

IntelliCENTER IEC 61850 Integration Unit Specifications

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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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 an automation controller, managed Ethernet switch, IEC 61850 gateway, and Intelligent Electronic Devices (IED).

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 an automation controller on an EtherNet/IP network. The ProSoft gateway configuration software creates Add-On Instructions that decode the field device power data within the automation controller. The automation 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 HMI interface. Faceplates for each device present information, including diagnostics, to operators, engineers, or maintenance personnel.

The IEC 61850 standard defines a communication interface that monitors and controls electrical distribution systems with one common platform regardless of manufacturer. Substation equipment has evolved from electrochemical to microprocessor-based relays then allowing for communication to industrial control systems. For more information on IEC 61850 networks and substation automation, see the Integrated Power and Automation Reference Manual, publication [3300A-RM001](#).



Summary of Changes

This publication contains new and updated information as indicated in the following table.

Topic	Page
Updated the Standards and Enclosure Rating specifications.	5

Product Selection

This table explains what the catalog number represents.

Catalog Number Example

Bulletin Number	IntelliCENTER IEC 61850 Integration Unit	Switch Size (Port Count)	Enclosure Type	Programmable Controller Configuration	Intelligent Electrical Device Gateway (Device Count)	Option
3300A	IU	Stratix® switch 10-port	J	A1 - CompactLogix™ controller B1 - ControlLogix® controller	1...4	PVP - PanelView™ Plus SSA - Stratix® Security Appliance

Available catalog numbers for the integration unit are listed in the table.

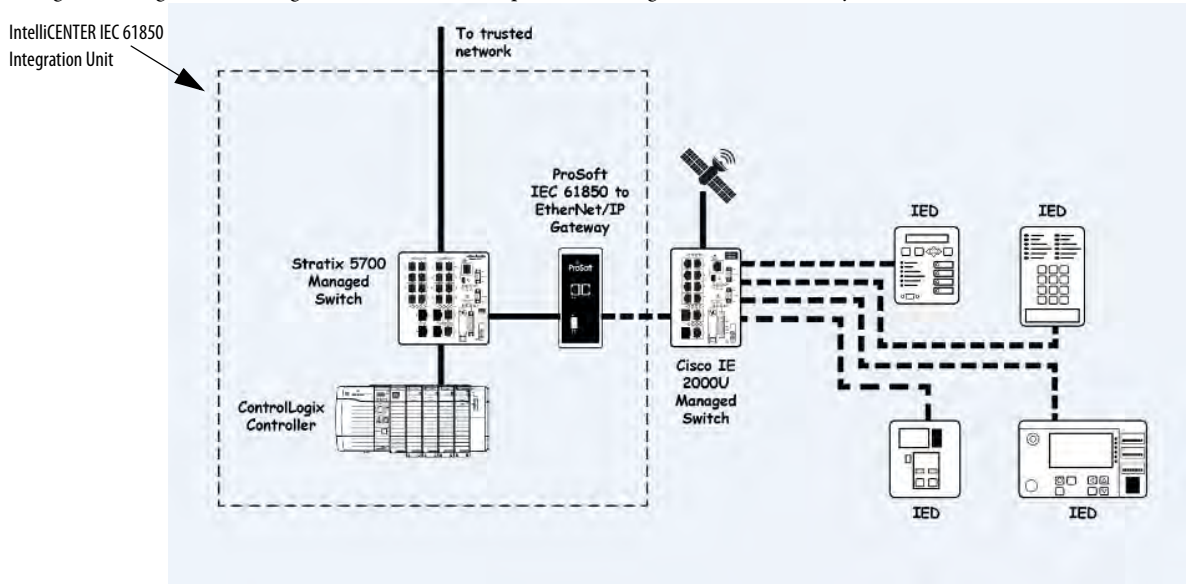
Available Catalog Numbers

Base Integration Unit	Base Integration Unit + Option 1 (PVP)	Base Integration Unit + Option 2 (SSA)	Base Integration Unit + Option 1 (PVP) + Option 2 (SSA)
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

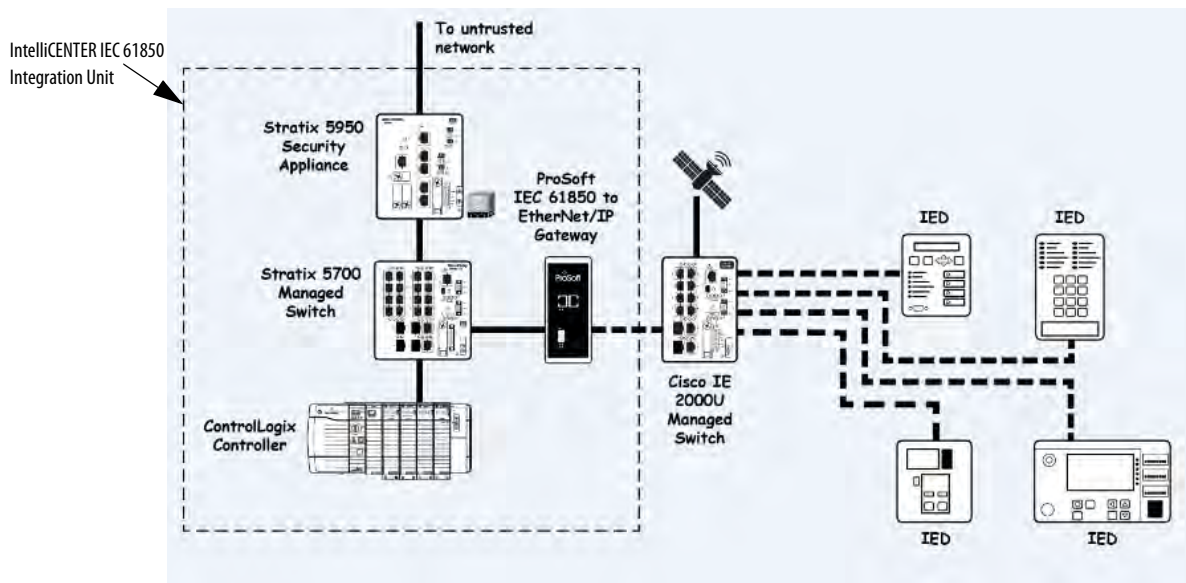
Typical System Configurations

The system setup consists of a programmable controller, managed Ethernet switch, [IEC 61850 gateway](#), and IEDs. This system provides ease of integration into the existing Rockwell Automation control and network solution and lets you take advantage of a unified architecture throughout the facility.

By using the control capabilities of a Logix processor and network management from Stratix managed switches, the integration unit enables the intelligent switchgear and intelligent E-house to become part of the Integrated Architecture® system.

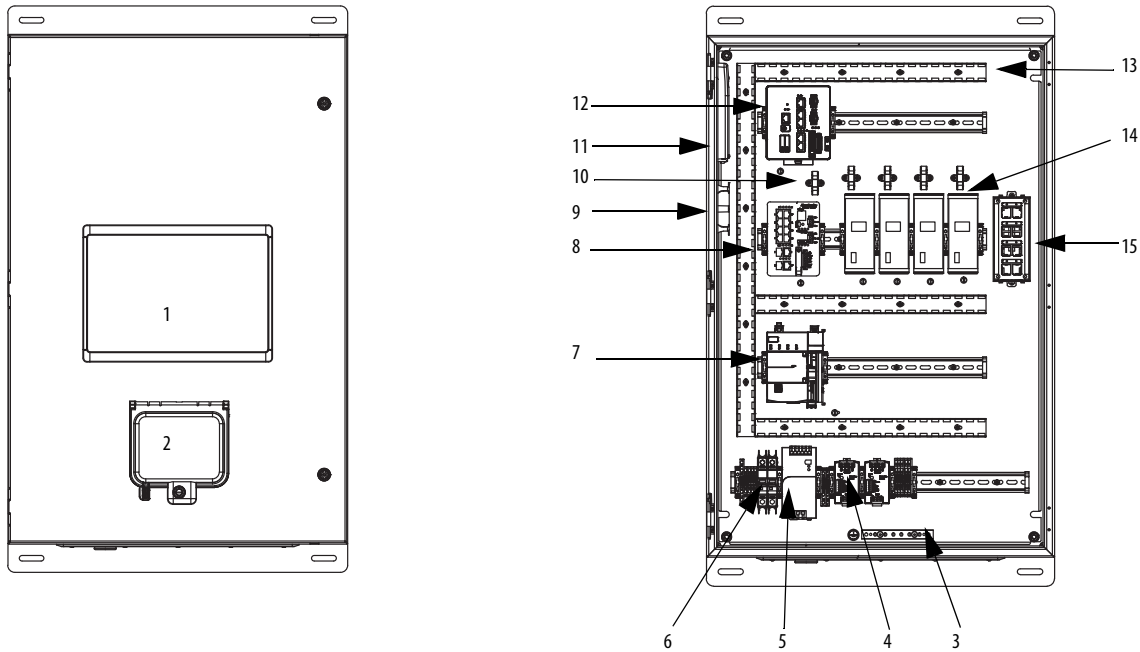


The typical Wide Area Network (WAN) consists of infrastructure in which the network traffic is passed through points that the user does not own and can then be referred to as an untrusted network. The integration unit can be configured with a Stratix 5950 Security Appliance to interface with the untrusted network.



This graphic shows the components of the integration unit.

IntelliCENTER IEC 61850 Integration Unit Layout



IntelliCENTER IEC 61850 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-XLS240E)
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

Specifications

Table 1 - IntelliCENTER IEC 61850 Integration Unit Specifications

Attribute	Value
Standards	UL 508A, EN55022, IEC 60950-1, EN55024, IEC 60950-22 VCCI, FCC, Part 15, Subpart B ICES-003
Enclosure Rating	UL Type 4/12 and IP66 (IEC 60529) without PanelView Plus 7 Option UL Type 4 (indoor only)/12 and IP66 (IEC 60529) with PanelView Plus 7 Option
Environment	40 °C (104 °F) ambient outside of enclosure or 60 °C (140 °F) Maximum within enclosure at up to 95% (Noncondensing) humidity
System power	100...240V AC, 50...60 Hz
Branch circuit protection Rating, Max	20 A
Dimensions	Height 914 mm (36.0 in.), Width 610 mm (24.0 in.), Depth 297 mm (11.7 in.)
Weight, Approx	68 kg (150 lb) (based on integration unit configuration)

Performance

Application size and system response requirements are the two main drivers that are used for the sizing of the integration unit for an application. Each IEC 61850 gateway unit is configured to communicate with ten IEDs according to the CID files that support the PlantPax® Rockwell Automation Library for Electrical Protection Devices faceplates. See the Integrated Power and Automation Reference Manual, publication [3300A-RM001](#) for more performance information. See the PlantPax Rockwell Automation Library for Electrical Protection Devices Reference Manual, publication [PROCESS-RM011](#) for more information on the IEC 61850 device faceplates.

[Table 2](#) shows the results for multi-gateway module system testing.

Table 2 - Multi-module Testing

No. of IEDs	RPI Time, ms
10	60
20	60
30	70
40	70

[Table 3](#) shows the results for one gateway module system testing.

Table 3 - Single-module Testing

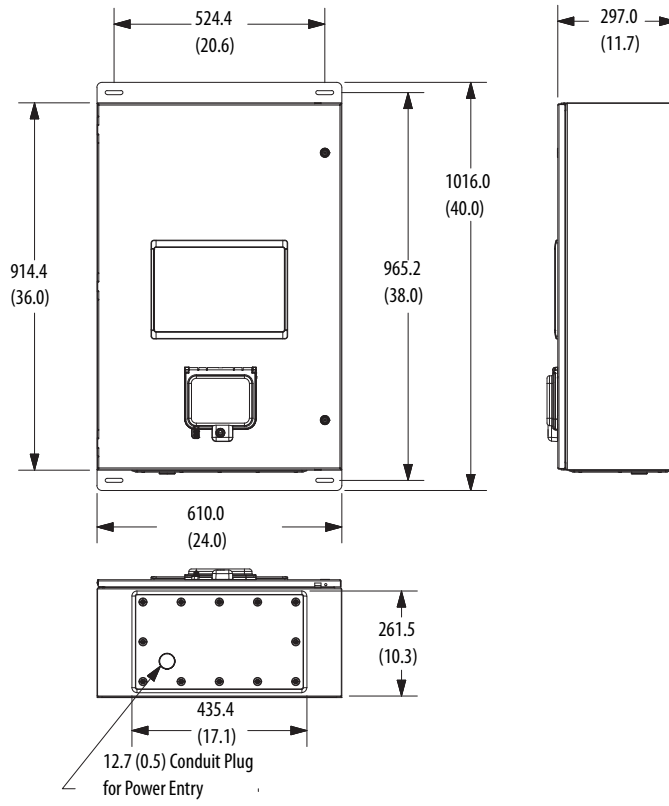
No. of IEDs	RPI Time, ms
1	55
2	55
5	60
7	60
10	60

Communication

See the following documents for specifications regarding the communication networks:

- For IEC 61850 gateway specifications, see [ProSoft PLX8x-EIP-61850](#) Communication Gateway User Manual.
- For Stratix managed switch and Stratix Security Appliance switch specifications, see Stratix Ethernet Device Specifications Technical Data, publication [1783-TD001](#).

Approximate Dimensions



Additional Resources

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

Resource	Description
IntelliCENTER IEC 61850 Integration Unit Installation Instructions, publication 3300A-IN001	Provides installation instructions for the IntelliCENTER IEC 61850 Integration Unit.
Integrated Power and Automation Reference Manual, publication 3300A-RM001	Provides information on the IntelliCENTER IEC 6185 Integration Unit and IEC 61850 networks and substation automation.
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.
Stratix Ethernet Device Specifications Technical Data, publication 1783-TD001	Provides specifications for the Stratix switches.
PlantPAX Rockwell Automation Library for Electrical Protection Devices Reference Manual, publication PROCESS-RM011	Provides information on how to configure the Add-On Instructions that control and monitor intelligent power devices that use the IEC61850 standard in the PlantPAX system.
ProSoft Communication Gateway User Manual	Provides information and specifications for the IEC 61850 to Ethernet network gateway.
Converged Plant-wide 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-IN010	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, http://www.rockwellautomation.com/global/certification/overview.page	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>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

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Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	www.rockwellautomation.com/global/support/pcdc.page

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