) CIP Sync block provides scheduled output functionality.
(3) Configured as an embedded switch. Supports star, tree, linear, and ring topologies.
(4) Maximum current on all I/O connectors exceeds the total for the block.

Digital DC Self-configurable Blocks

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, Max	Daisychain Support for Auxiliary Power	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	No	100 mA	(8) M8
DeviceNet	1732D-8CFGM12	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	No	100 mA	(4) M12
DeviceNet	1732D-16CFGM12M12	Electronically fused by point[1]	16 self-configuring[2]		0.5 A/4.0 A	1.2 A	50 mA @ 30V DC	8.0 A[3]	No	100 mA	(8) M12
DeviceNet	1732D-16CFGM12MN	Electronically fused by point[1]	16 self-configuring[2]		0.5 A/4.0 A	1.2 A	50 mA @ 30V DC	8.0 A[3]	No	100 mA	(8) M12

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Point/ Block, Max	Surge/Inrush Output Current Rating per Point, Max	Sensor Source Current per Point, Max	Auxiliary Current per Block, Max	Daisychain Support for Auxiliary Power	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-8CFGM8R	Not protected	8 self-configuring[2]		0.5 A/4.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	4.0 A	Yes	2 EtherNet/IP ports[4]	(8) M8
EtherNet/IP	1732E-16CFGM12R	Electronically fused by point[1]	16 self-configuring[2]		0.5 A/8.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A[3]	No	2 EtherNet/IP ports[4]	(8) M12
EtherNet/IP	1732E-16CFGM12QCR/ 1732E-16CFGM12P5QCR	Electronically fused by point[1]	16 self-configuring[2]		0.5 A/8.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A[3]	Yes	2 EtherNet/IP ports[4][5]	(8) M12
EtherNet/IP	1732E-16CFGM12QCWR[1] / 1732E-16CFGM12P5QCWR[1]	Electronically fused by point[1]	16 self-configuring[2]		0.5 A/8.0 A	1.2 A for 10 ms, repeatable every 2 s	50 mA @ 30V DC	8.0 A[3]	Yes	2 EtherNet/IP ports[4][5]	(8) M12
EtherNet/IP	1732E-16CFGM12M12LDR 1732E-16CFGM12P5DR	Electronically fused by point[1]	16 self-configuring[2]		2.0 A/9.0 A	1.2 A for 10 ms, repeatable every 2 s	500 mA	9.0 A	Yes	2 EtherNet/IP ports[4][5]	(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) Block operation power and input device power are separate from the I/O output power. Both block power and output power consumption totals must be noted.
(4) Configured as an embedded switch. Supports star, tree, linear, and ring topologies.
(5) Supports QuickConnect. For more information, see EtherNet/IP QuickConnect Application Technique, publication ENET-AT001.

Analog Blocks

The ArmorBlock I/O analog and temperature I/O blocks support: Onboard, channel-level data alarming (four setpoints per channel); scaling to engineering units; channel-level diagnostics (electronic bits and status indicators). Analog and temperature input blocks support the following configurable parameters and diagnostics:

- Four-alarm and annunciation setpoints: low alarm; high alarm; low/low alarm (except 1732E-OF4M12R, two setpoints only).
- Underrange detection and electronic reporting
- Overrange detection and electronic reporting
- Channel signal range and onboard 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 blocks when you need:

- **Configurable channels** allow the block to be used with various sensors.
- **Onboard scaling** minimizes 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.
- **Online configuration**. Blocks 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 underrange detections and indications** minimizes the need to test values in the control program, saving valuable processing power of the controller. In addition, since alarms are handled by the block, the response is faster and only 1 bit has 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 block 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 helps to achieve 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**. Blocks can be recalibrated using AOP for Studio 5000 Logix Designer application. This allows you to improve the accuracy of the block for your application.

Analog I/O Blocks

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Resolution	Absolute Accuracy	Conversion Rate	Current for Input Device Power per Point, Max	Auxiliary Current per Block, Max	I/O 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 Blocks

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Resolution	Absolute Accuracy	Conversion Rate	Sensor Source Current per Point, Max	Auxiliary Current per Block, Max	I/O 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.

IO-Link Blocks

The eight channel IO-Link master provides eight channels that can be individually configured as IO-Link, Digital Input, Digital Output or Disabled. The IO-Link master can be configured to any IO-Link and/or discrete application.

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

- As IO-Link master
- As standard digital input or standard digital output blocks
- As mixed IO-Link master and standard digital input or standard digital output blocks.

Individual channels can be disabled if not in use.

IO-Link Master

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Channel/ Block, Max	Surge/Inrush Output Current Rating per Channel, Max	Sensor Source Current per Channel, Max	Auxiliary Current per Block, Max	Daisychain Support for Auxiliary Power	Dual-port Support	I/O Connectors
EtherNet/IP	1732E-8IOLM12R	Not protected	8 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	Yes	2 EtherNet/IP ports(1)	(4) M12

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

IO-Link Hubs

IO-Link hubs connect additional I/Os to the system through an IO-Link master, with enhanced integration when connected to the POINT I/O or ArmorBlock IO-Link master.

	Catalog Number	Fusing	Inputs (Sink)	Outputs (Source)	Continuous Output Current Rating per Channel/ Block, Max	Surge/Inrush Output Current Rating per Channel, Max	Sensor Source Current per Channel, Max	Auxiliary Current per Block, Max	I/O Connectors
IO-Link	1732IL-IB16M12	N.A	16	0	–	–	100 mA @ 24V DC	–	(8) M12
	1732IL-10X6M12	Electronically fused by point(1)	10	6	500 mA/IO-Link master limits	–	100 mA @ 24V DC	–	(8) M12
	1732IL-16CFGM12M12L	Electronically fused by point(1)	16 self-configuring(2)		2 A/10 A(3)	–	100 mA @ 24V DC	16 A	(8) M12

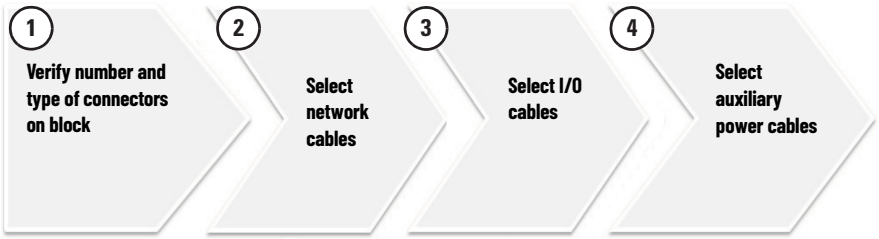
(1) Each output is individually fused.
(2) Each of the self-configuring I/O points can be either an input (sink) or an output (source), for example: 16 points: 13 in/3 out, 6 in/10 out, or 8 points: 6 in/2 out, 1 in/7 out.
(3) The connector supports up to 16 A, however UL applications require the total block output to be limited to 9 A maximum.

Select Cables and Accessories for I/O Blocks

Select Cables

For additional configurations, materials, and specifications, see the Ethernet Media Specifications Technical Data, publication 1585-TD001, the DeviceNet Media System Technical Data, publication 1485-TD001, or the Cordsets and Field Attachables Technical Data, publication 889-TD002. For more information on cable descriptions, see Appendix C on page 59.

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

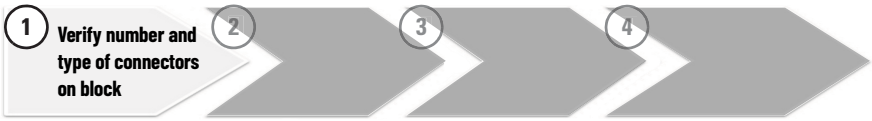


Step	See Page
1 Verify number and type of connectors on the block Check how many network, I/O, and auxiliary power connectors your I/O block has.	24
2 Select network cables Select appropriate network cables that are required for your application and network configuration. • Cables for DeviceNet (flat trunk, thick round, and thin round) - DeviceNet Flat Trunk Configuration Example on page 29 - DeviceNet Thick Round Trunk Configuration Example on page 29 - DeviceNet Thin Round Trunk Configuration Example on page 30 • Cables for EtherNet/IP - EtherNet/IP Configuration Example on page 30	25
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

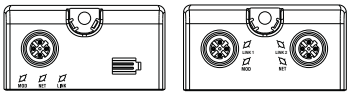
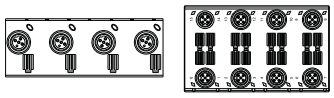
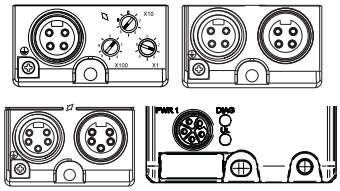
Alternatively, you can use software tools such as Integrated Architecture® Builder (IAB) or ProposalWorks™ to help you choose the appropriate cables for your application. For more information, see Appendix D on page 63.

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

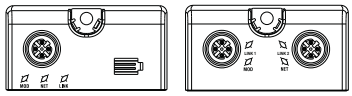
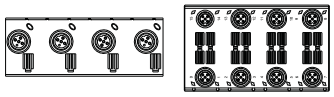
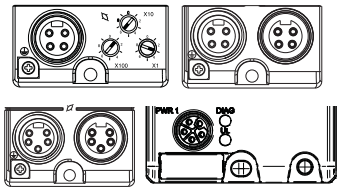
Verify Number and Type of Connectors on the Block



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

			
Catalog Number	**Network Connectors (1 or 2)**	**I/O Connectors (4 or 8)**	**Auxiliary Power Connectors (1 or 2)**
DeviceNet Blocks			
1732D-8I8O1212D	M12 (Micro) – (1) female and (1) male	5-pin M12 (Micro) – (8) female	– (I/O powered by network)
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-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
EtherNet/IP Blocks			
1732E-8I0LM12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (4) female	4-pin M12 (Micro) – (1) male and (1) female
1732E-8X8M12DR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male
1732E-12X4M12QCDR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male and (1) female
1732E-IB16M12DR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male
1732E-IB16M12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male
1732E-IB8M8SOER	D-coded M12 – (2) female	3-pin M8 (Pico) – (8) female	4-pin M12 (Micro) – (1) male and (1) female
1732E-IB16M12SOEDR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male
1732E-OB8M8SR	D-coded M12 – (2) female	3-pin M8 (Pico) – (8) female	4-pin M12 (Micro) – (1) male and (1) female
1732E-OB16M12DR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male
1732E-OB16M12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male
1732E-8CFGM8R	D-coded M12 – (2) female	3-pin M8 (Pico) – (8) female	4-pin M12 (Micro) – (1) male and (1) female
1732E-16CFGM12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male
1732E-16CFGM12QCR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male and (1) female
1732E-16CFGM12QCWR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	4-pin Mini – (1) male and (1) female
1732E-16CFGM12P5QCR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	5-pin Mini – (1) male and (1) female
1732E-16CFGM12P5QCWR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	5-pin Mini – (1) Male and (1) Female
1732E-16CFGM12M12LDR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	5-pin L-coded M12 (Micro) – (1) male and (1) female
1732E-16CFGM12P5DR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	5-pin 7/8″ – (1) male and (1) female
1732E-12X4M12P5QCDR	D-coded M12 – (2) female	5-pin M12 (Micro) – (8) female	5-pin Mini – (1) male and (1) female
1732E-IF4M12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (4) female	4-pin M12 (Micro) – (1) male and (1) female
1732E-OF4M12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (4) female	4-pin M12 (Micro) – (1) male and (1) female
1732E-IR4IM12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (4) female	4-pin M12 (Micro) – (1) male and (1) female
1732E-IT4IM12R	D-coded M12 – (2) female	5-pin M12 (Micro) – (4) female	4-pin M12 (Micro) – (1) male and (1) female

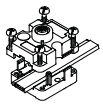
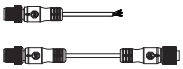
Network, I/O, and Auxiliary Power Connector Types and Quantity on Blocks (Continued)

			
Catalog Number	**Network Connectors (1 or 2)**	**I/O Connectors (4 or 8)**	**Auxiliary Power Connectors (1 or 2)**
1732IL-IB16M12	A-coded M12 – (1) male (IO-Link)	5-pin M12 (Micro) – (8) female	–
1732IL-10X6M12	A-coded M12 – (1) male (IO-Link)	5-pin M12 (Micro) – (8) female	–
1732IL-16CFGM12M12L	A-coded M12 – (1) male (IO-Link)	5-pin M12 (Micro) – (8) female	5-pin L-coded M12 (Micro) – (1) male

Select Network Cables

For specific catalog numbers of the cables, see the Ethernet Media Specifications Technical Data, publication 1585-TD001, or the DeviceNet Media System Technical Data, publication 1485-TD001 in the sections specified in the following table.

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.	See KwikLink General Purpose Flat Media.	See Cordsets & Patchcords, Round Media Cable Spools.	See Cordsets & Patchcords, Round Media Cable Spools.
M12 (Micro)			–	

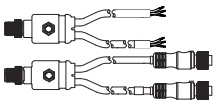
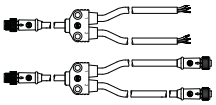
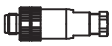
EtherNet/IP Connections – M12 D-coded

M12 Cordset	**M12 Patchcord**	**M12 to RJ45 Patchcord**
See Cordsets and Patchcords.		
Note: 1732E-xxxxxxR I/O blocks (ArmorBlock I/O with dual-port EtherNet/IP) can be daisychained to another 1732E I/O block by using a cable with male connectors on both ends.		

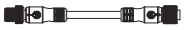
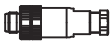
Select I/O Cables

For specific catalog numbers of the cables, see the Cordsets and Field Attachables Technical Data, publication 889-TD002, at page numbers listed in the following tables.

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

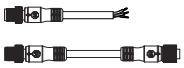
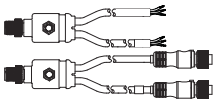
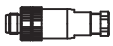
				
Connector Style	**Cordsets and Patchcords (One end device per I/O connector)**	**V-Cables (Two end devices per I/O connector)**	**Y-Cables (Two end devices per I/O connector)**	**Field Attachable Connector**
M12 (DC Micro)	See DC Micro Style.	See V-cables.	See DC Micro Style Y-cables.	See DC Micro Field Attachable Insulation Displacement Connector.
M8 (Pico)	See Pico Style.	–	–	See Field Attachable, Pico Style Insulated Displacement Connector.

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)

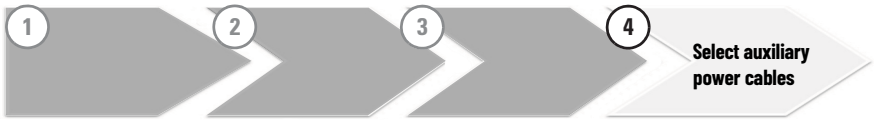
(1) Length in meters (2, 5, and 10 standard).
(2) Length in meters (1, 2, 3, 5, and 10 standard).

IO-Link Master to Hub Connections(1)

				
ArmorBlock Catalog Number	**Recommended Cordsets and Patchcords (One end device per I/O connector)**	**Recommended V-Cables (Two end devices per I/O connector)**	**Recommended Field Attachable Connectors**	**Recommended Splitters**
1732IL-10X6M12 1732IL-IB16M12	889D-F5ACD4M-(2)-SW, 889D-M4AC-(2), 889D-F5AC-(2)	879D-F4AED5M-(2)	871A-TS5-D1, 871A-TS4-DM1	879D-F4D5M
1732IL-16CFGM12M12L	889L-M5JF-(2), 889L-F5JF-(2), 889L-R5JF-(2), 889L-R5JFLM-(2), 889L-F5JFLE-(2)	–	–	–

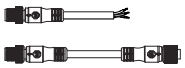
(1) Select only the I/O cables and connections as required for your application.
(2) Length in meters (1, 2, 5, and 10 standard).

Select Auxiliary Power Cables



For specific catalog numbers of the cables, see the Cordsets and Field Attachables Technical Data, publication 889-TD002, in the sections listed in the following table.

Auxiliary Power Connections – Mini or M12 (DC Micro)

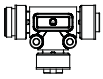
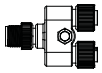
	
Connector Style	**Cordsets and Patchcord**
Mini	See Cordsets & Field Attachables.
M12 (DC Micro)	
M12 power (L-coded)	See Cordsets & Field Attachables.

Select Accessories

T-port

T-ports can be used as an alternative method to connect the I/O block to the network or power trunk line. They can also be used to provide an additional connection to daisychain with another I/O block. This is useful if your I/O block 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.

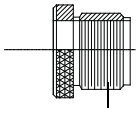
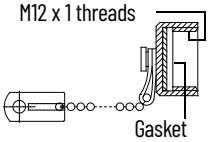
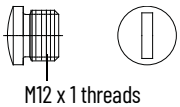
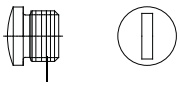
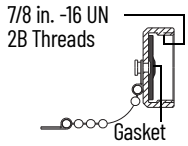
For specific catalog numbers of the accessories, see the Cordsets and Field Attachables Technical Data, publication 889-TD002, in the sections listed in the following table.

		
T-Port Use	**Mini**	**M12 (Micro)**
Device Drop (Network or I/O)	See Mini Style T-ports, Tap-style Wiring.	–
Auxiliary Power	–	See DC Micro Style Splitters Standard Individual Power and Tap-style Wiring.

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 blocks				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	 M8 x 1 threads	889A-PMCAP	–	–	–
Mini	Aluminum	–	–	–	Internal	 7/8 in. -16 UN 2B Threads Gasket	889A-NCAP

Labels

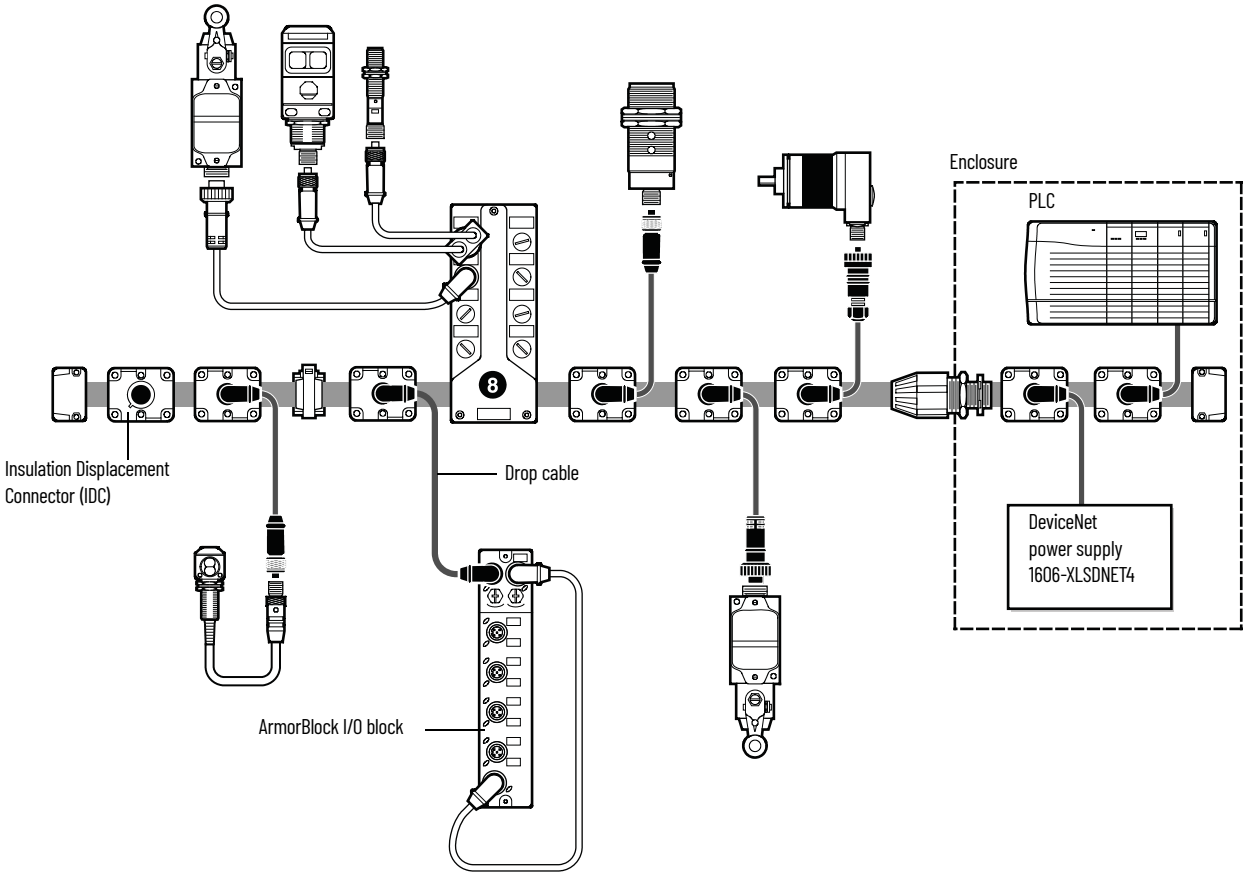
Each block comes with a set of labels (one per I/O connector). Additional labels are available for purchase if necessary.

Catalog Number	Description
1492-MD6X9	Snap-in individual marker card(1)

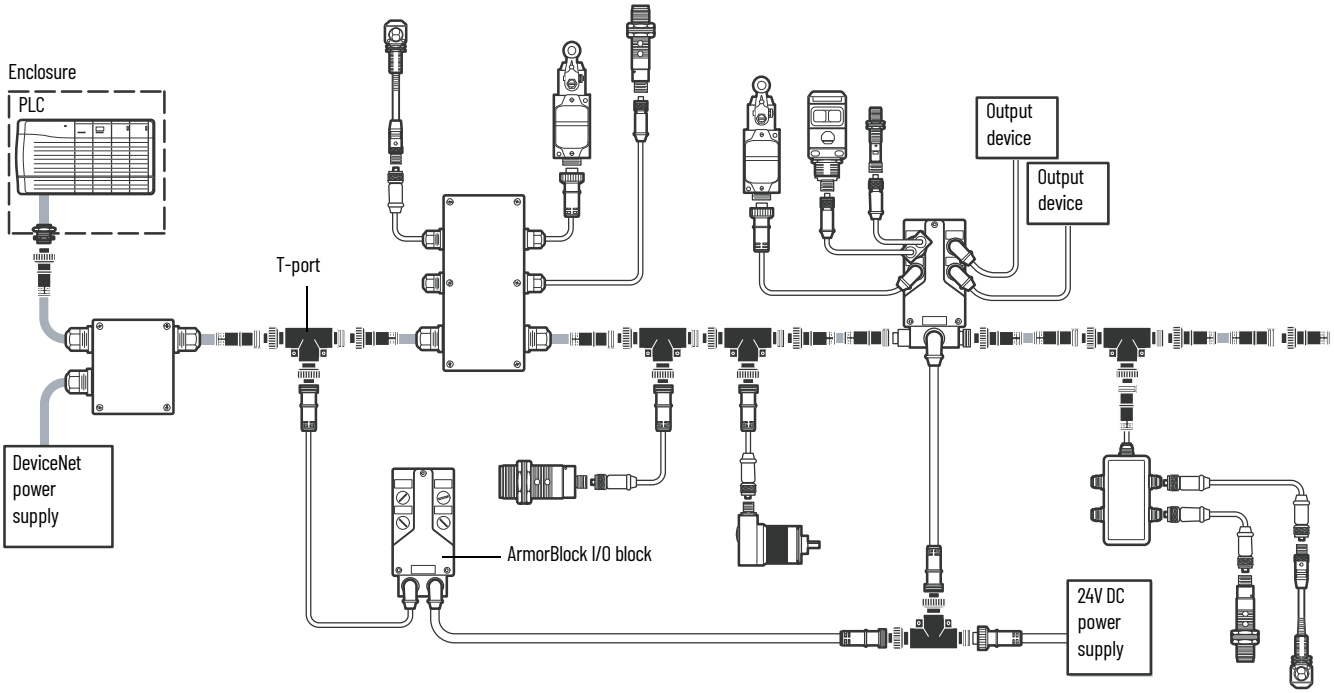
(1) Provides labeling for the terminal blocks to allow for easy identification and description.

Network Configuration Examples

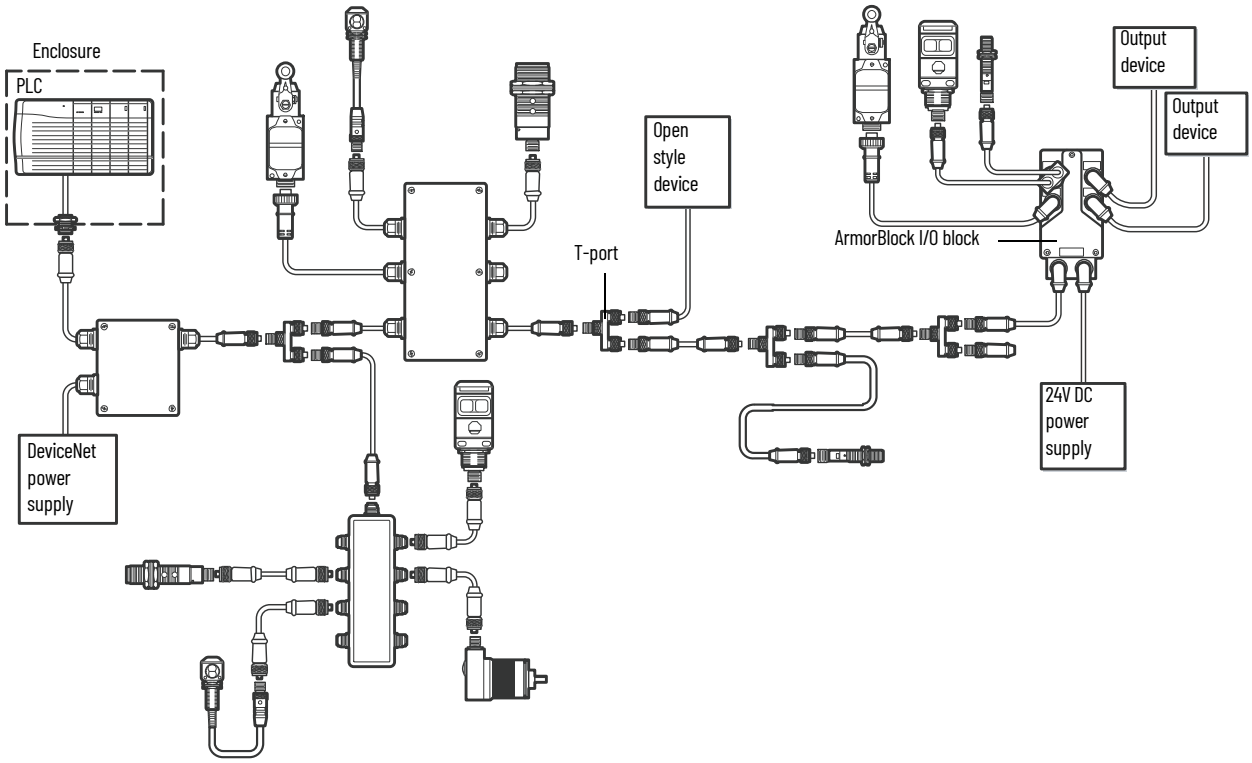
DeviceNet Flat Trunk Configuration Example



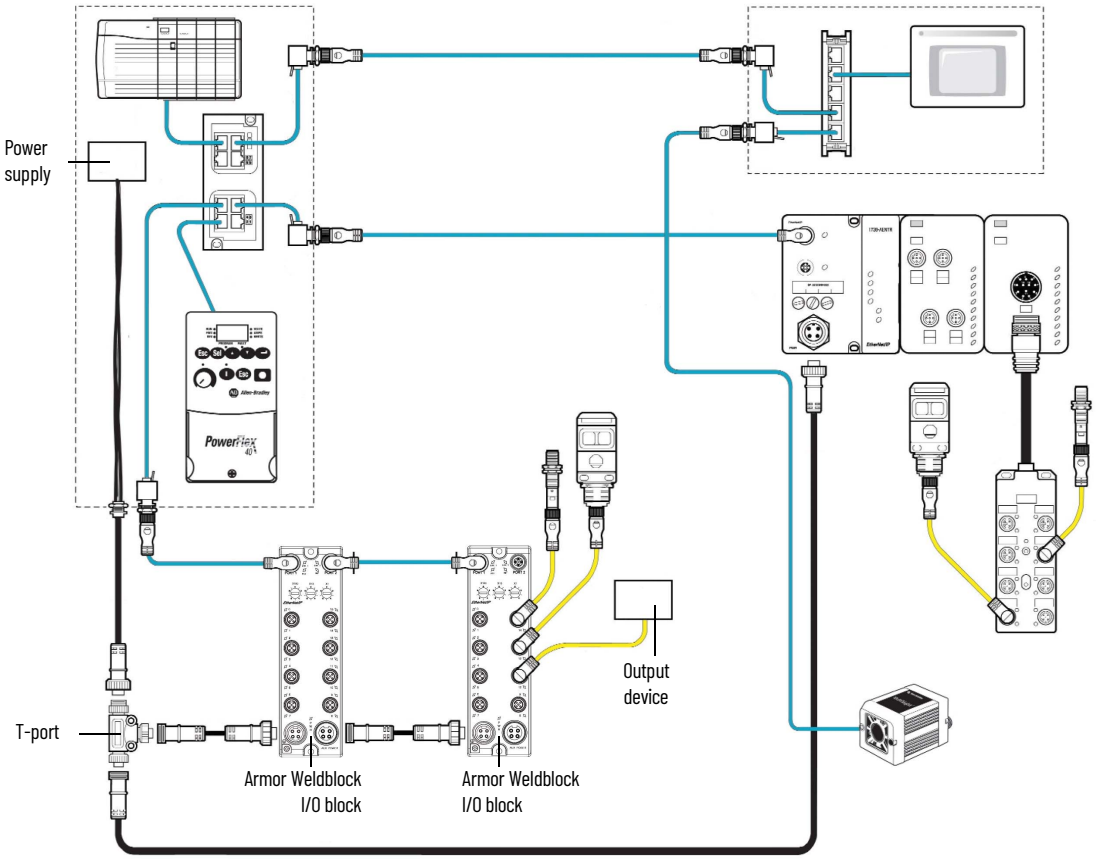
DeviceNet Thick Round Trunk Configuration Example



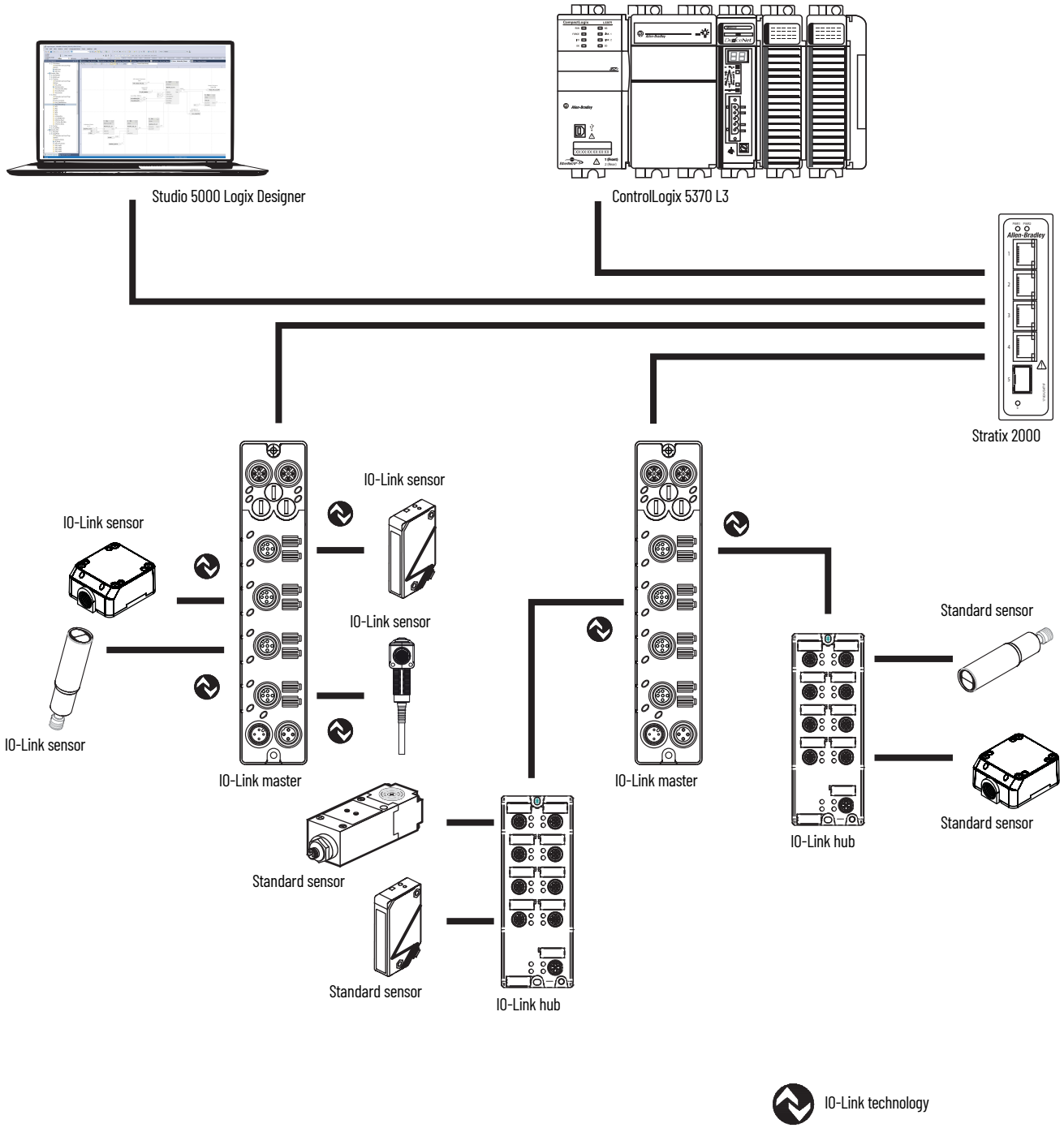
DeviceNet Thin Round Trunk Configuration Example



EtherNet/IP Configuration Example



IO-Link System Configuration Example



Notes:

DeviceNet I/O Block 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: These devices are intended for installation on Industrial Machines in accordance with NFPA79. Due to the nature of these devices (fixed equipment using cable connections) they may not be considered suitable for fixed installations in accordance with the NEC (NFPA70).

Digital DC Combination I/O Blocks

General Specifications

Attribute	1732D-8I801212D
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 block, 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
Current, output, on-state, range	1...500 mA
Current per block, max (all outputs)	4 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	
Current, auxiliary power, max	N.A.
Voltage, auxiliary power, range	N.A.
General Information	
Isolation voltage	**Input:** No isolation between inputs and sensor power to network. Type tested at 707V DC for 60 s. **Output:** No isolation between individual outputs or between outputs and network
Power consumption	2.2 W
Power dissipation	7.5 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.

General Specifications (Continued)

Attribute	1732D-8I801212D
Wiring category(2)	1 – on power ports 1 – on signal ports 1 – on communications ports
Indicators	Module status – green/red Network status – green/red I/O status – yellow
Publication	DeviceNet ArmorBlock Network Powered 8-input/8-output Module Installation Instructions, publication 1732D-IN010

(1) Input OFF to ON or ON to OFF delay is the time from a valid input signal to recognition by the block.
(2) Use this Conductor Category information for planning conductor routing. See Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications

Attribute	1732D-8I801212D
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): -45...+85 °C (-49...+185 °F)
Temperature, ambient, max	60 °C (140 °F)
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, 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
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

Certification (when product is marked)(1)	1732D-8I801212D
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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436
DeviceNet	ODVA conformance tested to DeviceNet specifications

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Digital DC Input Blocks

General Specifications

Attribute	1732D-IBDPM12MND	1732D-IB161212D
Digital Inputs		
Number of inputs	16, sink	
Inputs type	Powered by network, with sensor source short circuit detection and protection, open wire protection.	
Voltage, input, off-state, range	0...5V	
Voltage, input, on-state, range	11...25V DC	
Current, input, off-state, range	0...1.5 mA	
Current, input, on-state, range	2...5 mA	
Voltage, sensor source, range	11...25V DC	
Current per input, sensor source, max	30 mA	
Current per block, sensor source, max	500 mA	
Input delay time(1) OFF to ON ON to OFF	0...16000 µs	
Auxiliary Power		
Current, auxiliary power, max	575 mA	
Voltage, auxiliary power, range	N.A.	
General Information		
Isolation voltage	50V (continuous), Basic Insulation Type, inputs to network No isolation between individual inputs Type tested @ 707V DC for 60 s	No isolation
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 2 – on communication ports
Indicators	Module status – green/red Network status – green/red I/O status – yellow	
Publication	DeviceNet ArmorBlock Network Powered 16-input Module Installation Instructions, publication 1732D-IN007	DeviceNet ArmorBlock Network Powered 16-input Module, Series A Installation Instructions, publication 1732D-IN012

(1) Input OFF to ON or ON to OFF delay is the time from a valid input signal to recognition by the block.
(2) Use this Conductor Category information for planning conductor routing. See Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications

Attribute	1732D-IBDPM12MND	1732D-IB161212D
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	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	
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 (Continued)

Attribute	1732D-IBDPM12MND	1732D-IB161212D
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 ±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 MHz	

Certifications

Certification (when product is marked)(1)	1732D-IBDPM12MND	1732D-IB161212D
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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical Documentation	
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436	
DeviceNet	ODVA conformance tested to DeviceNet specifications	

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Digital DC Output Blocks

General Specifications

Attribute	1732D-OB16M12MINI, 1732D-OB16M12M12
Digital Outputs	
Number of outputs	16, 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
Current per block, 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
Auxiliary Power	
Current, auxiliary power, max	8 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.
Wiring category(1)	1 – on power ports 1 – on signal ports 1 – on communication ports
Indicators	Module status – red/green Network status – red/green Auxiliary power – green I/O status – yellow
Publication	DeviceNet 1732 ArmorBlock 16-point I/O, Series A Installation Instructions, publication 1732D-IN002

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

Environmental Specifications

Attribute	1732D-0B16M12MINI, 1732D-0B16M12M12
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	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
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
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

Certification (when product is marked)(1)	1732D-0B16M12MINI, 1732D-0B16M12M12
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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical Documentation
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436
DeviceNet	ODVA conformance tested to DeviceNet specifications

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Digital DC Self-configurable Blocks

General Specifications

Attribute	1732D-16CFGM12MN, 1732D-16CFGM12M12	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.		

General Specifications (Continued)

Attribute	1732D-16CFGM12MN, 1732D-16CFGM12M12	1732D-8CFGM12	1732D-8CFGM8
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 block, 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 block, max (all outputs)	8 A	4 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			
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. – **1732D-16CFGM12MN, 1732D-16CFGM12M12, 1732D-8CFGM12** Meets IP65/66/67/69K with receptacle dust caps or cable termination and NEMA Type 1 – **1732D-8CFGM8**		
Wiring category(2)	1 – on power ports 2 – 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	DeviceNet 1732 ArmorBlock 16-Point I/O, Series A Installation Instructions, publication 1732D-IN002	DeviceNet 1732 ArmorBlock I/O, Series A Installation Instructions, publication 1732D-IN001	ArmorBlock I/O DeviceNet Module Installation Instructions, publication 1732D-IN003

(1) Input OFF to ON or ON to OFF delay is the time from a valid input signal to recognition by the block.
(2) Use this Conductor Category information for planning conductor routing. See Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications

Attribute	1732D-16CFGM12MN, 1732D-16CFGM12M12	1732D-8CFGM12, 1732D-8CFGM8
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, storage	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	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 communication ports	IEC 61000-4-4: ±4 kV @ 5 kHz on power ports ±2 kV @ 5 kHz on signal ports ±2 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

Certification (when product is marked)(1)	1732D-16CFGM12MN, 1732D-16CFGM12M12	1732D-8CFGM12, 1732D-8CFGM8
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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical Documentation	
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436	
DeviceNet	ODVA conformance tested to DeviceNet specifications	

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Notes:

EtherNet/IP I/O Block 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** – To comply with UL restrictions, this equipment must be powered from a source compliant with the following:
  Limited Voltage/Current.
- **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.
- **For 1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR, 1732E-16CFGM12QCR, 1732E-16CFGM12P5QCR, 1732E-16CFGM12QCWR** – To comply with UL restrictions, this equipment and all connected I/O must be supplied from a source compliant with the following:
  Limited Voltage Supply compliant with UL508.

ATTENTION: These devices are intended for installation on Industrial Machines in accordance with NFPA79. Due to the nature of these devices (fixed equipment using cable connections) they may not be considered suitable for fixed installations in accordance with the NEC (NFPA70).

Digital DC Combination I/O Blocks

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	12...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 block, 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...16 ms
Digital Outputs		
Number of outputs	4, source, electronically fused per point	8, source, electronically fused per point
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 block, 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

General Specifications (Continued)

Attribute	1732E-12X4M12QCDR, 1732E-12X4M12P5QCDR	1732E-8X8M12DR
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	DC-14
Enclosure type rating	Meets IP65/66/67/69K with receptacle dust caps or cable termination.	Meets IP65/66/67/69K and Type 4X 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	ArmorBlock 2-port EtherNet/IP Modules with QuickConnect Installation Instructions, publication 1732E-IN010	ArmorBlock 2-port EtherNet/IP Module Installation Instructions, publication 1732E-IN004

(1) Input OFF to ON or ON to OFF delay is the time from a valid input signal to recognition by the block.
(2) Use this Conductor Category information for planning conductor routing. See Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications

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)	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0 °C < Ta < +55 °C (+32 °F < Ta < +131 °F)
Temperature, ambient, max	60 °C (140 °F)	
Temperature, surrounding air, max	–	60 °C (140 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F)	
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing	
Vibration	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: 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 – **1732E-12X4M12QCDR only** 10V/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 3V/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	IEC 61000-4-4: ±4 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

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 Emission EN 61131-2; Programmable Controllers European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical documentation	European Union 2014/30/EU EMC Directive, compliant with: EN 61000-6-2; Industrial Immunity EN 61131-2; Programmable Controllers EN 61000-6-4; Industrial Emissions European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical documentation
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions	Australian Radiocommunications Act, compliant with: AS/NZS CISPR11; Industrial Emissions.
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436	
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.	
UKCA	2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations	

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Digital DC Input Blocks

General Specifications

Attribute	1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12S0EDR	1732E-IB8M8S0ER
Digital Inputs		
Number of inputs	16, sink	8, sink
Inputs type	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	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 block, 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	1.2 A	0.3 A
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 I/O status – yellow/red – **1732E-IB16M12DR and 1732E-IB16M12S0EDR only**	
Publication	ArmorBlock 2-port EtherNet/IP Modules Installation Instructions, publication 1732E-IN009	1732E ArmorBlock Dual Port EtherNet/IP 8-point Digital Modules Installation Instructions, publication 1732E-IN007

(1) Input OFF to ON or ON to OFF delay is the time from a valid input signal to recognition by the block.
(2) Use this Conductor Category information for planning conductor routing. See Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications

Attribute	1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12S0EDR	1732E-IB8M8S0ER
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	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: 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 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
EFT/B immunity	IEC 61000-4-4: ±4 kV @ 5 kHz on power ports ±3 kV @ 5 kHz on signal ports ±3 kV @ 5 kHz on communications ports	IEC 61000-4-4: ±3 kV at 5 kHz on power ports ±3 kV at 5 kHz on signal ports ±3 kV at 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

Certification (when product is marked)[1]	1732E-IB16M12R, 1732E-IB16M12DR, 1732E-IB16M12S0EDR	1732E-IB8M8S0ER
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 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61131-2; Programmable Controllers EN 61000-6-4; Industrial Emissions European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical documentation	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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR11; Industrial Emissions	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	
UKCA	**For all except 1732E-IB16M12S0EDR** 2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations	
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436	—
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.	

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Digital DC Output Blocks

General Specifications

Attribute	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	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 with receptacle dust caps or cable termination and NEMA Type1 Meets IP65/67/69K when marked, and Type 1 with receptacle dust caps or cable termination. - **1732E-OB16M12R, 1732E-OB16M12DR**		
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	ArmorBlock 2-port EtherNet/IP Modules Installation Instructions, publication 1732E-IN009		1732E ArmorBlock Dual Port EtherNet/IP 8-point Digital Modules Installation Instructions, publication 1732E-IN007

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

Environmental Specifications

Attribute	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, 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	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: 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 3V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz - **1732E-OB16M12R, 1732E-OB16M12DR** 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 (Continued)

Attribute	1732E-0B16M12R	1732E-0B16M12DR	1732E-0B8M8SR
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

Certification (when product is marked)(1)	1732E-0B16M12R	1732E-0B16M12DR	1732E-0B8M8SR
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 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61131-2; Programmable Controllers EN 61000-6-4; Industrial Emissions European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical documentation		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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR11; Industrial Emissions		Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3		
UKCA	2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations		
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436		—
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.		

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Digital DC Self-configurable Blocks

General Specifications

Attribute	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	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	10...30V DC			
Current per input, sensor source, max	50 mA			
Current per block, sensor source, max	800 mA			400 mA
Input delay time(1) OFF to ON ON to OFF	0...16 ms	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 block, max (all outputs)	8 A			4 A

General Specifications (Continued)

Attribute	1732E-16CFGM12R	1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR	1732E-16CFGM12P5QCWR	1732E-8CFGM8R
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				
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			
Enclosure type rating	Meets IP65/67/69K when marked, and Type 1 with receptacle dust caps or cable termination - **1732E-16CFGM12R, 1732E-16CFGM12P5QCWR** Meets IP65/66/67/69K and Type 4X with receptacle dust caps or cable termination – **1732E-16CFGM12QCR, 1732E-16CFGM12QCWR, 1732E-16CFGM12P5QCR**			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	ArmorBlock 2-port EtherNet/IP Modules Installation Instructions, publication 1732E-IN009	ArmorBlock 2-port EtherNet/IP Modules with QuickConnect Installation Instructions, publication 1732E-IN010	ArmorBlock 2-port EtherNet/IP Modules Installation Instructions, publication 1732E-IN009	1732E ArmorBlock Dual Port EtherNet/IP 8-point Digital Modules Installation Instructions, publication 1732E-IN007

(1) Input OFF to ON or ON to OFF delay is the time from a valid input signal to recognition by the block.
(2) Use this Conductor Category information for planning conductor routing. See publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

Environmental Specifications

Attribute	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, 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	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: 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 80...1000 MHz 3V/m with 1 kHz sine wave 80% AM from 1000...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		

Environmental Specifications (Continued)

Attribute	1732E-16CFGM12R	1732E-16CFGM12Q CR, 1732E-16CFGM12Q CWR, 1732E-16CFGM12P5Q CR, 1732E-16CFGM12P5Q CWR	1732E-8CFGM8R
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

Certification (when product is marked)(1)	1732E-16CFGM12R	1732E-16CFGM12Q CR, 1732E-16CFGM12Q CWR, 1732E-16CFGM12P5Q CR, 1732E-16CFGM12P5Q CWR	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. – **1732E-16CFGM12Q CR, 1732E-16CFGM12Q CWR, 1732E-16CFGM12P5Q CR, 1732E-8CFGM8R**	
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 European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical documentation		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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR11; Industrial Emissions		Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3		
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436		—
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.		
UKCA	2016 No. 1091 – Electromagnetic Compatibility Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations		—

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

General Specifications

Attribute	1732E-16CFGM12M12LDR	1732E-16CFGM12P5DR
Digital Inputs		
Number of inputs	16, configurable	
On-state voltage, min	18V DC	
On-state voltage, nom	24V DC	
On-state voltage, max	30V DC	
On-state current, nom	5 mA @ 24V DC	
Off-state voltage, range	-3...+5V DC	
Off-state current, max	1.5 mA	
Sensor source voltage (SSV) current, per port, max	500 mA	
Input filter time	3 ms, fixed	
Digital Outputs		
Number of outputs	16 configurable	
On-state current, per output, max	2 A	
On-state current, per block, max	9 A	
Auxiliary Power		
Power supply voltage, nom	24V DC (SELV/PELV)	
Power supply voltage, range	18...30V DC	
Reverse polarity protection	Yes	
Block power consumption, typical	120 mA @ 24V DC	
General Information		
Channel protection	Electronically: Overload and short-circuit protection	
Isolation voltage	500V DC, Basic	
Enclosure type rating	Meets IP65/67/69K (when marked)(1)	Meets IP65/67/ (when marked)(3)

General Specifications (Continued)

Attribute	1732E-16CFGM12M12LDR	1732E-16CFGM12P5DR
Wiring category(2) (3)	2 – on signal ports	
Indicators	Module status – red/green Network status – red/green Link status – yellow/green I/O status - white/yellow/red Diagnostic status – red	
Mounting torque	Fixing screws M4/M6 – 1.0 N•m (8.8 lb•in) M12 connector – 0.5 N•m (4.4 lb•in)	
Dimensions (H x W x D)	200 x 60 x 31 mm (7.87 x 2.36 x 1.22 in.)	206 x 60 x 26 mm (8.11 x 2.36 x 1.02 in.)
Weight, approx	500 g	520 g
Publication	ArmorBlock I/O 16-channel Configurable Digital Modules Installation Instructions, publication 1732E-IN008	

(1) When sealing caps and cable termination are used. See Cable Specifications on page 59 for a list of appropriate cables to meet the IP rating.
(2) Use this Conductor Category information for planning conductor routing. See publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.
(3) Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.

Environmental Specifications

Attribute	1732E-16CFGM12M12LDR, 1732E-16CFGM12P5DR
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 °C < Ta < +70 °C (-4 °F < Ta < +158 °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): -25...+85 °C (-13...+185 °F)
Temperature, ambient, max	70 °C (158 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing
Vibration	IEC 60068-2-6 (Test Fc, Operating): 15 g @ 5...500 Hz
Shock, 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 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
Surge transient immunity	IEC 61000-4-5: ±500V line-line(DM) and ±1 kV line-earth(CM) on signal ports
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine wave 80% AM from 150 kHz...80 MHz

Certifications

Certification (when product is marked)(1)	1732E-16CFGM12M12LDR	1732E-16CFGM12P5DR
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; 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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation	
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436	
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications.	

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Analog I/O Blocks

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	≤ 2 ms
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 Studio 5000 Logix Designer application.	
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 (block 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(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 ArmorBlock Dual-port EtherNet/IP 4-point Analog Input and Output Modules Installation Instructions, publication 1732E-IN006	

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

Environmental Specifications

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	

Environmental Specifications (Continued)

Attribute	1732E-IF4M12R	1732E-OF4M12R
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: 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

Certification (when product is marked)(1)	1732E-IF4M12R	1732E-OF4M12R
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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation	
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions	
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 rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Thermocouple/RTD Blocks

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 Studio 5000 Logix Designer application.	
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	
Current, Ethernet, system power, max	–	–
Power consumption	3 W @ 24V DC, typical 3.5 W, max (block 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	ArmorBlock Dual-port EtherNet/IP 4-point Thermocouple and RTD Input Modules Installation Instructions, publication 1732E-IN005	

(1) Sample Rate/Notch Filter Frequency, selectable per channel.
(2) Use this Conductor Category information for planning conductor routing. See 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 ArmorBlock Dual-port EtherNet/IP 4-point Isolated Thermocouple and RTD Input Modules User Manual, publication 1732E-UM004)			
Thermistor types supported	Thermometric MF65F302V/W or DC95F302V/W			

General Specifications (Continued)

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

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	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: 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 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

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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation	
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; 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 rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

IO-Link Master

General Specifications

Attribute	1732E-8IOLM12R
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, block only (no Digital Output loads, no Sensor Voltage loads, and no power daisy chain loads)	30 mA @ 24V DC
Current, Auxiliary Power, max per block (block 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.
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. Type tested @ 707V DC for 60 s.
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 status – yellow/green/red
Publication	ArmorBlock I/O 8 Channel IO-Link Master Module Installation Instructions, publication 1732E-IN001

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

Environmental Specifications

Attribute	1732E-8IOLM12R
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	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	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
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

Certification (when product is marked)(1)	1732E-8IOLM12R
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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; 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 rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

IO-Link Hubs

General Specifications

Attribute	1732IL-IB16M12	1732IL-10X6M12	1732IL-16CFGM12M12L
IO-Link			
IO-Link specification supported	Comply with IO-Link interface and system specification version 1.1.2		
IO-Link port type	Class A	Class B	Class A

General Specifications (Continued)

Attribute	1732IL-IB16M12	1732IL-10X6M12	1732IL-16CFGM12M12L
Transmission distance, max	20 m (66 ft.)		
Transmission rate	230 Kbps (COM3)		
Cycle time, min	2 ms		
Data storage	Supported		
Digital Inputs			
Number of inputs	16, sink, type 1	10, sink, type 3	16 (max), sink, type 3
Inputs type	Electronically: Overload protection, short-circuit protection		
On-state voltage, min	18V DC		
On-state voltage, nom	24V DC (SELV/PELV)		
On-state voltage, max	30V DC		
On-state current, nom	5 mA @ 24V DC		
Off-state voltage, range	-3...+11V DC		
Off-state current, max	1.5 mA		
Sensor source voltage (SSV) voltage, range	18...30V DC (SELV/PELV)		
Sensor source voltage (SSV) current per input, max	80 mA		
Sensor source voltage (SSV) current per block, max	700 mA(1)		500 mA [@ 25 °C (77 °F)]
Input filter time	0, 0.5, 1, 2, 3 (default) ms		
Input delay time	0 (default), 0.5, 1, 2, 3 ms		
Digital Outputs			
Number of outputs	–	6, source	16, source
Output type		Electronically: Overload protection, short-circuit protection	
Nominal voltage		24V DC	
Output current		500 mA (max) per output	2 A (max) per output 16 A (max) per hub
General Information			
Isolation voltage	500V DC, Basic		
Terminal block torque specs	Fixing screws M4/M6 – 1.0 N•m (8.8 lb•in) M12 connector – 0.5 N•m (4.4 lb•in)		
Enclosure type rating	Meets IP65/67/69K (when marked)		
Wiring category(2) (3)	2 – on signal ports		
Status indicators	Module status – red/green Link status – red/green Power status – red/green I/O status – white/yellow/red		
Publication	ArmorBlock 16-channel IO-Link Hubs Installation Instructions, publication 1732IL-IN001		

(1) This IO-Link hub has a maximum sensor source voltage (SSV) current rating of 700 mA/block.
The ArmorBlock IO-Link master supports an SSV current rating of up to 500 mA/channel.
When you connect the IO-Link hub to the IO-Link master, verify that the SSV current that flows through the IO-Link connection does not exceed the specifications. See also the ArmorBlock 16-channel IO-Link Hubs Installation Instructions, publication 1732IL-IN001, for additional specifications.
(2) Use this Conductor Category information for planning conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.
(3) Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.

Environmental Specifications

Attribute	1732IL-IB16M12	1732IL-10X6M12	1732IL-16CFGM12M12L
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 °C < Ta < +70 °C (-4 °F < Ta < +158 °F)		
Temperature, ambient, max	70 °C (158 °F)		
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F)		
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing		
Vibration	IEC 60068-2-6 (Test Fc, Operating): 15 g @ 5...500 Hz		
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g		
Emissions	IEC 61000-6-4		

Environmental Specifications (Continued)

Attribute	1732IL-IB16M12	1732IL-10X6M12	1732IL-16CFGM12M12L
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 signal ports		
Surge transient immunity	IEC 61000-4-5: ±500V line-line(DM) and ±1 kV line-earth(CM) on signal ports		
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine wave 80% AM from 150 kHz...80 MHz		

Certifications

Certification (when product is marked)(1)	1732IL-IB16M12	1732IL-10X6M12	1732IL-16CFGM12M12L
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) European Union 2011/65/EU RoHS, compliant with: EN 50581; Technical documentation		
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions		
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3		
Morocco	Arrêté ministériel n° 6404-15 du 29 ramadan 1436		

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.

Notes:

Cable Specifications

For specific catalog numbers of the cables, see the Cordsets and Field Attachables Technical Data, publication 889-TD002, at page numbers listed in the following tables.

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 a 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-through**	**Terminal Chambers**	**Accessories**	
Description	• Panel mount connector with flying lead	• Panel mount connector, male to female	• Field installable connectors	• Sealing caps, coupling adapters, 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-through • DC Micro Bulkhead Pass-through.	• Mini • DC Micro • AC Micro • Pico	• Sealing caps • Coupling adapters • Mounting nuts • Sealing washers	

Various Names of Connectors

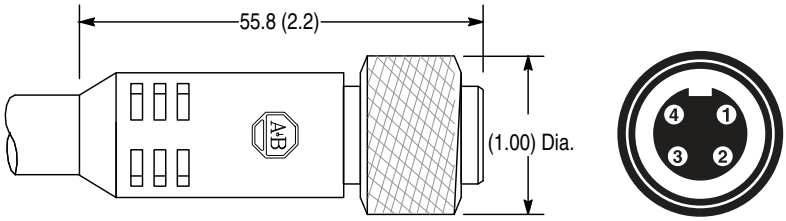
Company Name	Naming Convention						
Rockwell Automation	Pico	DC Micro	AC Micro	EAC Micro	Mini	Mini-Plus	M23
Woodhead/Brad Harrison	Nano-Change	Micro-Change Single Keyway	Micro-Change Dual Keyway	Micro-Change Reverse Keyway	Mini-Change A-Size	Mini-Change B-Size and C-Size	M23
Turck	Pico fast	Eurofast	Microfast	Eurofast Reverse Key	Minifast	–	Multifast

Various Names of Connectors (Continued)

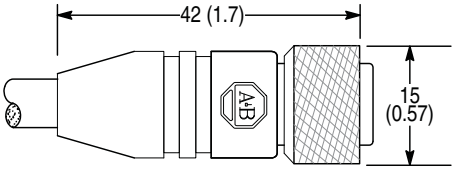
Company Name	Naming Convention						
Crouse-Hinds	NanoLine	Micro-Mini DC DIN	Micro-Mini Dual Key	Micro-Mini AC DIN	Mini Line Style I	Mini Line Style II and Style III	–
Lumberg	Pico Style	Micro DC Style	Micro AC Style	Micro Style Reverse Key	Mini Style	Mini Style	M23
Other Names	M8	M12	–	–	–	–	–
Standard 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 are available
- Heavy-duty STOOW-A or general-purpose cable

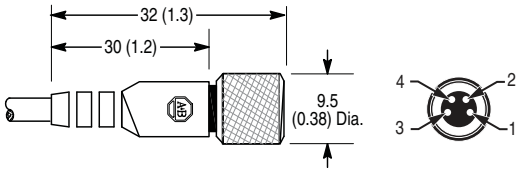


M12 DC Micro QD
- 4-pin or 5-pin
- Straight and right angle
- Illuminated and non-illuminated
- 2 m, 5 m, and 10 m lengths (standard)
- Stranded aluminum shield
- M12 x 1 thread (IEC standard)
- Single keyway

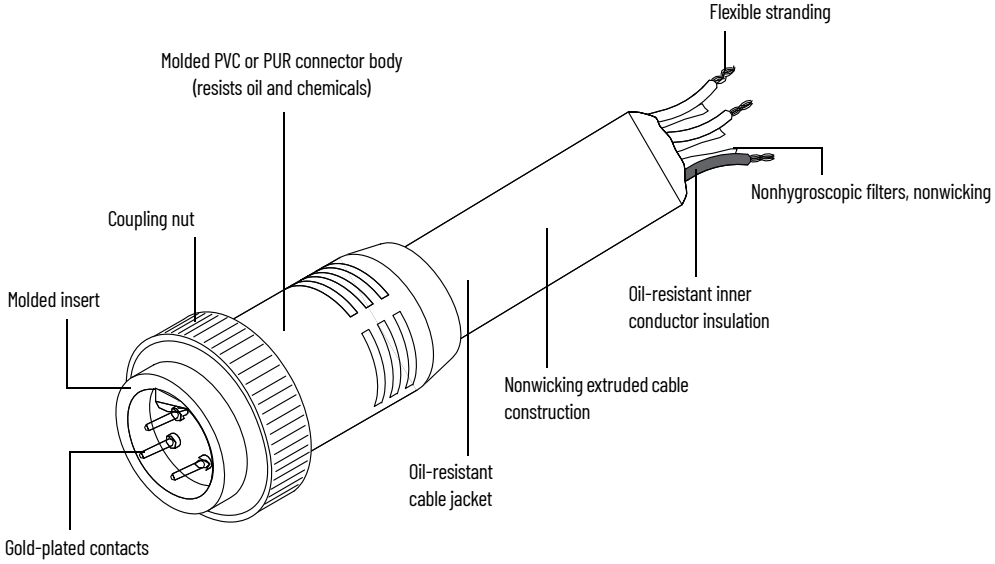


AC Micro QD
- 3-pin, 4-pin, 5-pin, or 6-pin
- Straight and right angle
- Illuminated and non-illuminated
- 2 m, 5 m, and 10 m lengths (standard)
- 1/2 in.-20 thread (English)
- Dual keyway

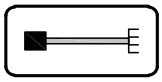
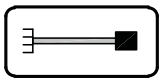
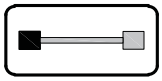
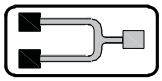
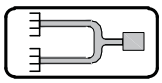
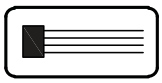
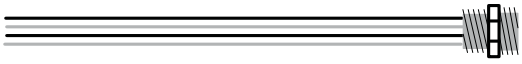
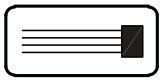
M8 Pico QD
- 3-pin or 4-pin
- Straight and right angle
- Illuminated and non-illuminated
- Snap-on or thread-on
- 2 m, 5 m, and 10 m lengths (standard)



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. Table 1 indicates the general degree of protection. **For complete test requirements see IEC 60529**.

Table 1 - IEC Enclosure Test Requirements

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 the 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 the 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 the enclosure
6	Dust-tight (no dust observable inside enclosure at end of test)	6	Powerful water jets directed at the enclosure
		7	Temporary submersion
		8	Continuous submersion
		9K	High-pressure and high-temperature water jets directed at the 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; for example, **IP_5** / **IP_7**.			

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

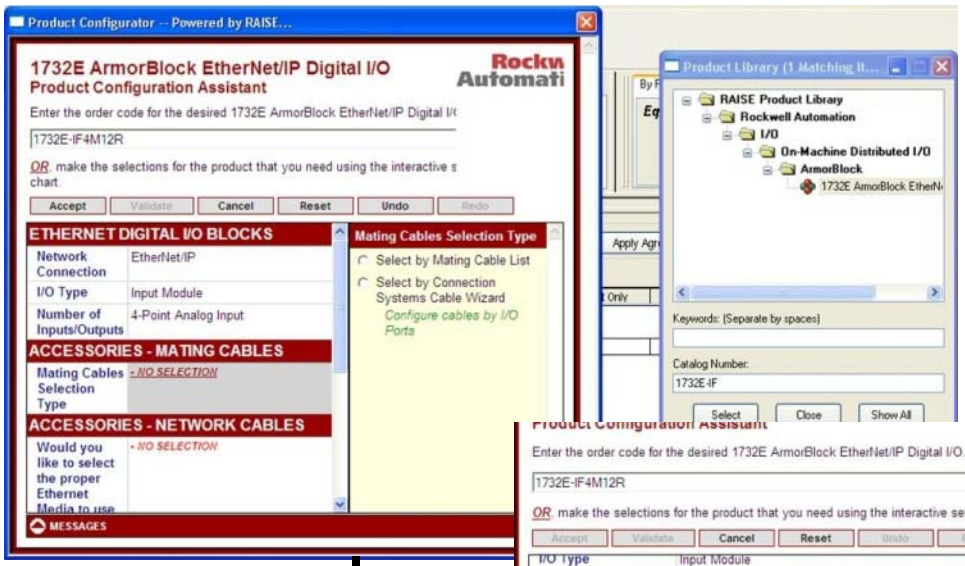
System Configuration Tools

This appendix describes briefly how you can select appropriate cables to connect your ArmorBlock I/O blocks to your network using two different software tools – 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 Blocks

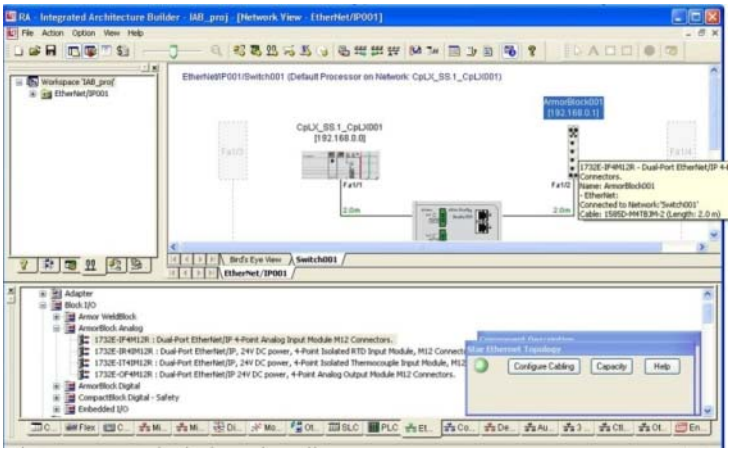


Step 2 – Select Cables

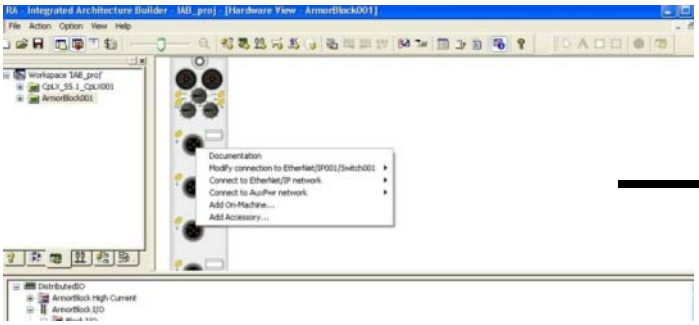
Integrated Architecture Builder

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, On-Machine cabling and wiring, motion control, and other devices.

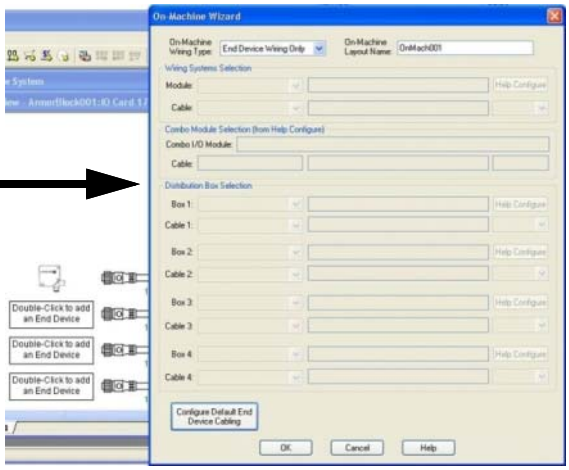
Step 1 - Select the ArmorBlock I/O blocks



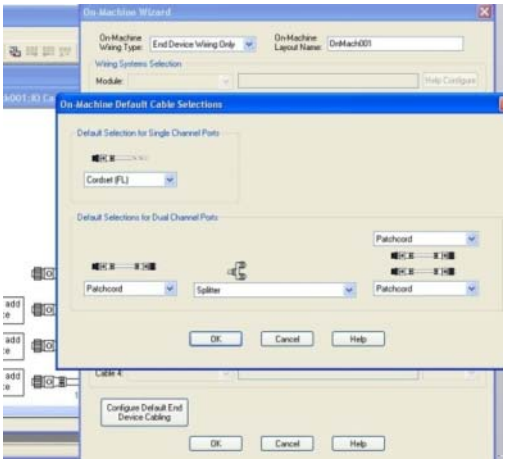
Step 2 - Launch On-Machine Wizard



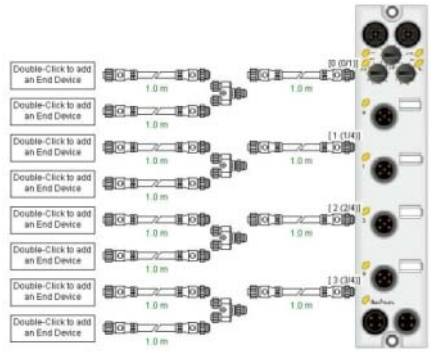
Step 3 - Configure Default End Device Cabling



Step 4 - Select Cables



Step 5 - Configure End Devices



Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

ArmorBlock I/O Related Publications

Block Type	Catalog Number	Description	Publication Number
DeviceNet	1732D-8CFGM8	24V DC 8 self-configuring M8	1732D-IN003
	1732D-8CFGM12	24V DC 8 self-configuring M12	1732D-IN001
	1732D-OB16M12M12	24V DC 16 output M12	1732D-IN002
	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-IBDPM12MND	24V DC 12 input M12 and MINI with diagnostic	1732D-IN007
	1732D-8I8O1212D	24V DC 8 input, 8 output M12 network powered with diagnostic	1732D-IN010
	1732D-IB161212D	24V DC 16 input network powered M12 with diagnostic	1732D-IN012
EtherNet/IP	1732E-8IOLM12R	24V DC 8 input/output IO-Link master M12 with dual-port EtherNet/IP	1732E-IN001 1732E-UM007
	1732E-IB16M12R	24V DC 16 input M12 with dual-port EtherNet/IP	1732E-IN009
	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-16CFGM12P5QCWR	24V DC 16 self-configuring M12 QuickConnect with dual-port EtherNet/IP, and 5-pin mini auxiliary power connector, WeldBlock	
	1732E-IB16M12SOEDR	24V DC 16 input M12 with dual-port EtherNet/IP and diagnostic Sequence of Events	1732E-IN009 1732E-UM002
	1732E-8X8M12DR	24V DC 8 input, 8 output M12 with dual-port EtherNet/IP and diagnostic	1732E-IN004
	1732E-IT4IM12R	24V DC 4 input, M12 with dual-port EtherNet/IP and thermocouple	1732E-IN005 1732E-UM004
	1732E-IR4IM12R	24V DC 4 input, M12 with dual-port EtherNet/IP and RTD	
	1732E-IF4M12R	24V DC 4 analog input, M12 with dual-port EtherNet/IP	1732E-IN006 1732E-UM005
	1732E-OF4M12R	24V DC 4 analog output, M12 with dual-port EtherNet/IP	
	1732E-IB8M8SOER	24V DC 8 input, M8 with dual-port EtherNet/IP and Sequence of Events	1732E-IN007 1732E-UM003
	1732E-OB8M8SR	24V DC 8 output, M8 with Dual-Port EtherNet/IP and Scheduled Sourcing	
	1732E-8CFGM8R	24V DC 8 self-configuring M8 with dual-port EtherNet/IP	1732E-IN007
	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-16CFGM12M12LDR	24V DC 16-channel configurable with dual-port EtherNet/IP, and M12 auxiliary power connector	1732E-IN008 1732E-UM001
	1732E-16CFGM12P5DR	24V DC 16-channel configurable with dual-port EtherNet/IP, 7/8" auxiliary power connector	
IO-Link	1732IL-IB16M12	24V DC 16 input IO-Link hub M12 connector	1732IL-IN001 1732IL-UM001
	1732IL-10X6M12	24V DC 10 input, 6 output IO-Link hub M12 connector	
	1732IL-16CFGM12M12L	24V DC 16 self-configurable IO-Link hub M12 connector	

Related Documentation

Resource	Description
DeviceNet Media Design and Installation Guide, publication DNET-UM072	Guidance on how to design and install a DeviceNet cable system.
EtherNet/IP QuickConnect Application Technique, publication ENET-AT001	Guidance and examples for configuring systems using EtherNet/IP QuickConnect.
Troubleshoot EtherNet/IP Networks Application Technique, publication ENET-AT003	Provides troubleshooting techniques for Integrated Architecture products on EtherNet/IP networks.
Ethernet Media Specifications Technical Data, publication 1585-TD001	Provides detailed specifications for Ethernet cordsets, patchcords, receptacles, cables, and cable accessories.
DeviceNet Media System Technical Data, publication 1485-TD001	Provides detailed specifications for DeviceNet cordsets, patchcords, receptacles, cables, and cable accessories.
Cordsets and Field Attachables Technical Data, publication 889-TD002	Provides detailed specifications for cordsets, patchcords, field attachables, receptacles, distribution boxes, cables, and cable accessories.
Ethernet Reference Manual, ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-State Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at rok.auto/literature.

Notes:

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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