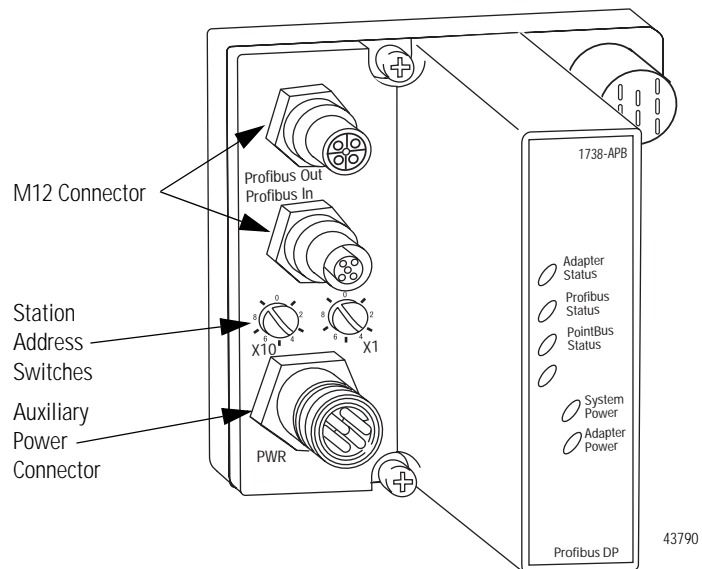




ArmorPoint PROFIBUS Adapter, Series A

(Cat. No. 1738-APB)

The ArmorPoint™ PROFIBUS adapter (Cat. no. 1738) ships with the adapter and a terminating base to be used with the last I/O module on the backplane. The sealed IP67 housing of the adapter requires no enclosure. (Note that environmental requirements other than IP67 may require an additional appropriate housing.) PROFIBUS connectors are sealed M12 (micro) style. The ArmorPoint PROFIBUS adapter is shown below.



Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://www.ab.com/manuals/gi>) 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 we use notes to make you aware of safety considerations.

| | |
|--|--|
| <p>WARNING</p>  | <p>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.</p> |
| <p>IMPORTANT</p> | <p>Identifies information that is critical for successful application and understanding of the product.</p> |
| <p>ATTENTION</p>  | <p>Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:</p> <ul style="list-style-type: none"> • identify a hazard • avoid a hazard • recognize the consequence |
| <p>SHOCK HAZARD</p>  | <p>Labels may be located on or inside the equipment to alert people that dangerous voltage may be present.</p> |
| <p>BURN HAZARD</p>  | <p>Labels may be located on or inside the equipment to alert people that surfaces may be dangerous temperatures.</p> |

ATTENTION**Environment and Enclosure**

This equipment is intended for use in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 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.

NOTE: See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1 ("Industrial Automation Wiring and Grounding Guidelines"), for additional installation requirements pertaining to this equipment.

ATTENTION



Preventing Electrostatic Discharge

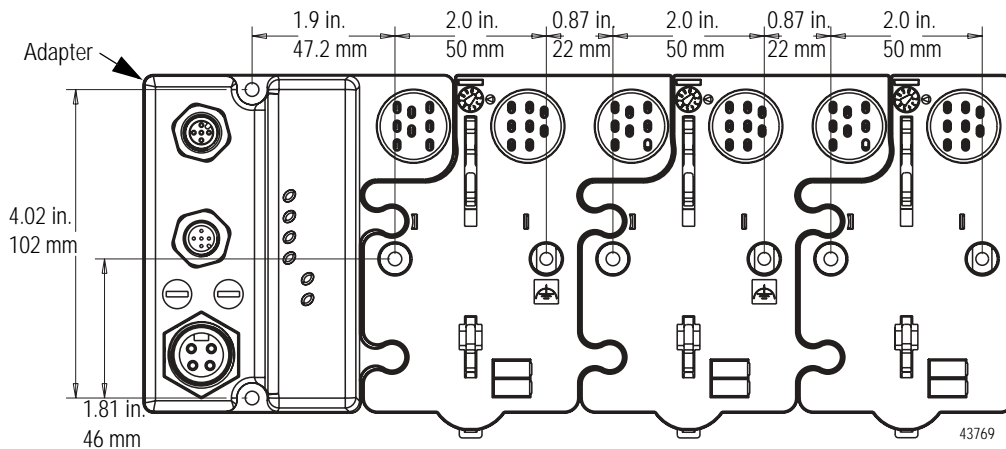
This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- 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.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

Mount the Adapter and I/O Base

To mount the ArmorPoint adapter on a wall or panel, use the screw holes provided in the ArmorPoint adapter.

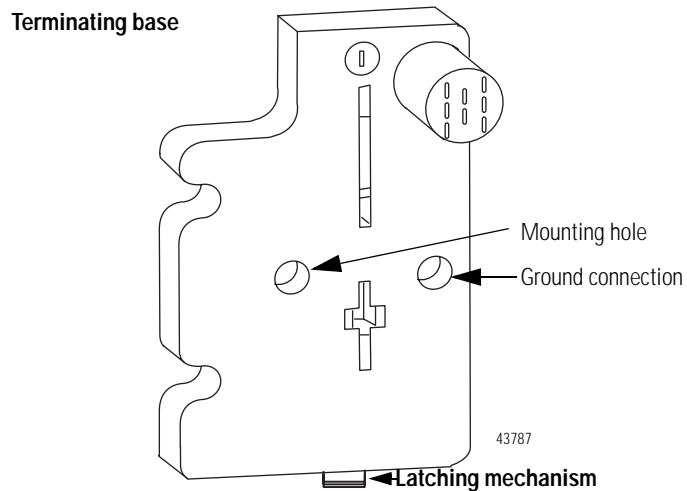
A mounting illustration for the ArmorPoint adapter with I/O bases is shown below.



Install the mounting base as follows:

1. Lay out the required points as shown above in the drilling dimension drawing.
2. Drill the necessary holes for #8 (M4) machine or self-tapping screws.

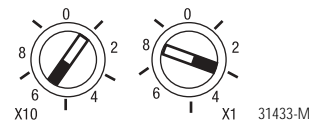
3. Mount the adapter using #8 (M4) screws.
4. Ground the system using the ground lug connection in the I/O bases. (The ground lug connection is also a mounting hole.)
5. Mount the terminating base that was shipped with the adapter as the last base in the backplane instead of the base that was shipped with the I/O module.



Set the Station Address

To set the station address, adjust the switches on the front of the module (refer to the illustration on page 1). Use a small blade screwdriver to rotate the switches. Line up the small notch on the switch with the number setting you wish to use. The two switches are most significant digit (MSD) and least significant digit (LSD). The switches can be set from 01 through 99. The module reads the switches at power-up only.

This example shows the station address set at 63.



GSD File Requirements

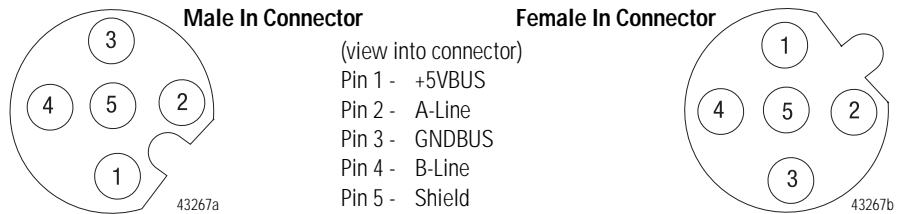
Current functionality of PROFIBUS adapters requires GSD files. These files are easy to install and are available online at:

www.ab.com/networks/gsd/.

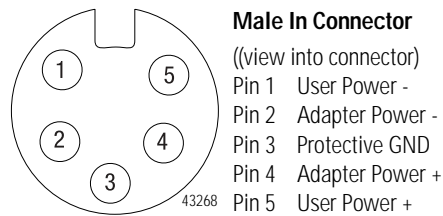
Wire the PROFIBUS Adapter

Following are wiring instructions for the ArmorPoint PROFIBUS adapter.

1738-APB



1738-APB Male Auxiliary

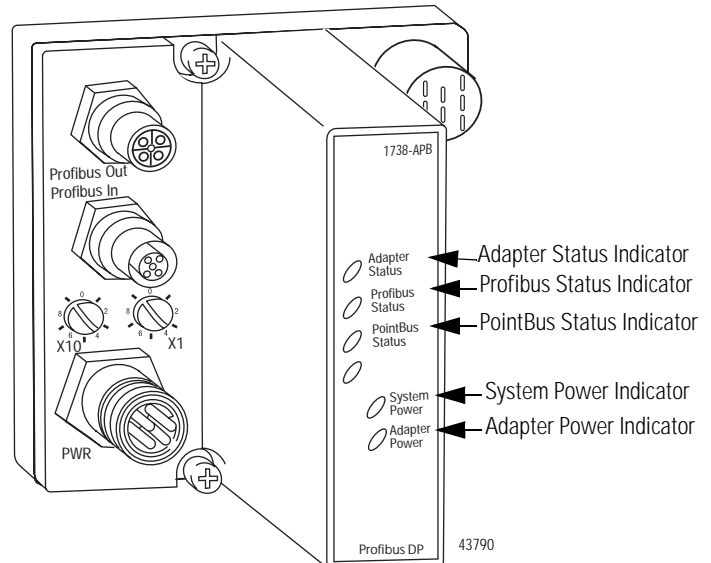


ATTENTION



Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP67 requirements.

Troubleshoot with the Indicators



| Indication | Indication | Probable Cause |
|------------------------|----------------|---|
| Adapter Status | Off | No power supplied. Hardware check in progress. Initialization in progress. |
| | Green | Operating normally. |
| | Red | Hardware check fault. |
| Profibus Status | Off | No power supplied. Bus is off line. |
| | Green | Bus is on line (data exchange). |
| | Flashing Green | Adapter has received a CLEAR command from the master. |
| | Red | Error in PROFIBUS initialization. No modules installed in the backplane. |
| | Flashing Red | 1Hz- Check_Configuration telegram rejected. - Maximum number of ArmorPoint I/O modules in master configuration overridden. 2Hz- SetPrm telegram rejected. - The first byte in user parameter data does not equal zero. - Maximum number of user parameter bytes overridden. |
| PointBus Status | Off | No power supplied. Hardware check in progress. Initialization in progress. |
| | Green | Normal operation. |
| | Flashing Red | 1Hz: - Incorrect ArmorPoint I/O module installed. - ArmorPoint I/O module removed from backplane. |
| | Red | Critical link failure (BUS_OFF). |

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| Indication | Indication | Probable Cause |
|---------------|------------|----------------------------|
| System Power | Off | System power not applied. |
| | Green | System power (5V) present. |
| Adapter Power | Off | Field power not applied. |
| | Green | Field power (24V) applied. |

Specifications

Following are specifications for the 1738 ArmorPoint PROFIBUS adapter.

ArmorPoint PROFIBUS Adapter - 1738-APB

Expansion I/O Capacity

- PROFIBUS adapter backplane current output = 1.0A maximum. See the list below for backplane current consumption for each ArmorPoint I/O catalog number and the current consumption for each of the ArmorPoint modules connected to the ArmorPoint PROFIBUS adapter. Verify that it is below 1.0A.
- Backplane current can be extended beyond 1.0A with a 1738-EP24DC Backplane Extension Power Supply. The 1738-EP24DC can supply up to an additional 1.3A of backplane current.
- Multiple 1738-EP24DC modules can be used to reach the maximum of 63 modules.

| Cat. No. | PointBus Current Requirements |
|----------------|-------------------------------|
| 1738-IB2M12 | 75mA |
| 1738-IB4xxx | 75mA |
| 1738-IB8xxx | 75mA |
| 1738-IV4xxx | 75mA |
| 1738-OB2EM12 | 75mA |
| 1738-OB2EPM12 | 75mA |
| 1738-OB4Exxx | 75mA |
| 1738-OB8Exxx | 75mA |
| 1738-OV4EM12 | 75mA |
| 1738-OW4xxx | 90mA |
| 1738-IE2CM12 | 75mA |
| 1738-OE2CM12 | 75mA |
| 1738-IE2VM12 | 75mA |
| 1738-OE2VM12 | 75mA |
| 1738-IA2xxx | 75mA |
| 1738-OA2xxx | 75mA |
| 1738-IJM23 | 160mA |
| 1738-SSIM23 | 110mA |
| 1738-IR2M12 | 220mA |
| 1738-IT2IM12 | 175mA |
| 1738-VHSC24M23 | 180mA |
| 1738-232ASCM12 | 75mA |
| 1738-485ASCM12 | 75mA |

Power Supply Specifications

| | |
|--|--|
| Power Supply | Note: In order to comply with CE Low Voltage Directives (LVD), you must use either a NEC Class 2, a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter. A SELV supply cannot exceed 30V rms, 42.4V peak or 60V dc under normal conditions and under single fault conditions. A PELV supply has the same rating and is connected to protected earth. |
| Input Voltage Rating | 24V dc nominal 10-28.8V dc range |
| Input Overvoltage Protection | Reverse polarity protected |
| Inrush Current | 6A maximum for 10ms |
| PointBus Output Current | 1A maximum @ 5V dc $\pm 5\%$ (4.75-5.25) |
| Field Side Power Requirements, Maximum | 24V dc (+20% = 28.8V dc) @ 400 mA |
| Interruption | Output voltage will stay within specifications when input drops out for 10ms at 10V with maximum load |

General Specifications

| | |
|--|---|
| LED Indicators | 1 green/red Adapter status 1 green/red PROFIBUS status 1 green/red PointBus status 1 green System Power (PointBus 5V power) 1 green Adapter Power (24V from field supply) |
| Power Consumption, Maximum | 8.1W @ 28.8V dc |
| Power Dissipation, Maximum | 2.8W @ 28.8V dc |
| Thermal Dissipation, Maximum | 9.5 BTU/hr. @ 28.8V dc |
| Isolation Voltage (continuous-voltage withstand rating) | 50V rms Tested at 1250V ac rms for 60s |
| Field Power Bus Nominal Voltage Supply Voltage Supply Current | 24V dc 10-28.8V dc range 10A maximum |
| Dimensions Inches (Millimeters) | 4.41H x 2.83W x 2.56D (112H x 72W x 65D) |
| Operating Temperature | 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 to 60°C (-4 to 140°F) |
| Storage Temperature | IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), -40 to 85°C (-40 to 185°F) |
| Relative Humidity | IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5-95% non-condensing |
| Shock | IEC60068-2-27 (Test Ea, Unpackaged Shock): Operating 30g Non-operating 50g |
| Vibration | IEC60068-2-6 (Test Fc, Operating): 5g @ 10-500Hz |
| ESD Immunity | IEC 61000-4-2: 6kV contact discharges 8kV air discharges |

Allen-Bradley HMIs

| General Specifications (continued) | |
|---|---|
| Radiated RF Immunity | IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz 10V/m with 200Hz 50% Pulse 100%AM at 1890Mhz |
| EFT/B Immunity | IEC 61000-4-4: ±4kV at 5kHz on power ports ±2kV at 5kHz on communications ports |
| Surge Transient Immunity | IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on power ports ±2kV line-earth(CM) on shielded ports |
| Conducted RF Immunity | IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz |
| Emissions | CSPR 11: Group 1, Class A |
| Enclosure Type Rating | Meets IP65/66/67 (when marked) |
| Mounting Base Screw Torque | #8 screw, 7.5 in. lbs. in Aluminum, 16 in. lbs. in Steel |
| Wiring Category ¹ | 1 - on signal ports 1 - on communications ports |
| Weight Imperial (Metric) | 0.80 lb. (0.36 kg) |
| Certifications: (when product is marked) | c-UL-us UL Listed Industrial Control Equipment, certified for US and Canada CE ² European Union 89/336/EEC EMC Directive, compliant with: EN 61000-6-4; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity C-Tick ² Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions |

1. Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines".
2. See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Notes:

Allen-Bradley HMIs

Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using our 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 with a hardware module 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 module up and running:

| | |
|-----------------------|--|
| United States | 1.440.646.3223 Monday – Friday, 8am – 5pm EST |
| Outside United States | Please contact your local Rockwell Automation representative for any technical support issues. |

New Product Satisfaction Return

Rockwell tests all of our 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:

| | |
|-----------------------|---|
| 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 return procedure. |

ArmorPoint is a trademark of Rockwell Automation.

www.rockwellautomation.com

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