EcoStruxure™

Foxboro™ SCADA

SCD2200 for Oil, Gas, and Water SCADA Applications

PSS 41H-8S2K2OV

Product Specification

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Schneider Electric™

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Legal Information

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This document is not intended as a substitute for a detailed study or operational and site-specific development or schematic plan. It is not to be used for determining suitability or reliability of the products/solutions for specific user applications. It is the duty of any such user to perform or have any professional expert of its choice (integrator, specifier or the like) perform the appropriate and comprehensive risk analysis, evaluation and testing of the products/solutions with respect to the relevant specific application or use thereof.

Overview

EcoStruxure™ Foxboro™ SCADA SCD2200 is an intelligent station computing device (SCD) that can perform a full range of control and data-acquisition functions in industrial remote SCADA applications.

The SCD2200 is designed to operate remotely in harsh environments and can be easily configured for SCADA applications such as:

- Oil and gas production, including offshore platforms
- Well monitoring, wet gas, and high-level well control applications
- Oil and gas transportation facilities, including pipelines
- Water and wastewater treatment plants
- Water and heating distribution networks

The SCD2200 supports several modular plug-and-play options.

For example, low-density or high-density I/O modules, redundant CPU, redundant power supplies, power-integrated backplanes, communication lines, interfaces to the typical communications media, and optimized transmission techniques for low speed data lines are available.

Based on a 166 MHz high performance CPU and extensive flash memory, the SCD2200 performs a wide range of control functions, from simple data acquisition to sophisticated closed-loop algorithms through a user-friendly sequence configurator (graphic and literal programming languages compliant with IEC 61131-3 and IEC 61499).

The SCD2200 is highly scalable with both powered (BP-x) and non-powered (BPLN) backplanes. The smallest SCD2200 configuration is available in a compact 2-slot integrated-power backplane (BP-2). Unlike BPLN backplanes, powered backplanes do not need a power supply (PS-x) module. Therefore, the BP-x backplanes provide full capacity, that is, all their slots can be utilized for other modules. BPLN backplanes are available in the 4, 6, or 12-slot variations and BP-x backplanes are available in the 2, 4, or 6-slot variations. The new configurable backplanes (Bxx) can replace both the BPLN and BP-x backplanes and it needs a power supply module (PS-x or PS-BP). These backplanes provide a flexible solution for creating small- to large-scale RTUs of any desired configuration.

The SCD2200 can support the 2-slot, 4-slot, 6-slot, or 12-slot variations of these backplanes. The 12-slot (BPLN/Bxx) backplane configuration can be further expanded into racks to a maximum of 64-slots (modules) per logical node. These SCD2200 configurations are suitable for indoor mounting or outdoor field mounting when installed within an IP65/NEMA4 certified enclosure supplied by third-party vendors.

Features

- Low power consumption
- High reliability, modularity, and accuracy
- Redundancy of CPU (optional), power supply, and communication lines
- Flexible hardware configuration
- Easy plug and play installation
- Default-configuration at power on
- IEC 61131-3 compliant user-friendly sequence configurator for RTU-resident automatic sequence and control functions
- 32-bit CPU, operating at 166 MHz
- 1 GHz ARM Cortex-A9 32-bit processor
- 256 MB ECC DDR3 SDRAM with 2 GB eMMC Flash memory (high reliability pSLC mode)
- Up to 5 dual communications modules, high I/O density cards
- Power supply modules with built-in battery backup charger, with battery temperature feedback
- 1,500 VRMS isolation for all I/O channels
- DNP3 Controlling Station and Outstation
- IEC 60870-5-104 Controlled Station
- DNP3 Secure Authentication 2.0
- Modbus Client and Server
- Secure authentication (role-based access control)
- Terminal Server
- Integrated-power backplanes
- Combined digital/analog I/O modules
- P6008 protocol (Server only)
- Enhanced event logging and handling with storage and retrieval capacity of 100,000 events
- Efficient DNP3 event reporting mechanism to support up to 4 DNP3 Controlling Stations
- Supports web server for monitoring RTU diagnostic information

SCD2200 Typical Functions and Functional Programming Environment

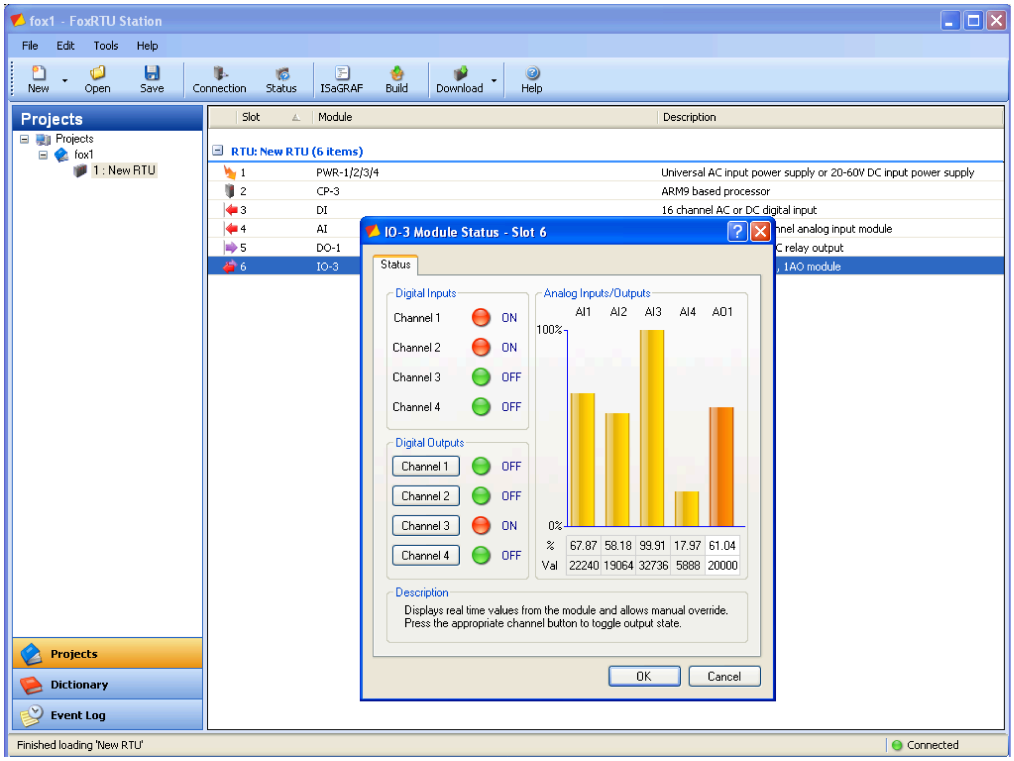
Typical functions of the SCD2200 include:

- Pulse inputs acquisition, counting, and freezing
- Pulse or permanent digital outputs
- Digital and analog outputs with check-before-operate security
- Programmable Sequence Control functions through user-friendly package
- I/O signals driven by local sequences
- Sequence-programs allowing remote loading/unloading
- Store and forward communication technique for time stamped digital/analog chronological archives
- Report by Exception scanning
- Broadcast addressing, protocol dependent
- Dial-up, unsolicited, and spontaneous calls from RTU to control centers on switched telephone lines
- Interface to a local operator workstation or diagnostic terminal
- Sequence of Events (SOE) with 1 ms resolution
- Powerful RTU and/or PLC using local and remote I/O (optional)
- Flow calculation (optional): AGA3, AGA7, AGA8, NX19
- Management of PID algorithms

EcoStruxure™ Foxboro™ SCADA FoxRTU Station Software

The FoxRTU Station software is an integrated operating environment that combines configuration, programming, development, and maintenance in one simple-to-use package. You can view, edit, and diagnose your SCD2200 solution with a single, highly intuitive user interface.

This figure shows the status of modules in the RTU slots using FoxRTU Station.



FoxRTU Station provides role-based access control to restrict system features only to authorized users. FoxRTU Station removes the need to move between software packages or engage in complicated programming as you move from module to module.

With its embedded IEC-61131-3 compliant standard, the system supports:

- Ladder Logic
- Structured Text
- Function Block Diagrams
- Sequential Function Charts
- Instruction Lists
- Flowcharts

In addition, pre-programmed function blocks make it easy to add new capabilities to your SCD2200 RTU solution.

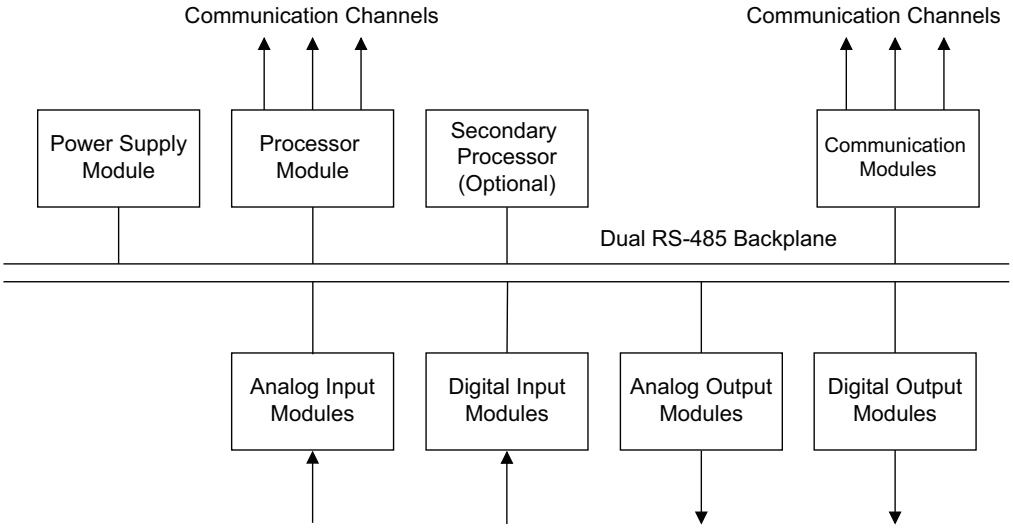
You need FoxRTU Station version 8.3.0 or later to use the new CP-35 and MC-35 modules.

Architecture

The SCD2200 architecture is based on a bus structure sharing all RTU functional blocks: CPU, I/O modules, and communication modules supporting communication line interfaces.

You can easily install or remove each I/O module through standard DIN 41612 connectors. All modules are equipped with front-mounted diagnostic and indication LEDs. The modules are hot swappable, but can also be configured in a redundant configuration on the serial backplane.

Figure 1 - SCD2200 Bus Architecture



Hardware Layout

The SCD2200 is a modular computing device that uses a system of similar modules, which plug into a backplane. There are three types of backplanes.

- Passive (BPLN) backplanes are powered by power supply (PS-xx) modules that need an external AC or DC power supply.
- Integrated-power (BP-x) backplanes are powered externally by a 12 V/5 A DC power supply and do not need a PS-xx power supply.
- The new configurable backplanes (Bxx) that can replace both the BPLN and BP-x backplanes. These can be powered by either a PS-xx module or PS-BP module that needs an external DC power supply.

BPLN backplanes are available in the 4, 6, or 12-slot variations, BP-x backplanes are available in the 2, 4, or 6-slot variations, and Bxx backplanes are available in the 2, 4, 6, and 12-slot variations. You can combine multiple backplanes with extender cables to form a larger RTU. However, you can include only one BP-x backplane (configurable only in the first rack) per RTU. See BPLN (Passive) Backplanes, page 15 through BXX (Configurable) Backplanes, page 19.

Each rack mounted system that uses BPLN/BP-xx backplanes can operate with either a single CPU (CP-3/CP-35 module) or dual CPUs in redundant mode. A common arrangement for redundancy is to manage a non- redundant set of I/O modules with:

- Two CPUs for BP-x backplanes
- Two CPUs and two power supply modules for BPLN/BXX backplanes

CP-3 Module

The CP-3 Module

- 166 MHz clock speed
- Real-time calendar clock
- One Fixed Ethernet 10/100 Base T Port
- Two optional communication ports supporting a number of communication interface cards
- AT-HAYES compatible firmware protocol to drive the modem and the external radio devices
- Field replaceable internal lithium battery for easier maintenance
- Factory Reset option, on the front of the panel, allows easy and quick reset without removing the panel even when it is powered up/running
- Upgraded SRAM to 512 KB and SDRAM to 64 MB

The CP-3 module supports both MC-3 and MC-31 modules in a mixed communications environment.

See *EcoStruxure™ Foxboro™ SCADA SCD2200 Hardware User's Guide* (B0780AE) for more details.

Figure 2 - SCD2200 CP-3 CPU Module

CP-35 Module

The CP-35 Module is a next-generation replacement for the CP-30 processor module and supports the MC-35 communication module. It provides exceptional computing power as well as extra memory and communication functionality to your RTU.

The CP-35 is easy to install and configure, uses interchangeable modules, has advanced communications, and supports powerful programming languages.

- ARM 1GHz clock speed
- Real Time Clock with lifetime (20 year) battery backup
- One Fixed Ethernet 10/100 Base T Port 256 MB ECC DDR3 SDRAM
- Up to 7 communications ports
- Two USB and one microSD card slots
- Graphical OLED display

To target large and distributed RTU systems, the CP-35 is equipped with a 1 GHz 32-bit ARM Cortex-A9 CPU, capable of running all IEC 61131-3 certified languages, and utilizes an Ethernet port as the default connection and configuration medium.

The CP-35 has two option card ports that allow for the insertion of different types of cards. These include:

P0924AF	Communication option I board for Isolated Serial RS232/422/485
P0928RP	Communication option II board for Dual Isolated Serial RS232/422/485
P0924AH	Communication option L board for Private Line or Analog Radio Interface
P0924AE	Communication option H board for HART / Bell 202 interface
P0928RX	Communication option A4 board for Ethernet Fiber Optic with SFP (Small Formfactor Pluggable) transceiver port
P0928RY	Communication option T4 board for Ethernet RJ45 Copper – 10/100 Mbps

For more details, see the *EcoStruxure™ Foxboro™ SCADA SCD2200 CP-35 Processor Module Reference Guide* (B0780AH).

MC-31 Communication Module (Optional)

The MC-31 communication module is an optional module, that supports many communication line interfaces. The MC-31 communication module contains a fixed Ethernet communication port and two optional communication ports supporting a number of communication interface cards.

The optional communication cards include:

- D: V.34 PSTN Dial
- F: Serial over optical
- H: Hart Bell 202-1 to 15 devices multi-drop
- I: Isolated serial [RS-232, RS-485, RS-422]
- II: Isolated Dual channel Serial port-option board [RS-232, RS-485, RS-422]
- L: V.23 2/4 wire for leased line and packet data radio interface support
- T4: 10/100BaseT Ethernet

The MC-31 communication module requires the CP-3 module as a pre-requisite module.

Figure 3 - MC-31 Communication Module

MC-35 Communication Module

The MC-35 module is a next-generation replacement for the optional MC-31 communication module. It uses the same hardware as the CP-35 processor and has many of the same features.

- Up to 7 communications ports

  Port 1 is a fixed Ethernet port, Port 4 is a dual isolated serial port, and Ports 2 and 3 are optional and can support a variety of option cards.
- Fixed Ethernet (Twisted Pair) port on Port 1
- Two fixed isolated serial ports (RS-232 or RS-485)
- Supports Communications Redundancy
- A wide range of available communications option cards

The MC-35 communication module requires the CP-35 module as a pre-requisite module. Both MC-35 and CP-35 support the same option card types. With the fixed Ethernet communication port and the optional communication ports, MC-31 supports a number of communication interface cards. These optional communication cards include:

P0924AF	Communication option I board for Isolated Serial
P0928RP	Communication option II board for Dual Isolated Serial
P0924AH	Communication option L board for Private Line or Analog Radio Interface
P0924AE[a]	Communication option H board for HART / Bell 202 interface
P0928RX	Communication option A4 board for Ethernet SPF holder (Supports 10/100 Mbps SPF transceivers.)
P0928RY	Communication option T4 board for Ethernet RJ45 Copper - 10/100 Mbps
(a) Due to physical constraints, this 2.4 GHz International Spread Spectrum radio will fit into only Port 3 of a processor or communication module.	

Input/Output (I/O) Modules

Common characteristics of the I/O modules are:

- HCMOS technology
- Optical isolation
- Address free
- Front-mounted diagnostic LED and indication LED that allow quick disconnect I/O terminations
- Analog input modules (AI-10)
- Analog output modules (AO-3)
- Digital input modules (DI-5 and DI-10)
- Digital output modules (DO-1, DO-2, and DO-6)
- Combination Analog/Digital IO Modules (IO-3 and IO-5)

Figure 4 - Typical SCD2200 I/O Modules

Power Supply Modules

The available power supply modules are:

PS-12 AC input	100 to 240 VAC power supply (without 24 VDC isolated converter)
PS-22 DC input	20 to 60 VDC power supply (without 24 VDC isolated converter)
PS-12 AC input	100 to 240 VAC power supply with 24 VDC isolated converter
PS-22 DC input	20 to 60 VDC power supply with 24 VDC isolated converter
PS-BP DC input	10-60VDC power supply with a dual step-down converter (only for Bxx)

You can plug in or plug out the power supply modules while the RTU backplane is still ON. However, you must disconnect the input power supply (AC or DC) on the power supply module while plugging in or out from the backplane.

Power supply modules are required only for passive BPLN/Bxx backplanes. They are not required for the BP-x backplanes.

Figure 5 - SCD2200 Power Supply Module

Backplanes

The backplane hosts all the SCD2200 modules that make up an RTU. It allows the processor module to communicate with other modules within the same RTU. It also distributes power to each module. There are three types of backplanes:

- BPLN (passive) backplanes
- BP-x (integrated-power) backplanes
- Bxx (configurable) backplanes to replace both BPLN and BP_x backplanes

You can link multiple backplanes together to create an RTU with up to 64 modules.

Backplanes are designed for surface mounting to support all of the modules and supplied with individual mounting brackets.

You can use a special 19-inch rack backplane mounting bracket to mount any of the following backplane combinations in a 19-inch rack.

- One 2-slot backplane and one 4-slot backplane
- One or two 4-slot backplanes
- One 6-slot backplane

You can use a set of alternative WINGS rack mounting brackets to mount a 12-slot backplane in a 19-inch rack.

BPLN (Passive) Backplanes

A BPLN backplane powers its modules using a power supply (PS-xx) module that is connected to an external AC or DC supply. Therefore, you must install a PS-xx module in one of its slots to run the RTU.

These backplanes provide a flexible solution for creating medium- to large-scale RTUs of any desired configuration. The available variants are:

- 4 BPLN (4-slot backplane)
- 6 BPLN (6-slot backplane)
- 12 BPLN (12-slot backplane)

Figure 6 - Empty 12-Slot Backplane

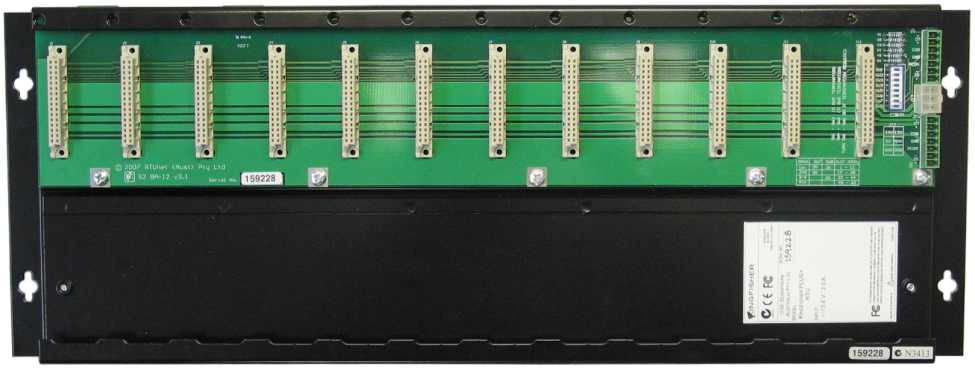


Figure 7 - BPLN Backplane Module Layouts

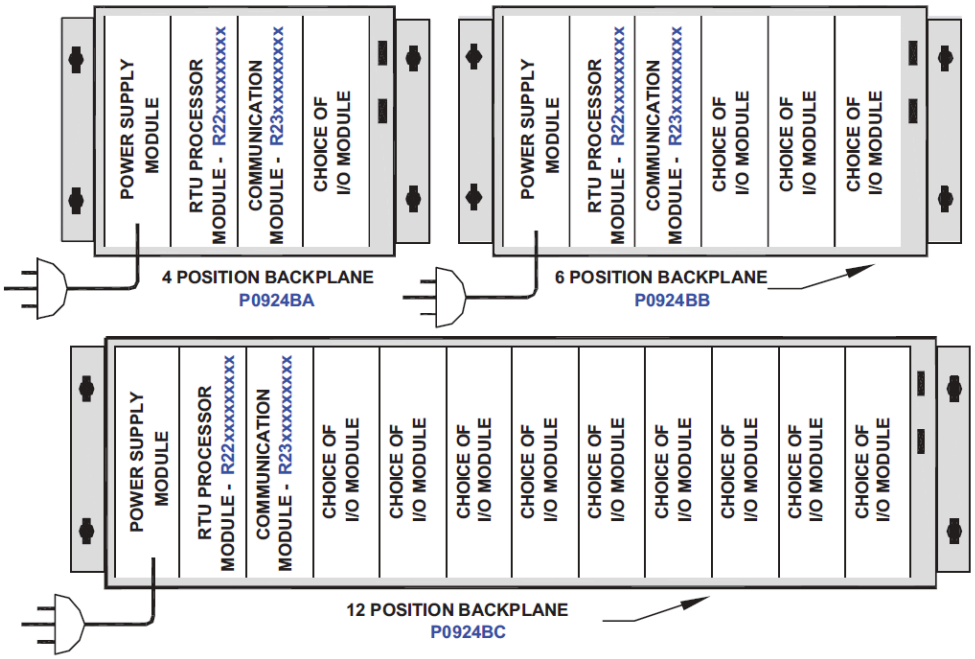
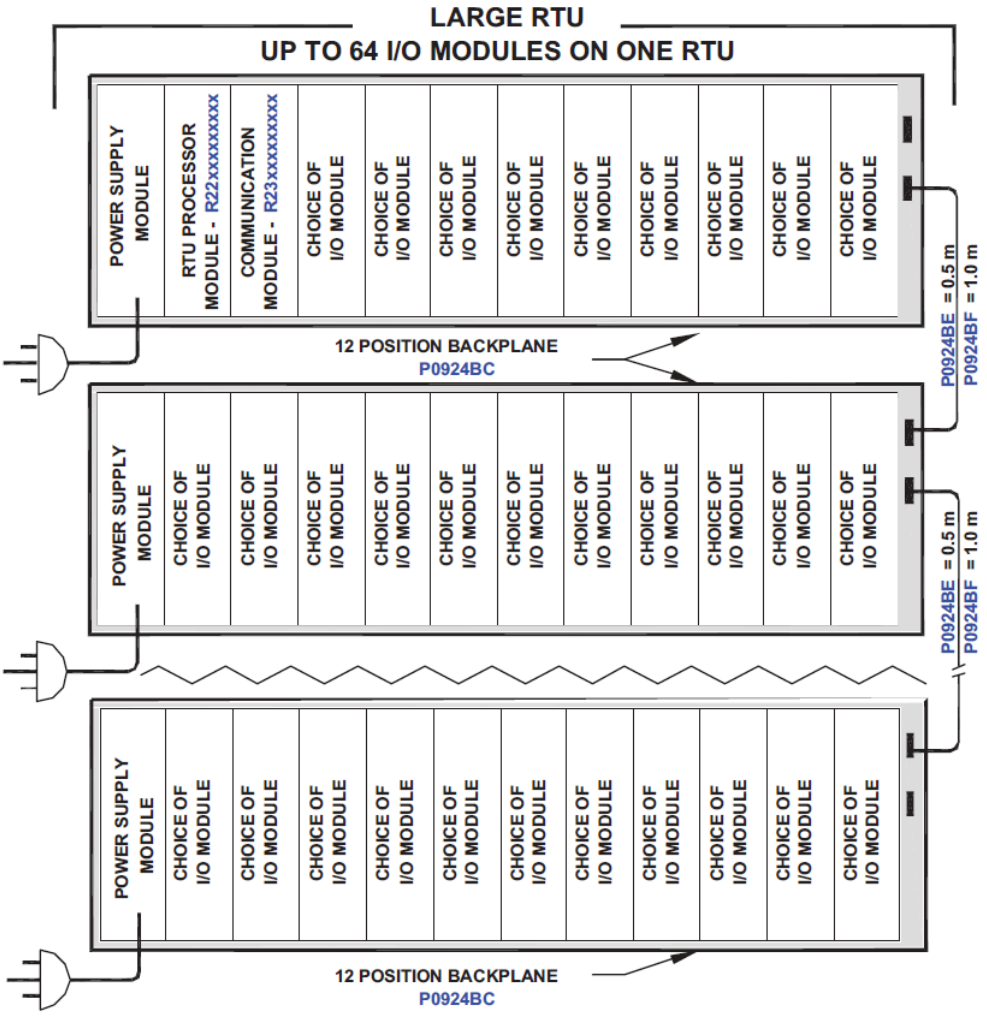


Figure 8 - Large RTU with BPLN Backplanes



BP-X (Integrated-Power) Backplanes

Though the BP-x backplanes serve the same purpose as the BPLN backplanes, they do not require a PS-xx module to power the other connected modules. These backplanes have an integrated 5 V power supply and require only an external 12 V DC power source. They have a switchable auxiliary 12 V output to power extra circuits and indicate the status of the power rail.

These backplanes have limited expansion and configuration capabilities and are mainly aimed at small-scale, low-cost RTUs. The available variants with integrated 5 V power supply are:

- BP-2 (2-slot backplane)
- BP-4 (4-slot backplane)
- BP-6 (6-slot backplane)

Figure 9 - Empty 2-Slot Backplane

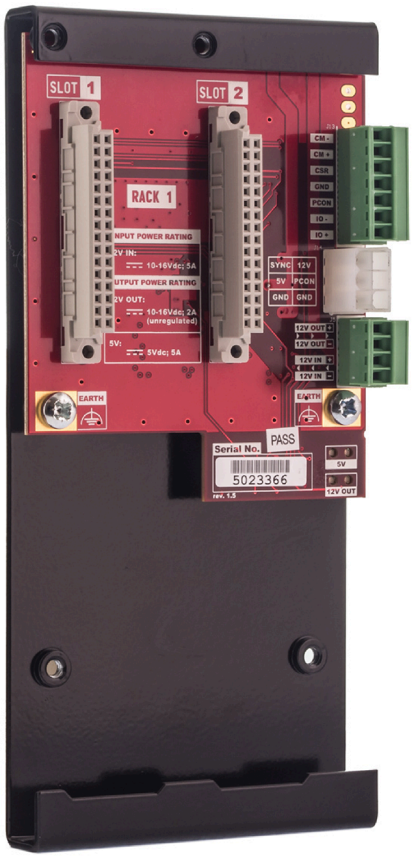


Figure 10 - BP-x Backplane Module Layouts

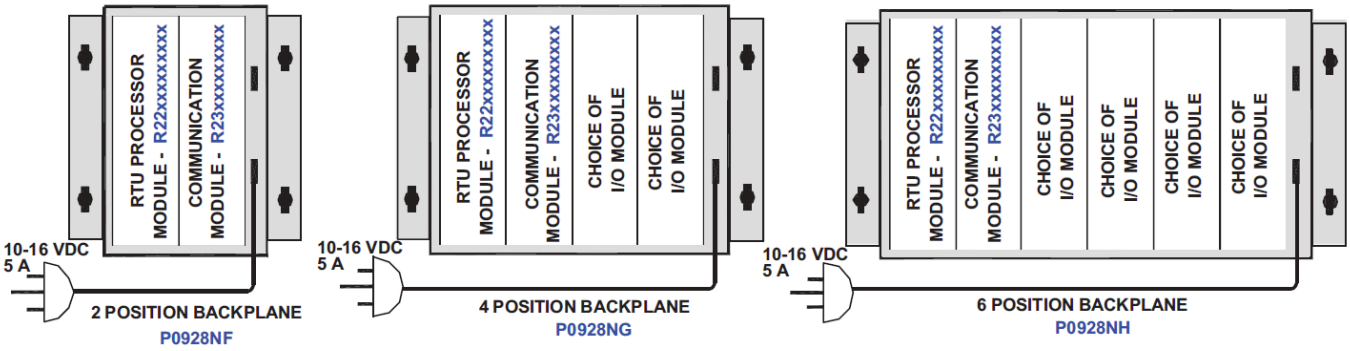
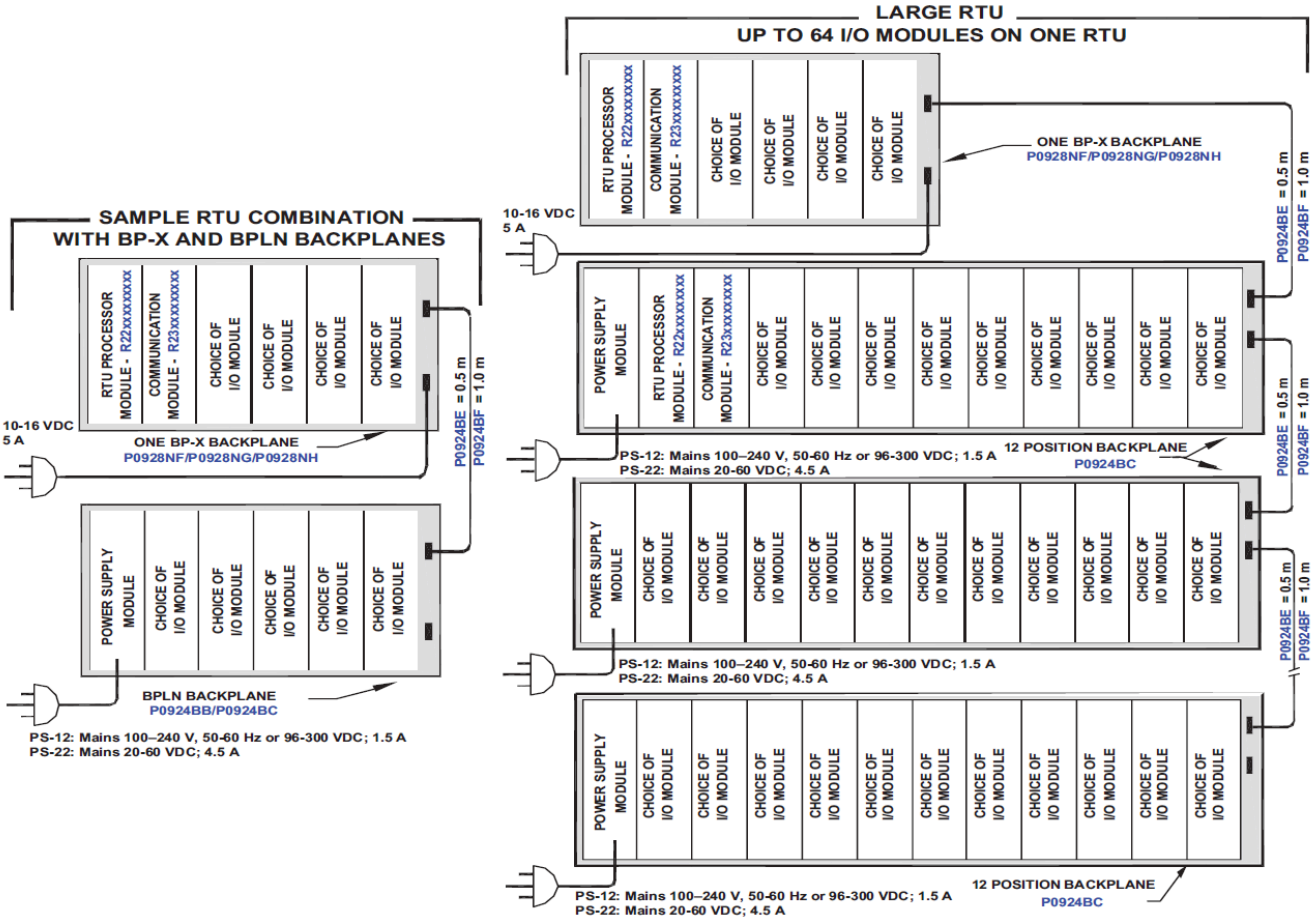


Figure 11 - Possible RTUs Using a BP-x Backplane



BXX (Configurable) Backplanes

Configurable backplanes replace BPLN and BP-x backplanes. Similar to BPLN backplanes, configurable backplanes are passive and require a power supply module. However, these backplanes are enabled for upgrade to:

- Powered backplanes by mounting the power supply modules (PS-BP) on their rear-side connectors.
- High-speed backplanes by connecting the high-speed backplane expansions on their bottom-side connectors (available in future releases).

The configurable backplanes use a different design of the metalwork that is not compatible with BPLN and BP-x backplane boards.

The available variants are:

- B02 (2-slot backplane)
- B04 (4-slot backplane)
- B06 (6-slot backplane)
- B12 (12-slot backplane)

When ordering this module, use the relevant code name to specify if you want a fitted PS-BP.

Functional Specifications

CP-3 Module	• ARM9 processor operating at 166 MHz • 64 MB SDRAM • 16 MB Flash • 512 KB of battery backed CMOS static RAM • Real Time Clock • 10/100 Mbits/s Ethernet Interface • 2 optional ports for communication options
MC-31 Module	• Ethernet Communications ◦ 10/100BaseT ◦ PPP Dial via D option • Optional Communications cards, see MC-31 Communication Module (Optional), page 11
CP-35 Module	• 1 GHz ARM Cortex-A9 32-bit processor • 256 MB ECC DDR3 SDRAM • 2 GB eMMC Flash memory (high reliability pSLC mode) • Real Time Clock with lifetime (20 year) battery backup • OLED diagnostic and status display • 2 x 5-way controllers for user interface • Front panel USB 2.0 Type A socket • 10/100 Base-T Ethernet port • 2 x Front panel isolated serial ports (RS232/485) • 2 x option card slots, for adding additional communications or I/O ports
MC-35 Module	• Ethernet communications ◦ 10/100BaseT • Optional communication cards, see MC-35 Communication Module, page 12
Input Channels (Four)	• Communication • Modbus protocol interface (RS-232-C/RS-485, ASCII and binary, and Modbus TCP) • DNP3 Controlling Station and Outstation interface (RS-232-C/ RS-485, RS-422, TCP/IP, and UDP) with DNP3 Secure Authentication 2.0 • P6008 protocol interface (RS-232-C/RS-485, ASCII and binary) • Terminal Server (on OPT I: Isolated serial (RS-232, RS-485, RS-422) card only) • Five serial communication modules each with two ports either RS-232-C and/or RS-485 interface [Max 17 ports] • Asynchronous communication • Automatic dialing/answer in switched network mode • Primary/Secondary RTUs dial • Transmission rate from 300 to 115 kbps

I/O Modules	• AI-10 ◦ 8 Channel Analog Inputs ◦ 5 kV field to logic isolation ◦ 0 to 20 mA; 4 to 20 mA current signals [Software Select] ◦ +/- 2.5 V, +/-5 V, and +/-10 V bipolar voltage ranges [Software Select] ◦ 16-bit resolution ◦ 0.1% accuracy @ 25°C ◦ 1 ms per channel internal scanning to filter out noise more effectively ◦ Allows voltage and/or current inputs through the Jumpers ◦ Consumes less power • AO-3 ◦ 4 Channel Analog Outputs with Open Loop Detection ◦ 0 to 20 mA; 4 to 20 mA outputs ◦ 12-bit digital-to-analog converter resolution ◦ 0.2% accuracy @ 25°C ◦ 3 kV Isolation • DI-5 ◦ 16 Channel Digital Inputs / 4 counters ◦ One common per eight channels 1.5 kV isolation ◦ Isolated Output to power inputs ◦ 16-bit Pulse Counting on Channels 1 - 4 ◦ Frequency Counting: – Channels 1 and 2 - 10 KHz maximum – Channels 3 and 4 - 255 Hz maximum ◦ Positive or Negative Polarity Inputs • DI-10 ◦ 16 Channel Digital Inputs / Counters ◦ Opt-isolated inputs for 24 VDC contacts, 3 kV Isolation ◦ Opt-isolated pulse inputs for 24 VDC contacts ◦ 16-bit/counter resolution: – All channels at 10 KHz resolution ◦ Also supports AC inputs (20 to 125 VAC) and DC inputs (+6 to 130 VDC) ◦ Input voltage thresholds are now compatible with IEC 61131-2 Type 1 and Type 3 • DO-1 ◦ 8 Channel Digital Outputs ◦ SPDT/SPST relays contacts ◦ 5A @ 30 VDC output (maximum) for each contact ◦ Check-before-operate, protocol dependent • DO-2 ◦ 16 Channel Digital Outputs ◦ SPDT/SPST relays contacts ◦ 5A @ 30 VDC output (maximum) for each contact ◦ Check-before-operate, protocol dependent • DO-6

	◦ 16 Channel Relay Driver ◦ Open drain N-FET outputs ◦ Rated load 70 mA per channel, 30 VDC maximum • IO-3 ◦ Multi - IO Module ◦ AI: 4 x (0 to 20 mA; 4 to 20 mA; 0 to 5 V; 1 to 5 V) inputs ◦ DI: 4 x (1 kV Isolated) inputs ◦ AO: 1 x (0 to 20 mA; 4 to 20 mA) outputs ◦ DO: 4 x SPST contacts outputs • IO-5 ◦ Multi - IO Module ◦ AI: 4 x (0 to 20 mA; 4 to 20 mA; 0 to 5 V; 1 to 5 V) inputs ◦ DI: 4 x (5 kV Isolated, sinking) inputs ◦ AO: 1 x (0 to 20 mA; 4 to 20 mA) outputs ◦ DO: 4 x (3 kV Isolated, solid state, sinking) outputs
Power Supply Modules	• PS-12 AC Input Power Supply ◦ 90 to 260 VAC input, from 48 to 62 Hz, with battery charger providing 12 VDC floating connection ◦ Also supports 96 to 340 VDC ◦ Supplies 5A of output current to a 5V backplane ◦ Total output power is linearly derated to 30 W from +65°C to +85°C (derating factor is 1.5 W/°C above +65°C) ◦ 5 VDC output is linearly derated to 4.0 A from +60°C to +85°C (derating factor is 40 mA/°C above +60°C) ◦ 24 VDC output is linearly derated to 100 mA from +70°C to +85°C (derating factor is 10 mA/°C above +70°C) • PS-22 DC Input Power Supply ◦ 24 VDC input, positive/negative/floating grounded, with battery charger providing 12 VDC floating connection ◦ 5 VDC output is linearly derated to 4.0 A from +60°C to +85°C (derating factor is 40 mA/°C above +60°C) ◦ 24 VDC output is linearly derated to 100 mA from +70°C to +85°C (derating factor is 10 mA/°C above +70°C) • PS-BP DC Input Power Supply ◦ 10 60 VDC / 10 A input, generates stable voltages for the 5V-rail and for the 12V-rail from the supplied VIN voltage. ◦ The efficiency of the PS-BP converter decreases slightly at higher input voltages therefore its maximum output power must be de-rated at high temperatures if used in systems with high-voltage power sources (48 VDC and above). • Isolation Tests Performed ◦ Voltage isolation – Common mode: 1,500 V - single pulse 1.2 µs/50 µs – Differential mode: 1,500 V - single pulse 1.2 µs/50 µs ◦ Isolation resistance > 100 MΩ

Regulatory Compliance	• Electromagnetic Compatibility (EMC) ◦ European EMC Directive 2014/30/EU Meets: EN61326-1:2013 Class A Emissions and Industrial Immunity Levels • Product Safety ◦ NRTL Certified compliant to UL 60950-1 and CSA C22.2 No. 60950-1 ◦ Low Voltage Directive 2014/35/EU ◦ Meets EN60950-1:2013 ◦ To obtain details on product safety, contact the Schneider Electric sales team.

Module Environmental Specifications

Operating	• Temperature ◦ -40 to +85°C (-40 to +185°F) – For modules: B02, B04, B06, B012 BPLN-12, BPLN-4, BPLN-6 BP-6, BP-4, BP-2 PS-BP, PS-12-C, PS-22-C, PS-12-0, PS-22-0 AI-10-1, DI-5, DI-10, DO-1, DO-2, DO-6, AO-3, IO-3, IO-5 CP-3, CP-35, MC-31, MC-35 COM I, COM II, COM F, COM H,COM A4, COM T3, COM T4, and COM L ◦ -20 to +70°C (-4 to +158°F) – For modules: COM D, COM R2, COM R3, and COM R4 • Relative Humidity ◦ 5 to 95% (noncondensing) at 40°C (104°F) • Altitude ◦ 0 to 2,000 m (0 to 6562 ft)
Storage	• Temperature ◦ -40 to +85°C (-40 to +185°F) • Relative Humidity ◦ 5 to 95% (noncondensing) at 40°C (104°F)
Contamination	Suitable for use in Class G3 (Harsh) environments as defined in the ISA Standard S7 1.04. The standard is based on exposure testing according to the EIA Standard 364-65, Class III.
Vibration	5.0 m/s2 (0.5 g) from 5 to 500 Hz

Physical Specifications

Modules	• Mounting ◦ Mount onto a modular backplane. • Weight ◦ 284 g (10 oz) approximate ◦ 454 g (16 oz) approximate (Power Supply only) • Dimensions ◦ Height – 174 mm (6.9 in) ◦ Width – 35 mm (1.4 in) ◦ Depth – 156 mm (6.1 in)
Backplanes	Backplanes are designed for surface mounting and include mounting brackets (2 pieces). • Mounting brackets are used to mount any of the following in a 19-inch rack: ◦ One 6-slot backplane (6 BPLN, B06, or BP-6) ◦ Two 4-slot backplanes (4 BPLN, B04, or BP-4) ◦ One 2-slot backplane (BP-2 or B02) and one 4-slot backplane (4 BPLN or B04) ◦ Wing rack brackets are used to mount the 12-slot backplane (12 BPLN or B12) in a 19-inch rack
BPLN Backplanes	• Configurations ◦ Support 4, 6, or 12-slot configurations ◦ Can link multiple backplanes with up to 64 modules • Dimensions ◦ Height – 176 mm (6.9 in) ◦ Width – 4-slot 194 mm (7.6 in) – 6-slot 266 mm (10.5 in) – 12-slot 482 mm (19.0 in) • Depth ◦ 22 mm (0.9 in)

BP-X Backplanes	• Configurations ◦ Support 2, 4, or 6-slot configurations ◦ One BP-x backplane per RTU, can link multiple BPLN backplanes with up to 64 modules • Dimensions ◦ Height – 176 mm (6.9 in) ◦ Width – 2-slot 122 mm (4.8 in) – 4-slot 194 mm (7.6 in) – 6-slot 266 mm (10.5 in) • Depth ◦ 22 mm (0.9 in)
BXX Backplanes	• Configurations ◦ Support 2, 4, 6, or 12-slot ◦ One configurable backplane with the integrated power supply module (PS-BP) per RTU, can link multiple backplanes with up to 64 modules • Dimensions ◦ Height – 177mm (7.0 in) • Width ◦ 2-slot 141 mm (5.5 in) ◦ 4-slot 213 mm (8.4 in) ◦ 6-slot 285 mm (11.2 in) ◦ 12-slot 482 mm (19.0 in) • Depth ◦ 22 mm (0.9 in)

Dimensions - Nominal

Figure 12 - Module Mounted on a Backplane

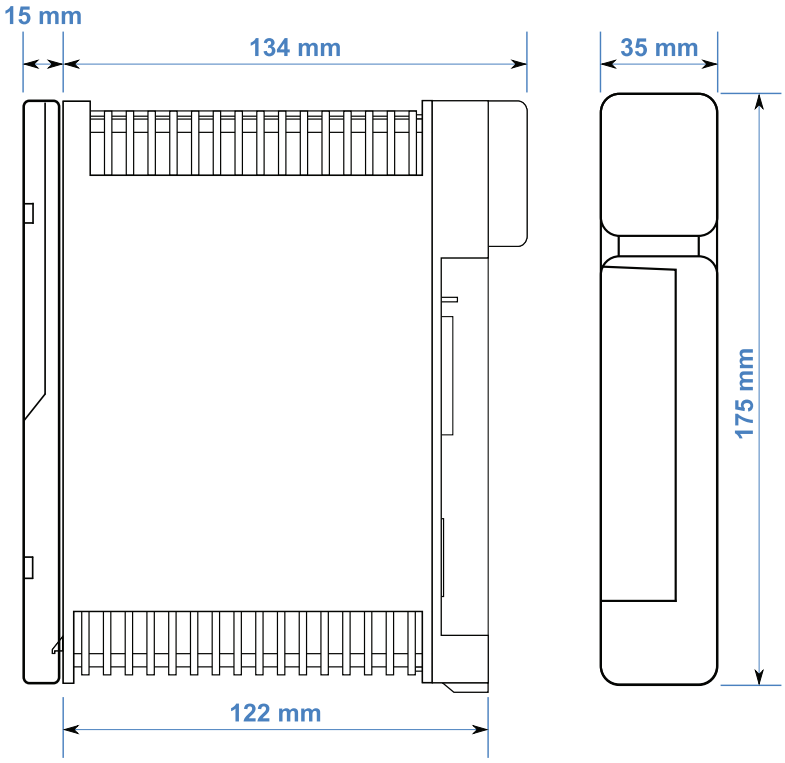
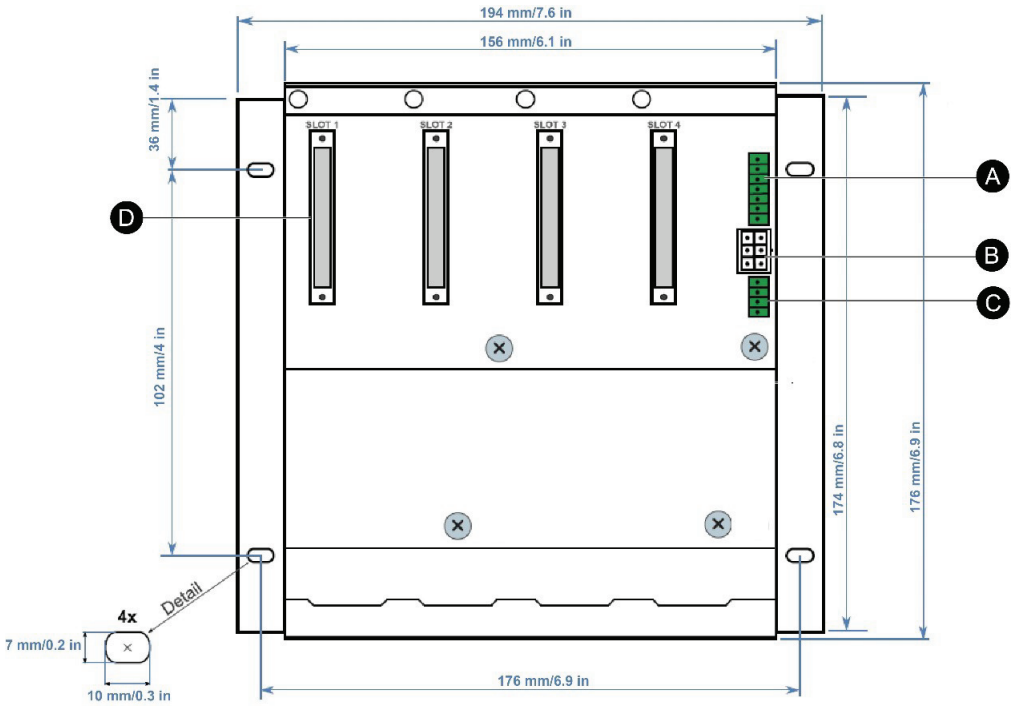
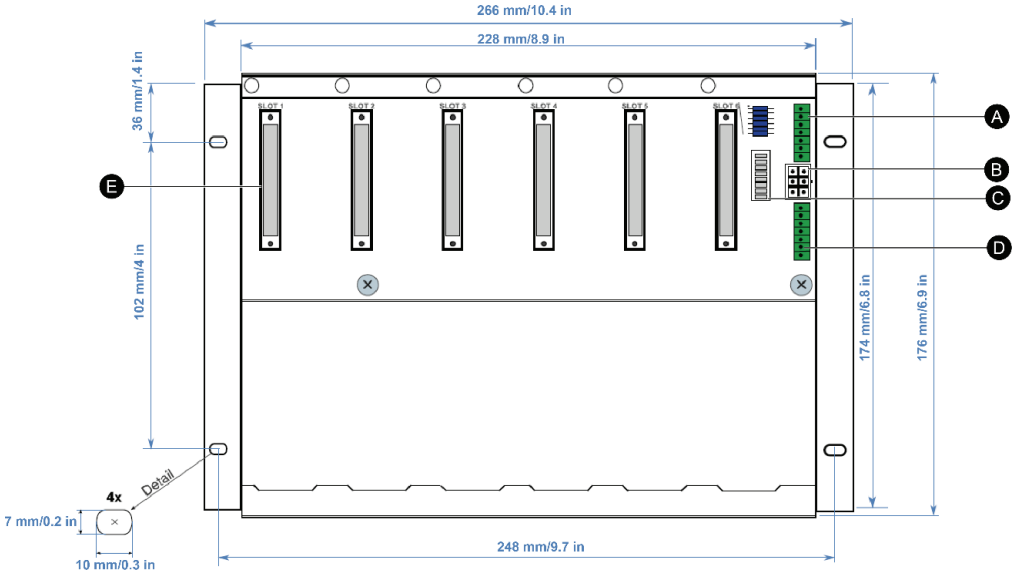


Figure 13 - 4 BPLN (4 Slot Backplane)



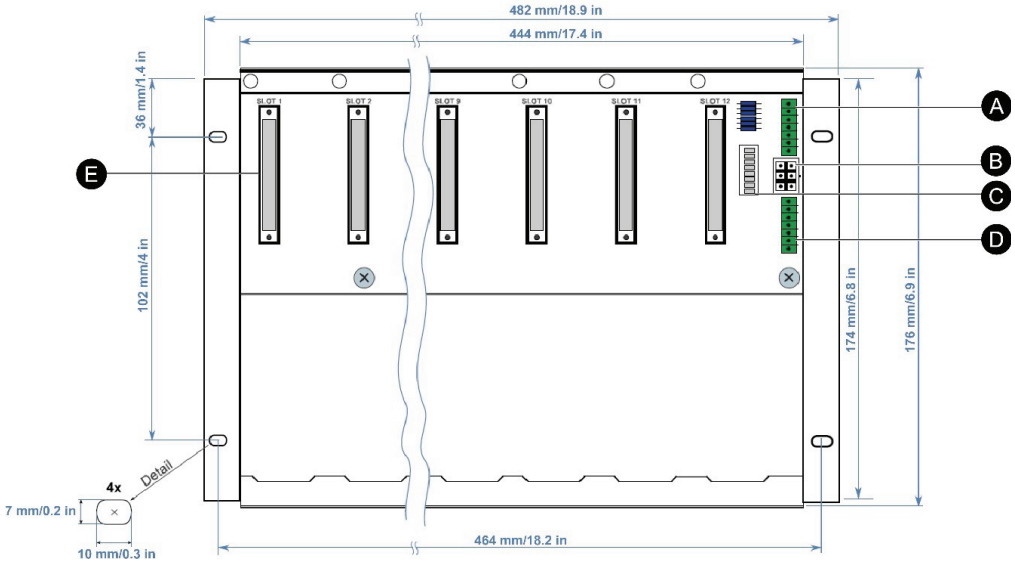
A	J13: Data socket
B	J14: External power socket
C	Data socket
D	Module connector

Figure 14 - 6 BPLN (6 Slot Backplane)



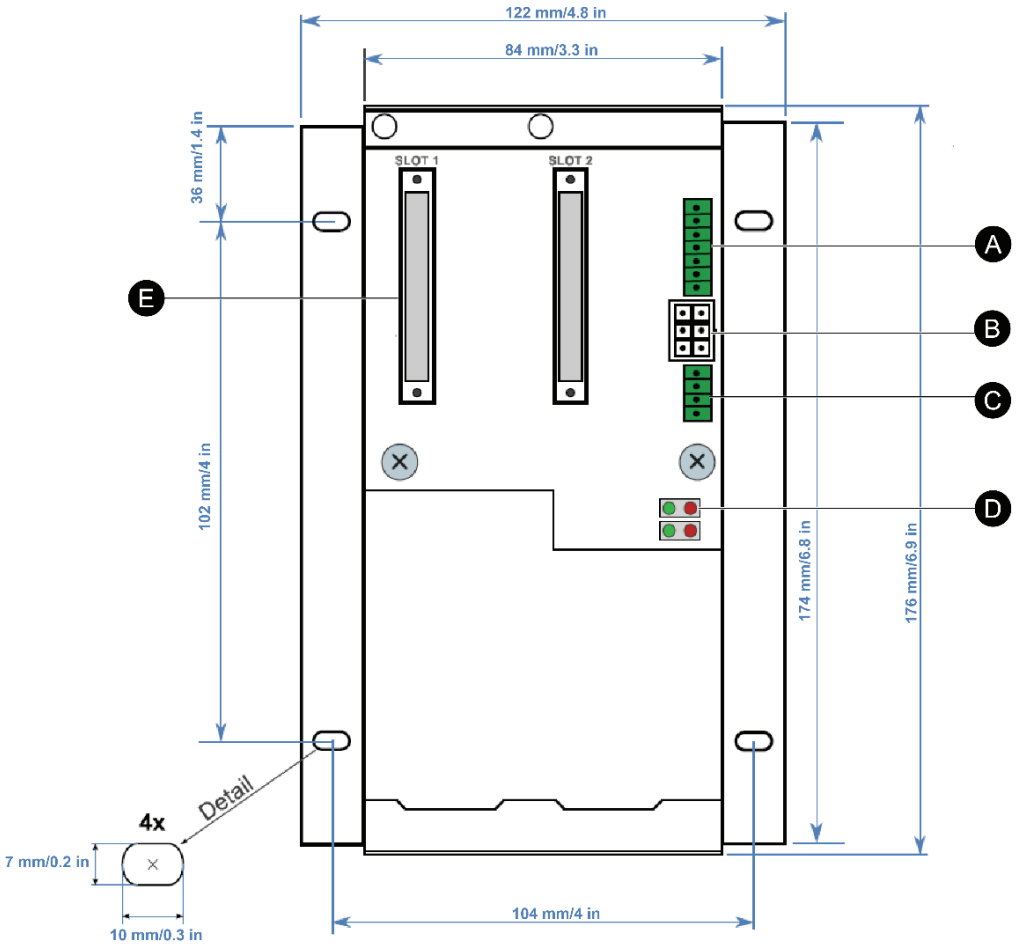
A	J13: Data socket
B	J14: External power socket
C	Termination and address DIP switch
D	J15: Data socket
E	Module connector

Figure 15 - 12 BPLN (12 Slot Backplane)



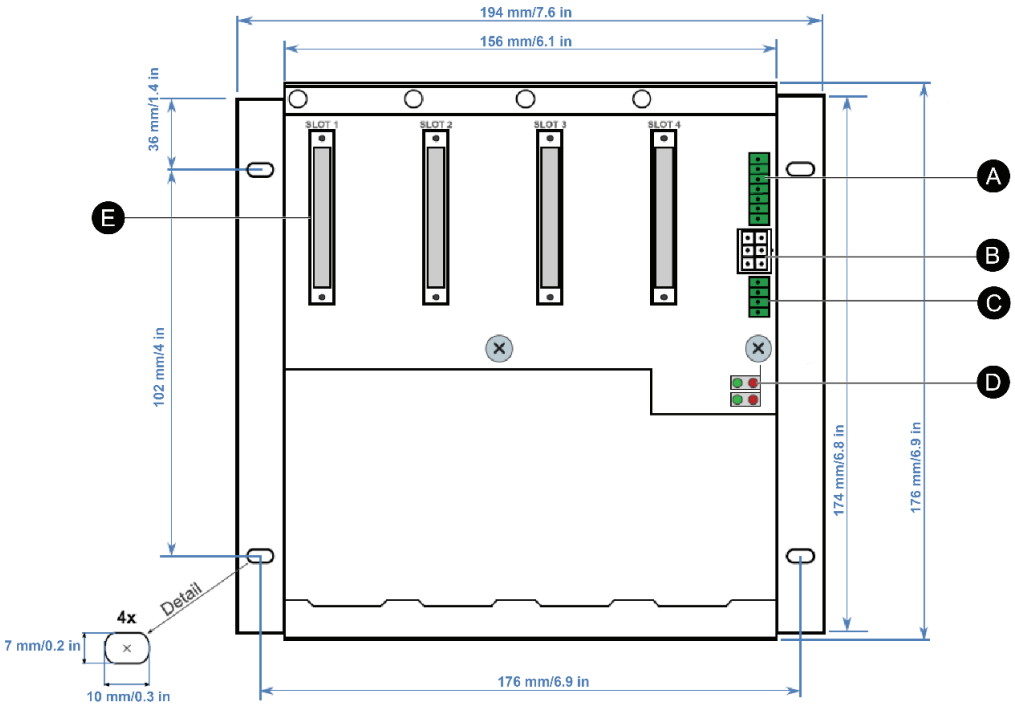
A	J13: Data socket
B	J14: External power socket
C	Termination and address DIP switch
D	J15: Data socket
E	Module connectors

Figure 16 - BP-2 (Integrated-Power) Backplane



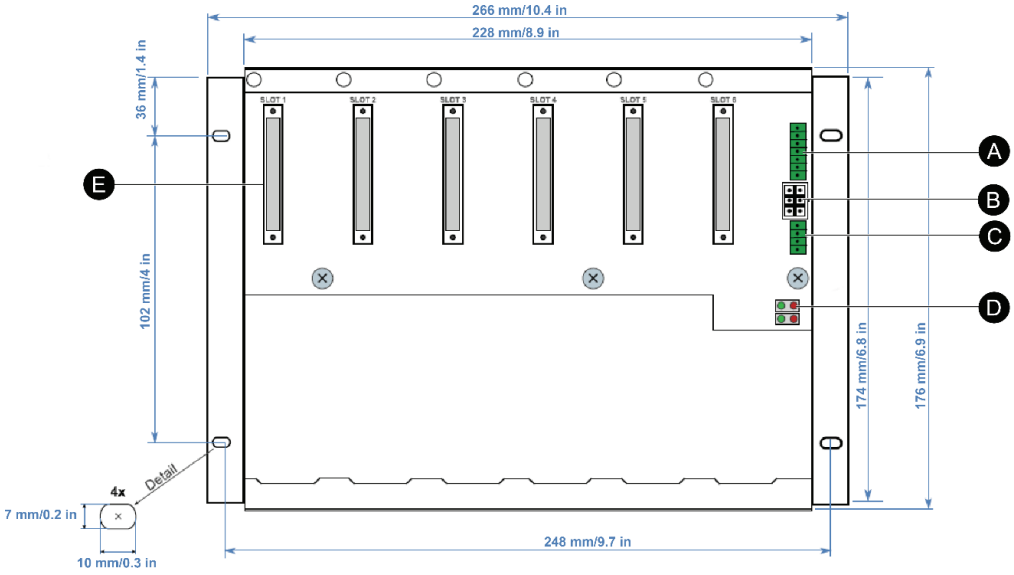
A	J13: Data socket
B	Termination and Address DIP Switches
C	Power Socket
D	Power Status Indicators
E	Module connectors

Figure 17 - BP-4 (Integrated-power) Backplane



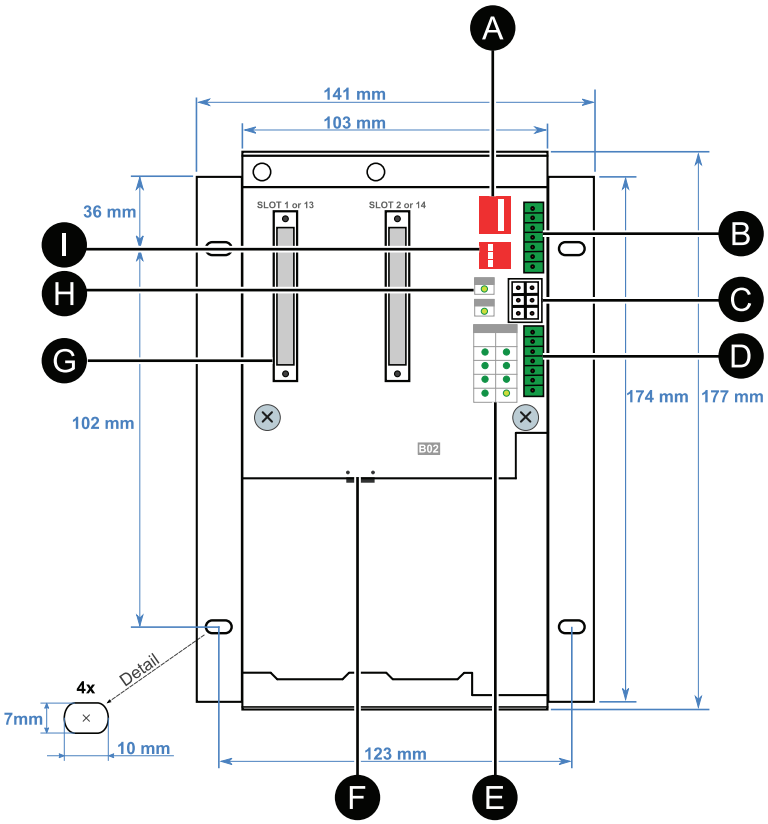
A	J13: Data socket
B	J14: External power socket
C	Power Socket
D	Power status indicators
E	Module connectors

Figure 18 - BP-6 (Integrated-power) Backplane



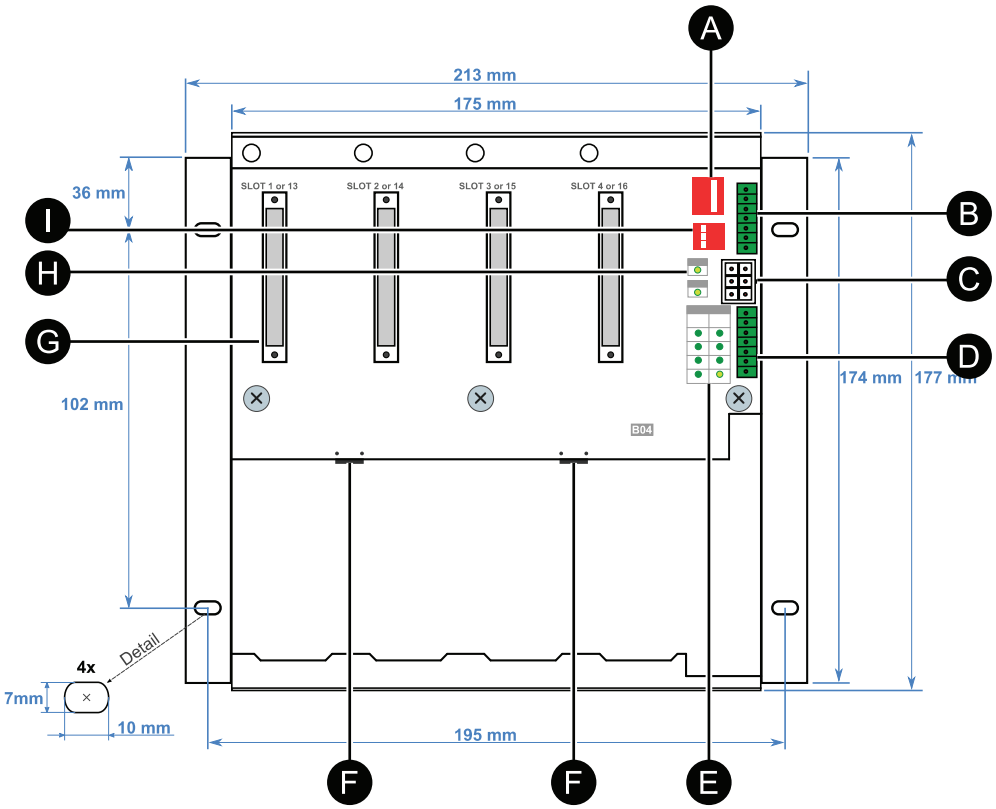
A	J13: Data socket
B	J14: External power socket
C	Power Socket
D	Power status indicators
E	Module connector

Figure 19 - B02 (2-Slot Backplane)



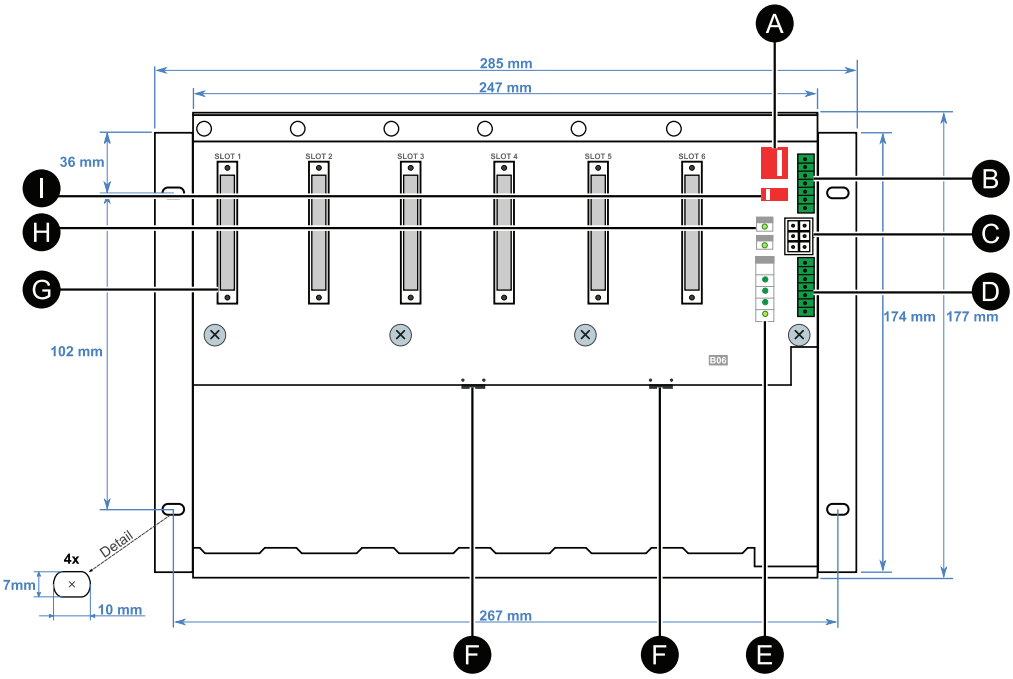
A	IO-bus and CM-bus Termination Switch
B	J13 Data Socket (Inter-rack Data Link)
C	J14 External Power Socket (Power and Power Control)
D	J15 Data Socket (Inter-rack Data Link)
E	Slot Range LEDs
F	High-speed Expansion Board Connectors
G	Module Connectors
H	Power Status LEDs (5 V_{DC} and 12 V_{DC} rails)
I	Rack Address and Slot Range DIP Switch

Figure 20 - B04 (4-Slot Backplane)



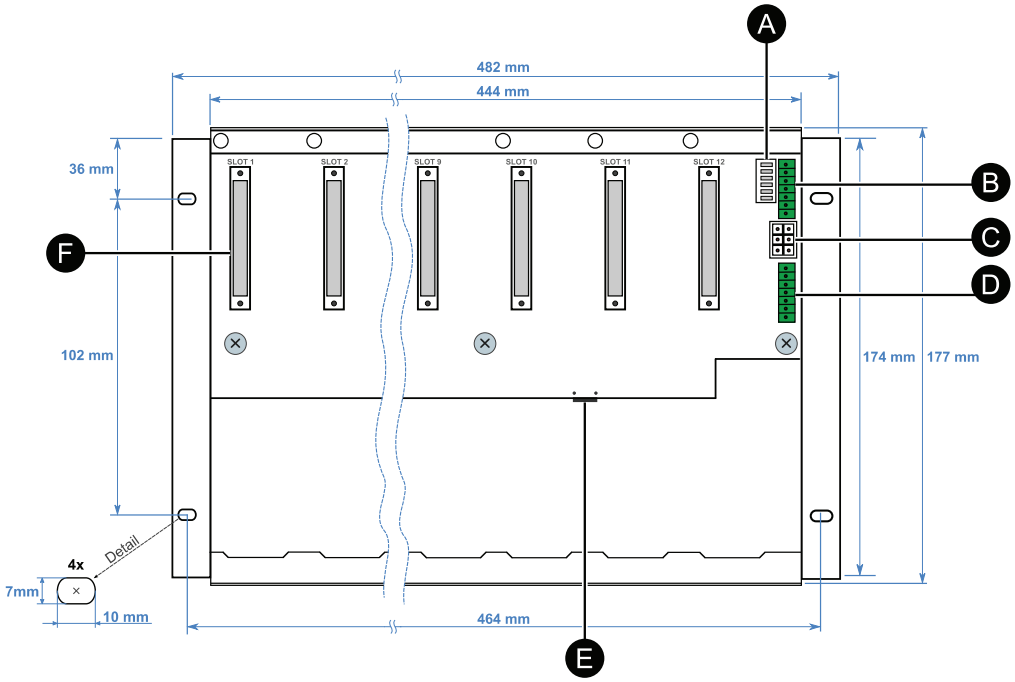
A	IO-bus and CM-bus Termination Switch
B	J13 Data Socket (Inter-rack Data Link)
C	J14 External Power Socket (Power and Power Control)
D	J15 Data Socket (Inter-rack Data Link)
E	Slot Range LEDs
F	High-speed Expansion Board Connectors
G	Module Connectors
H	Power Status LEDs (5 V_{DC} and 12 V_{DC} rails)
I	Rack Address and Slot Range DIP Switch

Figure 21 - B06 (6-Slot Backplane)



A	IO-bus and CM-bus Termination Switch
B	J13 Data Socket (Inter-rack Data Link)
C	J14 External Power Socket (Power and Power Control)
D	J15 Data Socket (Inter-rack Data Link)
E	Slot Range LEDs
F	High-speed Expansion Board Connectors
G	Module Connectors
H	Power Status LEDs (5 V_{DC} and 12 V_{DC} rails)
I	Rack Address and Slot Range DIP Switch

Figure 22 - B12 (12-Slot Backplane)



A	Termination and Address DIP-switches
B	J13 Data Socket (Inter-rack Data Link)
C	J14 External Power Socket (Power and Power Control)
D	J15 Data Socket (Inter-rack Data Link)
E	High-speed Expansion Board Connectors
F	Module Connectors

Ordering Information

Part Number	Description	HW Version Number	Operating Temperature Range
R22	CP-3: SCD2200 Model RTU Processor Module	2.3.A	-40°C to +85°C
R23	MC-31: SCD2200 Model RTU Communications Module	2.3.A	-40°C to +85°C
R24	CP-35: SCD2000 Model RTU Processor Module	1.3.0	-40°C to +85°C
R25	MC-35: SCD2000 Model RTU Communications Module	1.3.0	-40°C to +85°C
P0924AE	Communication option H board for CP-3/MC-31; HART Interface (Limited functionality-refer to specification)	1.2.A	-40°C to +85°C
P0924AF	Communication option I board for CP-3/MC-31; isolated RS232/422/485	1.0.A	-40°C to +85°C
P0928RP	Communication Option II board for CP - 3/MC -31; Dual Isolated serial port RS232/485/422	1.1	-40°C to +85°C
P0924AH	Communication option L board for CP-3/MC-31; 2/4-wire V.23 interface, 1200 bps	1.2.A	-40°C to +85°C
P0928RY	Communication option T4 board for CP-35/MC-35, Ethernet RJ45 Copper - 10/100 Mbps	1.0.0	-40°C to +85°C
P0928RX	Communication option A4 board for CP-35/MC-35, Ethernet SPF holder - 10/100 Mbps	1.2.0	-40°C to +85°C The operational range can be limited by the temperature specifications of the selected transceiver.
P0924XU	PS-12-0: Power supply (100-240 VAC input) includes monitoring processor	1.6.A	-40°C to +85°C
P0924XV	PS-22-0: Power supply (20-60 VDC input) includes monitoring processor	1.6.A	-40°C to +85°C
P0928CR	PS-12-C: Power supply (100-240 VAC input) with auxiliary 24 V	1.6.A	-40°C to +85°C
P0928CS	PS-22-C: Power supply (20-60 VDC Input) with auxiliary 24 V	1.6.A	-40°C to +85°C
P0928SA	PS-BP: Power Supply for passive backplanes Bxx (10-60 VDC input)	1.3.0	-40°C to +85°C
P0924AS	AI-10-1: I/O Module - 8 analog inputs	2.2.A	-40°C to +85°C
P0924CV	AO-3: Analog Output - 4 channel, 12 bit resolution with open circuit detection	1.2.A	-40°C to +85°C
P0924AU	DI-10: Digital Input - 16 channel (6-130 VDC, 20-260 VAC)	4.3.A	-40°C to +85°C
P0924AV	DO-1: Digital Output - 8 channel (N.O. and N.C. contacts)	2.3.A	-40°C to +85°C
P0924AW	DO-2: I/O Module - 16 Single Pole/Normally Open, relay outputs	2.2	-40°C to +85°C

Part Number	Description	HW Version Number	Operating Temperature Range
P0924AX	DO-6: I/O Module -16 digital, relay driver (open drain) outputs	1.2.A	-40°C to +85°C
P0924AY	IO-3: I/O Module - 4 analog inputs, 4 digital inputs, 4 relay outputs,1 analog output	1.3	-40°C to +85°C
P0924XW	IO-5: Combinational Analog/Digital I/O Module - 4 sinking solid state outputs, 4 digital inputs, 4 analog inputs, 1 analog output with open line detection	1.3.A	-40°C to +85°C
P0924CJ	DI-5: Digital Input - 16 channel (12-24 VDC)	1.6.A	-40°C to +85°C
P0924BA	4 BPLN: 4 slot backplane	3.2	-40°C to +85°C
P0924BB	6 BPLN: 6 slot backplane	3.2	-40°C to +85°C
P0924BC	12 BPLN: 12 slot backplane	3.2	-40°C to +85°C
P0928NF	BP-2: 2-slot backplane with integrated power supply	1.5.A	-40°C to +85°C
P0928NG	BP-4: 4-slot backplane with integrated power supply	1.5.A	-40°C to +85°C
P0928NH	BP-6: 6-slot backplane with integrated power supply	1.5.A	-40°C to +85°C
P0928RZ	B02: 2 Slot Passive Backplane	1.3.0	-40°C to +85°C
P0928SB	B04: 4 Slot Passive Backplane	1.2.0	-40°C to +85°C
P0928SC	B06: 6 Slot Passive Backplane	1.2.0	-40°C to +85°C
P0928SD	B12: 12 Slot Passive Backplane	1.1.0	-40°C to +85°C
P0928SE	BP-2 PWR: 2 Slot Powered Backplane 10-60VDC	1.3.0	-40°C to +85°C
P0928SF	BP-4 PWR: 4 Slot Powered Backplane 10-60VDC	1.2.0	-40°C to +85°C
P0928SG	BP-6 PWR: 6 Slot Powered Backplane 10-60VDC	1.2.0	-40°C to +85°C
P0924BD	19" rack wings for 12-slot backplanes (suit 19" rack mounting)	0	-40°C to +85°C
P0924CD	Bracket for mounting 4 or 6-slot backplanes in 19” rack	0	-40°C to +85°C
P0924BE	Baseplate Connection Cable - 0.5 m	N/A	-40°C to +85°C
P0924BF	Baseplate Connection Cable - 1.0 m	N/A	-40°C to +85°C
P0924BG	Interrack 6 way Power Cable - 0.6 m	N/A	-40°C to +85°C
P0924BH	Interrack 6 way Power Cable - 1.1 m	N/A	-40°C to +85°C
P0924BJ	Cable to connect SS wireless card to yagi antenna	N/A	-20°C to +70°C
P0924BK	PC/Serial Port adapter for I and S options	N/A	0°C to +70°C
K0203DT	FoxRTU Station with ISaGRAF 6.5 - Unlimited License	N/A	N/A

Related Documents

- *EcoStruxure™ Foxboro™ SCADA FoxRTU Station User's Guide* (B0780AF)
- *EcoStruxure™ Foxboro™ SCADA SCD2200 Hardware User's Guide* (B0780AE)
- *EcoStruxure™ Foxboro™ SCADA SCD2200 CP-35 Processor Module Reference Guide* (B0780AH)
- *EcoStruxure™ Foxboro™ SCADA SCD2200 Outstation DNP3 Device Profile User's Guide* (B0780AG)
- *EcoStruxure™ Foxboro™ SCADA SCD2200 11.0 Release Notes* (B0780RL)

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