

IntelliCENTER IEC 61850 Integration Unit

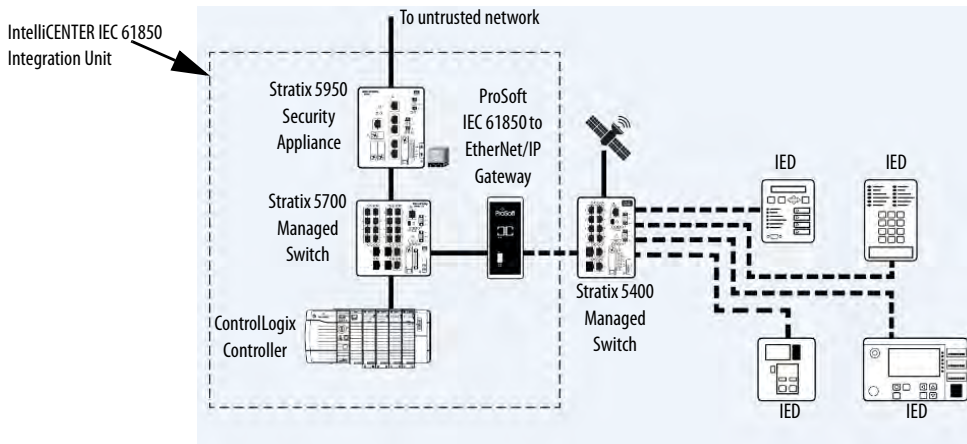
Catalog Numbers 3300A-IU10J-A1-1, 3300A-IU10J-A1-1-PVP, 3300A-IU10J-A1-1-SSA, 3300A-IU10J-A1-1-PVP-SSA, 3300A-IU10J-A1-2, 3300A-IU10J-A1-2-PVP, 3300A-IU10J-A1-2-SSA, 3300A-IU10J-A1-2-PVP-SSA, 3300A-IU10J-A1-3, 3300A-IU10J-A1-3-PVP, 3300A-IU10J-A1-3-SSA, 3300A-IU10J-A1-3-PVP-SSA, 3300A-IU10J-A1-4, 3300A-IU10J-A1-4-PVP, 3300A-IU10J-A1-4-SSA, 3300A-IU10J-A1-4-PVP-SSA, 3300A-IU10J-B1-1, 3300A-IU10J-B1-1-PVP, 3300A-IU10J-B1-1-SSA, 3300A-IU10J-B1-1-PVP-SSA, 3300A-IU10J-B1-2, 3300A-IU10J-B1-2-PVP, 3300A-IU10J-B1-2-SSA, 3300A-IU10J-B1-2-PVP-SSA, 3300A-IU10J-B1-3, 3300A-IU10J-B1-3-PVP, 3300A-IU10J-B1-3-SSA, 3300A-IU10J-B1-3-PVP-SSA, 3300A-IU10J-B1-4, 3300A-IU10J-B1-4-PVP, 3300A-IU10J-B1-4-SSA, 3300A-IU10J-B1-4-PVP-SSA

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Introduction

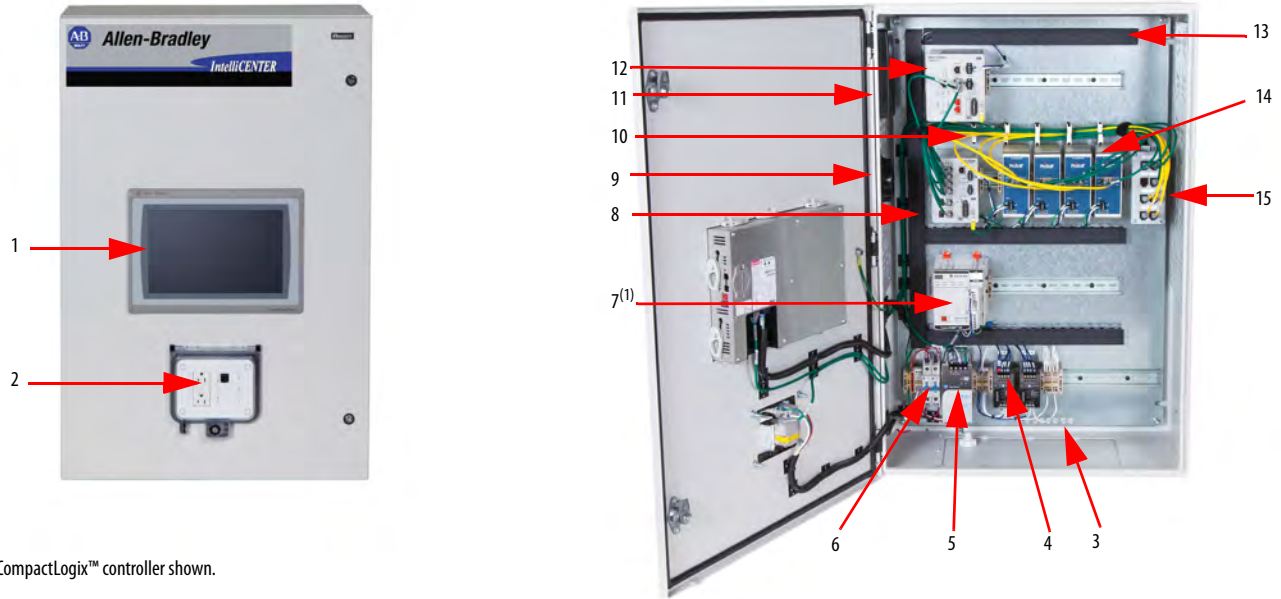
The system architecture that is described in this document is typical for most installations of the IntelliCENTER® IEC 61850 Integration unit. The system consists of a programmable controller, managed Ethernet switch, IEC 61850 gateway, and Intelligent Electronic Devices (IED).

System Architecture



Each physical IED shares data across the network. Communication and the mapping of portions of the IEC 61850 standard define the data flow. The ProSoft communication gateway then collects the standard data. The gateway organizes the IEC 61850 data from the IEDs, and communicates with a controller on an EtherNet/IP™ network. The ProSoft gateway configuration software creates Add-On Instructions that decode the field device power data within the controller. The controller then coordinates with upstream PlantPAX® infrastructure. TripSource Add-On Instructions that monitor the IEDs for alarm conditions are also provided. In addition to the Add-On Instructions, graphic files can link the IEDs to an optional human machine interface. Faceplates for each device present information, including diagnostics, to operators, engineers, or maintenance personnel. This graphic shows the components of the integration unit.

IntelliCENTER IEC 61850 Integration Unit Layout



(1) CompactLogix™ controller shown.

IntelliCENTER Integration Unit Layout

| Item | Description |
|------|---|
| 1 | Optional: PanelView™ Plus 7 (2711P-T12W21D8S), Standard Terminal, Touch Screen, 12 in. |
| 2 | Data Access Port, Category 5e |
| 3 | 6 Port Universal Ground Bar |
| 4 | Bulletin 1692 Electronic Circuit Protection (ECP) (1692-ZRCLSS), 24V DC Module Voltage, Module Protection, and Class 2, (4) NEC Class 2 Circuits |
| 5 | 24V DC 240 W Power Supply (1606-XLE240E) |
| 6 | Bulletin 1489 Miniature Circuit Breaker (1489-M1C150), Standard Configuration, AC 1 Pole Configuration, Trip Curve C, 15 A |
| 7 | CompactLogix 5380 controller (5069-L330ER), 3 MB, 31 I/O, 50 Nodes, Standard (shown), or ControlLogix® 5580 controller (1756-L81E), 3 MB, 60 I/O, 100 Nodes, Standard is also available |
| 8 | Stratix® 5700 Switch (1783-BMS10CGN), Managed, eight Fast Ethernet Copper Ports, 2 Gigabit Ethernet Combo Ports, Full Software, CIP Sync™, NAT, DLR |
| 9 | Fiber Management Slack Spool |
| 10 | Elastic Retainer |
| 11 | 6 Position Multi-medial Mount Box |
| 12 | Optional: Stratix 5950 Industrial EtherNet/IP Security Appliance (1783-SAD4TOSPK9), 4 x 10 /100/1000 BASE-T, K9 Encryption with VPN for SSL |
| 13 | Wire Duct |
| 14 | ProSoft Gateway (PLX82-EIP-61850 1...4, four units shown) |
| 15 | 8-Port DIN Rail Mount Patch Panel |

All required components are mounted, wired, and pre-installed from the factory inside the panel enclosure.

Installation

IMPORTANT These guidelines are not intended to supersede local electrical codes. Before installation, consult with the appropriate local Authority Having Jurisdiction (AHJ) for all applicable codes, permits, regulations, and standards.

The integration unit can be mounted vertically to the wall or the floor. The wall mount configuration is preferred and provides access to the removable gland plate on the bottom of the unit. Floor mounting requires conduit entry on either the top or sides of the enclosure, which is not the preferred method.

Unpack

Before unpacking any items, the packaging must be inspected for damage that can occur during shipment.

If any packaging is damaged, the package identification marks (such as box number or crate number) must be noted and communicated to Rockwell Automation. The package must be stored in a suitable storage area in the condition it was received. Rockwell Automation then contacts the shipping agent who can request to inspect the damage. The package must not be opened without the express written permission of Rockwell Automation.

If packaging is not damaged, the IntelliCENTER IEC 61850 Integration Unit must be removed from the packaging. Verify that all items on the packing list are included. If any items are missing, contact Rockwell Automation.

Inspection

- Visually inspect the cabinets for mechanical damage. Check the paintwork for scratches and abrasions.
- Verify that the cabinet door opens and closes and that all latches operate smoothly.
- Verify that cable assemblies were not damaged during shipment and that they are appropriately dressed with cable ties and/or spiral wrap.
- Verify that all wire ducts are fitted with covers.

Storage and Operation

Consider these environmental characteristics when you select the device and the mounting location.

Environmental Characteristics

| Attribute | Value |
|--|---|
| Temperature, ambient outside of the unit | 40 °C (104 °F) |
| Temperature, maximum within the unit | 60 °C (140 °F) up to 95% (noncondensing) humidity |

IMPORTANT The standard unit is meant to be installed in a nonhazardous environment. For additional environmental needs for your unit, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Wall Mount



ATTENTION: Crush hazard!

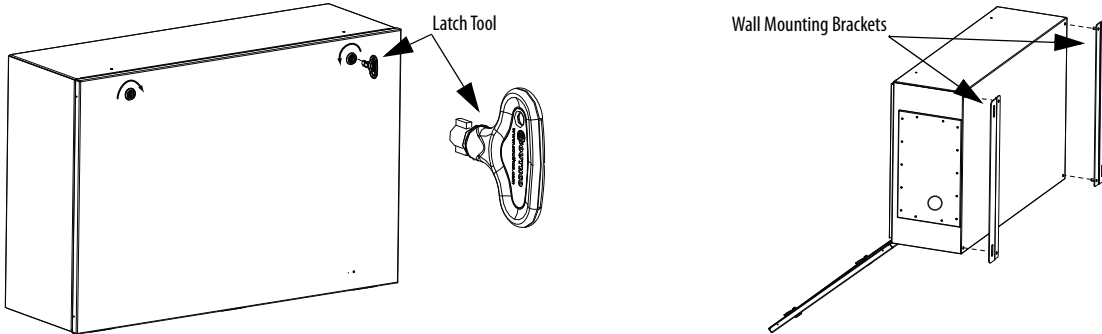
The integration unit weighs approximately 68 kg (150 lb) (dependent on integration unit configuration). Be sure that the wall is capable of supporting the integration unit. Personal injury and/or component damage can occur if you drop the unit. Always support the unit fully during installation; use an assistant.

Wall Mounting Bracket Installation

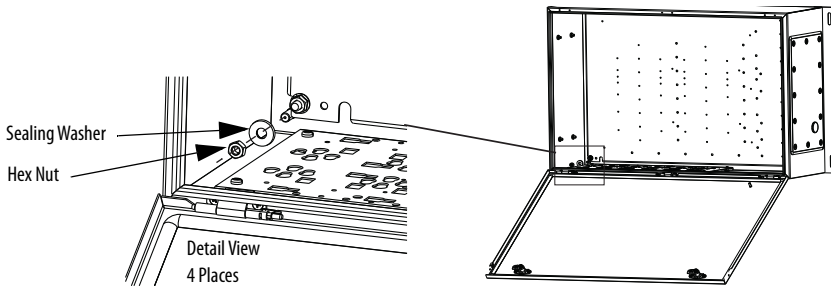
TIP You can mount the enclosure to the wall without the mounting brackets.

1. Turn enclosure on its side with the locks orientated towards the top.
2. By using the latch tool, turn both locks towards each other to open door.
3. Install the wall mounting brackets into the back of the enclosure by aligning the threaded studs on the brackets to the holes in back of the enclosure.

Be sure that mounting holes on the wall mounting bracket align outward.



4. Secure wall mounting brackets by using one of the supplied sealing washers per threaded stud.

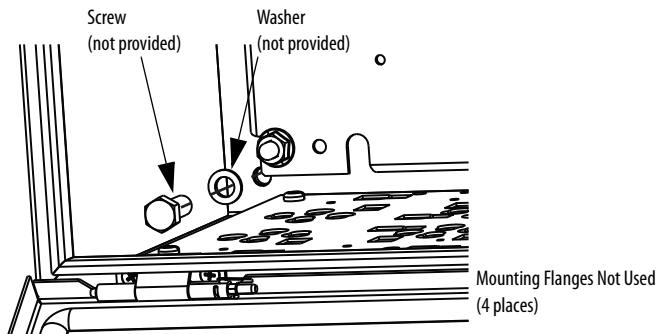


5. Tighten hex nut to 3.4 N•m (30 lb•in).
6. Close the door.
7. By using the latch tool, turn both locks to secure the door.

IMPORTANT Store the latch tool in a secure location when not in use.

TIP If Mounting Flanges are not used:

Use 5/16 in. sealing washer (supplied) and a 5/16 in. bolt (not supplied) in the locations where the threaded studs in the mounting flanges would go to mount enclosure directly to wall.



Wall Mounting



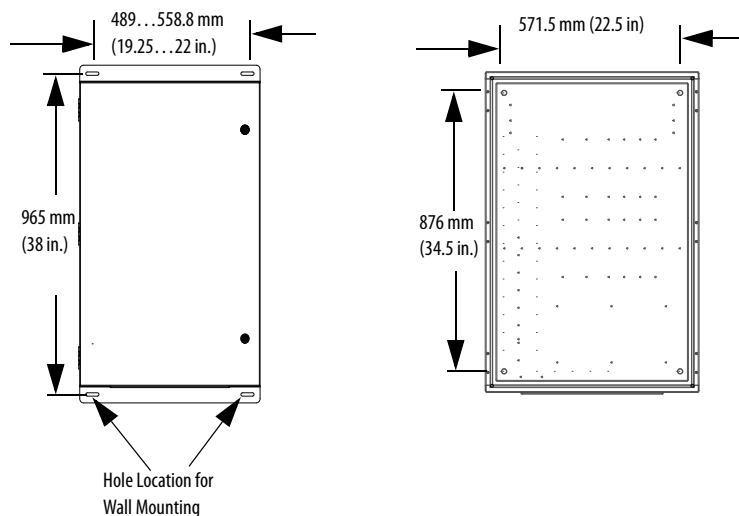
ATTENTION: Crush hazard!

The integration unit weighs approximately 68 kg (150 lb) (dependent on integration unit configuration). Be sure that the wall is capable of supporting the integration unit. Personal injury and/or component damage can occur if you drop the unit. Always support the unit fully during installation; use an assistant.

Mount enclosure on any wall by drilling directly into any concrete wall. There are two mounting hole locations on the top flange and two locations at the bottom flange. Follow these steps to mount the unit to the wall.

- Determine the mounting location and verify that the location is suitable for the unit by checking the following:
 - The site is free from excessive dirt and moisture.
 - Sufficient room on all sides of the enclosure is available for the cable to exit the enclosure and to open the door. The door swing radius is 610 mm (24 in.) and extends to 110° without forcing.
- Place the enclosure on the wall in the desired location and verify that it is level.

If mounting flanges are not used, use the following spacing for the mounting holes:
The holes in the wall are 571.5 mm (22.5 in.) apart horizontally and 876 mm (34.5 in.) apart vertically.
- Drill holes 489...558.8 mm (19.25...22 in.) apart horizontally and 965 mm (38 in.) apart vertically.
- Mount the enclosure with the locks to the right and secure.



Floor Mount



ATTENTION: Crush hazard!

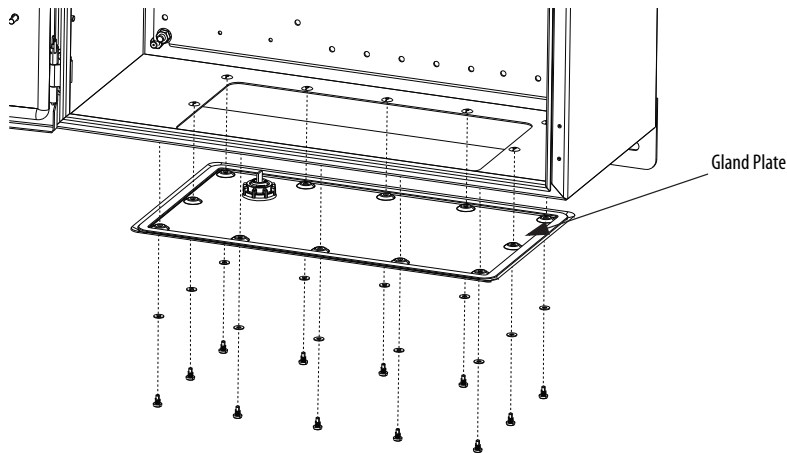
The integration unit weighs approximately 68 kg (150 lb) (dependent on integration unit configuration). Personal injury and/or component damage can occur if you drop the unit. Always support the unit fully during installation; use an assistant.

- Determine the mounting location and verify that the location is suitable for the solution by checking the following:
 - The site is free from excessive dirt and moisture.
 - The enclosure stands level after installation.
 - Sufficient room on all sides of the enclosure is available for the cable to exit the enclosure and to open the door. The door swing radius is 610 mm (24 in.) and extends to 110° without forcing.
- Place the enclosure in the position where it is to operate and verify that the enclosure is level.

Removable Gland Plate

Remove the gland plate before you drill the holes for conduit entry. Accommodations for incoming conduit have been supplied on the enclosure. Removal of the gland plate helps prevent metal shavings from entering the electronic components in the enclosure. We recommend the installation of IP66 rated conduit fittings that comply with the IEC codes that are applicable to the intended application. The gland plate, which is on the enclosure bottom, is removable for machining to accept bulkhead connectors or compression fittings.

To remove the gland plate, remove 12 screws and 12 flat washers from the threaded studs of the gland plate, and remove plate from the enclosure. When installing the gland plate, verify that the nuts are tightened until the gland plate flanges and the enclosure surface make contact.



Introduction - Power

Input voltage range is between 100...240V AC, 50...60 Hz, and a maximum branch circuit protection rating of 20 A is required at field install.

Power Cable Types/Recommendations

This section includes information about the major issues for proper selection of cable, and provides recommendations to address these issues. Consider these conditions and requirements when you choose cable material and construction for your installation:

- Environment: moisture, temperature, and harsh or corrosive chemicals.
- Mechanical needs: geometry, shielding, flexibility, and crush resistance.
- Electrical characteristics: cable capacitance/charging current, resistance/voltage drop, current rating, and insulation.
- Safety issues: electrical code requirements, grounding needs, and others. Choosing incorrect cabling can be costly and can adversely affect the performance of your installation.

In general, follow these temperature ratings for installations:

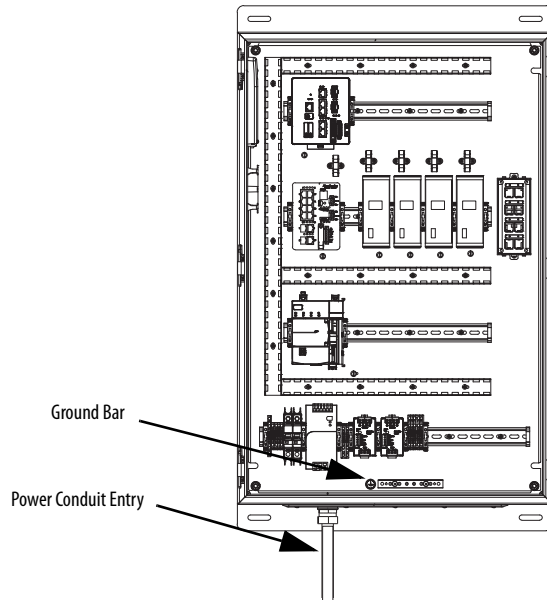
| Surrounding Air Temperature | Recommended Wire |
|-----------------------------|------------------|
| 50 °C (122 °F) | 90 °C (194 °F) |
| 40 °C (104 °F) | 75 °C (167 °F) |

The interface panel is rated for use with 90 °C (194 °F) cable. Cable must be sized by using the 90 °C (194 °F) column in NEC Table 310.15(B)(16) (formerly Table 310.16). The temperature rating of the lugs is not relevant.

IMPORTANT The temperature rating of the wire affects the required gauge. Verify that your installation meets all applicable national, state, and local codes.

Cable Entry

1. Remove the plug in the gland plate and replace with conduit fitting.
We recommend the installation of IP66 rated conduit fittings that comply with the IEC codes that are applicable to the intended application.
2. Install power wiring according to the field wiring diagrams that ship with the integration unit.
3. Connect ground wire to the ground bar.



Grounding Requirements

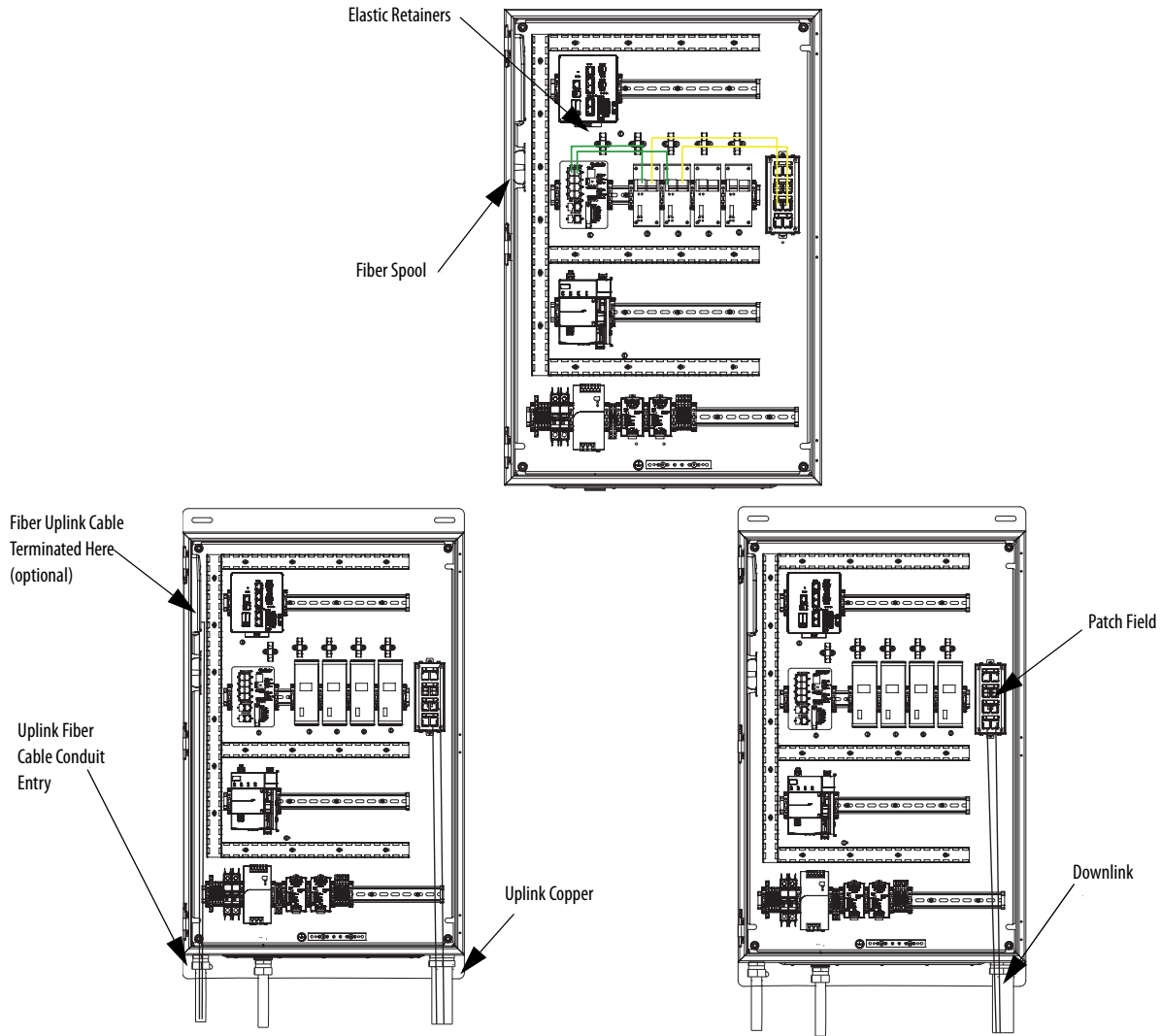
Use the ground bar to connect infrastructural ground.



Communication Connections

Elastic retainers support patchcords when routed from the switch to the patch panel. See [Port Mapping](#) for more information.

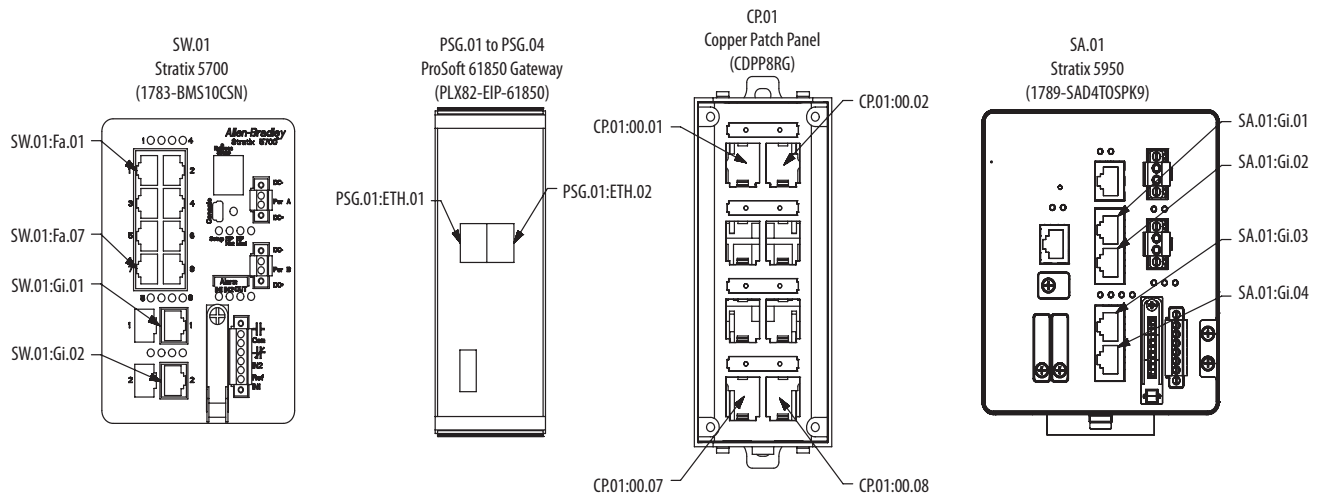
Route fiber cords from the surface mount box to the switch. Route the fiber patchcord slack on the fiber spool in between box and switch.



Patch cable that is included with the system is labeled according to the port mapping table. After you mount the integration unit, install and route the 'on-site' cables according to the port mapping table.

Port Mapping

| From Device | To Device | Patch Cord/Block-outs | Installed | Label Information End A | Label Information End B |
|-----------------------------|-----------------------------|-----------------------|-----------|---------------------------|---------------------------|
| Stratix 5700 - Port Fa 1/1 | CompactLogix _ Bottom | STP28X1MGR | Yes | SW.01:Fa.01/PLC.01:00.01 | PLC.01:00.01/SW.01:Fa.01 |
| Stratix 5700 - Port Fa 1/2 | PanelView Plus 7 | STP28X1.5MGR | Yes | SW.01:Fa.02/PV.01:00.01 | PV.01:00.01/SW.01:Fa.02 |
| Stratix 5700 - Port Fa 1/3 | ProSoft Gateway - 1 - ETH-1 | STP28X1MGR | Yes | SW.01:Fa.03/PSG.01:ETH.01 | PSG.01:ETH.01/SW.01:Fa.03 |
| Stratix 5700 - Port Fa 1/4 | ProSoft Gateway - 2 - ETH-1 | STP28X1MGR | Yes | SW.01:Fa.04/PSG.02:ETH.01 | PSG.02:ETH.01/SW.01:Fa.04 |
| Stratix 5700 - Port Fa 1/5 | ProSoft Gateway - 3 - ETH-1 | STP28X1MGR | Yes | SW.01:Fa.05/PSG.03:ETH.01 | PSG.03:ETH.01/SW.01:Fa.05 |
| Stratix 5700 - Port Fa 1/6 | ProSoft Gateway - 4 - ETH-1 | STP28X1MGR | Yes | SW.01:Fa.06/PSG.04:ETH.01 | PSG.04:ETH.01/SW.01:Fa.06 |
| Stratix 5700 - Port Fa 1/7 | IndustrialNet Access Port | STP28X1.5MGR | Yes | SW.01:Fa.07/IAP.01:00.01 | IAP.01:00.01/SW.01:Fa.07 |
| Stratix 5700 - Port Fa 1/8 | Stratix 5950 - Port Gi 1/2 | STP28X0.5MGR | Yes | SW.01:Fa.08/SA.01:Gi.02 | SA.01:Gi.02/SW.01:Fa.08 |
| Stratix 5700 - Port Gi 1/1 | Copper Patch Panel - Port 1 | STP28X1MGR | On Site | SW.01:Gi.01/CP.01:00.01 | CP.01:00.01 /SW.01:Gi.01 |
| Stratix 5700 - Port Gi 1/2 | Copper Patch Panel - Port 2 | STP28X1MGR | On Site | SW.01:Gi.02/CP.01:00.02 | CP.01:00.02/SW.01:Gi.02 |
| Stratix 5950 - Port Gi 1/1 | Copper Patch Panel - Port 4 | STP28X1MGR | On Site | SA.01:Gi.01/CP.01:00.04 | CP.01:00.04/SA.01:Gi.01 |
| Prosoft Gateway - 1 - ETH-2 | Copper Patch Panel - Port 5 | STP28X1MYL | On Site | PSG.01:ETH.02/CP.01:00.05 | CP.01:00.05/PSG.01:ETH.02 |
| Prosoft Gateway - 2 - ETH-2 | Copper Patch Panel - Port 6 | STP28X1MYL | On Site | PSG.02:ETH.02/CP.01:00.06 | CP.01:00.06/PSG.02:ETH.02 |
| Prosoft Gateway - 3 - ETH-2 | Copper Patch Panel - Port 7 | STP28X1MYL | On Site | PSG.03:ETH.02/CP.01:00.07 | CP.01:00.07/PSG.03:ETH.02 |
| Prosoft Gateway - 4 - ETH-2 | Copper Patch Panel - Port 8 | STP28X1MYL | On Site | PSG.04:ETH.02/CP.01:00.08 | CP.01:00.08/PSG.04:ETH.02 |
| Stratix 5950 Port Gi 1/3 | BLOCK OUT | PSL-DCJB | Yes | — | — |
| Stratix 5950 Port Gi 1/4 | BLOCK OUT | PSL-DCJB | Yes | — | — |
| Copper Patch Panel Port 3 | BLANK | — | — | — | — |



First-time Power-up

Follow these steps the first time you apply power to the unit.

1. Switch all circuit breakers to the Off position and open all fuses.
2. Energize the power feed and verify voltage at main incoming terminals.
3. Close each 120V AC circuit breaker one at a time and verify that the corresponding power supply is energized.
4. Measure the output voltage of the power supply and verify that it is delivering 24V DC.

Safety Checklist

- Are the installation environment parameters (temperature, humidity, and area classification) within the design specification for the interface panel?
 - If not, what additional measures have been taken to verify that the installed equipment design specification are not exceeded?
- To help prevent the risk of electrical shock, have all electrical safety checks been conducted before being put into operation?
- Have Operations and Maintenance personnel been adequately trained?

Opening the Enclosure



ATTENTION: When working on or near energized electrical equipment, follow established electrical safety-related work practices. See NFPA 70E Standard for Electrical Safety in the Workplace.

By using the latch tool, turn both locks towards each other to open door. Turn both locks away from each other to secure the door.

Electrostatic Precautions

The electronic components of these systems are susceptible to electrostatic discharge (ESD). Be sure to take the following precautions:

- Always wear an anti-static wriststrap (or equivalent) when handling any electrostatic sensitive components.
- Controller modules are especially sensitive to electrostatic discharge. Pay special attention not to touch the module connectors or any exposed printed circuit board components.

Recommended Spare Parts List

For recommended spare and/or replacement parts, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Additional Resources

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

| Resource | Description |
|---|--|
| IntelliCENTER IEC 61850 Integration Unit Technical Data, publication 3300A-TD001 | Provides specifications and unit selection information for the IntelliCENTER IEC 61850 Integration Unit. |
| CompactLogix 5380 Controllers Specifications Technical Data, publication 5069-TD002 | Provides specifications, wiring diagrams, and functional block diagrams for CompactLogix 5380 controllers. |
| 1756 ControlLogix and GuardLogix Controllers Technical Data, publication 1756-TD001 | Provides specifications ControlLogix 5580 controllers. |
| Converged Plantwide Ethernet (CPwE) Design and Implementation Guide, publication ENET-TD001 | Describes how to design a converged plantwide Ethernet network. |
| Fiber-optic Infrastructure Application Guide, publication ENET-TD003 | Describes fiber optic infrastructure. |
| CompactLogix 5380 Controllers User Manual, publication 5069-UM001 | Provides information on how to use CompactLogix 5380 controllers. |
| ControlLogix System User Manual, publication 1756-UM001 | Provides information on how to use ControlLogix 5580 controllers. |
| Stratix 5700 Industrial Ethernet Switch Product Profile, publication ENET-PP005 | Provides Stratix 5700 switch information. |
| Stratix 5700 Ethernet Managed Switches User Manual, publication 1783-UM007 | Provides Stratix 5700 switch information. |
| Stratix 5950 Security Appliance User Manual, publication 1783-UM010 | Provides a product overview, explains how to connect and configure the security appliance. |
| PanelView Plus 7 Standard Terminals, publication 2711P-UM007 | Provides information to install, configure, operate, and troubleshoot the PanelView Plus 7 Standard terminals. |
| 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 <http://www.rockwellautomation.com/global/literature-library/overview.page>.

Rockwell Automation Support

Use the following resources to access support information.

| | | |
|---|---|---|
| Technical Support Center | Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates. | https://rockwellautomation.custhelp.com/ |
| Local Technical Support Phone Numbers | Locate the phone number for your country. | http://www.rockwellautomation.com/global/support/get-support-now.page |
| Direct Dial Codes | Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer. | http://www.rockwellautomation.com/global/support/direct-dial.page |
| Literature Library | Installation Instructions, Manuals, Brochures, and Technical Data. | http://www.rockwellautomation.com/global/literature-library/overview.page |
| Product Compatibility and Download Center (PCDC) | Get help determining how products interact, check features and capabilities, and find associated firmware. | http://www.rockwellautomation.com/global/support/pcdc.page |

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Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the How Are We Doing? form at http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf.

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

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