Installation Instructions

ArmorPoint I/O Modules with 8 Configurable 24V DC Points

Catalog Number(s) 1738-8CFGM8, 1738-8CFGM12, 1738-8CFGM23

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Important User Information

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

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

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

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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

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

Environment and Enclosure

ATTENTION

This equipment is intended for use in overvoltage Category II applications (as defined in IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating.
This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.
This equipment is supplied as enclosed equipment. It should not require additional system enclosure when used in locations consistent with the enclosure type ratings stated in the Specifications section of this publication. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings, beyond what this product provides, that are required to comply with certain product safety certifications.
In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for additional installation requirements.
- NEMA Standards 250 and IEC 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

Prevent Electrostatic Discharge

ATTENTION

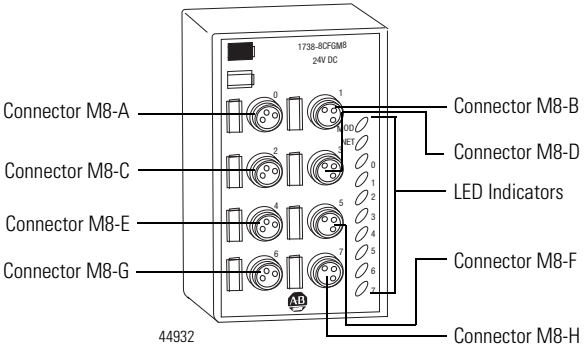
This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment.

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe packaging when not in use.

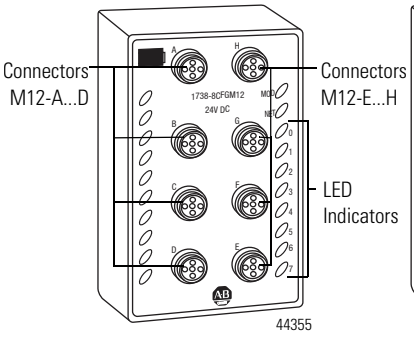
About the Module

The ArmorPoint I/O family consists of modular I/O modules. The sealed IP67 housing of these modules requires no enclosure. Note that environmental requirements other than IP67 may require an additional appropriate housing. I/O connectors are sealed M8 (pico), M12 (micro) or M23 styles. The mounting base ships with the module.

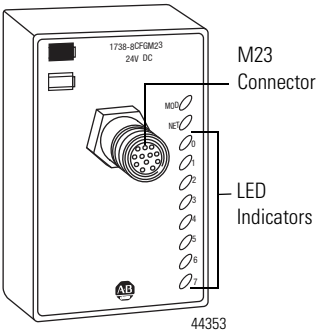
1738-8CFGM8



1738-8CFGM12



1738-8CFGM23



Mount the I/O Base

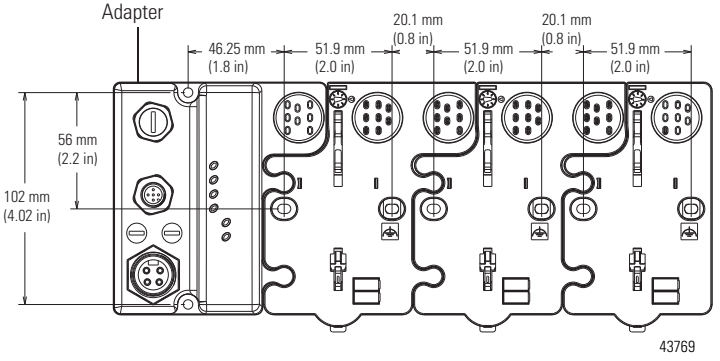
Mount the I/O base on a wall or panel, using the screw holes provided in the base.

IMPORTANT The ArmorPoint I/O module must be mounted on a grounded metal mounting plate or other conductive surface.

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

ATTENTION To comply with the CE Low Voltage Directive (LVD), 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).

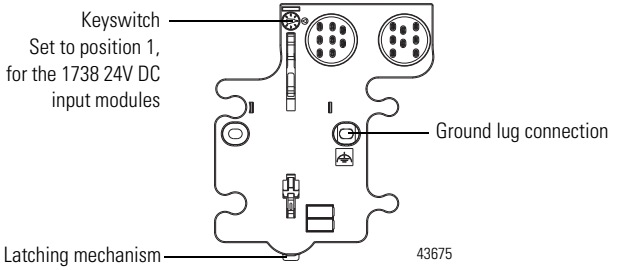
Mounting illustration for the ArmorPoint adapter with I/O bases



Install the mounting as follows:

1. Lay out the required points as shown above in the drilling dimension drawing.
2. Drill the necessary holes for M4 (#8) machine or self-tapping screws.
3. Mount the base using M4 (#8) screws.
4. Ground the system using the ground lug connection.
   The ground lug connection is also a mounting hole.

Mounting Base

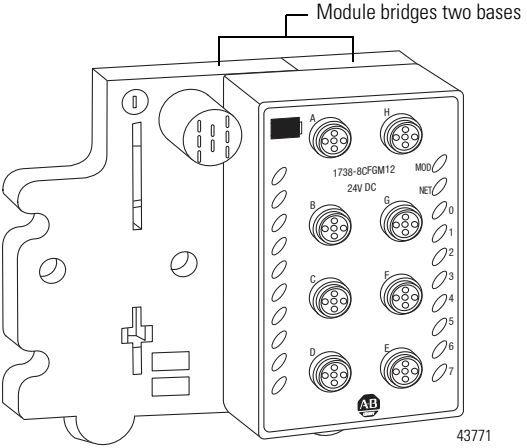


Install the Digital Module

Follow the instructions to install the analog input module.

1. Using a bladed screwdriver, rotate the keyswitch on the mounting base clockwise until the number 1 aligns with the notch in the base.

2. Position the module vertically above the mounting base.
   The module bridges two bases.



3. Push the module down until it engages the latching mechanism.
   You will hear a clicking sound when the module is properly engaged.
   The locking mechanism locks the module to the base.

Remove the Module From the Mounting Base

Follow the instructions to remove the module from the mounting base.

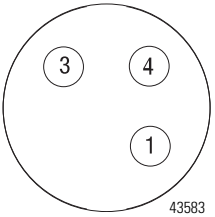
1. Put a flat blade screwdriver into the slot of the orange latching mechanism.

2. Push the screwdriver toward the I/O module to disengage the latch.
   The module lifts up off the base.

3. Pull the module off the base.

Wire the Module

1738-8CFGM8

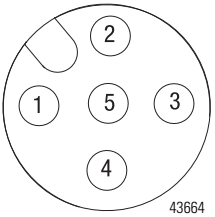


(view into connector)
Pin 1 - 24V DC
Pin 3 - Common
Pin 4 - I/O 0 (M8-A)
I/O 1 (M8-B)
I/O 2 (M8-C)
I/O 3 (M8-D)
I/O 4 (M8-E)
I/O 5 (M8-F)
I/O 6 (M8-G)
I/O 7 (M8-H)

ATTENTION

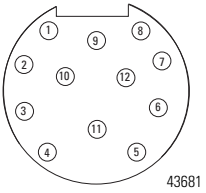
Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP enclosure type requirements.

1738-8CFGM12



(view into connector)
Pin 1 - 24V DC
Pin 2 - Not used
Pin 3 - Common
Pin 4 - I/O 0 (M12-A)
I/O 1 (M12-B)
I/O 2 (M12-C)
I/O 3 (M12-D)
I/O 4 (M12-E)
I/O 5 (M12-F)
I/O 6 (M12-G)
I/O 7 (M12-H)
Pin 5 - Not used

1738-8CFGM23



(view into connector)
Pin 1 - I/O 0
Pin 2 - I/O 1
Pin 3 - I/O 2
Pin 4 - I/O 3
Pin 5 - I/O 4
Pin 6 - I/O 5
Pin 7 - I/O 6
Pin 8 - I/O 7
Pin 9 - Return (Com)
Pin 10 - Return (Com)
Pin 11 - 24V DC
Pin 12 - Chassis

Communicate with Your Module

Read this section for information about how to communicate with your module.

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's or scanner's memory. Each module produces 1 byte of input data and consumes 1 byte of I/O data (scanner Tx).

Default Data Map – Product Assembly Instance 4

Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Data	Pt 07	Pt 06	Pt 05	Pt 04	Pt 03	Pt 02	Pt 01	Pt 00
Where:	Pt = state of the input point							

In RSLogix5000, the default tag will be AdapterName:SlotNumber:I.Data. The data type is a SINT.

Default Data Map – Product Assembly Instance 34

Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Data	Pt 07	Pt 06	Pt 05	Pt 04	Pt 03	Pt 02	Pt 01	Pt 00
Where:	Pt = state of the output point							

In RSLogix5000, the default tag will be AdapterName:SlotNumber:O.Data. The data type is a SINT.

Default Data Map – Product Assembly Instance 103

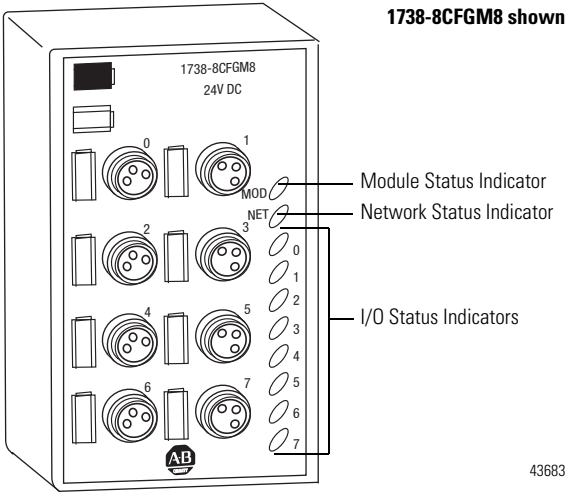
Message Size: 8 Bytes								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Data [0]	Group Off2On Input filter							
Data [1]								
Data [2]	Group On2Off Input filter							
Data [3]								
Data [4]	FltM 7	FltM 6	FltM 5	FltM 4	FltM 3	FltM 2	FltM 1	FltM 0
Data [5]	FltV 7	FltV 6	FltV 5	FltV 4	FltV 3	FltV 2	FltV 1	FltV 0
Data [6]	IdlM 7	IdlM 6	IdlM 5	IdlM 4	IdlM 3	IdlM 2	IdlM 1	IdlM 0
Data [7]	IdlV 7	IdlV 6	IdlV 5	IdlV 4	IdlV 3	IdlV 2	IdlV 1	IdlV 0
Where:	Filter = 0 to 65000 us (0 = default) Filter = 0 to 65535 us (1000 = default) FltM = Fault Mode (0 = Fault Value (default), 1 = Hold Last State) FltV = Fault Value (0 = OFF (default), 1 = ON) IdlM = Idle Mode (0 = Idle Value (default), 1 = Hold Last State) IdlV = Idle Value (0 = OFF (default), 1 = ON)							

In RSLogix5000, the default tags will be:

- AdapterName:SlotNumber:C.FilterOffOn
- AdapterName:SlotNumber:C.FilterOnOff

- AdapterName:SlotNumber:C.PtPointNumberFaultMode
- AdapterName:SlotNumber:C.PtPointNumberFaultValue
- AdapterName:SlotNumber:C.PtPointNumberProgMode
- AdapterName:SlotNumber:C.PtPointNumberProgValue

Interpret the Status Indicators



1738-8CFGM8, 1738-8CFGM12, 1738-8CFGM23 Indicator Status

	Status	Description
Module status	Off	No power applied to device
	Green	Device operating normally
	Flashing green	Device needs commissioning due to missing, incomplete, or incorrect configuration
	Red	Unrecoverable fault – may require device replacement
	Flashing red	Recoverable fault
	Flashing red/green	Device is in self-test

1738-8CFGM8, 1738-8CFGM12, 1738-8CFGM23 Indicator Status

	Status	Description
Network status	Off	Device is not online: - Device has not completed dup_MAC-id test. - Device not powered – check module status indicator.
	Green	Device is online and has one or more I/O connections in established state
	Flashing green	Device is online but has no connections in established state
	Flashing red	One or more I/O connections in timed-out state
	Red	Critical link failure – failed communication device. Device detected error that prevents it from communicating on the network.
	Flashing red/green	Communication faulted device – the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identity Communication Faulted Request – long protocol message.
I/O status	Off	I/O is inactive
	Yellow	I/O is active and under control
	Flashing yellow	I/O is in charging state

Specifications

ArmorPoint Digital Module with Configurable 24V DC Points - 1738-8CFGM8, 1738-8CFGM12, 1738-8CFGM23

Attribute	Value
Number of I/O	8
On-state voltage, min	11 V DC
On-state current, min	2.0 mA
On-state current, max	5.0 mA
Off-state voltage, max	5V DC
Off-state current, min	1.5 mA
Input filter	Each input independently settable in 1 ms intervals (truncated to 1 ms resolution). Default value is 1000 ms.
Off to On filter, min	0 ms
Off to On filter, max	65535 ms
On to Off filter, min	0 ms
On to Off filter, max	65535 ms
Off-state current, max	15 mA
On-state voltage range, min	10V DC
On-state voltage range, max	28.8V DC
On-state voltage range, nom	24V DC
On-state voltage drop, max	0.4V DC
On-state current, max	0.5 A
Off-state leakage, max	0.5 mA
Module current, max all outputs	3.0 A
Surge current, max	1.0 A for 100 ms, repeatable every 2 s

General Specifications

Attribute	Value
Dimensions (HxWxD), approx.	120 x 72 x 42 mm (4.72 x 2.83 x 4.25 in)
Weight, approx.	290 g (10.24 oz)
POINTBus current, max	100 mA @ 5V DC
Power dissipation, max.	2.6 W @ 28.8V DC
Thermal dissipation, max.	8.9 BTU/hr @ 28.8V DC
Isolation voltage	50V (continuous), Reinforced Insulation Type Type tested at 2121V DC for 60 s, field-side to system No isolation between individual channels
Field power bus voltage range	11…28.8V DC
Field power bus supply voltage, nom	24V DC
Mounting base screw torque	M4 (#8) screw 0.85 Nm (7.5 lb-in) in Aluminum 1.81 Nm (16 lb-in) in Steel
Keyswitch position	1
Indicators	1 green/red module status indicator 1 green/red network status indicator 8 yellow input/output status indicators
Enclosure type rating	Meets IP65/66/67/69K (when marked)
Pilot duty rating	Not rated
Wiring category(1)	1 - on signal ports

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

Environmental Specifications

Attribute	Value
Temperature, operating	IEC60068-2-1 (Test Ad, Operating Cold), IEC60068-2-2, (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...60 °C (-4...140 °F)
Temperature, nonoperating	IEC60068-2-1 (Test Ad, Non-operating Cold), IEC60068-2-2, (Test Bd, Non-operating Dry Heat), -40...85 °C (-40...185 °F)
Vibration	IEC 60068-2-6 (Test Fc, Operating): 5g @ 10…500 Hz
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock) 30g
Shock, nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock) 50g
Operating voltage	11...30V DC
Emissions	CISPR 11: Group 1, 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 30…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B immunity	IEC 61000-4-4: ±3 kV at 5 kHz on signal ports
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line (DM) and ±2 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]	Value
CE	European Union 2004/108/EC 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)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

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

Notes:

Notes:

Rockwell Automation Support

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

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

Installation Assistance

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

United States	1.440.646.3434 Monday – Friday, 8 a.m. – 5 p.m. EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

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

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

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