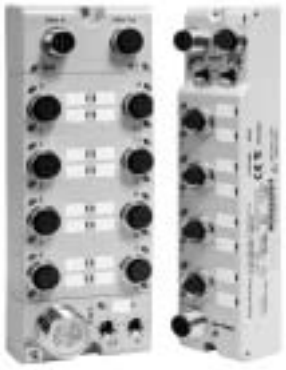
ArmorBlock I/O



ArmorBlock™ I/O

The 1732 ArmorBlock I/O modules have a compact style with a low profile. 1732 ArmorBlock modules are packaged in a sealed housing rated for IP 69K and NEMA 4X. A 1732 ArmorBlock I/O module contains digital I/O circuits, a built-in power supply, and a built-in DeviceNet, EtherNet/IP, or Profibus DP I/O adaptor. The DeviceNet network supplies power to the ArmorBlock system and on some models also to the I/O. On those units with DeviceNet network powered I/O, a diagnostic bit is provided for short circuits and overcurrent. Inputs and outputs are powered by an external 24V DC source which is independent of the network. An external 24V DC power source is required for Profibus DP.

I/O blocks are available with 8 or 16 I/O points. Electronic fusing provides protection for output load devices and easy resetting. Units are available as 8 or 16 inputs, 8 or 16 outputs or 8 or 16 self-configuring modules. The self-configuring modules contain both input and output functionality. With these self-configuring modules, the user is not required to “configure” anything and any combination of input and outputs are available (e.g., 7+1, 11+5, 4+4). The self-configuring units have automatic output monitoring.

1732 ArmorBlock I/O modules are designed for back-panel or On-Machine mounting. The 8 point modules can be front or side mounted, the 8 or 16 point modules can be horizontally or vertically mounted. Enclosure costs are eliminated because each block is packaged in a rated sealed housing. I/O terminations are DC micro (M12) quick-disconnects or pico (M8) quick-disconnects. These modules do not require a separate base.

Specifications

Enclosure Type Rating	IP 69K and NEMA 4X
Mounting Type	Panel, On-Machine
Operating Temperature—C (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): –20…60° (–4…140°)
Storage Temperature—C (F)	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° (–49…185°)
Relative Humidity	IEC 60068–2–30 (Test Db, Unpackaged Nonoperating Damp Heat): 5…95% noncondensing
Shock, Operating	IEC 60068–2–27 (Test Ea, Unpackaged Shock): 30 G
Shock, Non–Operating	IEC 60068–2–27 (Test Ea, Unpackaged Shock): 50 G
Vibration	IEC 60068–2–6 (Test Fc, Operating): 5G @ 10…500 Hz
Certifications ❶	cULus, CE, C-Tick
Dimensions (HxWxD), Approx.	8 point: 48 x 69 x 174 mm (1.9 x 2.7 x 6.9 in) 16 point: 43 x 69 x 179 mm (1.7 x 2.5 x 7.0 in)

❶ When product is marked. See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Armor WeldBlock I/O

The 1732 Armor WeldBlock is designed for use in typical welding applications. The design resists the effects of weld slag and magnetic fields found in close proximity to the weld head. The sealed IP 67, light-weight metal housing, of plated aluminum, protects the electronics which are the same as those in other 1732 ArmorBlocks and is ideal for end-of-arm robot applications. Armor WeldBlocks are available in DeviceNet and EtherNet I/P with 24V DC,16 point inputs only or 16 point self-configuring I/O. I/O and network connections are DC Micro (M12).

Features

- Sealed housing rated for IP 69K and NEMA 4X eliminate enclosure costs.
- Low installation cost and easy to replace without rewiring because industry-standard mini or M12 DC micro connectors are used for connection to the DeviceNet network and auxiliary power supply. I/O connectors are sealed M8 pico or M12 DC micro styles.
- 8 and 16 point self-configuring I/O allows input/output mix to a granularity of one.
- Removal and Insertion Under Power (RIUP) makes it possible to replace a module without impacting the network operation.
- Isolated auxiliary power maintains power to the outputs if main power fails so that you can have the option of holding outputs in their last state.
- Outputs electronically protected
- Complies with Open DeviceNet Vendor Association, Inc. (ODVA) conformance test software.

Digital I/O Blocks

DeviceNet, 24V DC, 8 and 16 Point

Inputs—Sink	Outputs—Source	Max. Continuous Output Current Rating per Point/Module	Max. Surge/Inrush Output Current Rating per Point	Max. Current for Input Device Power per Point	Potential Max. Aux. Current per Module	Network Current Draw	I/O Connectors	Cat. No.
8	0	NA	NA	0.8 A	0.45 A	100 mA	(8) M8	1732D–IB8M8
							(4) M12	1732D–IB8M12
0	8	0.5/4.0 A	1.2 A	NA	4.0 A	100 mA	(8) M8	1732D–OB8EM8
							(4) M12	1732D–OB8EM12
8 self-configuring ❹		0.5/4.0 A	1.2 A	0.8 A	4.0 A	100 mA	(8) M8	1732D–8CFGM8
							(4) M12	1732D–8CFGM12
16	0	NA	NA	0.8 A	0.9 A	75 mA	(8) M12	1732D–IB16M12M12
								1732D–IB16M12MINI
0	16 ❶	2.0/8.0 A ❶	4.8 A	NA	0.1 A/8.0 A ❷	100 mA	(8) M12	1732D–OB16M12M12
								1732D–OB16M12MINI
16 self-configuring ❹		0.5/8.0 A	1.2 A	0.8 A	0.9 A/8.0 A ❷	100 mA	(8) M12	1732D–16CFGM12M12
								1732D–16CFGM12MN

Digital I/O Blocks with Network Powered I/O and Diagnostics

DeviceNet, 24V DC,16 Point

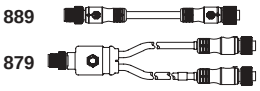
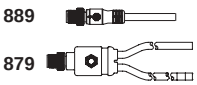
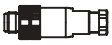
I/O diagnostics provide one fault bit per modules to indicate a short circuit or overcurrent on any I/O point. Inputs and/or outputs powered by network where noted.

Inputs—Sink, Powered by Network	Outputs—Source	Max. Continuous Output Current Rating per Point/Module	Max. Surge/Inrush Output Current Rating per Point	Max. Current for Input Device Power per Point	Potential Max. Aux. Current per Module	Max. Network Current Draw for Module Operation Plus I/O	I/O Connectors	Cat. No.
8 (2 each on 4 connectors)	8 (2 each on 4 connectors)	0.5/4.0 A	1.2 A	0.8 A	4.0 A	0.1 A + I/O (1.0 A max.)	(8) M12	1732D–8X81212D
8 (2 each on 4 connectors)	8 (2 each on 4 connectors)	1.4A/8.0 A ❸	3.1 A	0.8 A	8.0 A	0.1 A + I/O (1.0 A max.)	(8) M12	1732D–8X81212HD
8 (1 on each connector)	8 (1 on each connector and powered by network)	0.5/4.0 A	1.2 A	0.8 A	NA	0.1 A + I/O (5.0 A max.)	(8) M12	1732D–8I8O1212D
16 powered by network	0	NA	NA	0.8 A	NA	75 mA + I/O (0.95 A max.)	(8) M12	1732D–IB161212D

❶ Maximum current on all I/O connectors exceeds total for the module.
❷ Module operation power and input device power, from Auxiliary Power Connector pins 2 and 3, are separate and isolated from the I/O output power, from Auxiliary Power Connector pins 1 and 4. Both auxiliary power consumption totals need to be noted.
❸ Maximum current on all I/O connectors exceeds total for the module.
❹ Each of the self-configuring I/O points can be either an input (sink) or an output (source), e.g. 16 points: 13 in –3 out, 6 in – 10 out, etc. or 8 points: 6 in – 2 out, 1 in – 7 out, etc.

Mating Cables

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

ArmorBlock Cat. No.	End Device Connector and Quantity	 889 879 Recommended Patchcord or V-Cable (Double-Ended)	Page Ref	 889 879 Recommended Male Cordset or V-Cable (Single-Ended)	Page Ref	 871 Recommended Male Field Attachable Connector	Page Ref
1732D–IB8M8 1732D–0B8EM8 1732D–8CFGM8	(1) DC Micro	**889D–F4ABP3M–***	3–109	**889P–M3AB–‡**	3–107	**871A–TS3–PM**	3–121
	(1) Pico 3-pin	**889P–F3ABPM–***	3–107				
	(1) Pico 4-pin	**889P–F4ABPM3–***	3–107				
1732D–IB8M12 1732D–OB8EM12 1732D–8CFGM12 1732D–IB16M12M12 1732D–IB16M12MINI 1732D–OB16M12M12 1732D–OB16M12MINI 1732D–16CFGM12M12 1732D–16CFGM12MN 1732D–8X81212D 1732D–8I8O1212D 1732D–8X81212HD 1732D–IB161212D	(2) DC Micro	**879D–F4ACDM–***	3–61	**879D–C3ACD4M–‡**	3–61	**871A–VS4–DM**	3–77
	(2) Pico 3-pin	**879PZ–F3ABDM4–***	3–113				
	(2) Pico 4-pin	**879PZ–F4ABDM–***	3–113				
	(1) DC Micro	**889D–F4ACDM–***	3–47	**889D–M4AC–‡**	3–47	**871A–TS4–DM**	3–77
	(1) Pico 3-pin	**889P–F3ABDM4–***	3–57				
	(1) Pico 4-pin	**889P–F4ABDM–***	3–57				

DeviceNet Network Connections—Mini or Micro (M12)

ArmorBlock Cat. No.	Network Connection	Flat Media	Page Ref	Thick Round	Page Ref	Thin Round	Page Ref
1732D–IB16M12MINI 1732D–OB16M12MINI 1732D–16CFGM12MN	Mini	**1485K–P§F5–N5**	6–17	**1485R–P§N5–M5**	6–27	**1485R–P§D5–N5**	6–27
All other 1732D	Micro	**1485K–P§F5–R5**	6–17	**1485R–P§M5–R5**	6–27	**1485R–P§R5–D5**	6–27

Auxiliary Power Connections—Mini or Micro (M12)

ArmorBlock Cat. No.	ArmorBlock Aux. Power Connector Style	Flat Media		Round Media			
		Auxiliary Power Flat Media Connection	Page Ref	Thick Round	Page Ref	Thin Round	Page Ref
1732D–IB8M12 1732D–0B8EM12 1732D–8CFGM12 1732D–IB8M8 1732D–0B8EM8 1732D–8CFGM8	4-Pin DC Micro	**889D–F2ACDM–K§**	6–19	Cordset: **889D–F2AC–‡** Patchcord: **889D–F2AEN4M–D§**	6–51	Cordset: **889D–F4AC–‡** Patchcord: **889D–F4ACDM–***	3–47
1732D–IB16M12M12 1732D–IB16M12MINI 1732D–OB16M12M12 1732D–OB16M12MINI 1732D–16CFGM12M12 1732D–16CFGM12MN 1732D–8X8M12M12D 1732D–8X8M12M12HD	4-Pin Mini	**1485T–PIE4–C§N4**	6–20	Cordset: **889N–F4AFC–★F** Patchcord: **889N–F4AFNM–***	6–51	Terminal Chamber: **871A–TS4–N1**	3–29
1732D–8I8OM12M12D 1732D–IB16M12M12D	Not applicable, inputs/outputs powered by network						

* = length in meters (1, 2, 3, 5, and 10 standard).
‡ = length in meters (2, 5, and 10 standard).
§ = length in meters (1, 2, 3, 4, 5, and 6 standard).
★ = length in feet (6, 12, and 20 standard).

Note: The mating cables shown on this page represent straight PVC models. For additional configurations, materials, and specifications, please consult "Page Ref" listed in the above tables.

EtherNet/IP & Profibus DP Digital I/O Blocks

EtherNet/IP, 24V DC, 16 Point

Inputs—Sink	Outputs—Source	Max. Output Current per Point/Module	Max. Output Surge/Inrush Current per Point	Max. Current for Input Device Power per Point	Potential Max. Aux. Current per Module	I/O Connectors	Cat. No.
16	0	NA	NA	0.8 A	1.1 A	(8) M12	**1732E–IB16M12**
0	16	2.0/8.0 A ❶	4.8 A	NA	1.15 A/8.0 A ❷	(8) M12	**1732E–OB16M12**
16 self-configuring ❸		0.5/8.0 A	1.2 A	0.8 A	1.15 A/8.0 A ❷	(8) M12	**1732E–16CFGM12**

Profibus DP, 24V DC, 8 and 16 Point Digital I/O Blocks

Inputs—Sink	Outputs—Source	Max. Cont. Output Current Rating per Point/Module	Max. Surge/ Inrush Output Current Rating per Point	Max. Current for Input Device Power per Point	Potential Max. Aux. Current per Module	I/O Connectors	Cat. No.
8	0	NA	NA	0.8 A	0.45 A	(8) M8	**1732P–IB8M8**
						(4) M12	**1732P–IB8M12**
0	8	0.5/4.0 A	1.2 A	NA	4.0 A	(8) M8	**1732P–OB8EM8**
						(4) M12	**1732P–OB8EM12**
8 self-configuring ❸		0.5/4.0 A	1.2 A	0.8 A	4.0 A	(8) M8	**1732P–8CFGM8**
						(4) M12	**1732P–8CFGM12**
16	0	NA	NA	0.8 A	1.0 A	(8) M12	**1732P–IB16M12**
0	16	2.0/8.0 A ❶	4.8 A	NA	0.2/8.0 A ❷	(8) M12	**1732P–OB16M12**
16 self-configuring ❸		0.5/8.0 A	1.2 A	0.8 A	1.0/8.0 A ❷	(8) M12	**1732P–16CFGM12**

Armor WeldBlock

DeviceNet WeldBlocks, 24V DC, 16 Point

Inputs—Sink	Outputs—Source	Max. Cont. Output Current Rating per Point/Mod.	Max. Surge/ Inrush Output Current Rating per Point	Max. Current for Input Device Power per Point	Potential Max. Aux. Current per Module	Network Current Draw	I/O Connectors	Cat. No.
16	0	NA	NA	0.8 A	0.9 A	75m A	(8) M12	**1732D–IB161212W**
16 self-configuring ❸		0.5/8.0 A	1.2 A	0.8 A	0.9/8.0 A ❷	100m A	(8) M12	**1732D–16CFG1212W**

EtherNet/IP WeldBlocks, 24V DC, 16 Point

Inputs—Sink	Outputs—Source	Max. Output Current per Point/Module	Max. Output Surge/Inrush Current per Point	Max. Current for Input Device Power per Point	Potential Max. Aux. Current per Module	I/O Connectors	Cat. No.
16	0	NA	NA	0.8 A	1.1 A	(8) M12	**1732E–IB16M12W**
16 self-configuring ❸		0.5/8.0 A	1.2 A	0.8 A	1.15/8.0 A ❷	(8) M12	**1732E–16CFGM12W**

❶ Maximum current on all I/O connectors exceeds total for the module.
❷ Module operation power and input device power, from Auxiliary Power Connector pins 2 and 3, are separate and isolated from the I/O output power, from Auxiliary Power Connector pins 1 and 4. Both auxiliary power consumption totals need to be noted.
❸ Each of the self-configuring I/O points can be either an input (sink) or an output (source), e.g. 16 points: 13 in –3 out, 6 in – 10 out, etc. or 8 points: 6 in – 2 out, 1 in – 7 out, etc.

Mating Cables

I/O Mating Cables, DC Micro (M12) or Pico (M8)

ArmorBlock Cat. No.	End Device Connector and Quantity	889 / 879 Recommended Patchcord or V-cable (Double-ended)	Page Ref	889 / 879 Recommended Male Cordset or V-cable (Single-ended)	Page Ref	871 Recommended Male Field Attachable Connector	Page Ref
1732E–*** **1732D–IB16M12M12W** **1732D–16CFGM12M12W** **1732P–IB8M12** **1732P–0B8EM12** **1732P–8CFGM12** **1732P–IB16M12** **1732P–0B16M12** **1732P–16CFGM12**	(2) DC Micro	**879D–F4ACDM–***	3–109	**879D–C3ACD4M–‡**	3–107	**871A–VS4–DM**	3–121
	(2) Pico 3-pin	**879PZ–F3ABDM4–***	3–107				
	(2) Pico 4-pin	**879PZ–F4ABDM–***	3–107				
	(1) DC Micro	**889D–F4ACDM–***	3–61	**889D–M4AC–‡**	3–61	**871A–TS4–DM**	3–77
	(1) Pico 3-pin	**889P–F3ABDM4–***	3–113				
	(1) Pico 4-pin	**889P–F4ABDM–***	3–113				
1732P–IB8M8 **1732P–0B8EM8** **1732P–8CFGM8**	(1) DC Micro	**889D–F4ABP3M–***	3–47	**889P–M3AB–‡**	3–47	**871A–TS3–PM**	3–77
	(1) Pico 3-pin	**889P–F3ABPM–***	3–57				
	(1) Pico 4-pin	**889P–F4ABPM3–***	3–57				

Network Mating Cables, DeviceNet Micro, EtherNet M12, or Profibus DP Micro

ArmorBlock Cat. No.	Network Connector Type	Flat Media	Page Ref	Thick Round	Page Ref	Thin Round	Page Ref
1732D–IB161212W **1732D–16CFG1212W**	DeviceNet (Micro)	**1485K–P★F5–R5**	6–17	**1485R–P★M5–R5**	6–27	**1485R–P★R5–D5**	6–27
1732E–IB16M12 **1732E–OB16M12** **1732E–16CFGM12** **1732E–IB16M12W** **1732E–16CFGM12W**	EtherNet/IP (EtherNet M12)	—	—	—	—	**1585D–M4DC–H**	6–61
1732P–***	Profibus DP Micro (reverse key M12)	—	—	—	—	—	—

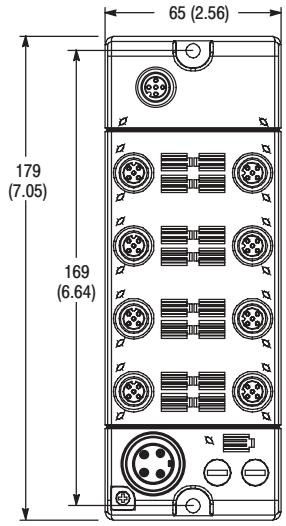
Auxiliary Power Mating Cables, Mini or DC Micro (M12)

ArmorBlock Cat. No.	Aux. Power Connection Type	Flat Media: Auxiliary Power Flat Media Connection	Page Ref	Round Media: Thick Round	Page Ref	Thin Round	Page Ref
1732E–*** **1732D–IB16M12M12W** **1732D–16CFGM12M12W** **1732P–IB16M12** **1732P–OB16M12** **1732P–16CFGM12**	4-pin Mini	**1485T–P1E4–C§–N4**	6–20	Cordset: **889N–F4AFC–§** Patchcord: **889N–F4AFNM–***	6–51	Terminal Chamber: **871A–TS4–N1**	3–29
1732P–IB8M8 **1732P–IB8M12** **1732P–0B8EM8** **1732P–0B8EM12** **1732P–8CFGM8** **1732P–8CFGM12**	4-pin DC Micro	**889D–F2ACDM–K***	6–19	Cordset: **889D–F4AC–‡** Patchcord: **889D–F2AEN4M–D***	6–51	Cordset: **889D–F4AC–‡** Patchcord: **889D–F4ACDM–***	3–47

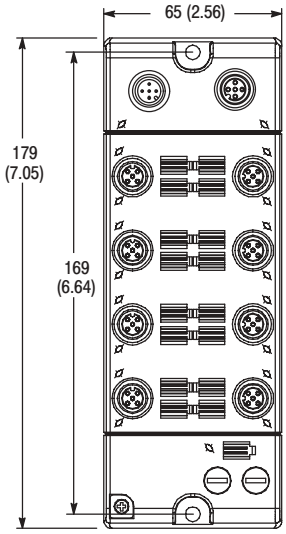
* = length in meters (1, 2, 3, 5, and 10 standard).
‡ = length in meters (2, 5, and 10 standard).
§ = length in meters (1, 2, 3, 4, 5, and 6 standard).
★ = length in feet (6, 12, and 20 standard).

Note: The mating cables shown on this page represent straight PVC models. For additional configurations, materials, and specifications, please consult “Page Ref” listed in the above tables.

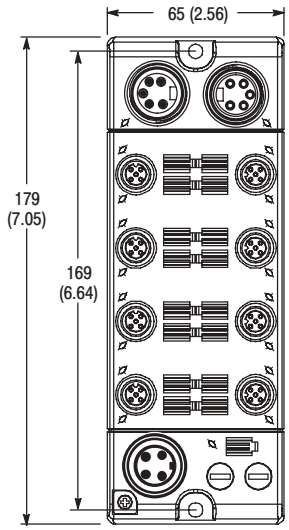
Dimensions—mm (in)



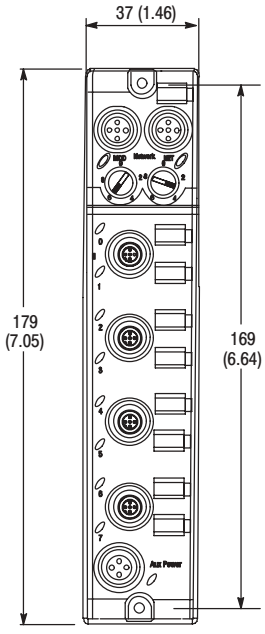
1732E-IB16M12
1732E-OB16EM12
1732E-16CFGM12
1732E-IB15M12W
1732E-I6CFGM12W



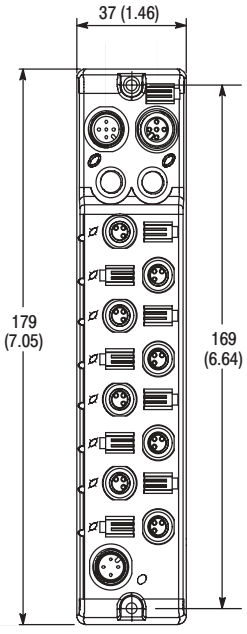
1732D-8I8OM12M12D
1732D-8I8O1212D
1732D-IB161212D



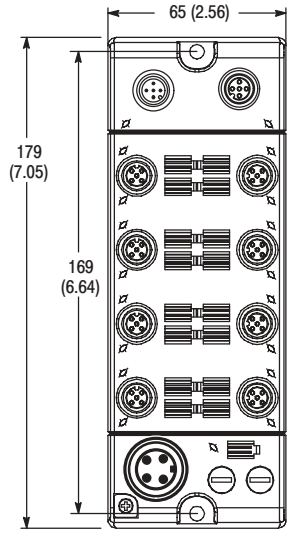
1732D-IB16M12MINI
1732D-OB16M12MINI
1732DE-16CFGM12MN



1732D-IB8M12
1732D-OB8EM12
1732D-8CFGM12
1732P-IB8M12
1732P-OB8EM12
1732P-8CFGM12



1732D-IB8M8
1732D-OB8EM8
1732D-8CFGM8
1732P-IB8M8
1732P-OB8EM8
1732P-8CFGM8



1732D-IB16M12M12
1732D-OB16M12M12
1732D-16CFGM12M12
1732D-8X81212D
1732D-8X81212HD
1732D-IB161212W
1732D-16CFG1212W
1732P-IB16M12
1732P-OB16M12
1732P-16CFGM12