FC-P3 Potentiometer Input, Analog Output Signal Conditioner

Product Guide

AUTOMATIONDIRECT.com
3505 HUTCHINSON ROAD
CUMMING, GA 30040-5860

Description:

FC-P3 is a resistive input to isolated analog output signal conditioner. The input resistive range (high end resistivity, low end resistivity) is set through the use of a pushbutton programming routine. Field configurable for 3-wire potentiometer/slide-wire inputs with end-to-end resistance ranges from 0-100 ohms to 0-100 kilohms. The input adjustment range can be scaled down to a minimum of 10% of the potentiometer being used.

Switch selectable, analog output options include 0-20 mA, 4-20 mA, 0-5V, and 0-10V. The PGM LED provides an indication of operating status and is used during the field programming process. The MAX and MIN LEDs indicate OVER and UNDER range status. The module can be DIN rail or side mounted and is UL listed. Power for the unit is provided by a customer supplied 24 VAC or 24 VDC Class 2 power supply.

Version: Original
July, 2013

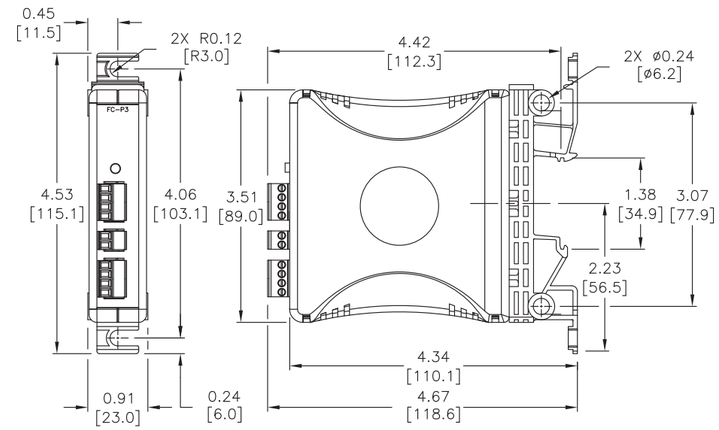
Specifications	
Input Specifications	
Input Ranges	0 to 100 Ohms up to 0-100 kilohms, 3-wire potentiometer/slide-wire
Programmable Range Minimum	Pushbutton Adjustable to 10% of full range of applied potentiometer
Excitation	100 uA
External Power Required	24 VDC ±10% @ 120 mA or 24 VAC ±10% @ 120 mA, Class 2
Output Specifications	
Output Ranges	0-5V, 0-10 V, 0-20 mA, 4-20 mA (DIP Switch Selectable/Invertable)
Maximum Current Output	21 mA (for mA OUT ONLY)
Response Time	35 ms for mA Out, 100 ms for V Out
Load Impedance	2 kilohm minimum, voltage output 550 ohm maximum, current output
Allowed Load Type	Grounded
Output Current	Voltage: 10 mA maximum Current: 21 mA maximum
Maximum Inaccuracy	±0.75% @ 0-60°C, FSO maximum
Output Stability and Repeatability	0.05% FSO maximum
Output Ripple	0.05% of full scale
Output Protection	Outputs short circuit protected
Inverted Outputs	Invert Outputs using DIP Switch 6

Specifications (continued)	
Terminal Blocks	
Field Wiring	Removable Screw Terminal Block
Number of Positions	2 (Dinkle EC350V-02P), 4 (Dinkle EC350V-04P), 4 (Dinkle EC350V-04P)
Wire Range	28-14 AWG solid or stranded conductor; wire strip length 1/4" (6-7mm)
Screw Torque	1.7 inch-pounds (0.19 Nm)
General Specifications	
Accuracy vs. Temperature	±50 PPM of full scale/°C Maximum
Response Time	35 ms, 100 ms for 0-10 V range
Power Dissipation within Module	3W Maximum
Thermal Dissipation	9.42 BTU/hr
Surrounding Air Temperature	0 to 60°C (32 to 140°F) IEC 60068-2-14 (Test Nb, Thermal Shock)
Storage Temperature	-20 to 70°C (-4 to 158°F) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock)
Humidity	5 to 95% (non-condensing) IEC 60068-2-30 (Test Db, Damp Heat)
Environmental Air	No corrosive gases permitted (EN61131-2 pollution degree 1)
Vibration	MIL STD 810C 514.2
Shock	MIL STD 810C 516.2
Isolation	1500 VDC Input to Output 1000 VDC Power to Input 1000 VDC Power to Output applied for 1 second (100% tested)
Insulation Resistance	>10M ohm @ 500VDC
Noise Immunity	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000 V @ 1µS pulse IEC 6100-4-4 (FTB) RFI, (145 MHz, 440 MHz 5W @ 15 cm) IEC 61000-4-3 (RFI)
Weight	0.25 lbs
Agency Approvals	UL508*, File Number: E157382, CE

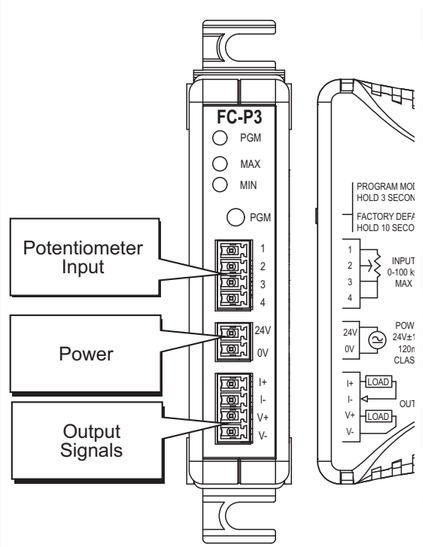
**** In order to comply with UL508 Class 2 standards the supplied power must be less than 26 VDC and fused at a maximum of 3 amps.***

Dimensions

inches [mm]



Wiring Connections



Input Terminal Block	
Faceplate Label	***Description***
1	Pot End Terminal
2	Pot Wiper
3	Pot End Terminal
4	Shield Connection

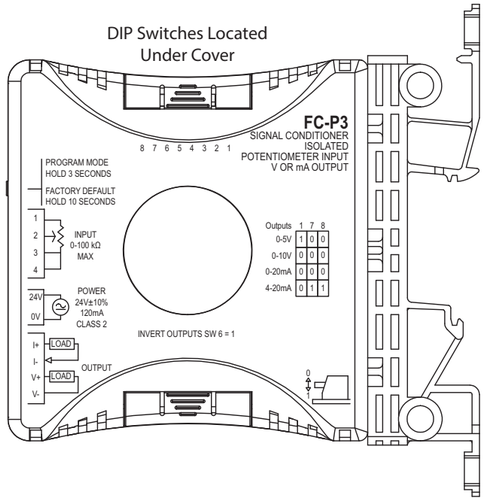
NOTE: Pot must be wired so that the minimum Pot resistance (MIN) is between Input Terminals 1 & 2.

External Power Terminal Block	
Faceplate Label	***Description***
24 V	24 VDC or 24 VAC ±10%, Class 2
0V	COM Connection

Output Terminal Block	
Faceplate Label	***Description***
I+	Current - POS
I-	Current - NEG
V+	Voltage - POS
V-	Voltage - NEG

CAUTION: If current output (I+ / I-) and Voltage output (V+ / V-) are both connected to loads and/or the "I+" terminal to the "V-" terminal, product damage may occur.

DIP Switch Settings



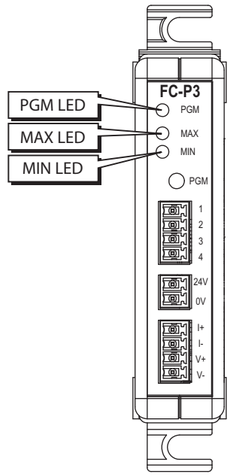
DIP Switch								
DIP Switches	1	2	3	4	5	6	7	8
Ouptut Ranges								
0-10 V	0	NOT USED					0	0
0-5V	1						0	0
0-20 mA	0						0	0
4-20 mA / 2-10 V	0						1	1
Invert Action						1		

NOTE: FC-P3 must have power cycled for Output Ranges to be updated by DIP switch change.

Status Indicators

Status Indicators		
Indicator	***Status***	***Description***
PGM LED	Green LED	The unit is powered
	Red LED	The unit is in program mode
MAX LED*	Yellow LED	On when the input signal is more than the programmed maximum value
MIN LED*	Yellow LED	On when the input signal is less than the programmed mainimum value

***Flashing LED indicates that input is at the program threshold.**



User Programming

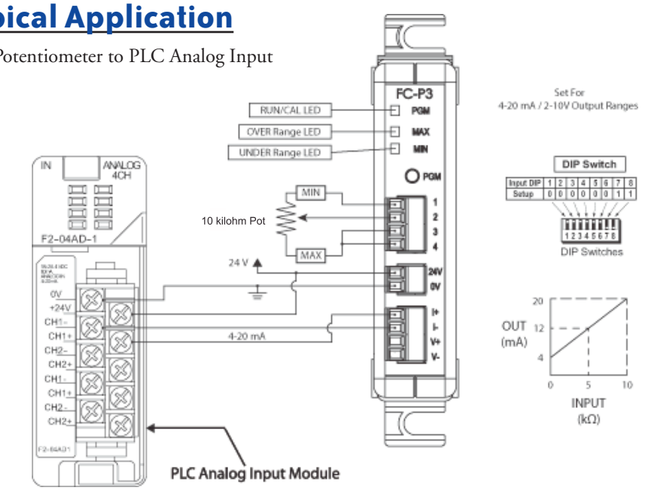
1) Connect 24 Volts power to the signal conditioner. The PGM LED should be GREEN.
2) Hold down pushbutton. The PGM LED will turn off. Hold the push button for approximately 3 seconds until the PGM LED turns RED.
3) Release pushbutton. The PGM LED should begin flashing at 50 Hz.
4) Adjust potentiometer for minimum resistance between input terminals 1 & 2 (if programming with output inverted, adjust for maximum resistance)
5) Press the pushbutton one time. The MIN LED will turn on indicating that the minimum resistance was set properly.
6) Adjust potentiometer for maximum resistance between input terminals 1 & 2 (if programming with output inverted, adjust for minimum resistanace)
7) Press the pushbutton one time. The MAX LED will turn on indicating that the maximum resistance was set properly.
8) The PGM LED will be RED and flashing slower. The MIN and MAX LED's will be ON solid. Press the push button one time to return to normal operation.
9) The PGM LED should turn GREEN and the MIN and MAX LED should turn off. You have now successfully entered valid user calibration data.

Notes:

- When programming is complete, if the PGM LED begins flashing red, programming was not successful. i.e., the max resistance was applied in step 4. User will need to re-program unit.
- To return to factory default values: Hold push button down for 10 seconds. PGM LED will turn RED and then will turn completely off. Release the push button. The PGM LED will turn GREEN. The unit has been successfully returned to factory default values.

Typical Application

10K Potentiometer to PLC Analog Input



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