To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call Technical Support at 770-844-4200.

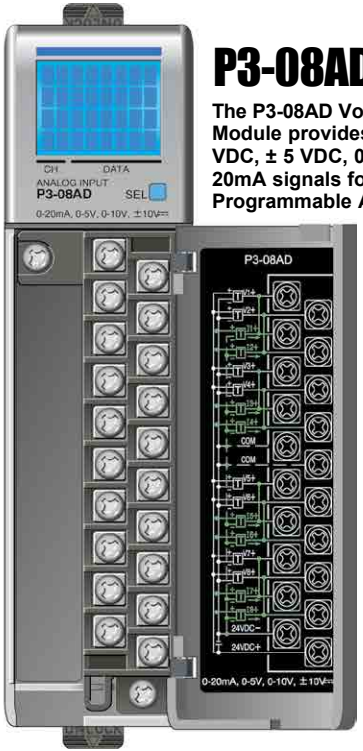
This publication is based on information that was available at the time it was printed. At AutomationDirect.com® we constantly strive to improve our products and services, so we reserve the right to make changes to the products and/or publications at any time without notice and without any obligation. This publication may also discuss features that may not be available in certain revisions of the product.

Removable Terminal Block Specifications

Number of Positions	20 screw terminals
Wire Range	22-14 AWG (0.324 to 2.08 sq. mm) solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum “USE COPPER CONDUCTORS, 60°C” or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals – 7 - 9 in./lb (.0.882 - 1.02 Nm) Self-jacking screws – 2.7 - 3.6 in./lb (0.3 - 0.4 Nm). Do not overtighten screws when installing terminal block.

P3-08AD Analog Input

The P3-08AD Voltage/Current Analog Input Module provides 8 channels for receiving ± 10 VDC, ± 5 VDC, 0 to 5 VDC, 0 to 10 VDC, and 0 to 20mA signals for use with the Productivity3000 Programmable Automation Controller.



Terminal Block sold separately, Terminal Block Cover included (see wiring options on page 5).

Warranty: Thirty-day money-back guarantee. Two-year limited replacement. (See www.automationdirect.com/P3000 for details).

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800 VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500 VDC
Heat Dissipation	1.1 W
Enclosure Type	Open Equipment
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.
Field Wiring	Removable terminal block (not included). Use ZIPLink Wiring System or optional terminal block. See “Wiring Options” on page 5.
EU Directive	See the “EU Directive” topic in the Productivity3000 Help File. Information can also be obtained at: www.automationdirect.com/P3000
Terminal Type (not included)	20-position removable terminal block
Weight	105g (3.73 oz)

*Meets EMC and Safety requirements. See the D.O.C. for details.

WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

AVERTISSEMENT: Risque d’explosion : la substitution de composants peut compromettre la convenance pour la Classe I, Zone 2 ou pour la Classe I, Division 2.

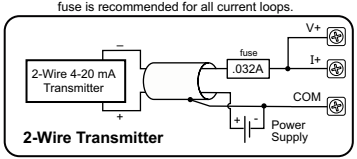
Input Specifications

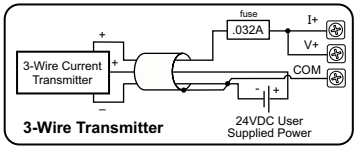
Input Channels	8
Module Signal Input Ranges	±10VDC, ±5VDC, 0 - 5VDC, 0 - 10VDC, 0 - 20mA
Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	1 LSB = 1 count ±10V = 305µV ±5V = 152µV 0 - 5V = 76µV 0 - 10V = 152µV 0 - 20mA = 0.305µA
Data Range	0 to 65535 counts unipolar -32768 to +32767 counts bipolar
Maximum Continuous Overload	±31mA, current input ±100V, voltage input
Input Impedance	1MΩ ±10% voltage input 250Ω ±0.1% 1/4W. current input
Hardware Filter Characteristics	Low pass 1st order, -3dB@48Hz
Sample Duration Time	455µs per channel (does not include ladder scan time)
All Channel Update Rate	4ms
Open Circuit Detection Time	Zero reading within 1s (current input only)
Conversion Method	Successive Approximation
Accuracy vs. Temperature	±10PPM / °C Maximum
Maximum Inaccuracy	0.1% of range voltage, 0.2% of range current (including temperature drift)
Linearity Error (end to end)	±0.01% of range max., ±10V & ±5V ±0.015% of range max., 0-10V, 0-5V & 0-20mA Monotonic with no missing codes
Input Stability and Repeatability	±0.035% of range (after 10 min. warmup)
Full Scale Calibration Error	±0.2% of range maximum
Offset Calibration Error	± .065% of range maximum
Max Crosstalk	-96dB
Recommended Fuse (external)	Edison S500-32-R, .032A fuse on current inputs only
External DC Power Required	24VDC (-20% / + 25%) 33mA

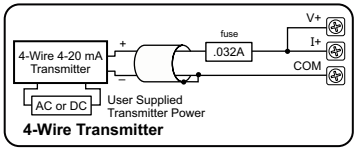
Wiring Diagram

Current Sinking Input Circuits

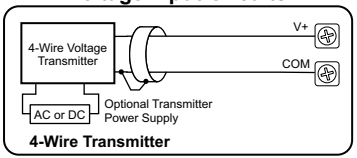
An Edison S500-32-R 0.032A fast-acting fuse is recommended for all current loops.

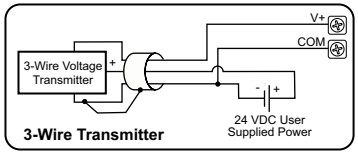




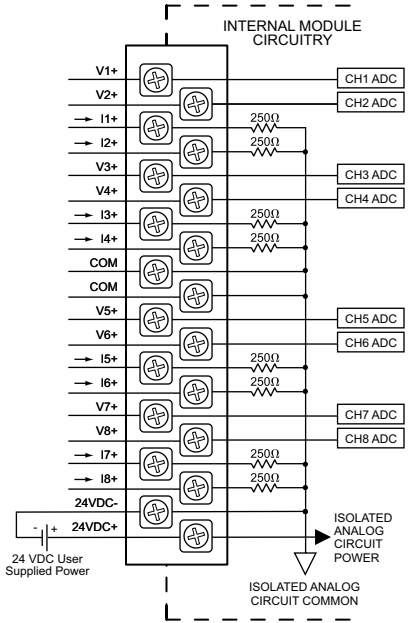


Voltage Input Circuits





Schematic



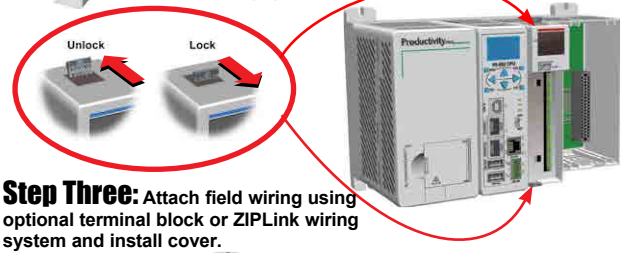
Module Installation Procedure

WARNING: Do not apply field power until the following steps are completed. See hot-swapping procedure for exceptions.

AVERTISSEMENT: Ne pas appliquer la puissance de champ avant l'exécution des étapes qui suivent. Consultez la procédure de remplacement à chaud pour les exceptions.

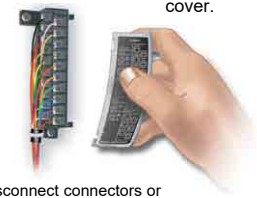
Step One: Align circuit card with slot and press firmly to seat module into connector.

Step Two: Pull top and bottom locking tabs toward module face. Click indicates lock is engaged.



Step Three: Attach field wiring using optional terminal block or ZIPLink wiring system and install cover.

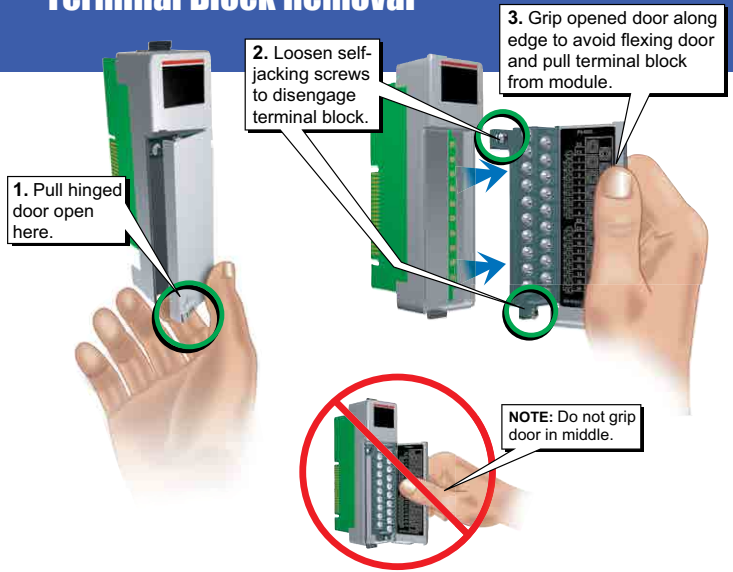
To install or remove terminal block cover, press middle to flex cover.



WARNING: Explosion hazard – Do not connect or disconnect connectors or operate switches while circuit is live unless the area is known to be non-hazardous. Do not hot-swap modules unless the area is known to be non-hazardous.

AVERTISSEMENT: Risque d'explosion : ne pas connecter ou déconnecter les connecteurs ni actionner les commutateurs alors que le circuit est sous tension, à moins que la zone ne soit reconnue non dangereuse. Ne pas remplacer à chaud les modules à moins que la zone ne soit reconnue non dangereuse.

Terminal Block Removal



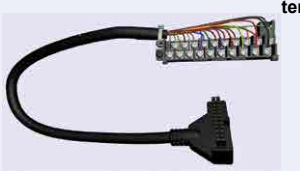
Important Hot-Swap Information

The Productivity3000 PAC supports hot-swap! Individual modules, expansion bases, and entire remote base groups can be taken offline, removed, and replaced while the rest of the PAC system continues controlling your process. Before attempting to use the hot-swap feature, be sure to read the hot-swap topic in the programming software's help file or our online documentation at AutomationDirect.com for details on how to plan your installation for use of this powerful feature.

Wiring Options

1 ZIPLink Connection System
Cable + ZIPLink Module = Complete System

ZIPLink pre-wired terminal block cables

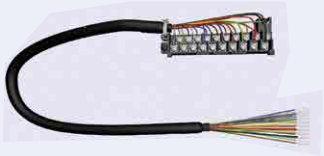


0.5m (1.6FT) cable	ZL-P3-CBL20-L
1.0m (3.3FT) cable	ZL-P3-CBL20-1L
2.0m (6.6FT) cable	ZL-P3-CBL20-2L

ZIPLink Modules

Feed through	ZL-RTB20

2 Terminal Block with pigtail cable



0.5m (1.6FT) cable	ZL-P3-CBL20-P
1.0m (3.3FT) cable	ZL-P3-CBL20-1P
2.0m (6.6FT) cable	ZL-P3-CBL20-2P

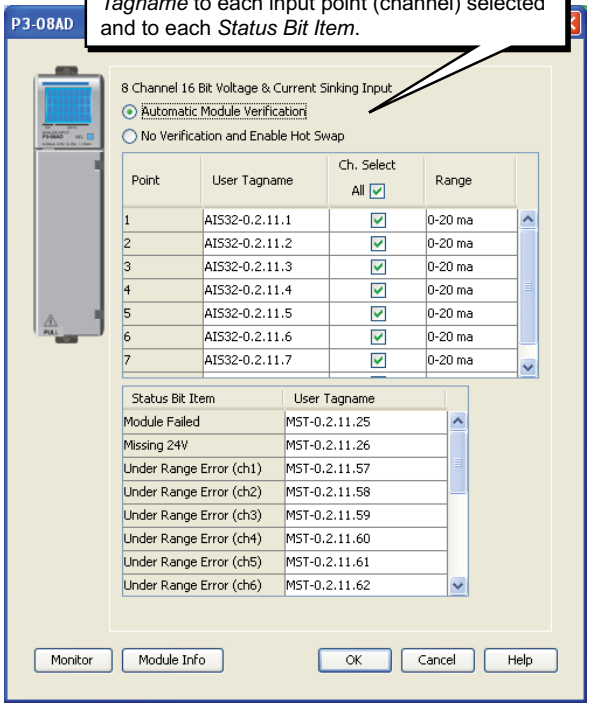
3 Terminal Block only

P3-RTB
(Quantity 1)

Module Configuration

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P3-08AD module into the base configuration.

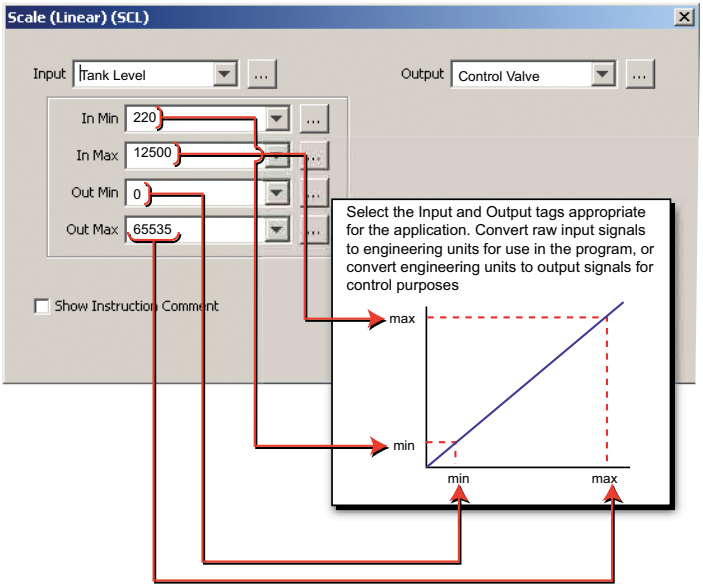
Select *Automatic Module Verification* or *No Verification and Enable Hot Swap.* Select *Range* type for each input. If desired, assign a *User Tagname* to each input point (channel) selected and to each *Status Bit Item*.



Linear Scaling

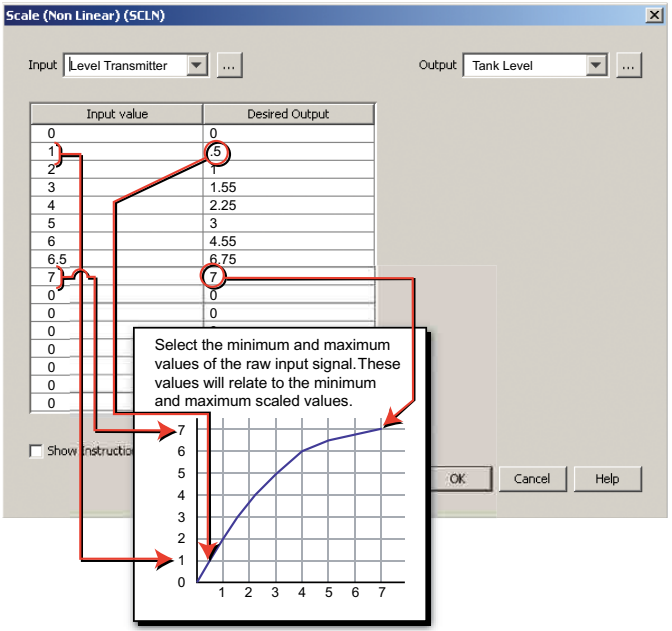
The Scale (Linear) function can be used to:

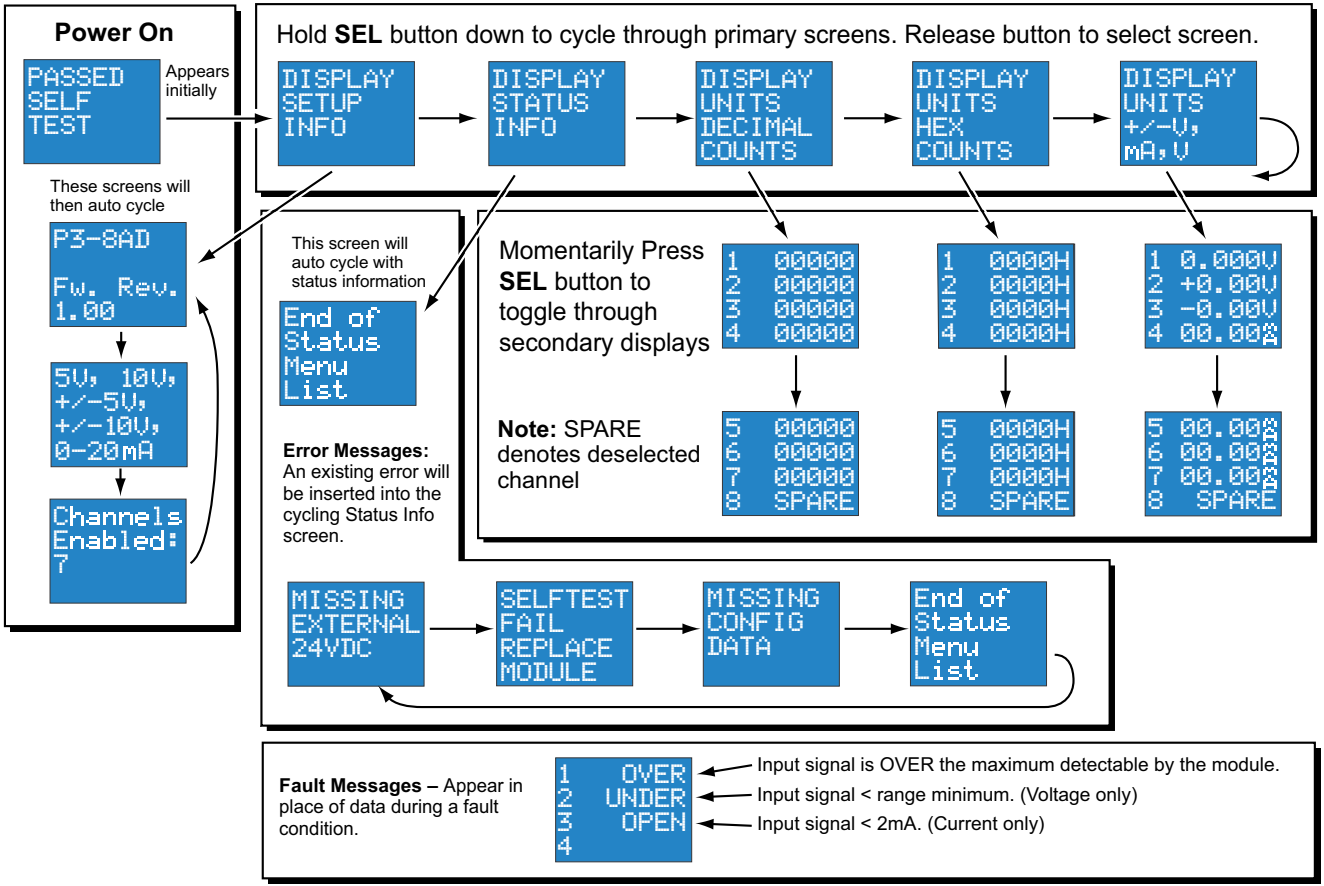
- **Convert analog field input signals from the range which is native to the analog input module to an application specific range.**
- **Make other linear conversions in ranges appropriate to the application.**



Non-Linear Scaling

The Scale (Non-Linear) function can be used for Non-Linear applications.




Power On
PASSED SELF TEST
Appears initially
These screens will then auto cycle
P3-8AD
Fw. Rev. 1.00
5V, 10V, +/-5V, +/-10V, 0-20mA
Channels Enabled: 7
Hold SEL button down to cycle through primary screens. Release button to select screen.
DISPLAY SETUP INFO
DISPLAY STATUS INFO
DISPLAY UNITS DECIMAL COUNTS
DISPLAY UNITS HEX COUNTS
DISPLAY UNITS +/-V, mA, V
This screen will auto cycle with status information
End of Status Menu List
Momentarily Press SEL button to toggle through secondary displays
1 00000
2 00000
3 00000
4 00000
5 00000
6 00000
7 00000
8 SPARE
1 0000H
2 0000H
3 0000H
4 0000H
5 0000H
6 0000H
7 0000H
8 SPARE
1 0.000V
2 +0.00V
3 -0.00V
4 00.00mA
5 00.00mA
6 00.00mA
7 00.00mA
8 SPARE
Note: SPARE denotes deselected channel
Error Messages: An existing error will be inserted into the cycling Status Info screen.
MISSING EXTERNAL 24VDC
SELFTEST FAIL REPLACE MODULE
MISSING CONFIG DATA
End of Status Menu List
Fault Messages – Appear in place of data during a fault condition.
1 OVER
2 UNDER
3 OPEN
4
Input signal is OVER the maximum detectable by the module.
Input signal < range minimum. (Voltage only)
Input signal < 2mA. (Current only)

Document Name	Edition/Revision	Date
P3-08AD-M	1st Ed. Rev. B	12/06/2017