

**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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## Connector Specifications

Connector Type	24-Pin Molex Style 43025-2400
Number of Pins	24
Pin Spacing	3x3 mm (0.118 x 0.118 in)



## P2-16AD-2 Analog Input

The P2-16AD-2 Voltage Analog Input Module provides sixteen channels for receiving 0-10 VDC signals for use with the Productivity2000 System.

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Warranty: Thirty-day money-back guarantee. Two-year limited replacement. (See [www.productivity2000.com](http://www.productivity2000.com) for details).

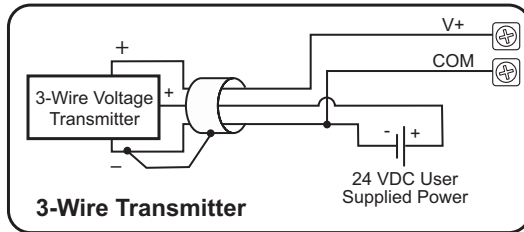
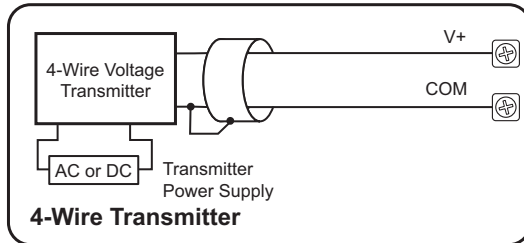
## General Specifications

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	1800VAC applied for 1 second
Insulation Resistance	> 10MΩ @ 500VDC
Heat Dissipation	59mW
Enclosure Type	Open Equipment
Agency Approvals	UL 61010-1 and UL 61010-2-201 File E139594, Canada & USA CE (EN 61131-2 EMC, EN 61010-1 and EN 61010-2-201 Safety)*
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System
Field Wiring	ZIPLink Wiring System ONLY. See "Wiring Options" on page 5. Must use copper conductors 75°C or equivalent.
EU Directive	See the "EU Directive" topic in the Productivity2000 Help File. Information can also be obtained at: <a href="http://www.productivity2000.com">www.productivity2000.com</a>
Connector Type	24-Pin Molex Style 43025-2400
Weight	90g (3.2 oz)

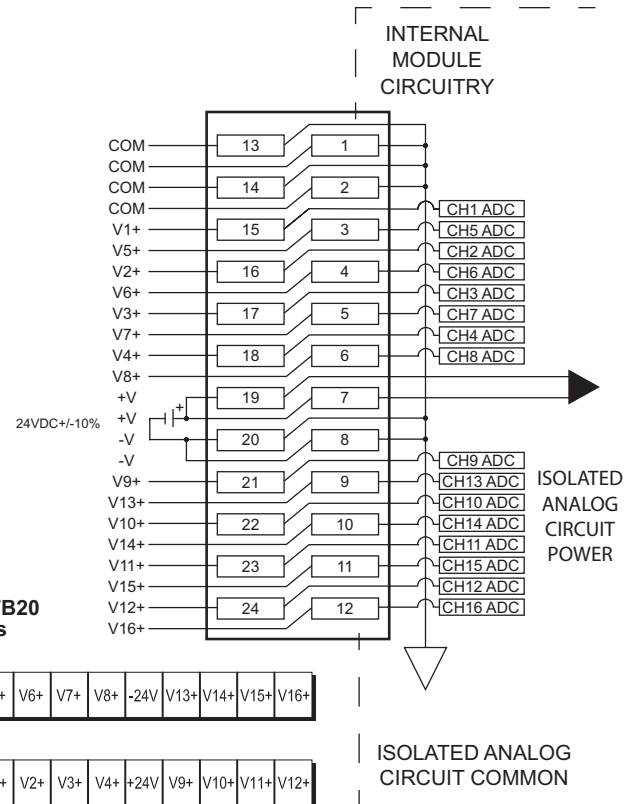
## Input Specifications

Input Channels	16
Module Signal Input Range	0–10 VDC
Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	0–10 VDC = 152μV per count (1 LSB = 1 count)
Data Range	0 to 65535 counts
Input Type	Single-ended (1 common)
Maximum Continuous Overload	±100V
Input Impedance	250kΩ (typical)
Filter Characteristics	Low Pass, -3dB @ 100Hz
Sample Duration Time	4ms per channel (does not include ladder scan time)
All Channel Update Rate	112ms
Open Circuit Detection Time	Zero reading within 1s
Conversion Method	Successive approximation
Accuracy vs. Temperature	±25PPM / °C maximum
Maximum Inaccuracy	0.1% of range (including temperature drift)
Linearity Error (end to end)	±10 LSB maximum (±0.015% of range) Monotonic with no missing codes
Input Stability and Repeatability	±10 LSB
Full Scale Calibration Error (not including offset)	±10 LSB maximum (±0.015% of range)
Offset Calibration Error	±10 LSB maximum
Max Crosstalk	-76dB, ±10 LSB
External DC Power Required	24VDC (-20% / +25%) 35mA

## Voltage Input Circuits



Notes for maximum accuracy:  
1. Jumper unused inputs to common.



## ZL-RTB20 Labels

UPPER

COM	V5+	V6+	V7+	V8+	-24V	V13+	V14+	V15+	V16+
-----	-----	-----	-----	-----	------	------	------	------	------

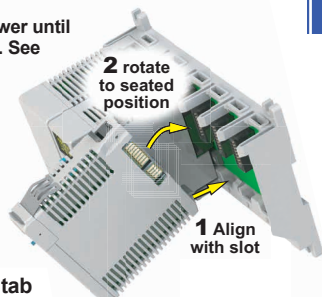
LOWER

COM	V1+	V2+	V3+	V4+	+24V	V9+	V10+	V11+	V12+
-----	-----	-----	-----	-----	------	-----	------	------	------

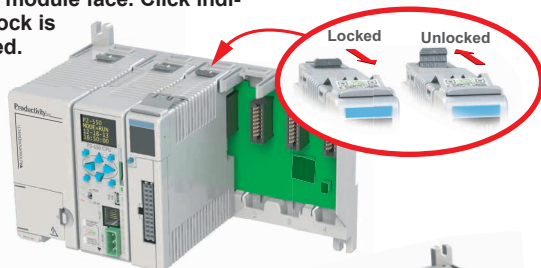
# Module Installation

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

**Step One:** Align module catch with base slot and rotate module into connector.



**Step Two:** Pull top locking tab toward module face. Click indicates lock is engaged.



**Step Three:** Attach field wiring using the ZIPLink wiring system.



# QR Code



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

**Caution:** If possible, remove field power prior to proceeding. If not, then **EXTREME** care **MUST** be taken to prevent damage to the module, or even personal injury due to a short circuit from the live terminal block.

## Important Hot-Swap Information

**The Productivity2000 System supports hot-swap!** Individual modules can be taken offline, removed, and replaced while the rest of the 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 Feed Through Modules and Cables<sup>1</sup>

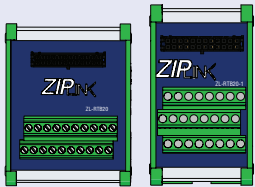


**ZIPLink pre-wired terminal block cables**

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

**ZIPLINK**  
AUTOMATIONDIRECT

ZL-P2-CBL24  
ZL-P2-CBL24-1  
ZL-P2-CBL24-2



**ZIPLink Modules**

ZL-RTB20  
ZL-RTB20-1

## 2 Terminal Block with pigtail cable

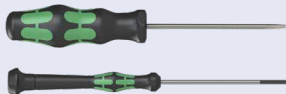
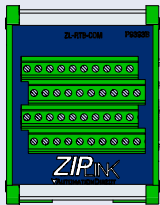


- 1.0m (3.3FT) cable
- 2.0m (6.6FT) cable

**ZIPLINK**  
AUTOMATIONDIRECT

ZL-P2-CBL24-1P  
ZL-P2-CBL24-2P

## 3 Accessories<sup>2</sup>



ZL-RTB-COM  
TW-SD-SL-1  
TW-SD-MSL-1

1. Cable + ZIPLink Module = Complete System
2. ZL-RTB-COM provides a common connection point for power or ground

# Module Configuration

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P2-16AD-2 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*.

P2-16AD-

16CH, 16-BIT, VOLTAGE, ANALOG INPI

Automatic Module Verification  
 No Verification and Enable Hot Swap

Point	User Tagname	Ch. Select		
		All <input checked="" type="checkbox"/>	Under Range Error	Over Range Error
1	AIS32-0.1.1.1	<input checked="" type="checkbox"/>	MST-0.1.1.57	MST-0.1.1.89
2	AIS32-0.1.1.2	<input checked="" type="checkbox"/>	MST-0.1.1.58	MST-0.1.1.90
3	AIS32-0.1.1.3	<input checked="" type="checkbox"/>	MST-0.1.1.59	MST-0.1.1.91
4	AIS32-0.1.1.4	<input checked="" type="checkbox"/>	MST-0.1.1.60	MST-0.1.1.92
5	AIS32-0.1.1.5	<input checked="" type="checkbox"/>	MST-0.1.1.61	MST-0.1.1.93
6	AIS32-0.1.1.6	<input checked="" type="checkbox"/>	MST-0.1.1.62	MST-0.1.1.94
7	AIS32-0.1.1.7	<input checked="" type="checkbox"/>	MST-0.1.1.63	MST-0.1.1.95
8	AIS32-0.1.1.8	<input checked="" type="checkbox"/>	MST-0.1.1.64	MST-0.1.1.96
9	AIS32-0.1.1.9	<input checked="" type="checkbox"/>	MST-0.1.1.49	MST-0.1.1.81
10	AIS32-0.1.1.10	<input checked="" type="checkbox"/>	MST-0.1.1.50	MST-0.1.1.82
11	AIS32-0.1.1.11	<input checked="" type="checkbox"/>	MST-0.1.1.51	MST-0.1.1.83
12	AIS32-0.1.1.12	<input checked="" type="checkbox"/>	MST-0.1.1.52	MST-0.1.1.84

Status Bit	User Tagname
Module Failed	MST-0.1.1.25
Missing 24V	MST-0.1.1.26

# 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: 0      In Max: 65535  
Out Min: 220      Out Max: 12500

Show Instruction Comment

Select the Input and Output tags appropriate for the application. Convert raw input signals to engineering units for use in the program, or convert engineering units to output signals for control purposes

max  
min

min      max

# 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

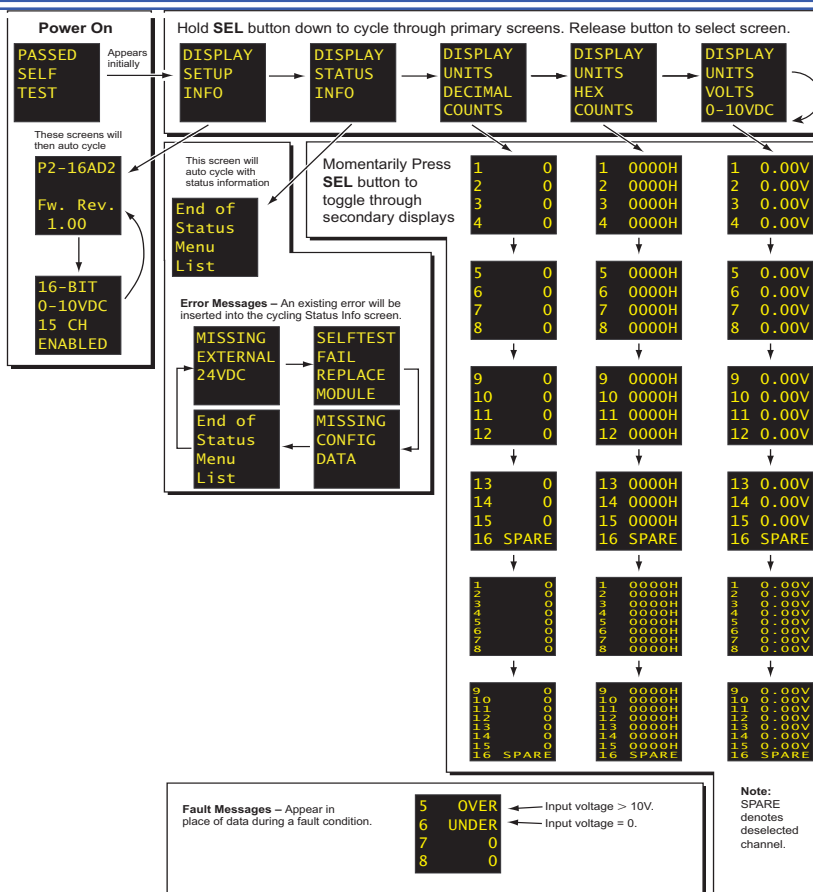
Input value	Desired Output
0	0
1	5
2	1
3	1.55
4	2.25
5	3
6	4.55
6.5	6.75
7	7
0	0
0	0
0	0
0	0
0	0
0	0
0	0

Show Instruction Comment

OK      Cancel      Help

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

# OLED Panel Display



Document Name	Edition/Revision	Date
P2-16AD-2-DS	2nd Ed.	8/19/2019

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