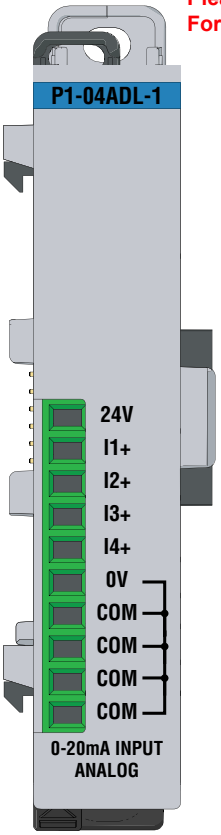
Please note: $US prices shown
For current $AUD visit www.directautomation.com.au

P1-04ADL-1 Analog Input



The P1-04ADL-1 Low Resolution Analog Input Module provides four current sinking channels for converting 0–20 mA analog signals to a digital value of 0–8191 (13-bit) for use with the Productivity1000 system.

Input Specifications 1
General Specifications 2
Terminal Block Specifications 2
Wiring Diagram and Schematic. 3
Module Installation Procedure. 4
QR Code 4
Wiring Options. 5
Module Configuration 5
Linear Scaling 6
Non-Linear Scaling 6
Diagnostic/Status. 8
Warning 8

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

Warranty: Thirty-day money-back guarantee. Two-year limited replacement (See www.productivity1000.com for details).

Input Specifications

Input Channels	4
Module Signal Input Range	0–20 mA
Signal Resolution	13-bit
Resolution Value of LSB (least significant bit)	0–20 mA = 2.44 µA per count (1LSB = 1 count)
Data Range	0–8191 counts
Input Type	Sinking, Single-ended (1 common)
Maximum Continuous Overload	±31mA
Input Impedance	243Ω, ±0.5%, 1/4W Current Input
Filter Characteristics	Low Pass, -3dB @ 120Hz
Sample Duration Time	2.5 ms per channel (does not include ladder scan time)
All Channel Update Rate	10ms
Open Circuit Detection Time	Zero reading within 100ms
Conversion Method	Successive approximation
Accuracy vs. Temperature	±75PPM / °C maximum
Maximum Inaccuracy	0.5% of range (including temperature drift)
Linearity Error (end to end)	±0.037% of range Monotonic with no missing codes
Input Stability and Repeatability	±0.024% of range
Maximum Full Scale Calibration Error	±0.098% of range
Offset Calibration Error	±0.098% of range
Maximum Crosstalk at DC, 50Hz and 60Hz	±0.049% of range
Recommended Fuse (external)	Edison S500-32-R, 0.032 A fuse
External Power Supply Required	24VDC (-20% / + 25%), 30mA

General Specifications

Operating Temperature	0º to 60ºC (32º to 140ºF)
Storage Temperature	-20º to 70ºC (-4º to 158ºF)
Humidity	5 to 95% (non-condensing)
Altitude	2,000 meters max
Pollution Degree	2
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	> 10MΩ @ 500VDC
Heat Dissipation	1200mW
Overvoltage Category	II
Enclosure Type	Open Equipment
Module Location	Any I/O position in a Productivity1000 System
Field Wiring	Removable terminal block (sold separately). Use ***ZIP***Link Wiring System optional See "Wiring Options" on page 5.
Terminal Type (sold separately)	10-position Removable Terminal Block
Weight	71g (2.5 oz)
Agency Approvals	UL 61010-1 and UL 61010-2-201 File E139594, Canada and USA CE (EN 61131-2 EMC, EN 61010-1 and EN 61010-2-201 Safety)*

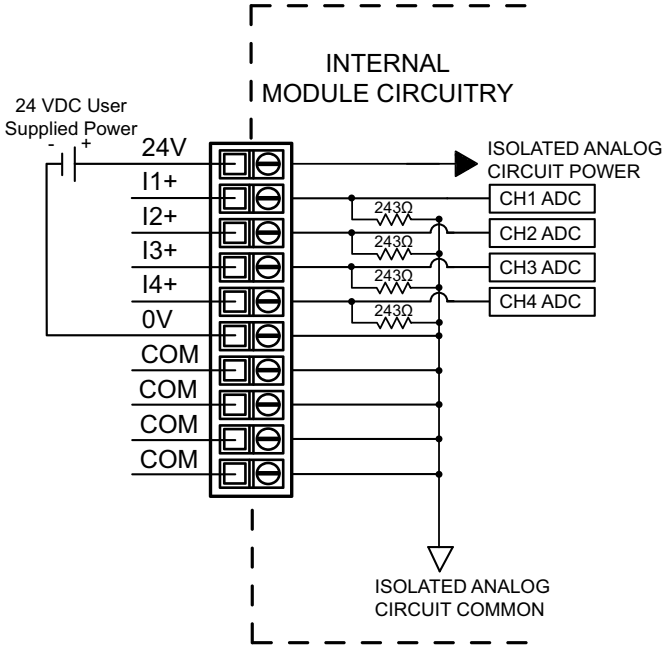
*See CE Declaration of Conformance for details.

Terminal Block Specifications

Part Number	***P1-10RTB***	***P1-10RTB-1***
Positions	10 Screw Terminals	10 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75ºC" or equivalent.	
Screw Driver	0.1 in (2.5 mm) Maximum*	
Screw Size	M2	N/A
Screw Torque	2.5 lb·in (0.28 N·m)	N/A

*Recommended Screw Driver TW-SD-MSL-1

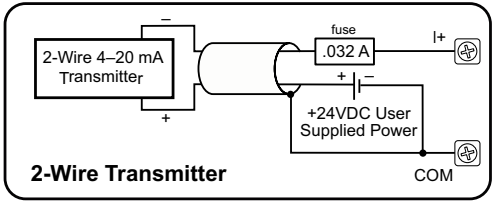
P1-04ADL-1 Schematic



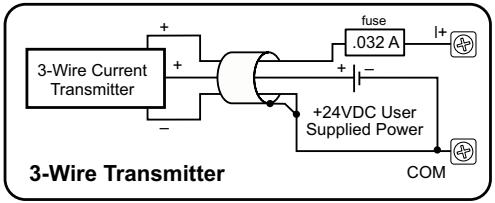
P1-04ADL-1 Wiring Diagram

Current Input Circuits

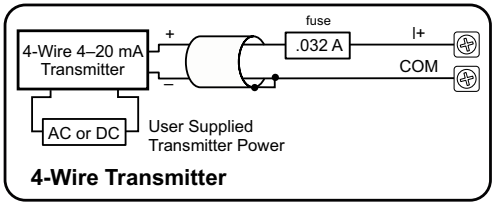
An Edison S500-32-R 0.032 A fast-acting fuse is recommended for current loops.



2-Wire Transmitter



3-Wire Transmitter



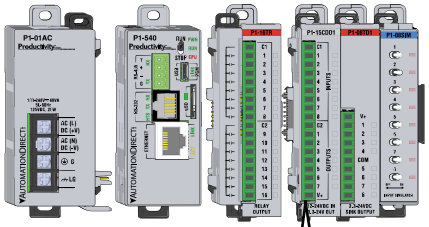
4-Wire Transmitter

Note: Do not connect both ends of shield.

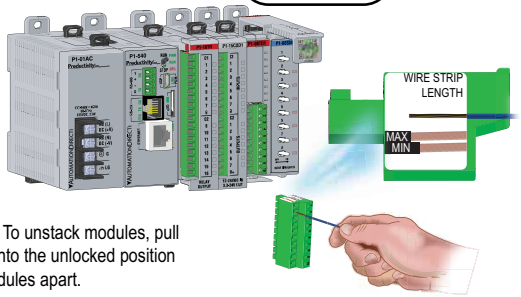
Module Installation

WARNING: Do not add or remove modules with field power applied.

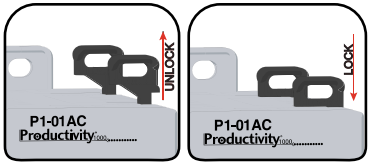
Step One: With latch in "locked" position, align connectors on the side of each module and stack by pressing together. Click indicates lock is engaged.



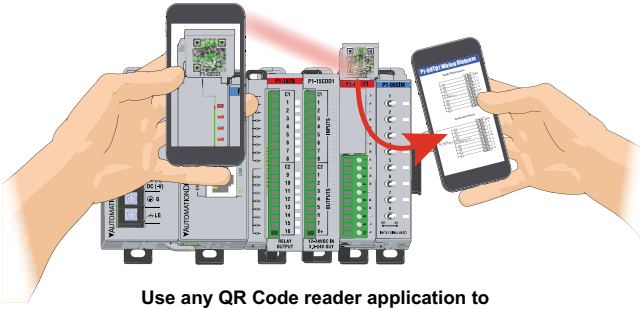
Step Two: Attach field wiring using the removable terminal block or ***ZIP***Link wiring system.



Step Three: To unstack modules, pull locking latch up into the unlocked position and then pull modules apart.



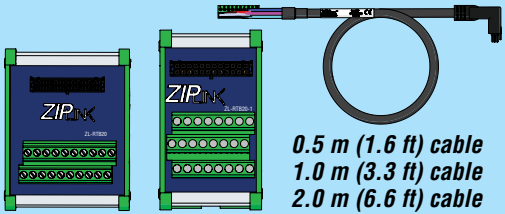
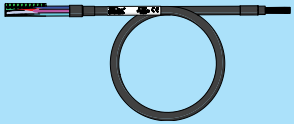
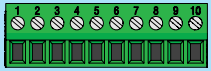
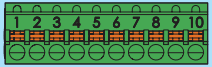
QR Code



Use any QR Code reader application to display the module's product insert.

Module Configuration

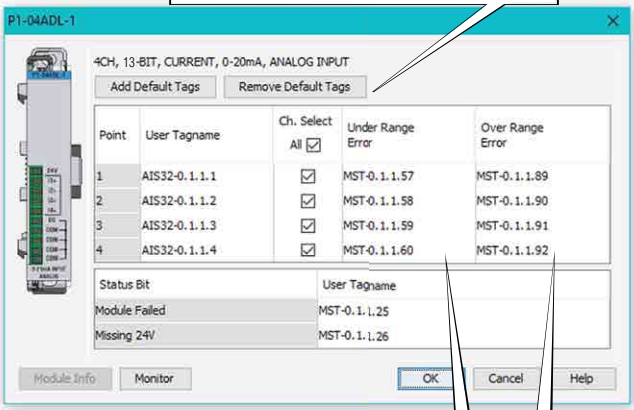
Wiring Options

1 ***ZIP*Link Feed Through *Modules and Cables*[1]** 	ZL-RTB20 ZL-RTB20-1 ZL-P1-CBL10 — *0.5 m (1.6 ft) cable* ZL-P1-CBL10-1 — *1.0 m (3.3 ft) cable* ZL-P1-CBL10-2 — *2.0 m (6.6 ft) cable*
2 ***Terminal Block with pigtail cable*** 	ZL-P1-CBL10-1P — *1.0 m (3.3 ft) cable* ZL-P1-CBL10-2P — *2.0 m (6.6 ft) cable*
3 ***Screw Terminal Block only*** 	P1-10RTB (Quantity 1)
4 ***Spring Clamp Terminal Block only*** 	P1-10RTB-1 (Quantity 1)
5 ***Accessories*[2]**	ZL-RTB-COM TW-SD-SL-1 TW-SD-MSL-1

1.Cable + ***ZIP***Link Module = Complete System

2. ZL-RTB-COM provides a common connection point for power or ground

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P1-04ADL-1 module into the configuration.

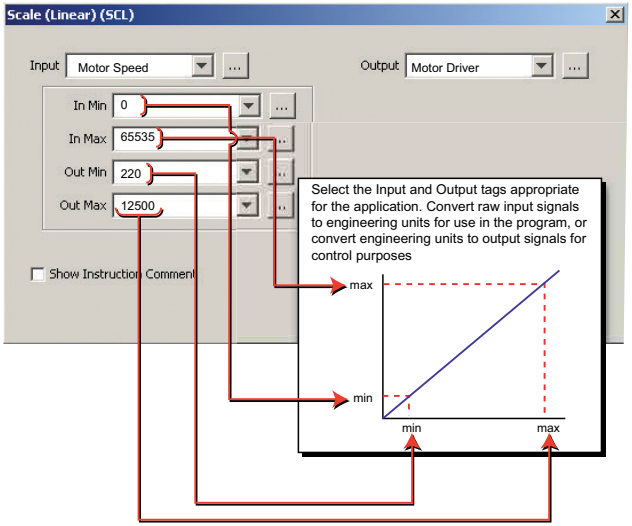


The "Under Range Error" bit for each channel activates for a signal around 0mA ± offset error.
The "Over Range Error" bit for each channel activates for a signal around 19.999 mA ± gain error.

Linear Scaling

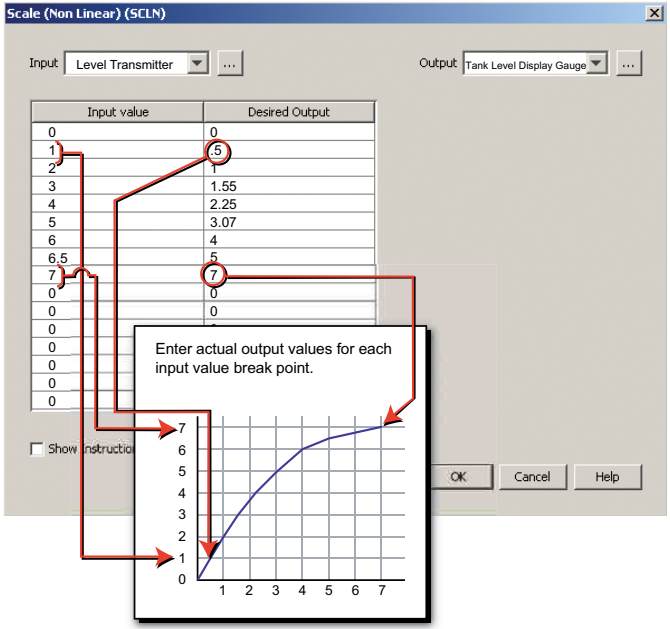
The Scale (Linear) function can be used to:

- Convert an application specific range to range which is native to the analog output module.
- 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.



WARNING: 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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Diagnostic/Status	
Under Range Error	1 bit per channel
Over Range Error	1 bit per channel
Module Failed	1 bit per module
Missing 24V	1 bit per module

Document Name	Edition/Revision	Date
P1-04ADL-1-DS	3rd Edition, Rev A1	2/11/2022

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