

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.

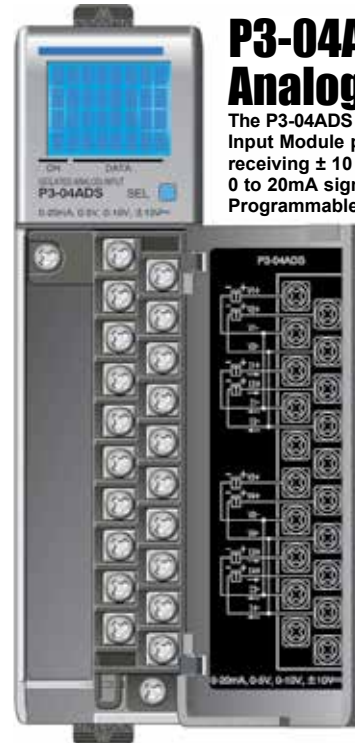
**Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation,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

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## 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 (.0882 - 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.



## P3-04ADS Isolated Analog Input

The P3-04ADS Isolated Voltage/Current Analog Input Module provides 4 isolated channels for receiving ± 10 VDC, 0 to 5 VDC, 0 to 10 VDC and 0 to 20mA signals for use with the Productivity3000 Programmable Automation Controller.

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**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](http://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	2.6 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: <a href="http://www.automationdirect.com/P3000">www.automationdirect.com/P3000</a>
Terminal Type (not included)	20-position removable terminal block
Weight	61g (2.14 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

Inputs per module	4 Channel-to-Channel Isolated
Module Signal Input Ranges**	±10VDC, 0 – 5VDC, 0 – 10VDC, 0 – 20 mA
Resolution	15 bit + sign
Value of LSB (least significant bit)	±10V = 305 μV 0-5V = 152 μV 0-10V = 305 μV 0-20mA = 0.610 μA
Data Range	0 to 65535 counts unipolar -32768 to +32767 counts bipolar
Isolated Loop Pwr for Ext. Xmitters	20-30VDC, current limited to < 30 mA
Input Type	Differential
Common Mode Rejection Ratio	-75 dB min. @ DC, -500 kHz
Maximum Continuous Overload	±31 mA, current input ±100V, voltage input
Input Impedance	250k Ω ±5% voltage input 250 Ω ±0.1% ¼W. current input
Filter Characteristics	Active low pass, -3dB @ 30Hz, -10dB @ 55Hz
Sample Duration Time	1.28 ms per channel (does not include ladder scan time)
All Channel Update Rate	5.2 ms
Open Circuit Detection Time	Zero reading within 1s
Conversion Method	Successive Approximation
Accuracy vs. Temperature	±25 PPM / °C max
Maximum Inaccuracy	0.1% of range voltage, 0.2% of range current (including temperature drift)
Linearity Error (End to End)	±0.025% of range maximum, Monotonic with no missing codes
Input Stability and Repeatability	±0.02% of range maximum after 10 min.
Full Scale Calibration Error (not including Offset)	±0.05% of range maximum
Offset Calibration Error	±0.05% of range maximum
Max Crosstalk	-96 dB 1 LSB
Channel to Channel Isolation	900 VDC applied for 1 second
Recommended Fuse (external)	Edison S500-32-R, .032A fuse on current inputs only
External DC Power Required	NONE for the module

\*\*Select any two ranges via hardware jumpers. Range setting is for channels 1 & 3 and channels 2 & 4.

### Unused Circuits

Jumper unused circuits as shown



### Voltage Input Circuits

4-Wire Voltage Transmitter

AC or DC  
Optional Transmitter Power Supply

4-Wire Transmitter

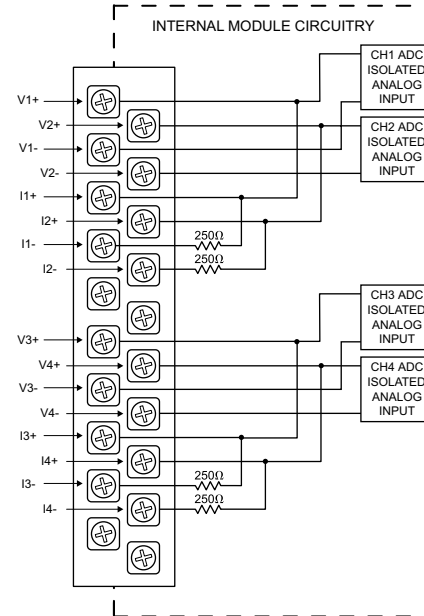
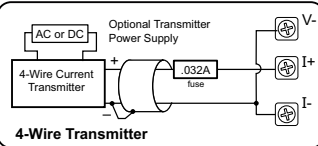
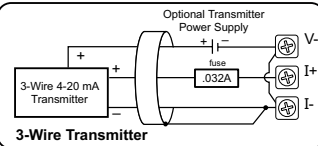
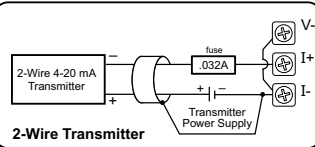


### NOTES:

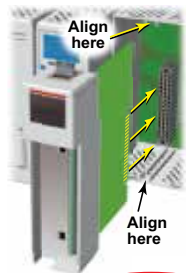
1. Shield connected to signal source common.
2. If current is chosen, I- **MUST** be jumpered to V-. For example, when using 4-20 mA source for Input 3, I3- must be connected to V3-.

### Current Input Circuits

An Edison S500-32-R 0.032A fast-acting fuse is recommended for all 4-20mA current loops.



# 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.



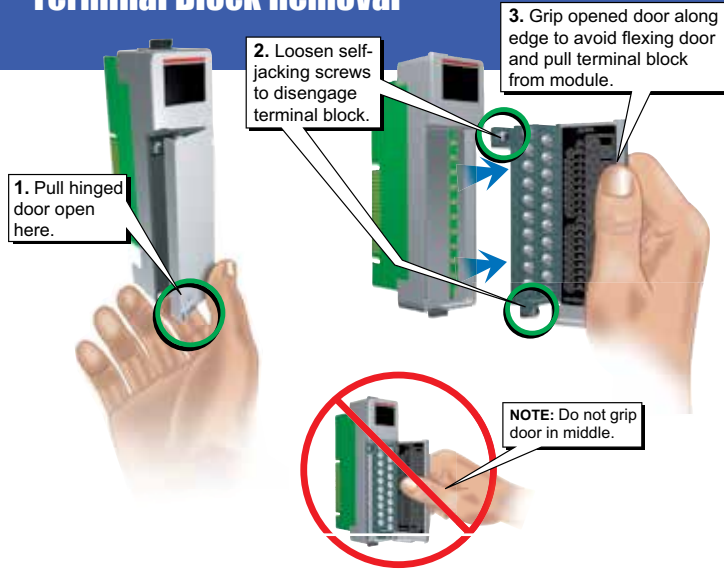
To install or remove terminal block cover, press middle to flex cover.



**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](http://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  
1.0m (3.3FT) cable  
2.0m (6.6FT) cable

ZL-P3-CBL20-L  
ZL-P3-CBL20-1L  
ZL-P3-CBL20-2L



**ZIPLink Modules**

Feed through

ZL-RTB20

## 2 Terminal Block with pigtail cable



0.5m (1.6FT) cable  
1.0m (3.3FT) cable  
2.0m (6.6FT) cable

ZL-P3-CBL20-P  
ZL-P3-CBL20-1P  
ZL-P3-CBL20-2P

## 3 Terminal Block only

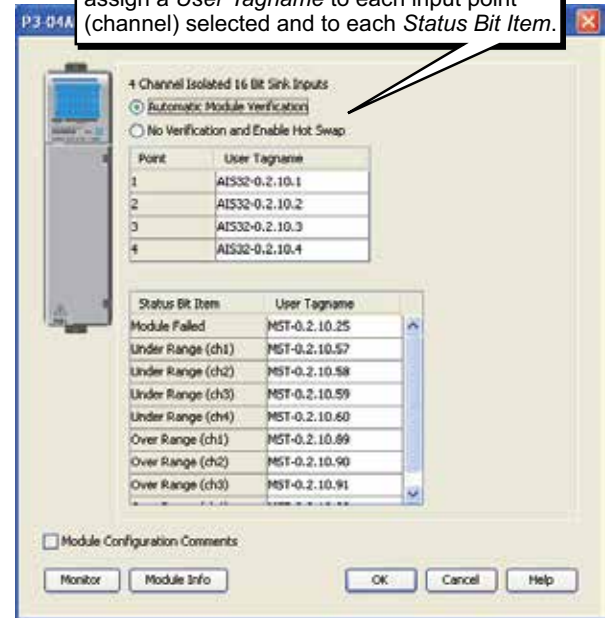


P3-RTB  
(Quantity 1)

# Module Configuration

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P3-04ADS module into the base configuration.

Select *Automatic Module Verification* or *No Verification and Enable Hot Swap*. 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.

Scale (Linear) (SCL)

Input: Level Transmitter      Output: Tank Level

In Min: 13107      In Max: 65535  
Out Min: 0      Out Max: 12500

Select the minimum and maximum values of the raw input signal. These values will relate to the minimum and maximum scaled values.

Raw Input	Scaled Output
13107	0
65535	12500

# Non-Linear Scaling

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

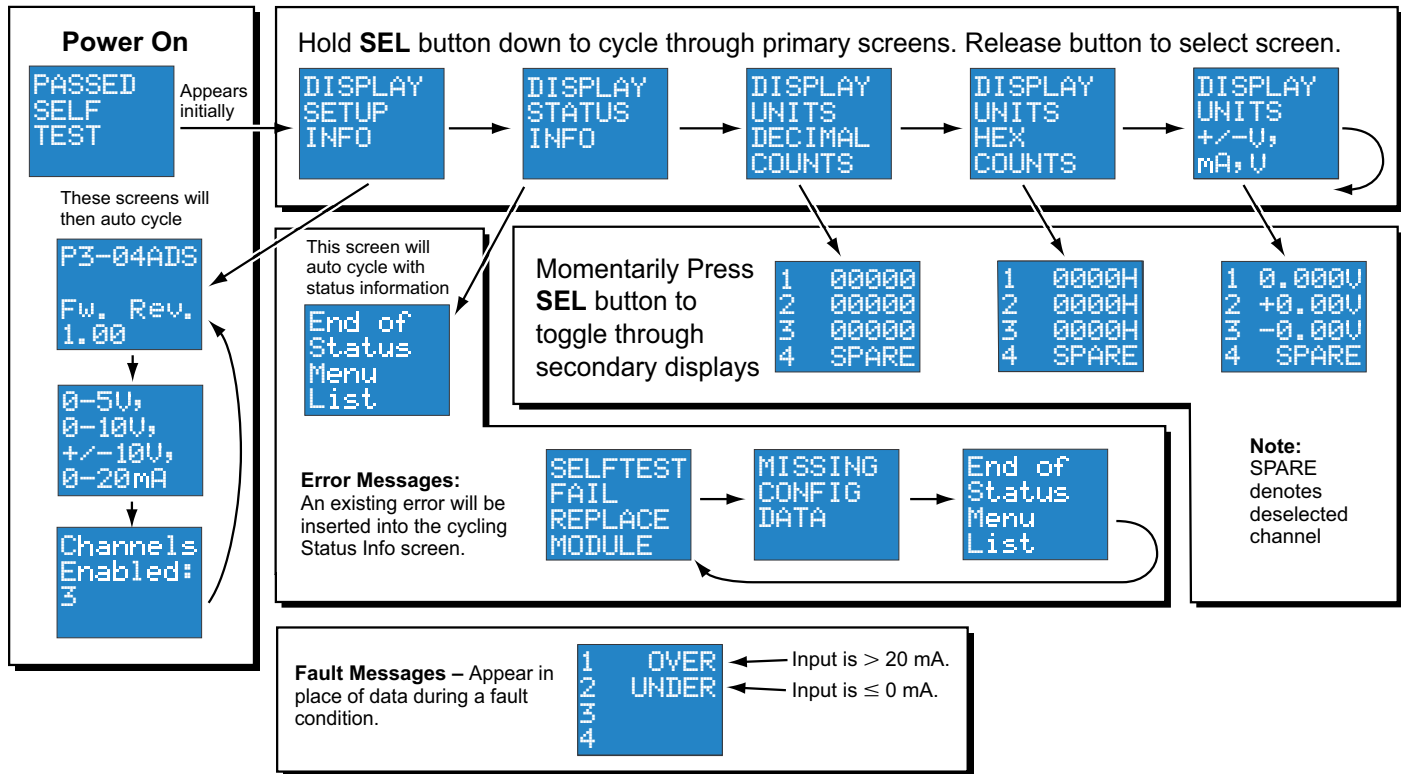
Scale (Non-Linear) (SCLN)

Input: Level Transmitter      Output: Tank Level

Input value	Desired Output
0	0
1	0.5
2	1
3	1.55
4	2.25
5	3
6	4.55
6.5	6.75
7	7
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0

Select the minimum and maximum values of the raw input signal. These values will relate to the minimum and maximum scaled values.

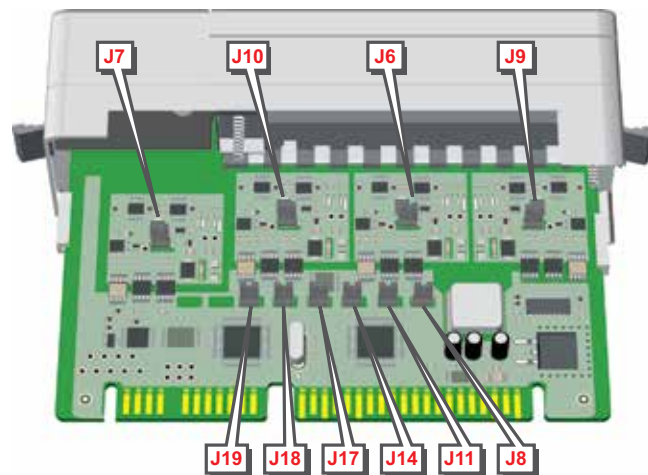
# LCD Panel Display



## P3-04ADS Jumper Orientation

J19	J18	J17	J14	J11	J8	J7	J10	J6	J9	Function
N	N	-	-	-	-	-	-	-	-	Enable channel 1
Y	N	-	-	-	-	-	-	-	-	Enable channel 1 & 2
N	Y	-	-	-	-	-	-	-	-	Enable channel 1, 2 & 3
Y	Y	-	-	-	-	-	-	-	-	Enable all channels
-	-	N	N	-	-	Y	-	Y	-	Range 0-5V for channels 1 & 3
-	-	Y	N	-	-	N	-	N	-	Range 0-10V for channels 1 & 3
-	-	N	Y	-	-	N	-	N	-	Range +/-10V for channels 1 & 3
-	-	Y	Y	-	-	Y	-	Y	-	Range 0-20mA for channels 1 & 3
-	-	-	-	N	N	-	Y	-	Y	Range 0-5V for channels 2 & 4
-	-	-	-	Y	N	-	N	-	N	Range 0-10V for channels 2 & 4
-	-	-	-	N	Y	-	N	-	N	Range +/-10V for channels 2 & 4
-	-	-	-	Y	Y	-	Y	-	Y	Range 0-20mA for channels 2 & 4

**Legend:** N = No jumper installed (open)  
Y = Jumper installed



## Configuration/Diagnostic Settings

Number of Channels to Scan	Hardware jumpers per module
Range Selection	Hardware jumpers
Input Under Range Status Bits	1 bit per channel
Output Over Range Status Bits	1 bit per channel
Module Diagnostics Failure	1 bit per module

To change the configuration of the P3-04ADS module, select the appropriate jumper position from the adjacent Jumper Orientation Table.

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