



1769-SM2 Compact I/O DSI/Modbus Network Communication Module

This document instructs how to install a 1769-SM2 Compact I/O DSI/Modbus Network Communication Module into the controller.



ATTENTION: Risk of equipment damage exists. Remove power before installing or removing the 1769-SM2 module. When you install or remove the module with power applied, an electrical arc may occur. An electrical arc can cause personal injury or equipment damage by:

- Sending an erroneous signal to your system's field devices, causing unintended machine motion.
- Causing an explosion in a hazardous environment.

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.



ATTENTION: Risk of equipment damage exists. The 1769-SM2 module contains ESD (Electrostatic Discharge) sensitive parts that can be damaged if you do not follow ESD control procedures. Static control precautions are required when handling the module. If you are unfamiliar with static control procedures, refer to *Guarding Against Electrostatic Damage*, publication 8000-4.5.2.

Related Documentation

Document	Description
1769-SM2 Compact I/O DSI/Modbus Network Communication Module User Manual, publication 1769-UM013	Provides complete installation, wiring, setup, and communication information for the 1769-SM2 Network Communication Module.
Guarding Against Electrostatic Damage, publication 8000-4.5.2	Provides static control procedures for protecting electrostatic discharge sensitive parts.
Wiring and Grounding Guidelines for PWM AC Drives, publication DRIVES-IN001	Guidelines for proper wiring, grounding, and shielding, and standard practices for noise protection.

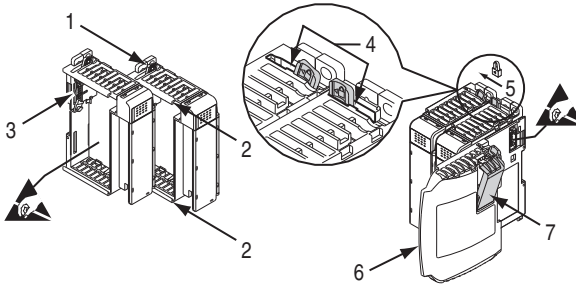
Documentation can be obtained online at www.rockwellautomation.com/literature. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

For information such as firmware updates and answers to drive-related questions, go to the Drives Service & Support web site at www.ab.com/support/abdriives and click on the "Downloads" or "Knowledgebase" link.

Step 1 Remove power from the controller.

Step 2 Set the 1769-SM2 module Configuration Mode switch and Operating Mode (Single/Multi-Drive) switch to appropriate positions. For complete switch setting details, see the 1769-SM2 module User Manual.

Step 3 Assemble the 1769-SM2 module to the controller. It can be attached to adjacent controller modules *before* or *after* mounting. For mounting instructions, see Step 4A (Panel Mounting) or Step 4B (DIN Rail Mounting). To work with a system that is already mounted, see Step 5.



- A. Disconnect power.
- B. Install the 1769-SM2 module within 4 slots of the power supply.
- C. Check that the bus lever (item 1) of the 1769-SM2 module is in the unlocked (fully right) position.
- D. Use the upper and lower tongue-and-groove slots (item 2) to secure the modules together.
- E. Move the 1769-SM2 module back along the tongue-and-groove slots until the bus connectors (item 3) line up with each other.
- F. Use your fingers or a small screwdriver to push the bus lever back slightly to clear the positioning tab (item 4).
- G. Move the 1769-SM2 module's bus lever fully to the left (item 5) until it clicks. Ensure it is locked firmly in place.



ATTENTION: Risk of equipment damage exists. When attaching the 1769-SM2 module to a Compact I/O system, it is very important that the bus connectors are securely locked together to ensure proper electrical connection. Failure to do this may cause an electrical arc, which can cause personal injury or equipment damage.

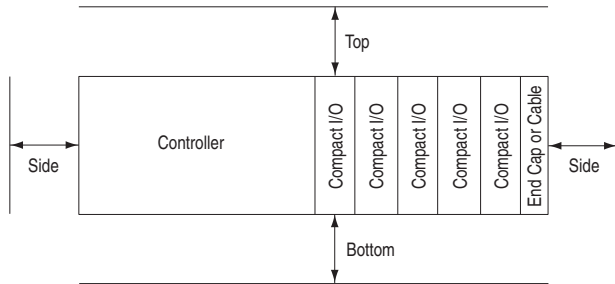
- H. Attach an end cap terminator (item 6) to the last module in the system by using the tongue-and-groove slots as before.
- I. Lock the end cap bus terminator (item 7).

Important: A 1769-ECR or 1769-ECL right or left end cap must be used to terminate the end cap of the serial communication bus.

Step 4 Mount the 1769-SM2 module.

ATTENTION: Risk of equipment damage exists. During panel or DIN rail mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) is kept from falling into the 1769-SM2 module. Debris that falls into the module could cause damage on power up.

Maintain spacing from enclosure walls, wireways, adjacent equipment, etc. Allow 50 mm (2 in.) of space on all sides for adequate ventilation as shown.



Allow at least 140 mm (5.5 in.) of enclosure depth to accommodate the 1769-SM2 module.

- A. Panel Mounting** — Mount the 1769-SM2 module to a panel using two screws per module. Use M4 or #8 panhead screws. Mounting screws are required on every module.

Using a Dimensional Drawing

NOTE: All dimensions are in mm (inches). Hole spacing tolerance: ± 0.04 mm (0.016 in.).

Figure 1 1769-SM2 Module with MicroLogix 1500 Base Unit and Processor

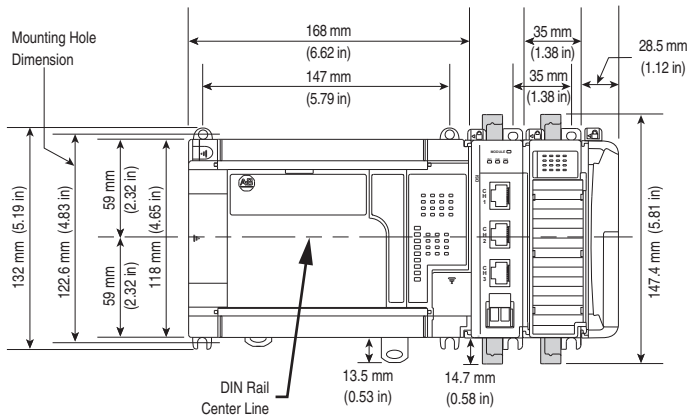


Figure 2 1769-SM2 Module with CompactLogix Controller

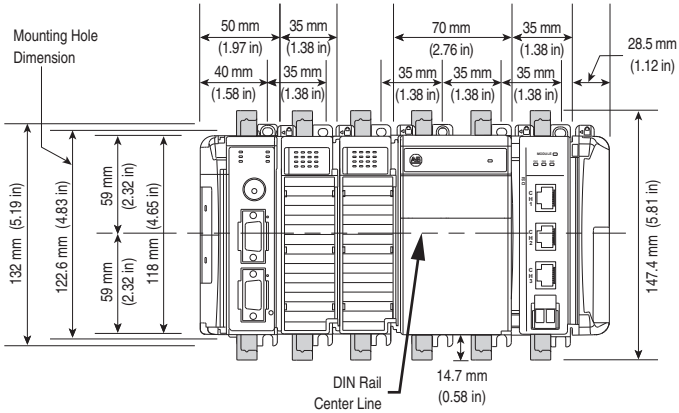
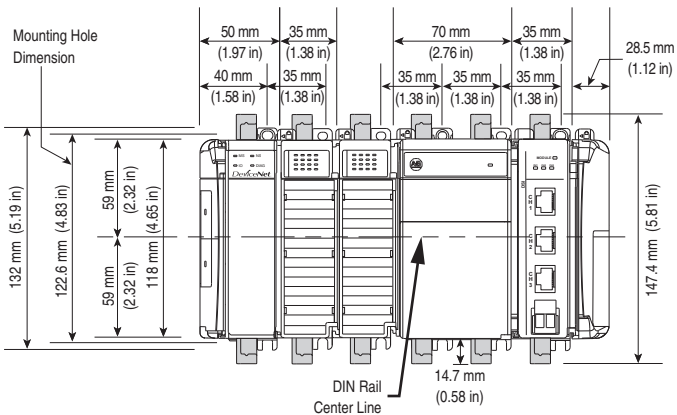


Figure 3 1769-SM2 Module with Remote 1769-Based Adapter



Using Module as a Template

The following procedure enables you to use the assembled modules as a template for drilling holes in the panel. Due to module mounting hole tolerance, it is important to follow these steps:

- On a clean work surface, assemble no more than three modules.
- Using the assembled modules as a template, carefully mark the center of all module-mounting holes on the panel.
- Return the assembled modules to the clean work surface, including any previously mounted modules.
- Drill and tap the mounting holes for the recommended M4 or #8 screw.

- e. Place the modules back on the panel, and check for proper hole alignment.
- f. Attach the modules to the panel using the mounting screws.

B. DIN Rail Mounting — The 1769-SM2 module can be mounted using the following DIN rails:

- 35 x 7.5 mm (EN 50 022 - 35 x 7.5)
- 35 x 15 mm (EN 50 022 - 35 x 15)

Before mounting the module on a DIN rail, close the DIN rail latches. Press the DIN rail mounting area of the module against the DIN rail. The latches will momentarily open and lock into place.

Step 5 Replacing the module within a system. The 1769-SM2 module can be replaced while the system is mounted to a panel (or DIN rail).

A. Remove power.



ATTENTION: Risk of equipment damage exists. Remove power before installing or removing the 1769-SM2 module. When you install or remove the module with power applied, an electrical arc may occur. An electrical arc can cause personal injury or equipment damage by:

- Sending an erroneous signal to your system's field devices, causing unintended machine motion.
- Causing an explosion in a hazardous environment.

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

- B.** Unplug the communications cable from each port (CH1, CH2, CH3) on the 1769-SM2 module. Note each drive and the port to which it is connected.
- C.** Remove the upper and lower mounting screws from the module (or open the DIN latches using a flat-blade screwdriver).
- D.** On the right-side adjacent module, move its bus lever to the right (unlock) to disconnect it from the module being removed.
- E.** Gently slide the disconnected 1769-SM2 module forward. If you feel excessive resistance, make sure that you disconnected the module from the bus and that you removed both mounting screws (or opened the DIN latches).



TIP: It may be necessary to slightly move the module from front to back to remove it, or in a panel-mounted system, to loosen the screws of adjacent modules.

- F. Before installing the replacement 1769-SM2 module, be sure that the bus lever on the right-side adjacent module is in the unlocked (fully right) position.
- G. Slide the replacement 1769-SM2 module into the open slot.
- H. Connect the 1769-SM2 module and adjacent modules together by locking (fully left) the bus levers on the 1769-SM2 module and the right-side adjacent module.
- I. Replace the mounting screws (or snap the module onto the DIN rail).
- J. Plug the appropriate communications cable into its respective port on the 1769-SM2 module.
- K. Restore 1769-SM2 module configuration using an appropriate configuration tool.

Step 6 Connect the module to the drive(s).

For information and network wiring examples, see the 1769-SM2 User Manual.

NOTE: For Single or Multi-Drive mode, there is a maximum cable distance limit per channel. See the 1769-SM2 User Manual for details.

Step 7 Ground the module.

The 1769-SM2 module is intended to be mounted to a well-grounded mounting surface such as a metal panel. Additional grounding connections from the module's mounting tabs or DIN rail (if used) are not required unless the mounting surface cannot be grounded. For additional information, refer to *Industrial Automation Wiring and Grounding Guidelines*, publication No. 1770-4.1.

For details on shielded connector and unshielded connector grounding requirements, see the *1769-SM2 Compact I/O DSI/Modbus Network Communication User Manual*, publication 1769-UM013.

Step 8 Apply power.

ATTENTION: Risk of equipment damage, injury, or death exists. Unpredictable operation may occur if you fail to verify that parameter settings are compatible with your application. Verify that settings are compatible with your application before applying power to the drive.

- A. Apply power to the controller. The status indicators can be viewed on the front of the 1769-SM2 module after power has been applied.
- B. Apply power to the drive(s). When you apply power to the 1769-SM2 module, controller, and network for the first time, the status indicators should be green after an initialization. If the status indicators go red, there is a problem. Refer to the “Troubleshooting” chapter in the *1769-SM2 Compact I/O DSI/Modbus Network Communication User Manual*.

Step 9 Read the *1769-SM2 Compact I/O DSI/Modbus Network Communication User Manual* for information to configure and determine how to apply the network to the host product(s).

Notes:

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