

**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)



## P2-16DA-1 Analog Output

The P2-16DA-1 Current Analog Output Module provides sixteen channels of 4-20 mA sourcing outputs for use with the Productivity2000 System.

Warning	1
Connector Specifications	1
General Specifications	2
Output Specifications	2
Wiring Diagram and Schematic	3
Module Installation Procedure	4
QR Code	4
Hot Swap Information	4
Wiring Options	5
Module Configuration	5
Linear Scaling	6
Non-Linear Scaling	6
OLED Panel Display Menus	7

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

## General Specifications

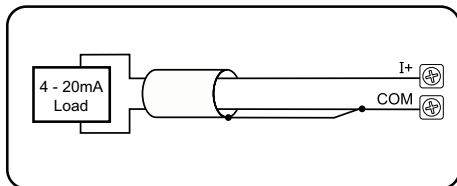
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	> 10MΩ @ 500VDC
Heat Dissipation	96mW
Enclosure Type	Open Equipment
Agency Approvals	UL508 File E139594, Canada & USA CE (EN61131-2*)
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System
Field Wiring	Use 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)

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

## Output Specifications

Output Channels	16
Module Signal Output Range	4-20 mA (Sourcing)
Output Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	4-20 mA = 0.244 µA/count 1 LSB = 1 count
Data Range	0 to 65535 counts
Output Type (sourcing)	Current: 20mA max
Output Value in Fault Mode	Near 0mA
Load Impedance (Minimum External Power Supply)	0 - 570Ω (19.2 VDC) 0 - 690Ω (21.6 VDC) 0 - 810Ω (24VDC) 0 - 930Ω (26.4 VDC) 0 - 1100Ω (30VDC) Minimum Load 0Ω @ 0 - 45°C 125Ω @ 45 - 60°C
Maximum Inductive Load	1mH
Allowed Load Type	Grounded
Maximum Inaccuracy	0.1% of range (including temperature drift)
Maximum Full Scale Calibration Error (not including offset error)	±0.025% of range maximum
Maximum Offset Calibration Error	±0.025% of range maximum
Accuracy vs. Temperature	±25ppm/°C max full scale calibration change (±0.0025% of range/°C)
Max Crosstalk	-96dB, 1 LSB
Linearity Error (End to End)	±16 LSB maximum (±0.025% of full scale) Monotonic with no missing codes
Output Stability and Repeatability	±10 count after 10 minute warm-up (typical)
Output Ripple	0.05% of full scale
Output Setting Time	300µs max, 5µs min (full scale change)
All Channel Update Rate	3ms
Maximum Continuous Overload	Outputs open circuit protected
Type of Output Protection	Electronically current limited to 20mA or less
Output Signal (power-up,-down)	4mA
External DC Power Required	24VDC @ 410mA (includes loop power)

**Current Sourcing Output Circuit**



Note: Shield is connected to common at the source device.

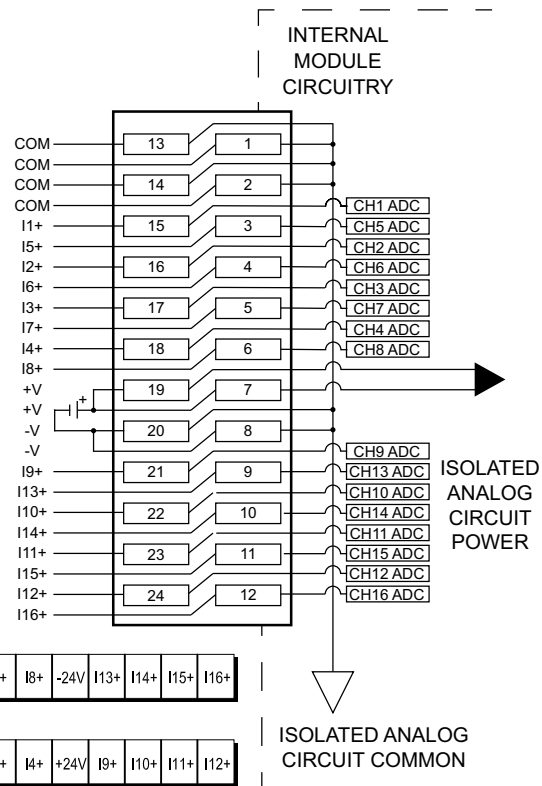
**ZL-RTB20 Labels**

UPPER

COM	I5+	I6+	I7+	I8+	-24V	I13+	I14+	I15+	I16+
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LOWER

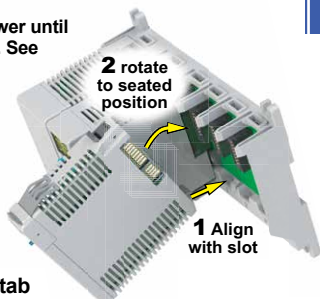
COM	I1+	I2+	I3+	I4+	+24V	I9+	I10+	I11+	I12+
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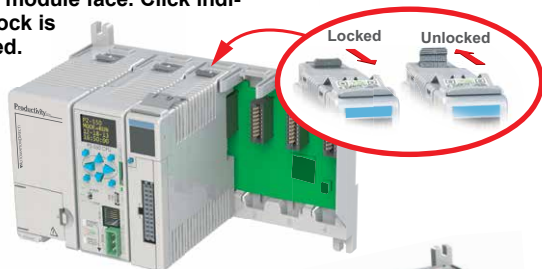
# Module Installation

**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 Connection System

Cable + ZIPLink Module = Complete System

ZIPLink pre-wired terminal block cables



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

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



ZIPLink Modules

Feed through

ZL-RTB20

## 2 Terminal Block with pigtail cable



1.0 m (3.3 ft) cable  
2.0 m (6.6 ft) cable

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



# Module Configuration

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P2-16DA-1 module into the base configuration.

Select *Automatic Module Verification* or *No Verification and Enable Hot Swap*. If desired, assign a *User Tagname* to each output point (channel) selected and to each *Status Bit Item*. A *Stop Mode Value* may also be assigned.

P2-16DA-1

16CH, 16-BIT, CURRENT, ANALOG OUTPUT

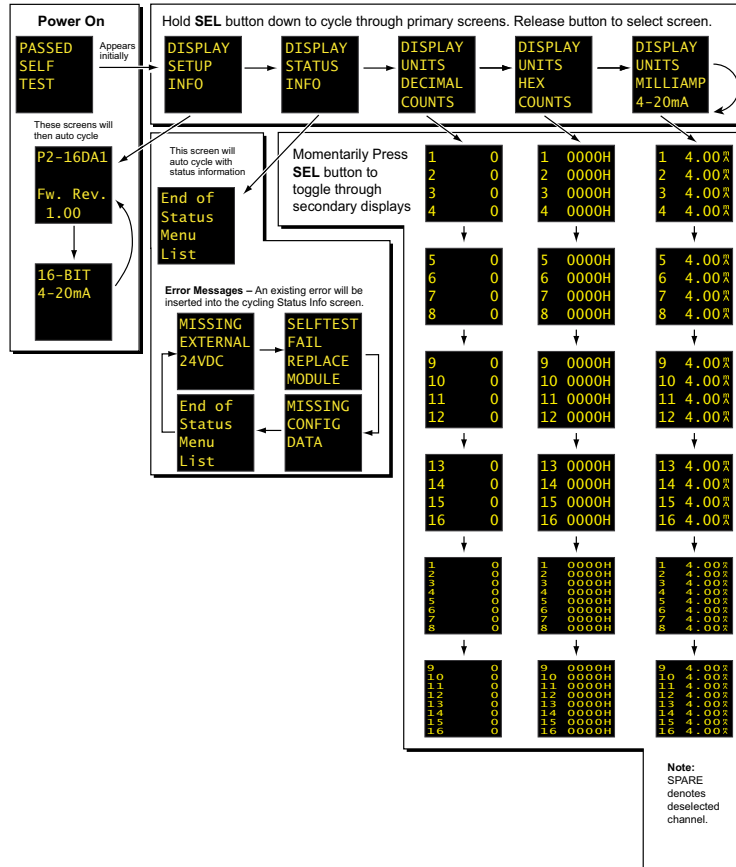
Automatic Module Verification  
 No Verification and Enable Hot Swap

Point	User Tagname	Stop Mode Value
1	AOS32-0.1.1.1	0
2	AOS32-0.1.1.2	0
3	AOS32-0.1.1.3	0
4	AOS32-0.1.1.4	0
5	AOS32-0.1.1.5	0
6	AOS32-0.1.1.6	0
7	AOS32-0.1.1.7	0
8	AOS32-0.1.1.8	0
9	AOS32-0.1.1.9	0
10	AOS32-0.1.1.10	0
11	AOS32-0.1.1.11	0
12	AOS32-0.1.1.12	0

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



# OLED Panel Display



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