**Pneumatic Division**
Richland, Michigan 49083

**Installation & Service Instructions**
**E103P**

**H Series Fieldbus ControlNet Adapter, Series A (PSSCCNA)**

**ISSUED: February, 2016**
**Supersedes: December, 2006**
**Doc.# E103P, EN# 160064, Rev. D**

## ⚠ WARNING

**To avoid unpredictable system behavior that can cause personal injury and property damage:**

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

## Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

## H Series Fieldbus ControlNet Adapter User Manual

The H Series Fieldbus ControlNet Adapter User Manual PSS-UM003A-EN-P is not available at this time. Please refer to Rockwell Automation 1734 POINT I/O ControlNet Adapter User Manual 1734-UM008A-EN-P for similar setup information, which is available online at http://literature.rockwellautomation.com/.

## Introduction

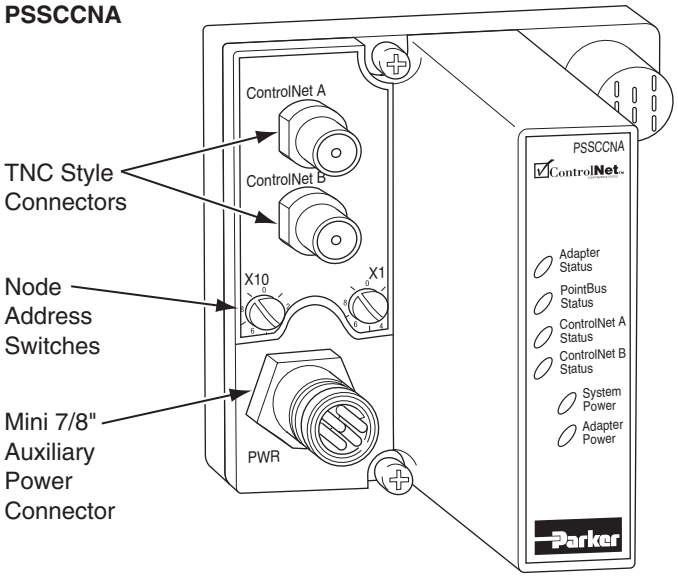
Follow these instructions when installing, operating, or servicing the product.

## H Series Fieldbus ControlNet Adapter, Series A

(PSSCCNA)

The sealed IP67 housing of the adapter requires no enclosure. (Note that environmental requirements other than IP67 may require an additional appropriate housing.) ControlNet connectors are two redundant TNC style network connectors and one mini style power connector. The ControlNet adapter is shown below.

**PSSCCNA**




## ⚠ WARNING

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

**EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.**

## 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* (available online at www.parker.com/pneu/hseriesfieldbus) 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 Parker Hannifin Corporation 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, Parker Hannifin Corporation cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Parker Hannifin Corporation with respect to use of information, circuits, equipment, or software described in this manual.



Throughout this manual we use notes to make you aware of safety considerations.

| | |
|---|---|
| **WARNING**  | 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. |
| **IMPORTANT** | Identifies information that is critical for successful application and understanding of the product. |
| **ATTENTION**  | Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:<br>• Identify a Hazard<br>• Avoid a Hazard<br>• Recognize the Consequence |
| **SHOCK HAZARD**  | Labels may be located on or inside the equipment to alert people that dangerous voltage may be present. |
| **BURN HAZARD**  | Labels may be located on or inside the equipment to alert people that surfaces may be dangerous temperatures. |

**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 publication E115P (“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.

## Before You Begin

To effectively use your adapter, note the following considerations.

## Understanding Messaging

Class 3 (Explicit Message) requests through the adapter to a specific I/O module may not always receive a response from the I/O module. In the case where the I/O module does not reply to the request, the adapter responds with an error code indicating a time-out.

## Establish I/O Connections

When you power up an H Series Fieldbus I/O system and establish I/O connections, the outputs transition to the Idle state, applying Idle state data before going to RUN mode. This occurs even when the controller making the connection is already in RUN mode.

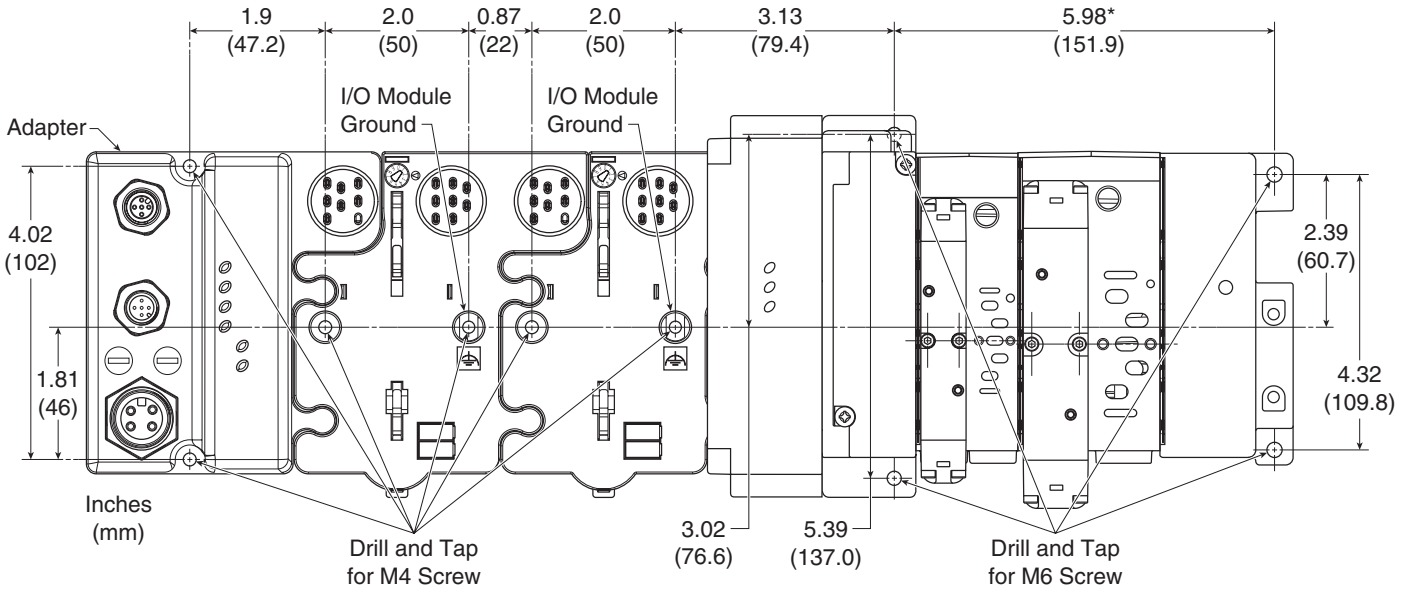
## Configure Autobaud

The adapter cannot reconfigure an I/O module that you previously configured to operate at a fixed baud rate. When you reuse an H Series Fieldbus I/O module from another H Series Fieldbus I/O system, configure the module to autobaud before using it with the adapter.

## Mount the Adapter and I/O Base

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

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




* Depending on the type and number of manifolds, this dimension may vary. Refer to Catalog 0600P-# for additional information.

**Grounding**

Each H Series Fieldbus base has two mounting holes, with the one on the right being the means to ground each module. Each module must be grounded.

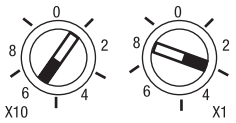
**Install the Mounting Base as Follows:**

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 base. (The ground lug connection is also a mounting hole.)

## Set the Node Address

To set the node 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 node address set at 63.




The rotary switches are read periodically. If the switches have been changed since the last time they were read and they no longer match the on line address, a minor fault will occur, which is indicated by a flashing red Adapter Status LED.

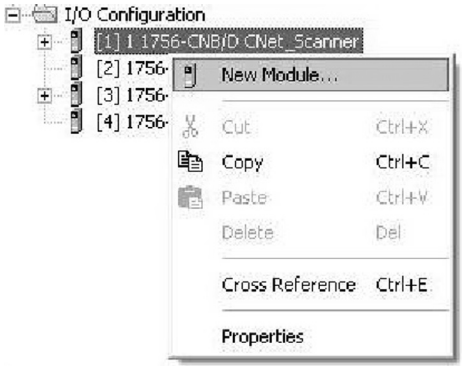
## EDS File Requirements

The EDS file is available online at www.parker.com/pneu/hseriesfieldbus

## Add ControlNet Adapter to RSLogix 5000 I/O Configuration

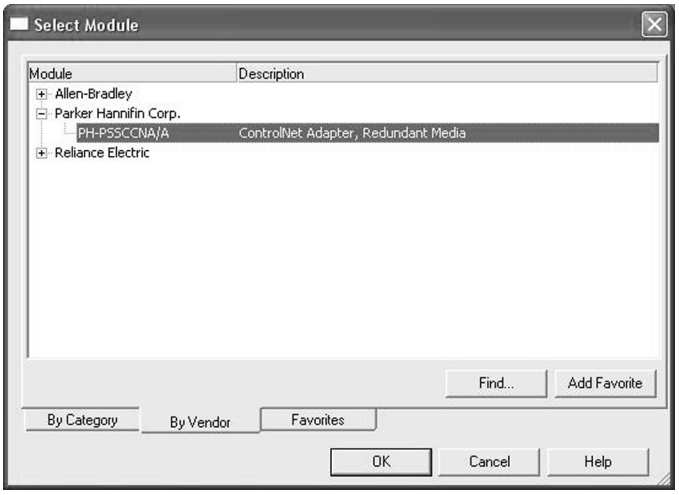
To add your PSSCCNA to RSLogix 5000 I/O configuration, follow these steps:

- In RSLogix 5000, highlight the ***ControlNet Scanner***, right click and select ***New Module***.

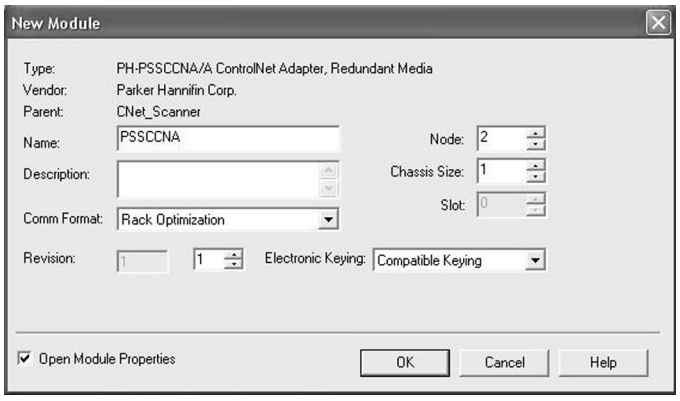



***If your RSLogic 5000 is Version 15.X or greater:***

- Choose the ***PSSCCNA*** module from the list of Parker modules.



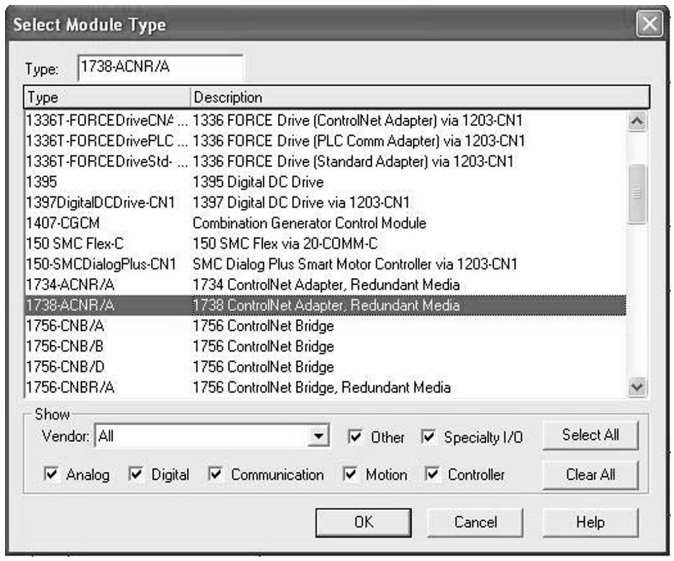

- Enter a name, an appropriate address and chassis size.



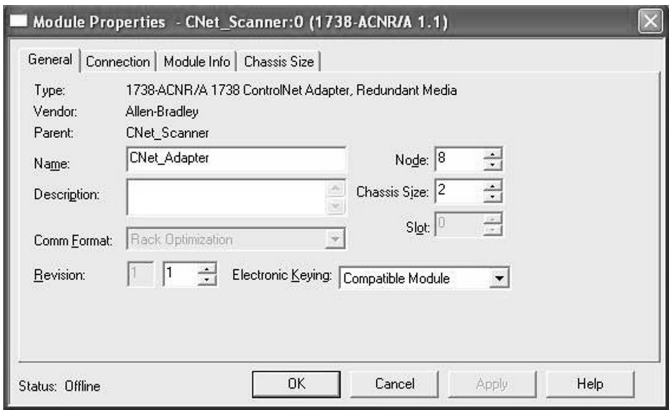

- Choose ***Next*** to set **RPI**.
- Choose ***Finish***. Notice that the PSSCCNA is now under the I/O configuration.

***If your RSLogic 5000 is Version 13.X:***

- Choose the ***1738-ACNR/A*** from the list of modules.




- Enter a name, an appropriate node address, and chassis size. Make sure to choose ***Compatible Module for Electronic Keying*** setting.




- Choose ***Next*** to set **RPI.**
- Choose ***Finish***. Notice that the 1738-ACNR is now under the I/O configuration

## Wire the ControlNet Adapter

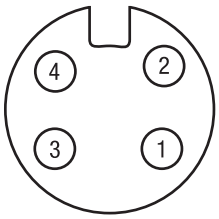
Following are wiring instructions for the ControlNet Adapter.

## TNC Cables

- Connect TNC cables to Channel A or B for single media.
- Connect TNC cables to Channel A and B for redundant media.

## PSSCCNA Auxiliary Power (Mini 7/8")

**Male In Connector**




(view into connector)
Pin 1 - User Power +
Pin 2 - Adapter Power +
Pin 3 - Adapter Power -
Pin 4 - User Power -

**NOTE:** User power is the 24VDC power for field devices.

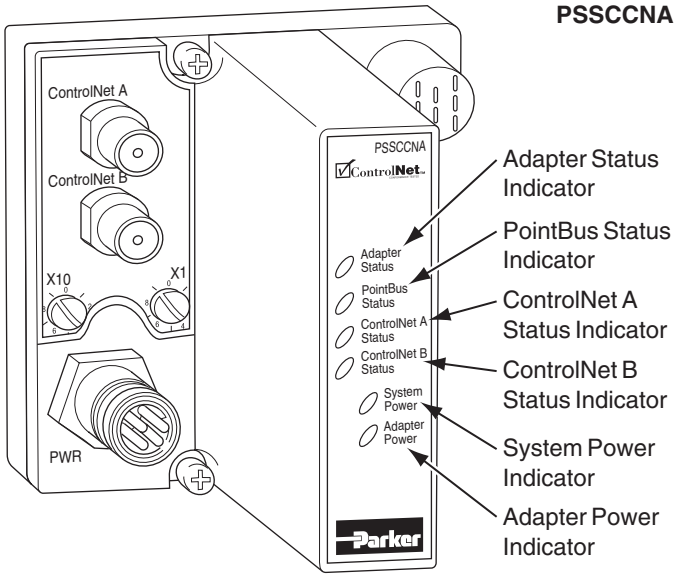
Adapter power is the 24VDC power for adapter. It is converted to 5VDC to power H Series Fieldbus modules

**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

**PSSCCNA**




| Indication | Probable Cause |
|---|---|
| **Adapter Status** | |
| Off | No power applied to device |
| Alternating Red/Green | LED powerup test (module self-test) |
| Flashing Red | Recoverable fault has occurred:<br>- Firmware (NVS) update<br>- MAC ID changed<br>- CPU load exceeded |
| Solid Red | Unrecoverable fault has occurred:<br>- Self-test failure (checksum failure at powerup, ramtest failure) at powerup<br>- Firmware fatal error |
| Flashing Green | Waiting for connection or ControlNet cable break |
| Solid Green | Module is operating correctly (normal mode) |

| Indication | Probable Cause |
|---|---|
| **PointBus Status** | |
| Off | Device is not powered - check module status indicator |
| Alternating Red/Green | LED powerup test |
| Flashing Red | Recoverable fault has occurred:<br>- At power up the number of expected modules does not equal the number of modules present<br>- A module is missing<br>- Node fault (I/O connection timeout) |
| Red | Unrecoverable fault has occurred:<br>- The adapter is bus off<br>- The adapter has failed its dup_MAC_ID check |
| Flashing Green | Adapter is on line with no connections established:<br>- Adapter chassis size has not been configured<br>- Controller in program/idle mode<br>- ControlNet cable break |
| Green | Adapter is on line with connections established (normal operation, in run mode) |

| Indication | Probable Cause |
|---|---|
| **ControlNet A/B Status (Viewed Together)** | |
| Both Steady Off | Reset, no power or entire network interface deactivated |
| Alternating Red/Green | Self-test mode |
| Alternating Red/Off | Bad/invalid node configuration (such as dup_MAC_ID) |
| Both Steady Red | Failed link interface |

| Indication | Probable Cause |
|---|---|
| **ControlNet A/B Status (Viewed Individually)** | |
| Steady Off | Channel disabled or channel not supported |
| Flashing Red/Green | Invalid link configuration |
| Flashing Red/Off | Severe link error - link fault or no MAC frames received |
| Flashing Green/Off | Temporary channel error or listen-only |
| Steady Green | Normal operation - MAC frames are being received without detected error |

| Indication | Probable Cause |
|---|---|
| **System Power*** | |
| Off | Not active - Field power is off, overloaded backplane or dc-dc converter problem |
| Green | Power on - dc-dc converter active (5V) |

| Indication | Probable Cause |
|---|---|
| **Adapter Power**** | |
| Off | Not active - Field power is off |
| Green | Power on - 24V present |

* System Power Indicator shows the 5V power output from the dc-dc converter.

** Adapter Power Indicator shows the 24V power input to the dc-dc converter.

## Specifications

Following are specifications for the PSSCCNA ControlNet adapter.

| **ControlNet Adapter - PSSCCNA** | |
|---|---|
| Expansion I/O Capacity | • Maximum of 63 modules<br>• Maximum of 5 Rack Optimized connections (for digital modules only)<br>• Maximum of 25 Direct connections<br>• PSSCCNA backplane current output = 1.0A maximum. See the list below for backplane current consumption for each I/O catalog number and the current consumption for each of the modules connected to the PSSCCNA. Verify that it is below 1.0A.<br>• Backplane current can be extended beyond 1.0A with a PSSSE24A Backplane Extension Power Supply. The PSSSE24A can supply up to an additional 1.3A of backplane current.<br>• Multiple PSSSE24A modules can be used to reach the maximum of 63 modules.<br>**Cat. No.** — **PointBus Current Requirements**<br>PSSN8xxx — 75 mA<br>PSSP8xxx — 75 mA<br>PSST8xxx — 75 mA<br>PSSTR4M12A — 90 mA<br>PSSNACM12A — 75 mA<br>PSSNAVM12A — 75 mA<br>PSSTACM12A — 75 mA<br>PSSTAVM12A — 75 mA<br>PSSS23A — 75 mA<br>PSSV32A — 75 mA |
| ControlNet Communication Rate | 5Mbits /s (fixed value) |
| **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 60VDC under normal conditions and under single fault conditions. A PELV supply has the same rating and is connected to protected earth. |
| Input Voltage Rating | 24VDC<br>10-28.8VDC range |
| Inrush Current | 6A maximum for 10ms |
| Field Side Power Requirements, Maximum | 24VDC (+20% = 28.8VDC) @ 425 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<br>2 green/red ControlNet status<br>1 green/red PointBus status<br>1 green System Power (PointBus 5V power)<br>1 green Adapter Power (24V from field supply) |
| Power Consumption, Maximum | 10.2W @ 28.8VDC |
| Power Dissipation, Maximum | 5.0W @ 28.8VDC |
| Thermal Dissipation, Maximum | 16.9 BTU/hr. @ 28.8VDC |
| Isolation Voltage<br>(continuous-voltage withstand rating) | 50V rms<br>Tested at 1250VAC for 60s |
| Field Power Bus<br>Nominal Voltage<br>Supply Voltage<br>Supply Current | <br>24VDC<br>10-28.8VDC range<br>10A maximum |
| Dimensions Inches (Millimeters) | 4.41H x 2.83W x 2.56D (112H x 72W x 65D) |

| **General Specifications (continued)** | |
|---|---|
| Operating Temperature | IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock):<br>-20 to 60°C (-4 to 140°F) |
| Storage Temperature | IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold),<br>IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat),<br>-40 to 85°C (-40 to 185°F) |
| Relative Humidity | IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat):<br>5-95% non-condensing |
| Shock | IEC60068-2-27 (Test Ea, Unpackaged Shock):<br>Operating 30g<br>Non-operating 50g |
| Vibration | IEC60068-2-6 (Test Fc, Operating):<br>5g @ 10-500Hz |
| ESD Immunity | IEC 61000-4-2:<br>6kV contact discharges<br>8kV air discharges |
| Radiated RF Immunity | IEC 61000-4-3:<br>10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz<br>10V/m with 200Hz 50% Pulse 100%AM at 900Mhz<br>10V/m with 200Hz 50% Pulse 100%AM at 1890Mhz |
| EFT/B Immunity | IEC 61000-4-4:<br>±4kV at 5kHz on power ports<br>±3kV at 5kHz on signal ports |
| Surge Transient Immunity | IEC 61000-4-5:<br>±1kV line-line(DM) and ±2kV line-earth(CM) on power ports<br>±2kV line-earth(CM) on shielded ports |
| Conducted RF Immunity | IEC 61000-4-6:<br>10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz |
| Emissions | CSPR 11:<br>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 power ports<br>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<br>CE European Union 89/336/EEC EMC Directive, compliant with:<br>EN 61000-6-4; Industrial Emissions<br>EN 50082-2; Industrial Immunity<br>EN 61326; Meas./Control/Lab., Industrial Requirements<br>EN 61000-6-2; Industrial Immunity<br>C-Tick Australian Radiocommunications Act, compliant with:<br>AS/NZS CISPR 11; Industrial Emissions<br>CI ControlNet Int'l conformance tested to ControlNet specifications |

1. Use this Conductor Category information for planning conductor routing. Refer to Publication E115P, “Industrial Automation Wiring and Grounding Guidelines”.