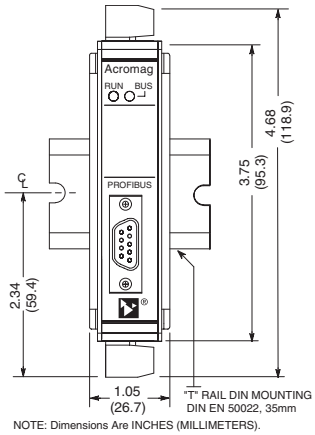
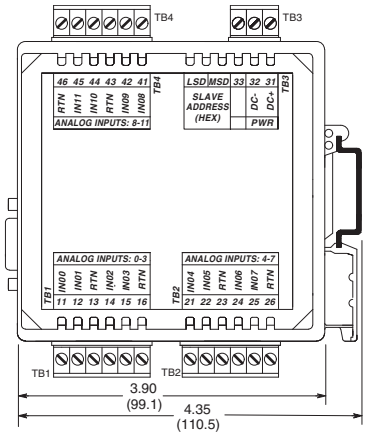
Profibus-DP / RS485



NOTE: Dimensions Are INCHES (MILLIMETERS).



963/964PB Analog Input:

12-Channel Single-Ended Input: DC Current or DC Voltage Signals

Models

963PB: 12 DC current input channels
964PB: 12 DC voltage input channels

Description

These modules provide an isolated Profibus-DP network interface for twelve analog input channels. Compact design saves space and lowers system costs. Multi-range inputs accept signals from a variety of sensors and devices. High-resolution, low noise, A/D converters deliver high accuracy and reliability.

Input Ranges

DC Current (user-selectable ranges)
0 to 1mA, 0 to 11mA, 0 to 20mA, 4 to 20mA
0 to 20 amps AC (with optional AC sensor)

DC Voltage (user-selectable ranges)
±1V, ±5V, or ±10V DC

Network Communication

Profibus-DP, RS-485 network up to 12Mbaud

Power Requirement

12 to 36V DC supply required

Approvals

Profibus PNO certified.
CE marked. UL, cUL listed.
Class I; Division 2; Groups A, B, C, D.

Special Features

- Standard Profibus-DP network communication with industry-standard ASIC (Siemens SPC3)
- 12-input module has very low cost per channel
- Universal DC inputs support a wide variety of industrial sensors and signals
- High-resolution 16-bit Σ–Δ A/D converters ensure precise, high accuracy measurements
- Compact packaging with pluggable terminals saves space and simplifies wiring
- Wide operational temperature range permits installation in extreme environments

Performance

General Specifications

See Page 47 for communication and other specs.

Input

Configuration
Input ranges are selectable on each terminal block for a group of four input channels (4-channel basis).

Accuracy
Better than ±0.05% of span for nominal input ranges.

Analog to Digital Converter (A/D)
16-bit Σ–Δ converter.

Resolution
0.005% or 1 part in 20000, typical.

Noise Rejection
Normal Mode: Better than 40dB @ 60Hz.
Common Mode: Better than 140dB @ 60Hz.

Input Filter Bandwidth
-3dB at 3Hz, typical.

DC Current Input impedance
49.9 ohms.

DC Voltage Input impedance
Greater than 110.5K ohms.

Environmental

Ambient Temperature
Operating: -25 to 70°C (-13 to 158°F).
Storage: -40 to 85°C (-40 to 185°F).

Relative Humidity
5 to 95%, non-condensing.

Isolation
1500V AC for 60 seconds or 250V AC continuous.
3-way isolation between I/O, network, and power.
Inputs share a common.

Ordering Info

Models

963PB-2012
DC current input module, 12 single-ended channels

964PB-2012
DC voltage input module, 12 single-ended channels

NOTE: Modules include GSD files on CD-ROM.

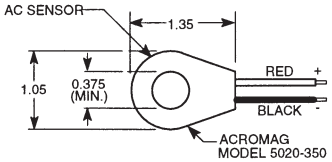
Accessories (see Page 48)

5020-350
AC current sensor. Used with 963PB DC current input models. One sensor per channel is required.
See page 205.

PS5R-D24
Power supply (24V DC, 2.1A).
See Power Supplies on Page 199.

TBK-B03
Optional terminal block kit, barrier strip style, 4 pcs.

TBK-S03
Optional terminal block kit, spring clamp style, 4 pcs.



General Operation and Performance Specifications

The following specifications are common to all 900PB Series I/O modules.

■ Communication

Interface Standard
Isolated, 3-wire RS-485 multi-drop, half-duplex, asynchronous.

Command/Response Protocol
Standard ProfiBus DP (Master/Slave) protocol per European Norm EN50170.

Baud Rate
Supports rates of 9600, 19.2K, 44.45K, 93.75K, 187.5K, 500K, 1.5M, and 12M bits per second, auto-detected.

Communication Distance
Up to 1200 meters without a repeater using Type A wire (<30pF/m).

1200m @ 115Kbps or less
1000m @ 187.5Kbps
400m @ 500Kbps
200m @ 1.5Mbps
100m @ 12Mbps

Address
Set via two rotary hexadecimal switches or via the Set Slave Address command. Valid setting is 0-125. Address 126 (7EH) is factory default address.

Maximum Message Size
Up to 32 bytes recommended, extendable up to 244 bytes of data/node/message, plus 11 bytes of overhead (data frame).

Network Capacity
Multi-drop up to 31 modules, plus a host, without a repeater. Up to 125 modules plus a host if four repeaters are used (one for every 31 nodes).

■ Environmental

Isolation
I/O channel, power, and network circuits are isolated from each other for common-mode voltages up to 250VAC, or 354V DC off DC power ground, on a continuous basis (will withstand 1500VAC dielectric strength test for one minute without breakdown). Complies with test requirements of ANSI/ISA-82.01-1988 for voltage rating specified.

■ Electromagnetic Compatibility (EMC)

Immunity per European Norm EN50082-1.
Emissions per European Norm EN50081-1.

Electrostatic Discharge (ESD) Immunity
Per EN61000-4-2.

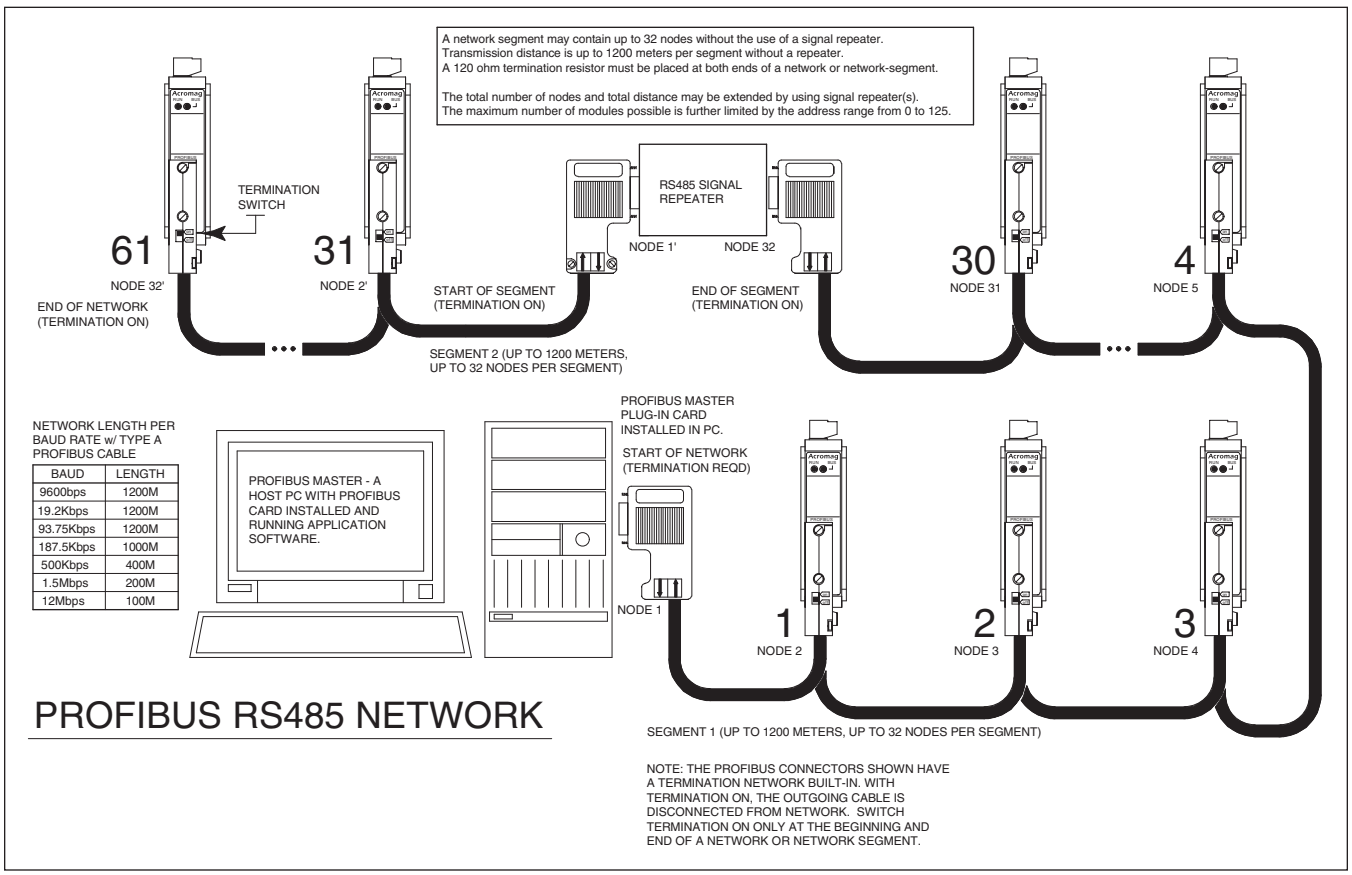
Radiated Field Immunity (RFI)
Per EN61000-4-3 and ENV50204.

Electrical Fast Transient Immunity (EFT)
Per EN61000-4-4.

Conducted RF Immunity (CRFI)
Per EN61000-4-6.

Surge Immunity
Per EN61000-4-5.

Radiated Frequency Emissions
Per EN55022 Class B.



Accessories

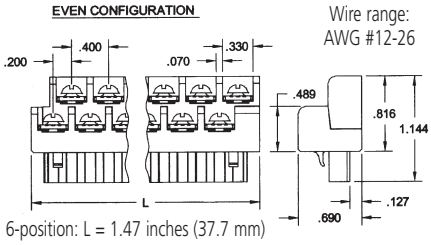
Terminal Blocks

Barrier strip (left) and spring clamp (right).

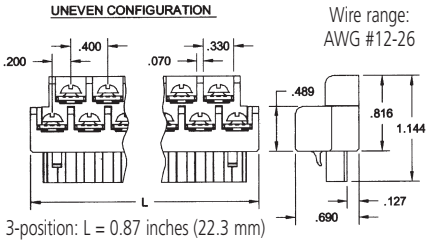
Ordering Information

See individual I/O modules for compatibility.

Barrier Strip Terminal Blocks



6-position: L = 1.47 inches (37.7 mm)



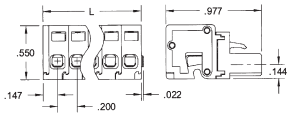
3-position: L = 0.87 inches (22.3 mm)

TBK-B01
Terminal block kit, two 6-position pieces

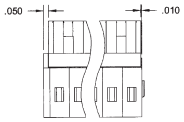
TBK-B02
Terminal block kit, four 6-position pieces

TBK-B03
Terminal block kit, one 3-position and three 6-position pieces

Spring Clamp Terminal Blocks



Wire range:
AWG #12-26



3-position:
L = 0.66 inches (16.9 mm)

6-position:
L = 1.26 inches (32.3 mm)

TBK-S01
Terminal block kit, two 6-position pieces

TBK-S02
Terminal block kit, four 6-position pieces

TBK-S03
Terminal block kit, one 3-position and three 6-position pieces

Mounting Hardware

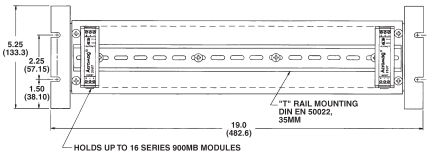
DIN-Rail Mounting

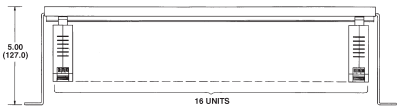
For your convenience, Acromag offers several mounting accessories to simplify your system installation. Our 19" rack-mount kit provides a clean solution for mounting your I/O modules and a power supply. Or you can buy precut DIN rail strips for mounting on any flat surface.

Ordering Information

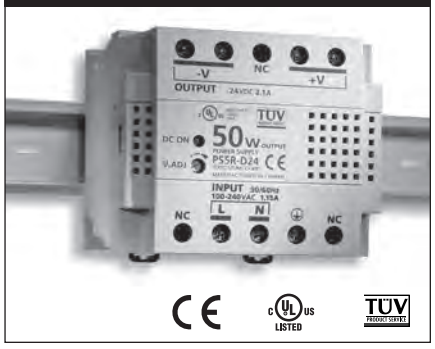
20RM-16-DIN
19" rack-mount kit with DIN rail.

DIN RAIL 3.0
DIN RAIL 16.7
DIN rail strip, Type T, 3 inches (75mm) or 16.7 inches (425mm)





Power Supplies



50W Supply

Input Power Requirement
85 to 264V AC or 105 to 370V DC

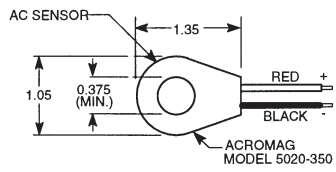
Output
24V DC, 2.1A (50W)

Ordering Information

PS5R-D24
Universal 50W power supply

See Power Supplies on Page 199 for other models and more information.

AC Current Sensor



Ordering Information

5020-350
AC current sensor (See page 205)