

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.

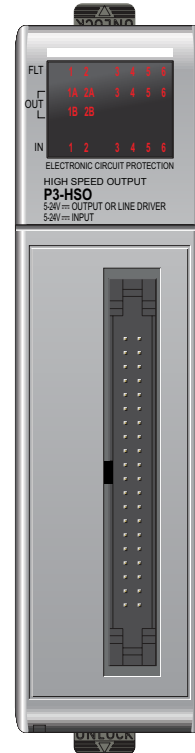
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Connector Specifications

Connector Type	IDC style header with latch, Omron XG4A-4034
Number of Pins	40 point
Pitch	0.1 in. (2.54 mm)

Document Name	Edition/Revision	Date
P3-HSO-M	1st Ed. Rev. C	12/04/2017

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P3-HSO High Speed Isolated Sinking/Sourcing Output

The P3-HSO is a high speed (1MHz) output module that supports Pulse/Direction, Up/Down and Quadrature pulse output on each of the two independent output channels. It has both line driver and open drain outputs. Additionally, it has 6 general purpose high speed inputs and 4 general purpose outputs. Simple move, velocity move, and additional high level instructions make it easy to implement the application's motion profile for use with the Productivity3000 Programmable Automation Controller.

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Warranty: Thirty-day money-back guarantee. Two-year limited replacement. (See www.automationdirect.com/P3000 for details).

General Specifications

Module Type	Intelligent
Modules per Base	No limit
I/O Points Used	None, mapped directly to tags in PAC
Surrounding Air 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	>10 MΩ @ 500 VDC
Heat Dissipation	6.26W
Enclosure Type	Open Equipment
Emissions	EN61000-6-4 (Conducted and radiated RF emissions)
Agency Approvals	UL508 file E157382, Canada & USA CE (EN61131-2*)
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.
Field Wiring	Use ZIPLink Wiring System. See "Wiring Options" on page 4. Must use copper conductors rated 75 degrees C or equivalent.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.automationdirect.com/P3000
Weight	114g (4 oz)

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

Status Output Specifications

Status Outputs	4 Outputs	
Output Signal Type, per Channel Select	Current Sinking	Current Sourcing
Output Voltage ²	5-24 VDC	5-24 VDC ²
Output Volts Maximum ²	36 VDC	26.4 VDC ²
Output Current Maximum	500 mA	500 mA
Overcurrent Protection	Short circuit detect, overcurrent shutdown ¹	
Output Self Limiting Current	1.2 to 2.4 amps	
Max. Inrush Current	Self limited	
Output Voltage Drop	0.7 VDC @ 0.5A	0.7 VDC @ 0.5A
Thermal Protection	Independent overtemperature protection each output	
Output Voltage Clamp During Inductive Switching	+45 VDC	-20 VDC
Maximum OFF to ON Response	25 μs ³	
Maximum ON to OFF Response	25 μs ³	

NOTES:

1. Any fault shuts off the output. Fault is indicated and output is kept off until a new move start is received.
2. Operating voltage for current sourcing outputs must be less or equal to the external power.
3. Measured at 5 VDC operating voltage, 0.5A load.

Power Specifications

External Power	24 VDC +10%/-15%, Class 2
Maximum Voltage	26.4 VDC
Minimum Voltage	20.4 VDC
Current Consumption Excluding Outputs	130 mA
Maximum Current Consumption Total of the 4 Status Outputs	2A

Status Input Specifications

Status Input	6 inputs
Isolation	Each status input is individually isolated from all other circuits
Input Volts Range	5-24 VDC
Input Volts Maximum	+/-34 VDC, limited by protection
Input Impedance	1 kΩ min., 5 kΩ max.
Inputs Rated Current	5-24 VDC, 16 mA 5.2 mA typ. @ 5 VDC 22 mA max. @ 34 VDC
Input Minimum ON Voltage	4.5 VDC
Input Maximum OFF Voltage	2.0 VDC
Input Minimum ON Current	5.0 mA
Input Maximum OFF Current	1.4 mA
OFF to ON Response Time	4 μs
ON to OFF Response Time	4 μs

Status LEDs

6 Fault Status LEDs	One per pulse output and one per status output (FLT1, 2, 3, 4, 5, & 6)
6 Input LEDs	One per status input (IN1, 2, 3, 4, 5, & 6)
8 Output Status LEDs	(OUT1A & 1B, OUT 2A & 2B, OUT3, 4, 5, & 6)

NOTE: All front panel fault LED's blinking indicates loss of external power.

Pulse Outputs Specifications

Pulse Outputs	2 Channels	
Output pulse Type, per Channel Select	Selectable for pulse & direction, up/down or quadrature	
Output Signal Type, per Channel Select	RS-422 Line Driver Current Sinking and Sourcing	Open Drain FET Outputs Current Sinking
Output Volts	RS-422 levels	24 VDC
Output Volts Maximum	5 VDC	36 VDC
Protection for Overcurrent and Short Circuit to Power	Current limit and Thermal shutdown ²	Current limit and Thermal shutdown ¹
Protection Short to Ground	Yes	Yes
Overcurrent Trip Level	Output current limit ±200 mA max ²	100 mA minimum
Maximum Continuous Output Current	±60 mA	40 mA
Max Switching Frequency, 1m cable	1 MHz	500 kHz*
Max Switching Frequency, 10m cable	1 MHz	200 kHz*

NOTES:

1. Any fault shuts off the output. Fault is indicated and output is kept off until a new move start is received.
2. RS-422 thermal faults auto reset after device cool down.

* Outputs are not limited to these speeds but single ended signals produced by the FETs are not usually reliable above these speeds due to cabling capacitance.

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 the ZIPLink wiring system. Caution: Ensure 24VDC & 5VDC power is removed prior to connecting ZIPLink cabling. If the ZIPLink cable is plugged in with the connector key misaligned then damage can occur to the P3-HSO.

Wiring Options

ZIPLink Connection System

Cable + ZIPLink Module = Complete System



ZIPLink pre-wired cables

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



- ZL-CBL40-S
- ZL-CBL40-1S
- ZL-CBL40-2S



ZIPLink Modules

Feed through

Note: P3-HSO is UL/CUL listed when used with ZL-RTB40.



ZL-RTB40

Inaccuracy of Output Frequency Due to Time Base Errors

25 MHz Crystal for Time Base	
Inaccuracy at 25°C, Maximum	±30 PPM
Inaccuracy 0-60°C, Referenced to 25°C	±30 PPM
Inaccuracy Due to Aging, Maximum	±5 PPM/Year
Max. Time Base Inaccuracy 0-60°C and 10 Years Operation	0.01%

Resolution of Frequency Output Measurements

Output Frequency	
1 kHz	0.01 Hz
10 kHz	0.67 Hz
100 kHz	67 Hz
1 MHz	6622 Hz

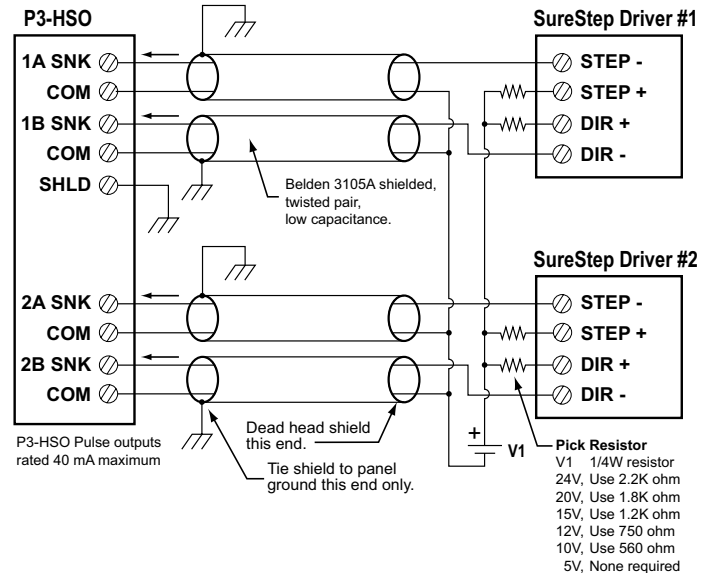
Module Range: Target position range ± 2.147 billion (32-bit signed integer)

Important Hot-Swap Information

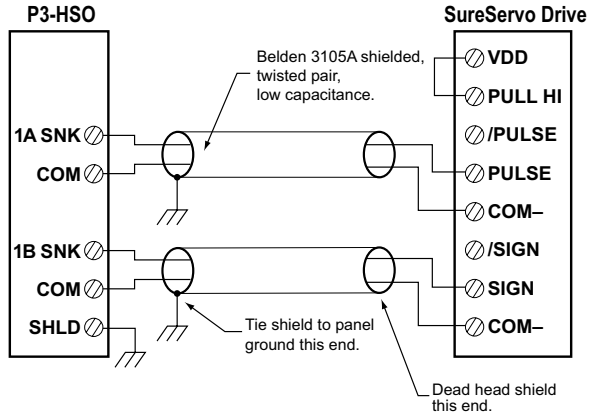
The Productivity3000 PAC supports hot-swap!

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

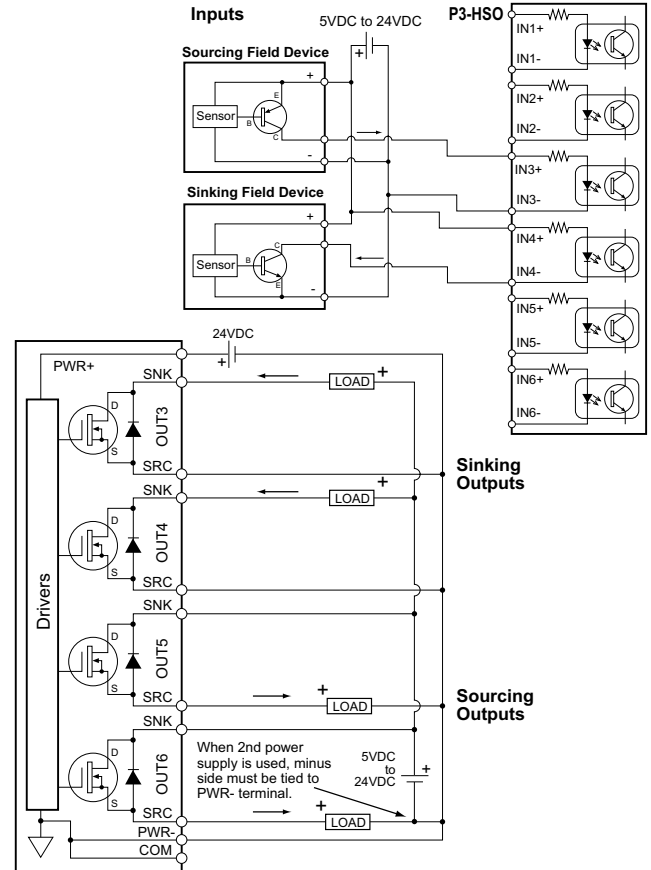
SureStep Wiring Diagram



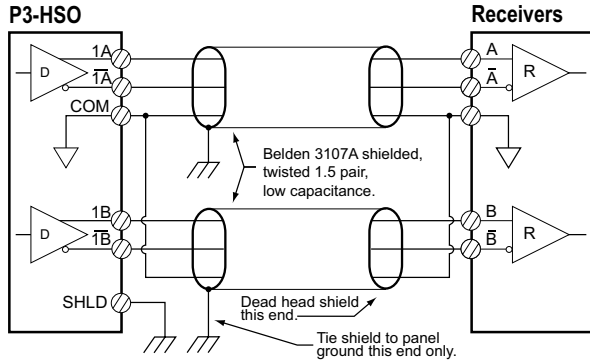
SureServo Wiring Diagram



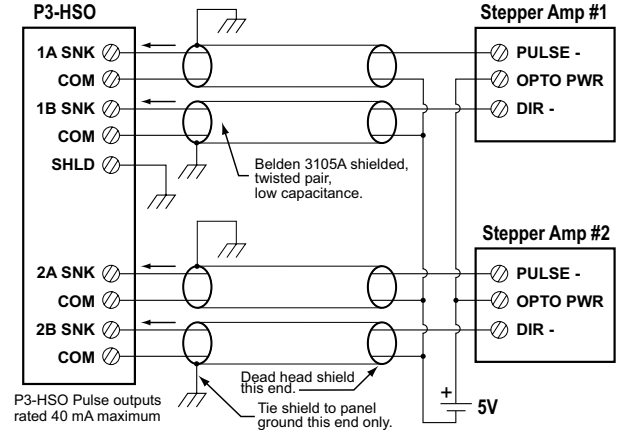
Status Inputs and Outputs



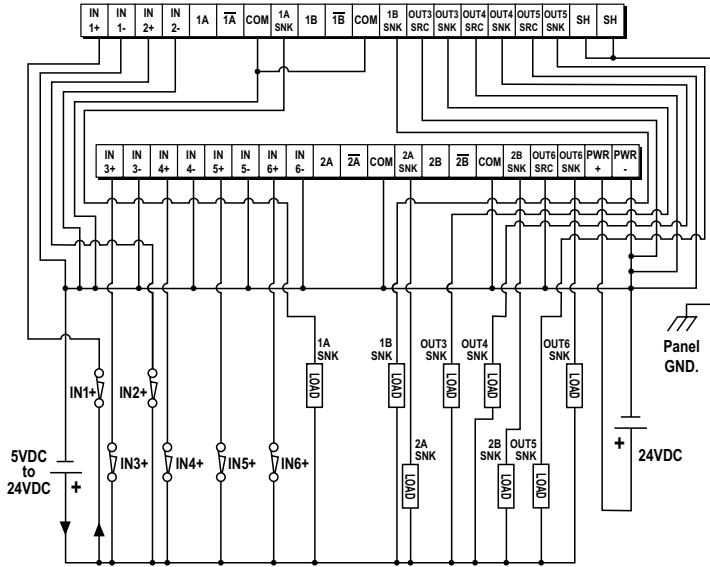
Line Driver Pulse Output Wiring Diagram



Sinking Pulse Output Wiring Diagram



Sinking I/O



Sourcing I/O

