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.
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.

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-2 Analog Output

The P2-16DA-2 Voltage Analog Output Module provides sixteen channels of ±10VDC outputs for use with the Productivity2000 System.

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)
Overvoltage Category	II
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	> 10MΩ @ 500VDC
Heat Dissipation	6.4 W
Enclosure Type	Open Equipment
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 75ºC or equivalent.
Connector Type	24-Pin Molex Style 43025-2400
Weight	90g (3.2 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)*

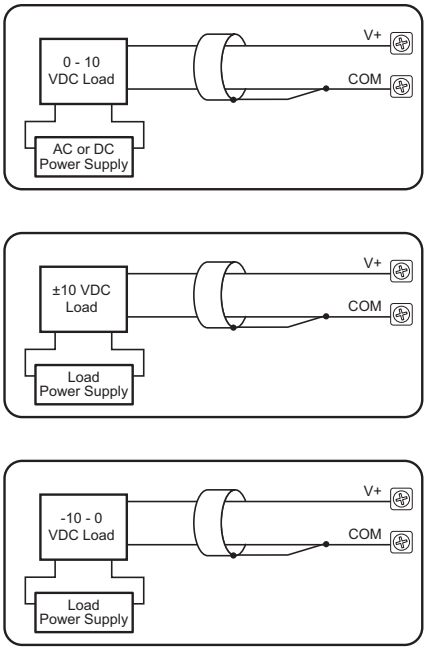
*Meets EMC and Safety requirements. See the D.O.C. for details.

Output Specifications

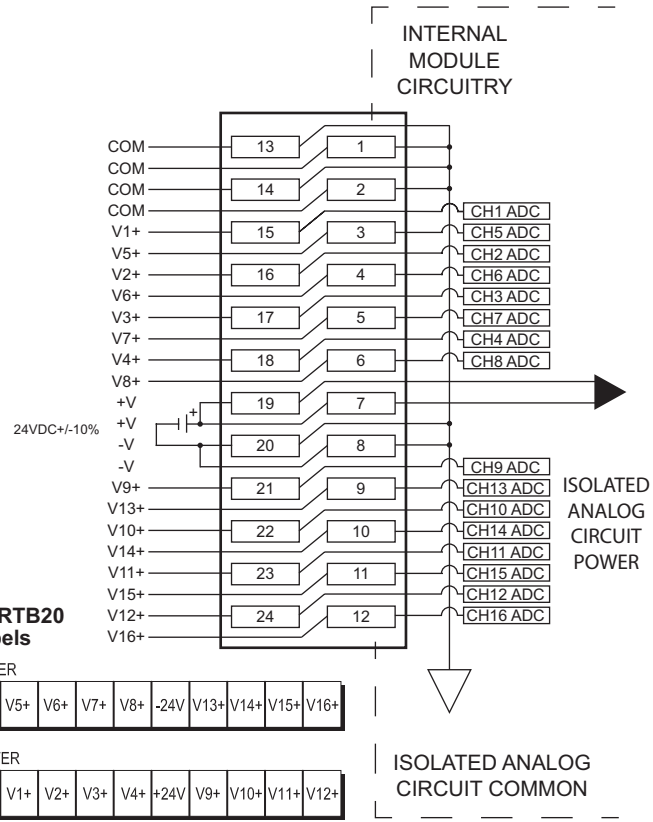
Output Channels	16
Module Signal Output Range	±10VDC
Output Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	±10VDC = 305µV/count 1 LSB = 1 count
Data Range	-32768 to 32767 counts
Output Type (sourcing/sinking)	Voltage: 10mA max current
Output Value in Fault Mode	0V
Load Impedance	≥1000Ω
Maximum Capacitive Load	0.01µF maximum
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 LSB 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 current limited to 40mA typical. Continuous overloads on multiple output can damage the module.
Type of Output Protection	0.1µF Transient Suppressor
External DC Power Required	24VDC (-20% / +25%), 265mA

Wiring Diagram

Voltage Output Circuits

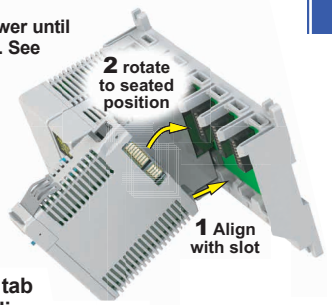


Schematic



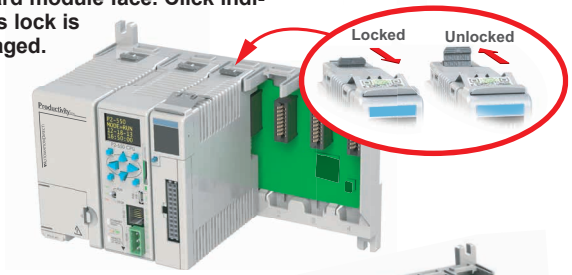
Module Installation

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.

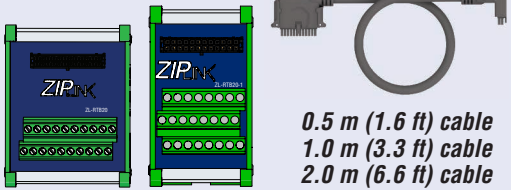
Caution: *If possible, remove field power prior to proceeding. If not, then **EXTREME** care **MUST** be taken to prevent damage to the module, or even personal injury due to a short circuit from the live terminal block.*

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 for details on how to plan your installation for use of this powerful feature.

Wiring Options

1 ***ZIP*Link Feed Through *Modules and Cables*[1]**



	ZL-RTB20
	ZL-RTB20-1
0.5 m (1.6 ft) cable	ZL-P2-CBL24
1.0 m (3.3 ft) cable	ZL-P2-CBL24-1
2.0 m (6.6 ft) cable	ZL-P2-CBL24-2

2 ***Terminal Block with pigtail cable***

1.0 m (3.3 ft) cable	ZL-P2-CBL24-1P
2.0 m (6.6 ft) cable	ZL-P2-CBL24-2P

3 ***Accessories*[2]**

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

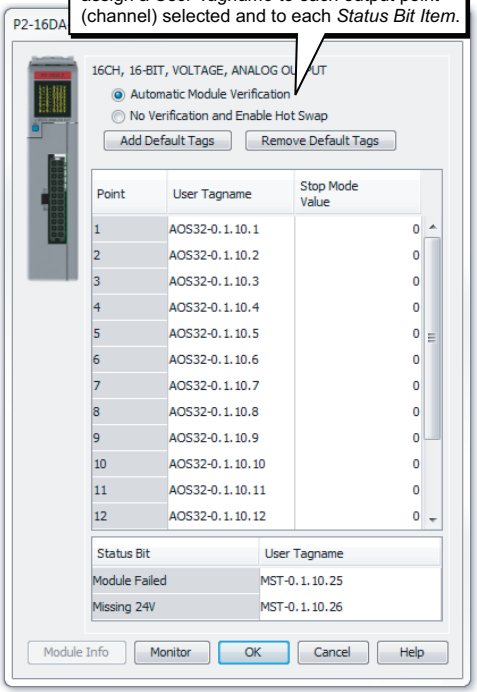
1.Cable + ***ZIP***Link Module = Complete System

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

Module Configuration

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P2-16DA-2 module into the base configuration.

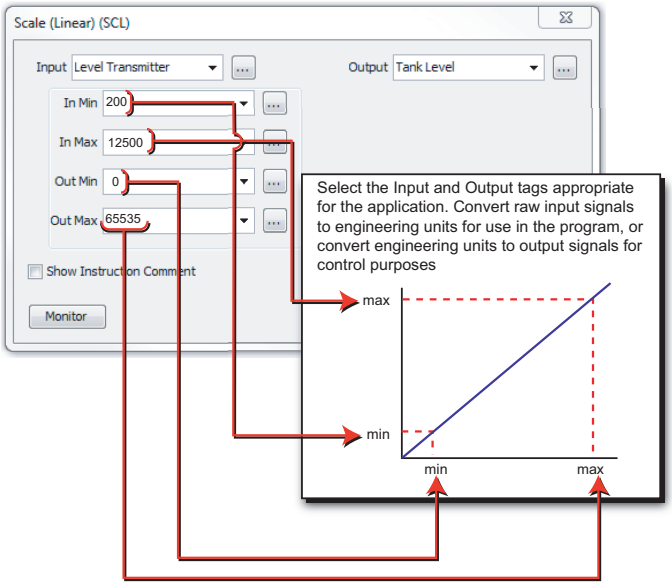
Select *Automatic Module Verification* or *No Verification and Enable Hot Swap*. If desired, assign a *User Tagname* to each output point (channel) selected and to each *Status Bit Item*.



Linear Scaling

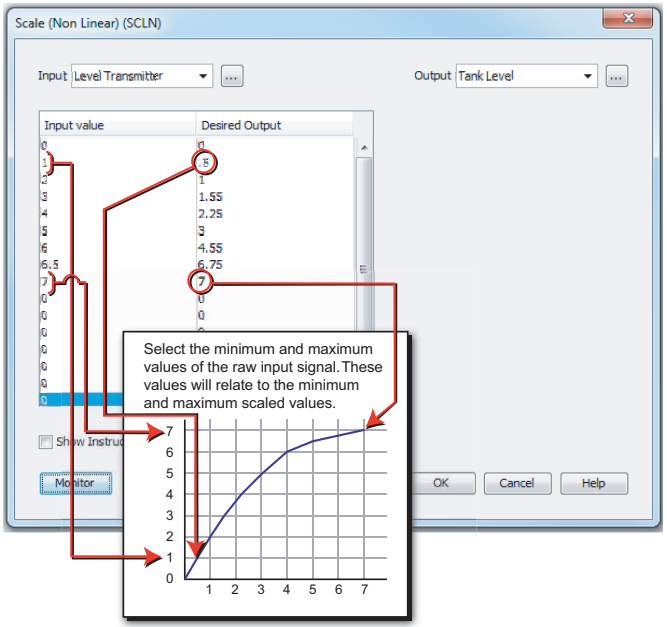
The Scale (Linear) function can be used to:

- **Convert an application specific range to a range which is native to the analog output module.**
- **Make other linear conversions in ranges appropriate to the application.**

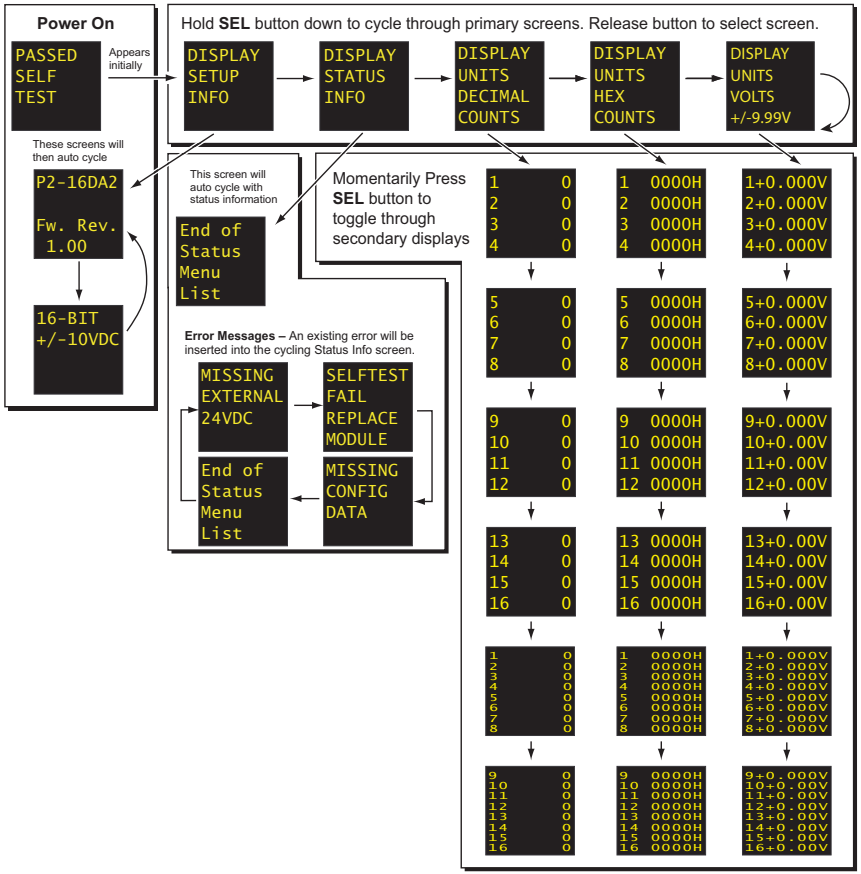


Non-Linear Scaling

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



OLED Panel Display



Document Name	Edition/Revision	Date
P2-16DA-2-DS	2nd Ed.,Rev. A	5/14/2024