FC-33 DC Selectable Signal Conditioner

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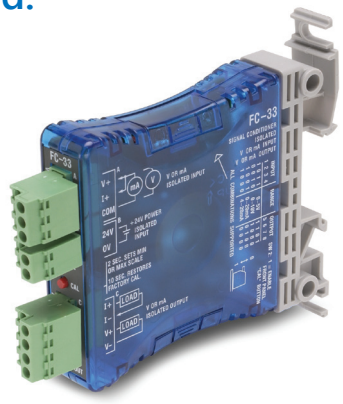


c UL us UL file E200031

Overview

The FC-33 is a DIN-rail or side-mount, selectable input/output signal conditioner with 1500VDC isolation between input and output, and 1500VDC isolation between 24-volt power and input/output. The field configurable input/output types allow a wide ranging capability for 0-5V, 0-10V, 0-20 mA and 4-20 mA signals.

The FC-33 has built-in self-calibration, but also has OFFSET (zero) and SPAN (full scale) adjustments of the output signal. The OFFSET has an adjustment range of 0 to 25% of full scale input and the SPAN has an adjustment of 80% to 102%.

Level LED: The LED is a powerful tool when setting up the signal conditioner. During normal operation the LED will blink at a proportional rate to the selected input signal level. When performing field calibration the LED is used for indication of the internal calibration process.

CAL-Pushbutton: This pushbutton, along with various switch settings, allows you to calibrate the OFFSET and/or SPAN for your application or to restore factory default calibration.

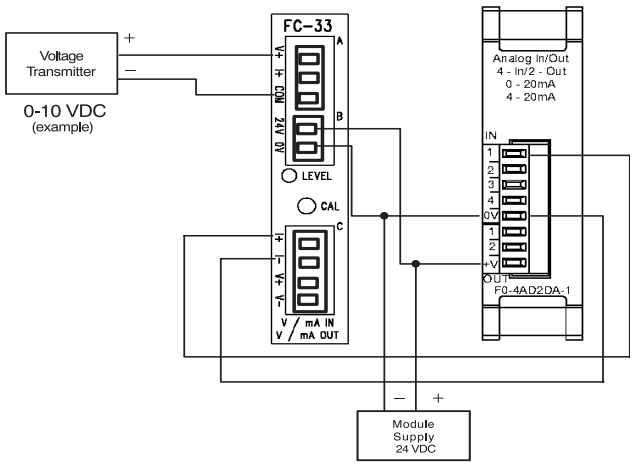
Specifications	
Input Ranges	0-5 V, 0-10 V, 0-20 mA, 4-20 mA
Input Impedance	250Ω, ±0.1% current input 200Kq / 400Kh Voltage input
Output Ranges	0-5 V, 0-10 V, 0-20 mA, 4-20 mA
Load Impedance	2KΩ minimum, voltage output 0Ω minimum, current output
Maximum Load / Current	550Ω @ 24VDC (sink/source)
Sample Duration Time	10mS
Filter Characteristic	-3 dB @ 3 Hz, -6 dB/octave
Linearity Error	0.05% FSO maximum
Stability	0.05% FSO maximum
Accuracy vs. Temperature	0.005%/ °C, (50ppm/°C)
Input Power	24VDC, ±10% @ 50mA
Recommended Fuse	0.032 mA, Series 217, current inputs
Isolation	1500VDC input - output* 1500VDC power - input* 1500VDC power - output* *applied for 1 second
Maximum Inaccuracy of Output	0.05% @ 25°C, FSO maximum 0.25% @ 0-60°C, FSO maximum
Output Current	21mA maximum (for mA output)
Approx. Field Cal. Range	0 - 25% (0 - 1.5 V / 5 V mode) 80% - 102% (4 - 5.1 V / 5 V mode)
Operating Temperature	0-60°C (32 to 140°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)
Relative Humidity	5 to 90% (non-condensing)
Vibration	ML STD 810C 514.2
Shock	ML STD 810C 516.2
Noise Immunity	NEMA ICS3-304

Application

The FC-33, field configurable isolated input/output signal conditioner, is useful in eliminating ground loops and interfacing sensors to PLC analog input modules. The FC-33 has 3-way isolation; this feature solves many types of configuration problems. For example, the signal conditioner can be configured for a sinking input and a sourcing output. It also allows signal translation from current input to voltage output or voltage input to current output.

This feature would be useful in a system design with a limited type and number of channels – for example: eight channels of 0-10 VDC, seven of which are used, and one 4-20 mA input transmitter.

Typical User Wiring



Voltage Input and Current Output (example)

FC-11 4-20mA Isolated Signal Conditioner

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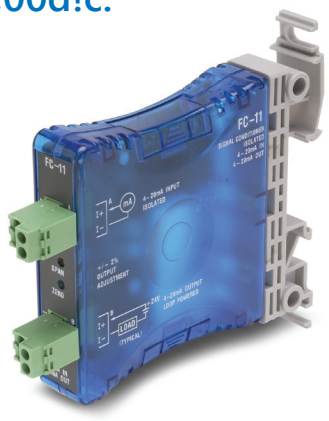

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Overview

The FC-11 is a DIN-rail or side-mount, 4-20 mA Input/Output loop powered signal conditioner with 1500VDC isolation between input and output.

The FC-11 has a user-selectable factory calibration. The output can also be calibrated with OFFSET (zero) and SPAN (full scale) adjustments. The OFFSET has an adjustment range of 0 to 25% of full scale input and the SPAN has an adjustment of 80% to 102%.

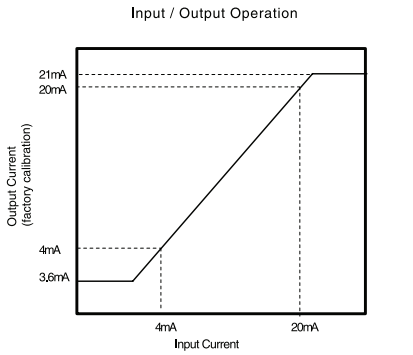
Application

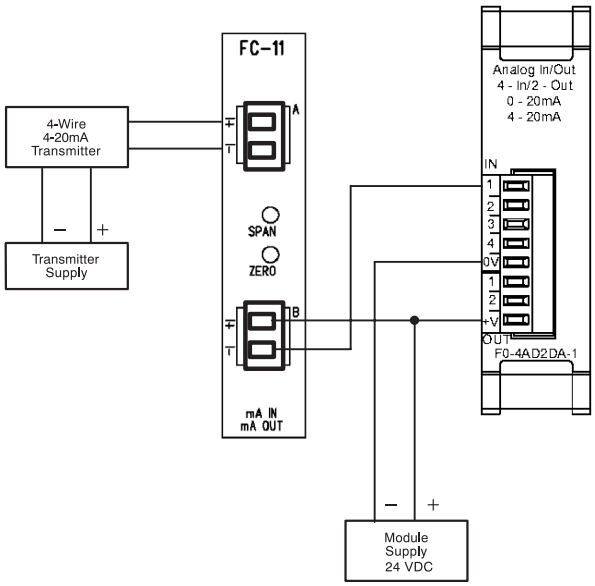
The FC-11 isolated input/output signal conditioner is useful in eliminating ground loops and sinking/sourcing issues when interfacing to PLC analog input modules. The FC-11 design feature solves many types of configuration problems. For example, the signal conditioner can solve the problem of connecting a sinking input transmitter to a sinking analog input module.

Specifications	
Input Ranges ***Extended Input range[1]***	4-20 ma 3.5 mA to 20.6 mA, ± 1%
Input Burden Voltage[2]	6.8 VDC
Maximum Input Current	34mA @ 9.7 VDC
Output Burden Voltage[3]	8.5 VDC minimum
Output Range ***Extended Output Range[1]***	4-20 mA 3.5 mA to 20.6 mA, ± 1%
Maximum Load Impedance	650Ω @ 24VDC, 1000Ω @ 29VDC
Maximum Output Current	23mA @ 29VDC
Sample Duration Time	18mS maximum
Linearity Error	0.1% FSO maximum
Max Inaccuracy of Output	0.05% @ 25°C, FSO maximum, 0.3% @ 0-60°C, FSO maximum
Filter Characteristics	-3 dB @ 200 Hz, -6 dB / octave
Stability	0.1% FSO maximum
Accuracy vs. Temperature	± 0.0065% / °C (65ppm / °C)
Isolation	1500VDC Input - Output
Operating Temperature	0 to 60°C (32 to 140°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)
Relative Humidity	5 to 90% (non-condensing)
Vibration	ML STD 810C 514.2
Shock	ML STD 810C 516.2
Noise Immunity	NEMA ICS3-304

NOTES:
1. When adjusting SPAN and OFFSET potentiometer
2. Voltage required to power internal circuitry
3. Formula, [(output load) x 20 mA] + 8.5 V,.i.e.: 13.5 VDC @ 250Ω
4. Internal analog converter resolution is 12-bit

Typical User Wiring





4-20 mA Input Isolated to 4-20 mA Output (example)

FC-T1 Thermocouple/mV Input Isolated Signal Conditioner

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c UL us *UL file E200031*

Overview

The FC-T1 is a DIN-rail or side-mount thermocouple/mV input signal conditioner with 1500VAC isolation between input and output.

The field configurable input allows a wide ranging capability for a type J, K, E, R, S, T, B, N and C thermocouple, or 0-156.25 mV and ±156.25 mV signals.

The FC-T1 has built-in self-calibration, but also offers OFFSET (zero) and SPAN (full scale) potentiometer for adjustment of the output signal.

The FC-T1 is also equipped with cold junction compensation (CJC) circuitry to provide an internal ice-point reference.

The temperature calculation and linearization are based on data provided by the National Institute of Standards and Technology (NIST).

ALARM and RUN LED: This LED is bicolor (red and green). A red LED indicates either power up, a fault with internal calibration, or a thermocouple burnout condition, while a green LED indicates normal operation.

Burnout Function: The output current can be selected to provide either upscale (20mA) or downscale (4mA) detection whenever thermocouple burnout occurs.

Click on the thumbnail or go to https://www.automationdirect.com/VID-TE-0006 for a short video on Remote Temperature Sensing

Specifications				
Input Ranges	***T/C***	***°C***	***°F***	***Resolution[1]***
	J	-190 to 760	-310 to 1400	0.23°C
	K	-150 to 1372	-238 to 2502	0.37°C
	E	-210 to 1000	-345 to 1832	0.295°C
	R	65 to 1768	149 to 3214	0.42°C
	S	65 to 1768	149 to 3214	0.42°C
	T	-230 to 400	-382 to 752	0.15°C
	B	529 to 1820	984 to 3308	0.315°C
	N	-70 to 1300	-94 to 2372	0.33°C
	C	65 to 2320	149 to 4208	0.55°C
	0 to 156.25 mV			0.038 mV
	-156.25 mV to +156.25 mV			0.076 mV
Output Range	4 to 20 mA			
External Power Supply	15 mA, 22 to 26 VDC			
Input Impedance	>5 MΩ			
Absolute Maximum Rating	Fault protected input ±50 V			
Maximum Inaccuracy	±3°C, Temperature Input ±0.1%, Voltage Input			
Linearity Error	0.1%			
Over Temperature Error	0.1 X 10^{-5}% (10 ppm)/°C			
Insulation Resistance	≥100 Mr with 500 VDC (Input to output power)			
Isolation	1500 VAC @ 1 Sec. (Input to output commons)			
Sample Duration Time	120 mS Voltage Input 250 mS Thermocouple Input			
Common Mode Rejection	-100 dB @ DC, -90 dB @ 50/60 Hz			
Input Filter (FIR)	-3 dB @ 15 Hz, -100 dB @ 50 Hz, -100 dB @ 60 Hz			
Broken Thermocouple	Up/Down Scale Red/Green LED			
Over Range	Up Scale			
Under Range	Down Scale			
Burnout Time	≤ 3 Seconds			
Cold Junction Compensation	Automatic			
Warm-up Time	30 min. typical ±1°C repeatability			
Operating Temperature	0 to 60°C (32 to 140°F)			
Storage Temperature	-20 to 70°C (-4 to 158°F)			
Relative Humidity	5 to 90% (non-condensing)			
Environmental Air	No corrosive gases permitted			
Vibration	ML STD 810C 514.2			
Shock	ML STD 810C 516.2			
Noise Immunity	NEMA ICS3-304			

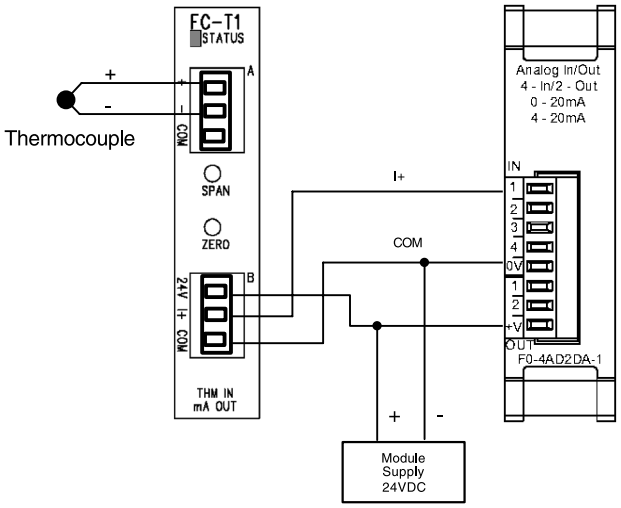
Note:
[1] Internal analog converter resolution is 12-bit.

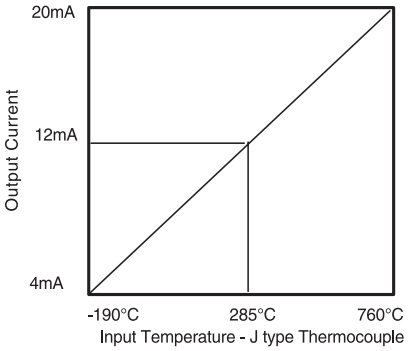
FC-T1 Thermocouple/mV Input Isolated Signal Conditioner

Application

The FC-T1, field configurable thermocouple/mV signal conditioner, is useful in eliminating ground loops and for interfacing to PLC analog input modules. If your requirements are only for one channel of temperature, you can add the signal conditioner to your 4-20 mA input module. Or, if your requirements are for a single millivolt signal source, you have the option of adding this input to your analog module.

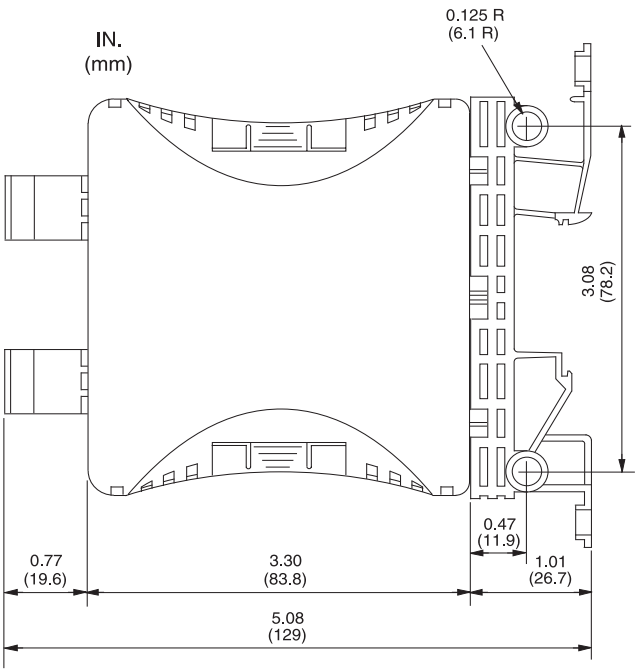
Typical User Wiring

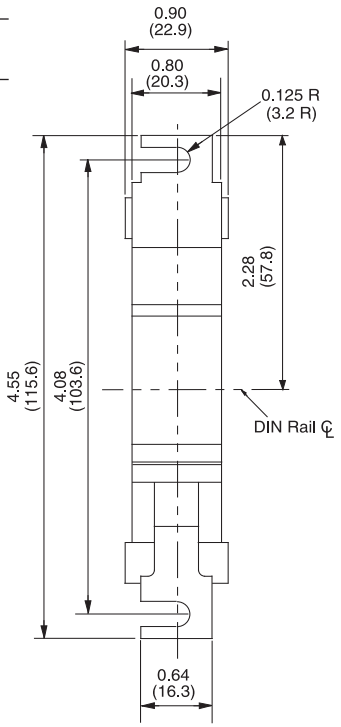




Signal Conditioner Dimensions

These dimensions are typical for all of the signal conditioners.
All dimensions are in inches (millimeters).





FC-R1 RTD Input Loop Powered Signal Conditioner

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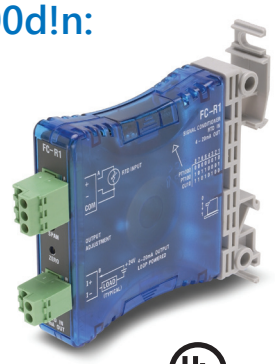

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Overview

The FC-R1 is a DIN-rail or side-mount Resistive Temperature Detector signal conditioner. It is a non-isolated signal conditioner which converts a 3-wire RTD to a linearized 4-20 mA current loop signal.

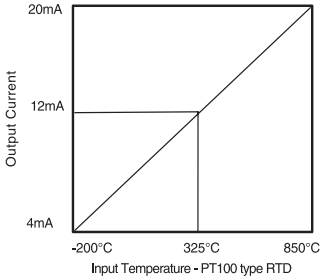
The FC-R1 has a user selectable CU10 (10 Ohm copper), PT100 (100 Ohm platinum) or PT1000 (1000 Ohm platinum) RTD input, and also offers OFFSET (zero) and SPAN (full scale) adjustments of the output signal. The OFFSET has an adjustment range of 0 to 25% of full scale output and the SPAN has an adjustment of 80% to 102%.

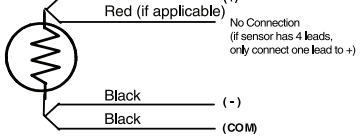
Specifications			
Input Ranges	CU10	-200°C to 260°C	-328°F to 500°F
	PT100	-200°C to 850°C	-328°F to 1562°F
	PT1000	-200°C to 595°C	-328°F to 1103°F
RTD Excitation Current	CU10, PT100 500 µA ±50 µA PT1000 80 µA ±20 µA		
Common Mode Range	0 - 3.5 VDC		
Output Range	4-20 mA (linearized)		
Maximum Inaccuracy	0.35% FSO / CU10 0.2% FSO @ 25°C / PT100 & PT1000 0.26% FS0 @ 60°C / PT100 & PT1000		
Maximum Loop Supply	30VDC		
Load Impedance	0Ω minimum		
Maximum Load/Power Supply	203Ω / 12V, 745Ω / 24V		
Linearity Error	0.35% FSO / CU10 0.2% FSO / PT10 & PT1000		
Output Slew Rate	1% @ 20 mS		
Filter Characteristics	105 dB @ DC, 60 dB @ 10 Hz, 40 dB @ 60Hz		
Stability	0.05% FSO maximum		
Operating Temperature	0 to 60°C (32 to 140°F)		
Storage Temperature	-20 to 70°C (-4 to 158°F)		
Relative Humidity	5 to 90% (non-condensing)		
Environmental Air	No corrosive gases permitted		
Vibration	ML STD 810C 514.2		
Shock	ML STD 810C 516.2		
Noise Immunity	NEMA ICS3-304		

Click on the thumbnail or go to https://www.automationdirect.com/VID-TE-0006 for a short video on Remote Temperature Sensing

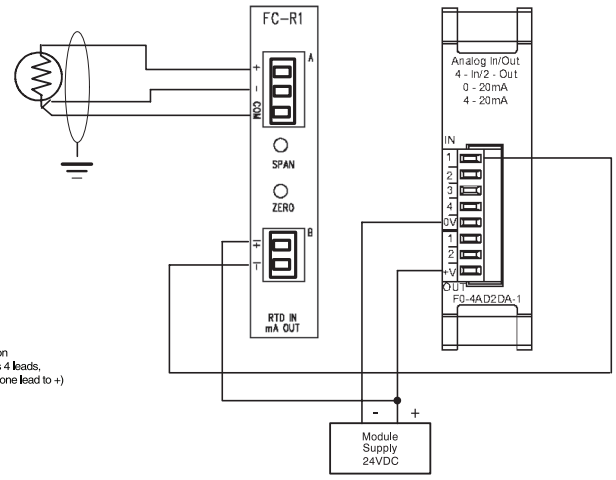
Application

The FC-R1 field configurable input signal conditioner is useful for interfacing RTD sensors to PLC analog current input modules. It is recommended that shielded RTDs be used whenever possible to minimize noise on the input signal.





Typical User Wiring



RTD Signal Conditioner to 4-20 mA DL05/06 analog module
Only use three wire and four wire RTDs.

FC-P3 Potentiometer Input, Analog Output Signal Conditioner

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UL file E157382

Overview

The 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.

The FC-P3 is 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 0-10 V. The PGM LED provides an indication of operating status and is used during the field programming process.

The MAX and MIN LED's indicate OVER and UNDER range status. The module can be 35mm DIN rail or side mounted and is UL listed. Power for the unit is provided by a customer supplied 24VAC or 24VDC Class 2 power supply.

Specifications	
Input Specifications	
Input Ranges	0 - 100Ω up to 0-100kΩ, 3-wire potentiometer/slide-wire
Programmable Range Minimum	Pushbutton Adjustable to 10% of full range of applied potentiometer
Excitation	>100 uA @ 2.5VDC
External Power Required	24VDC ±10% @ 120 mA or 24VAC ±10% @ 120mA, Class 2
Output Specifications	
Output Ranges	0-5 V, 0-10 V, 0-20 mA, 4-20 mA (DIP Switch Selectable/Invertable)
Maximum Output Current	21mA (for mA OUT ONLY)
Response Time	35ms for mA Out, 100ms for V Out
Load Impedance	2kΩ minimum, voltage output 550Ω maximum current output
Output Drive	Voltage: 10mA maximum Current: 21mA maximum
Maximum Inaccuracy	±0.75% @ 0-60°C, FSO maximum
Output Stability and Repeatability	0.05% FSO maximum

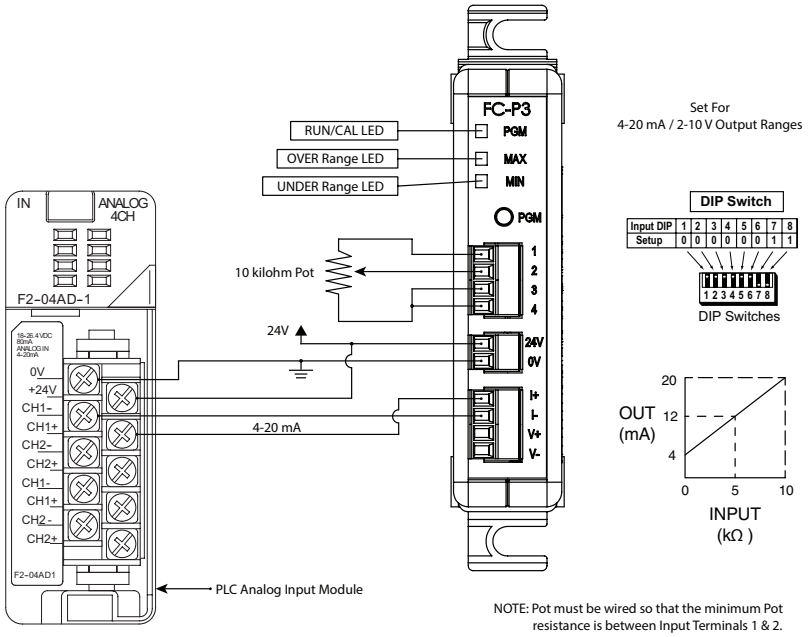
Specifications (continued)	
Output Specifications (continued)	
Output Ripple	0.05% of full scale
Output Protection	Outputs short circuit protected
Inverted Outputs	Invert Outputs using DIP Switch 6
Terminal Block Specifications	
Field Wiring	Removable Screw Terminal Blocks (included)
Number of Positions	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	35ms, 100ms for 0-10V 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)
Enclosure Rating	IP20
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	1500VDC Input to Output 1000VDC Power to Input 1000VDC Power to Output applied for 1 second (100% tested)
Insulation Resistance	>10 MΩ @ 500 VDC
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, the supplied power must be less than 26 VDC and fused at a maximum of 3 amps.**	

Click on the above thumbnail or go to https://www.automationdirect.com/VID-PS-0003 for a short introductory video for the FC Series Signal Conditioners.

FC-P3 Application and Dimensions

Application

Use the FC-P3 to eliminate the challenge of getting a variable set by a machine operator into the PLC. Using the FC-P3 to convert the resistive signal from a 10 kilohm potentiometer to a 4-20 mA signal that can be used by a PLC is simple.



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

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 is between Input Terminals 1 & 2.

External Power Terminal Block

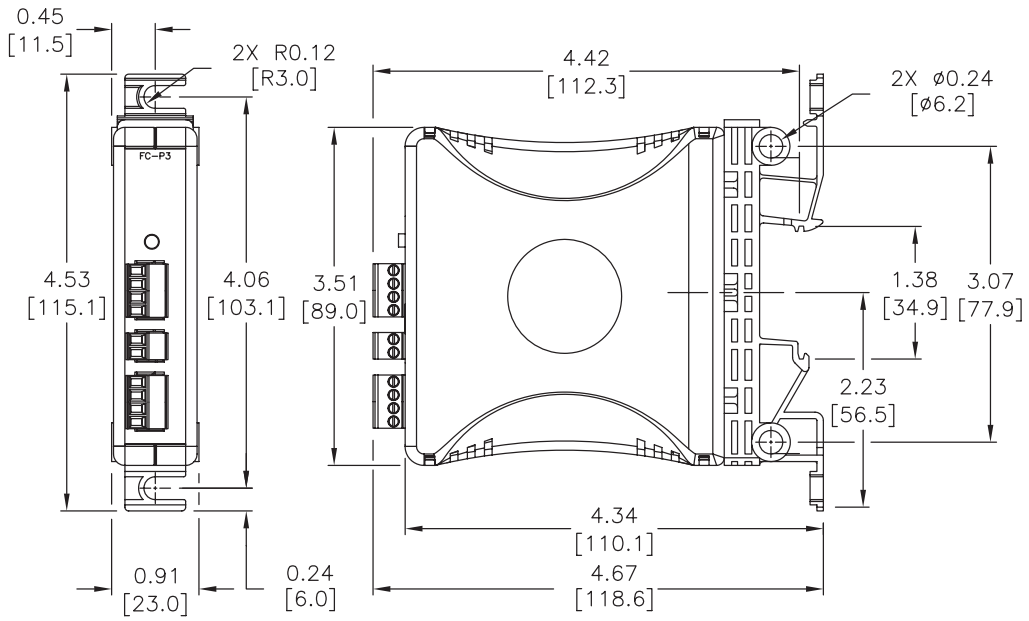
Faceplate Label	Description
24 V	24 VDC or 24 VAC ±10%, Class 2
0V	0V

Output Terminal Block

Faceplate Label	Description
I+	Current
I-	Current
V+	Voltage
V-	Voltage

Dimensions

inches [mm]



FC-35B Unipolar Voltage or Current to Bipolar Voltage Signal Conditioner

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UL file E157382

Overview

The FC-35B is a 35mm DIN-rail or side-mount, selectable unipolar input to bipolar output signal conditioner with isolation between input and output, and isolation between 24-volt power and input/output. The FC-35B field configurable isolated signal conditioner is useful in eliminating ground loops and interfacing sensors to PLC analog input modules. It translates unipolar voltage inputs or current inputs to bipolar voltage outputs. The input and output signal levels are selected via DIP switches. In addition, the outputs can be either a direct conversion of the inputs or a reverse acting operation.

The user also has the option of customizing the input OFFSET (zero) and SPAN (full scale) adjustments that can be set to a percentage of the full scale via a pushbutton on the front panel.

Click on the above thumbnail or go to https://www.automationdirect.com/VID-PS-0003 for a short introductory video for the FC Series Signal Conditioners.

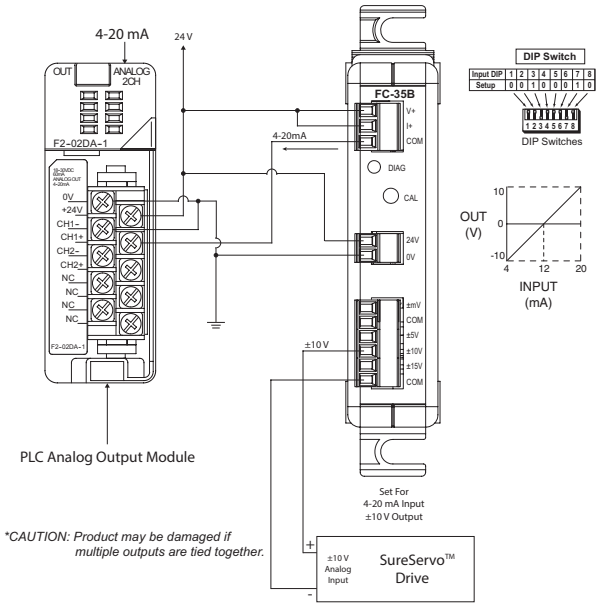
Specifications	
Input Specifications	
Input Ranges	0-5V, 0-10 V, 0-20 mA, 4-20 mA (DIP Switch Selectable/Invertable)
Input Impedance	410kΩ voltage input, 250Ω current input
Protection Type, Component	Polarity Protection Diode
External DC Power Required	24VDC ±10%, 40mA, Class 2
User Calibration Range	OFFSET (zero): 0-20% (e.g. 0-1.0V / 5V mode) SPAN (full-scale): 80-102% (e.g. 4.0 - 5.1V / 5V mode)
Output Specifications	
Output Ranges	±50 mV, ±100 mV, ±5V, ±10 V, ±15 V
Load Impedance	2.5kΩ minimum on ±50mV and ±100mV Range 2kΩ minimum on ±5V, ±10V and ±15V Range
Sample Duration Time	10 ms
Maximum Inaccuracy	0.1% FSO @ 25°C (1.0% 50 mV / 100 mV)
Accuracy vs. Temperature	±60 PPM of Full Scale / °C Maximum
Output Current	±50 mV/±100 mV @ 2.5mA max, ±5V, ±10 V, ±15 V @ 7.5mA max
Terminal Block Specifications	
Field Wiring	Removable Screw Type Terminal Blocks (Included)
Number of Positions	2 (Dinkle: EC350V-02P), 3 (Dinkle: EC350V-03P), 6 (Dinkle: EC350V-06P)
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	
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)
Enclosure Rating	IP20
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 IEC 60068-2-6 (Test Fc)
Shock	MIL STD 810C 516.2 IEC 60068-2-27 (Test Ea)
Insulation Resistance	>10M @ 500VDC
Noise Immunity	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000 V @ 1µS pulse IEC 61000-4-4 (FTB) RFI, (145 MHz, 440 MHz 5W @ 15 cm) IEC 61000-4-3 (RFI)
Weight	0.3lbs
Isolation	1000VDC Power to Input 1800VDC Power to Output 1800VDC Input to Output applied for 1 second (100% tested)
Agency Approvals	UL508*, File Number: E157382, CE

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

FC-35B Applications and Dimensions

Application Example 1

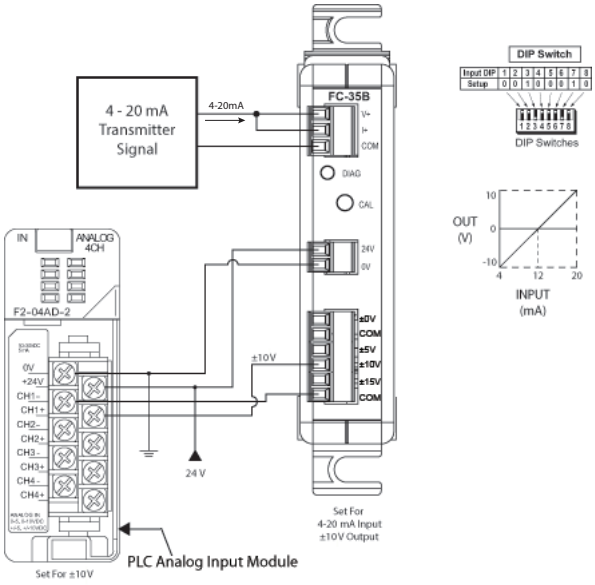
Use the FC-35B to convert a unipolar output from a PLC analog card to a bipolar ±10VDC signal to control a SureServo's External Velocity Command.



*CAUTION: Product may be damaged if multiple outputs are tied together.

Application Example 2

Use the FC-35B to convert and isolate a unipolar output from a 4-20 mA sensor or transmitter to a bipolar ±10VDC signal for a PLC input.



*CAUTION: Product may be damaged if multiple outputs are tied together

Wiring Connections

Input Terminal Block	
Faceplate Label	***Description***
V+	Voltage In
I+	Current In
COM	Common

NOTE: V+ and I+ must be jumpered for Current input

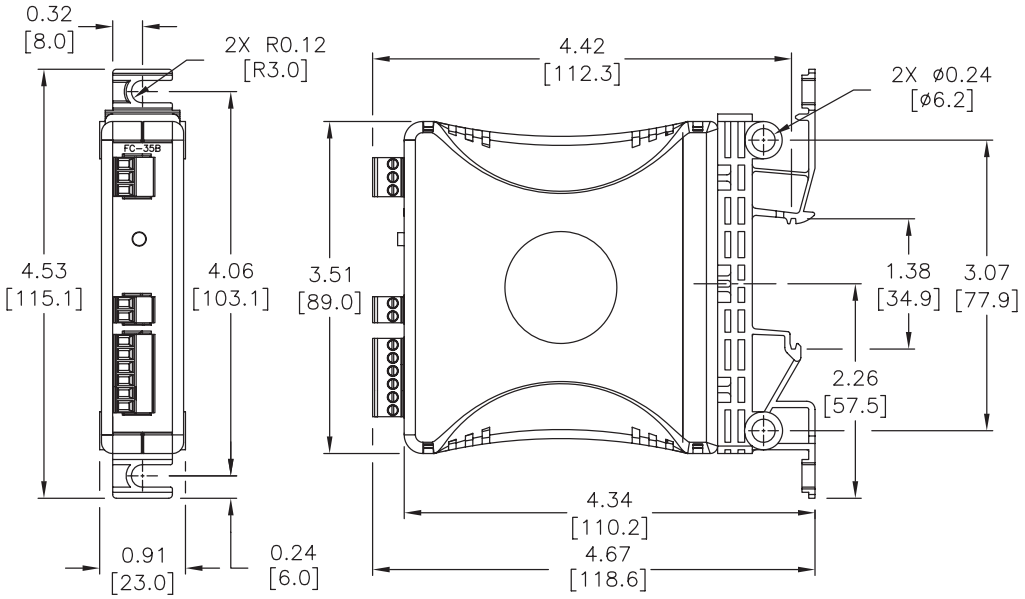
Output Terminal Block	
Faceplate Label	***Description***
±mV	±50 mV or ±100 mV Output
COM	COM Connection (used with mV signals)
±5V	±5V Output
±10 V	±10V Output
±15 V	±15V Output
COM	COM Connection (used with non-mV signals)

External Power Terminal Block	
Faceplate Label	***Description***
24 V	24 VDC ±10% (Class 2)
0V	0V

Switch/LED Labels	
Faceplate Label	***Description***
DIAG	Diagnostic LED flashing indication
CAL	Push button switch input to initiate calibration, etc.

Dimensions

inches [mm]



FC-B34 Bipolar Voltage to Unipolar Voltage or Current Signal Conditioner

$;00d?f:

UL file E157382

Overview

The FC-B34 is a 35mm DIN-rail or side-mount, selectable bipolar input to unipolar output signal conditioner with isolation between input and output, and isolation between 24 volt power and input/output. The FC-B34 field configurable isolated signal conditioner is useful in eliminating ground loops and interfacing sensors to PLC analog input modules. It translates bipolar voltage input to unipolar voltage output or bipolar voltage input to a current output. The input and output signal levels are selected via DIP switches. In addition, the outputs can be either a direct conversion of the inputs or a reverse acting operation. The user also has the option of customizing the input OFFSET (zero) and SPAN (full scale) adjustments that can be set to a percentage of the full scale via a pushbutton on the front panel.

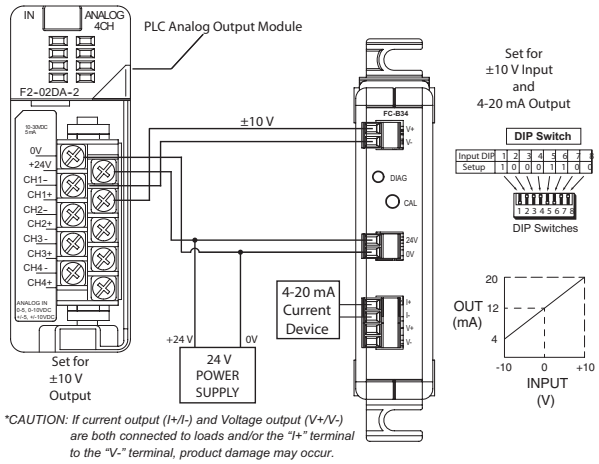
Click on the above thumbnail or go to https://www.automationdirect.com/VID-PS-0003 for a short introductory video for the FC Series Signal Conditioners.

Specifications	
Input Specifications	
Input Ranges	±15V, ±10V, ±5V, ±100mV, ± 50mV (DIP Switch Selectable)
Input Impedance	15V = 9.8kΩ, 10V = 11.56kΩ, 5V = 20.3kΩ, 100mV = 2.69kΩ, 50mV = 1.27kΩ, -50mV = 1.19kΩ, -100mV = 2.29kΩ, -5V = 8.07kΩ, -10V = 7.76kΩ, -15V = 7.64kΩ
Protection Type, Component	Polarity Protection Diode
External DC Power Required	24VDC ±10%, 50mA, Class 2
User Calibration Range	OFFSET (zero): 0-20% (e.g. -4V / ±5V mode) SPAN (full-scale): 80-102% (e.g. 4.0 - 5.1V / ±5V mode)
Output Specifications	
Output Ranges	0-5V, 0-10 V, 0-20 mA, 4-20 mA (DIP Switch Selectable)
Load Impedance	2kΩ Minimum, Voltage Output 550Ω Maximum, Current Output
Sample Duration Time	10ms
Maximum Inaccuracy	0.1% FSO (±15V, ±10V, ±5V Inputs), 1.5% FSO (±100mV, ±50mV Inputs) @ 25°C
Accuracy vs. Temperature	+/-60 PPM of Full Scale/ °C Maximum
Output Current	21mA max for mA-Out mode/ 10mA max for Volt-out mode
Terminal Block Specifications	
Field Wiring	Removable Screw Type Terminal Blocks, (included)
Number of Positions	2 (Dinkle: EC350V-02P), 2 (Dinkle: EC350V-02P), 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	
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)
Enclosure Rating	IP20
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 IEC 60068-2-6 (Test Fc)
Shock	MIL STD 810C 516.2 IEC 60068-2-27 (Test Ea)
Insulation Resistance	>10MΩ @ 500VDC
Noise Immunity	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000V @ 1µS pulse IEC 61000-4-4 (FTB) RFI, (145 MHz, 440 MHz 5W @ 15 cm) IEC 61000-4-3 (RFI)
Weight	0.3lbs
Isolation	1800VDC Power to Input 1800VDC Power to Output 1800VDC Input to Output applied for 1 second (100% tested)
Agency Approvals	UL508*, File Number: E157382, CE
*** In order to comply with UL508, the supplied power must be less than 26VDC and fused at a maximum of 3 amps.**	

FC-B34 Applications and Dimensions

Application Example 1

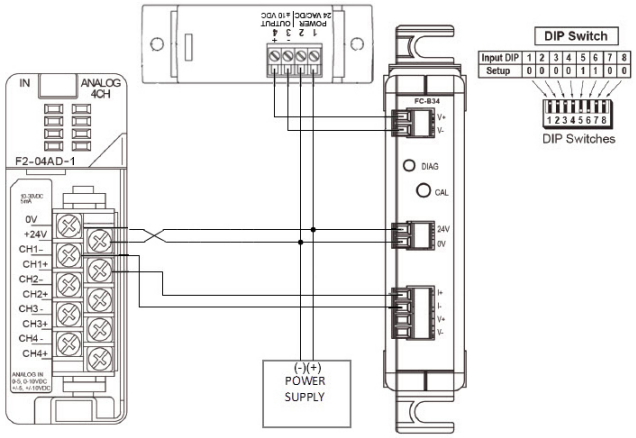
The FC-B34 can be used to convert a bipolar ±10VDC signal to a 4-20 mA signal.



*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.

Application Example 2

The FC-B34 can be used to convert the bipolar ±10VDC from a DCT100-10B-24S current transducer to a 4-20 mA or 0-10 VDC that can be used by a PLC.



Wiring Connections

Input Terminal Block	
Faceplate Label	***Description***
V+	Signal In +
V-	Signal In -

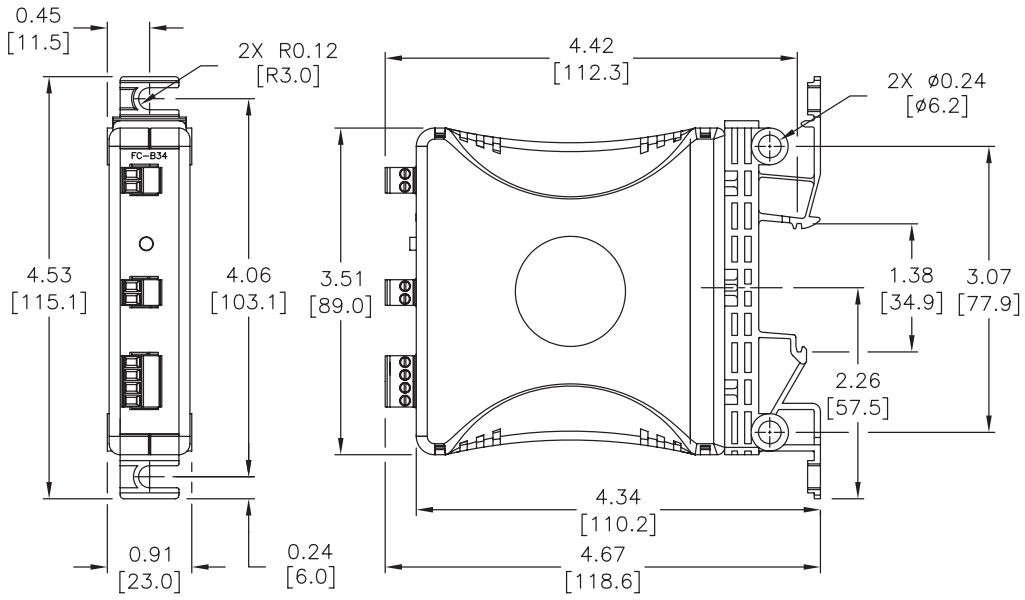
Output Terminal Block	
Faceplate Label	***Description***
I+	Current
I-	Current
V+	Voltage
V-	Voltage

External Power Terminal Block	
Faceplate Label	***Description***
24 V	24VDC ±10% (Class 2)
0V	0V

Switch/LED Labels	
Faceplate Label	***Description***
DIAG	Diagnostic LED flashing indication
CAL	Pushbutton switch input to initiate calibration, etc.

Dimensions

inches [mm]



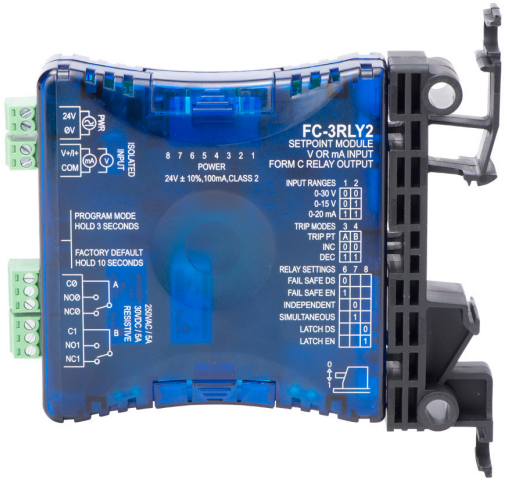
FC-3RLY2 Analog Input, 2-Relay, Limit Alarm Module

$;010hf:

UL file E157382

Overview

This is an Analog to Relay Limit Alarm module that is field configurable for a variety of alarm and control applications. The FC-3RLY2 can be powered by 24VAC or 24VDC and accept input signals of 0-15V, 0-30V, or 0-20mA. Configuration and Trip/Release Point programming is accomplished with DIP Switches, and a single PGM-pushbutton. LED's provide an indication of operating status and are used during the Trip/Release Point programming. The module can be 35mm DIN rail or side mounted.



Specifications	
Input Specifications	
Number of Inputs and Type	(1) Single Ended, (1) Common
Input Ranges	0-15 VDC, 0-30 VDC, 0-20 mA (DIP Switch Selectable)
Input Impedance	100KΩ voltage input / 250Ω current input
External DC Power Required	24VAC or 24VDC @ 100mA ±10%
Low-pass Filtering	-3dB at 100Hz, (-6dB per octave)
Set/Release Point Voltage Repeatability	0.05% of full scale Voltage range (Constant temperature)
Set/Release Point Current Repeatability	0.1% of full scale Current range (Constant temperature)
Output Specifications	
Relay Contacts	2 SPDT, Form C, non-latching
Current Contact Rating	250VAC @ 5A, 30VDC @ 5A (Resistive Load)
Relay Operation	DIP Switch selectable
Relay Trip Point Setting	Program Mode enabled by pushbutton
Relay Release Point Setting	
Relay Dead-band = Trip Point ± Release Point	0-15VDC Range: 1.0% minimum deadband (150mV) 0-30VDC Range: 1.0% minimum deadband (300mV) 0-20mA Range: 3.0% minimum deadband (600µA)
Terminal Block Specifications	
Field Wiring	Removable Screw Type Terminal Blocks, (included)
Number of Positions	(2) Two Position (Dinkle: EC350V-02P) (2) Three Position (Dinkle: EC350V-03P)
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	
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 IEC 60068-2-6 (Test Fc)
Shock	MIL STD 810C 516.2 IEC 60068-2-27 (Test Ea)
Insulation Resistance	>10MΩ @ 500VDC
Noise Immunity	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000 V @ 1µS pulse IEC 61000-4-4 (FTB) RFI, (145 MHz, 440 MHz 5W @ 15 cm) IEC 61000-4-3 (RFI)
Weight	0.3lbs
Isolation*	1800VDC Power to Output 1800VDC Input to Output applied for 1 second (100% tested)
Agency Approvals	UL508**, File Number: E157382, CE

*** The 0V and COM terminals should be considered the same reference point. There is no isolation between the External Power and Input Terminal blocks.**
**** In order to comply with UL508, the supplied power must be less than 26VDC and fused at a maximum of 3 amps.**

FC-3RLY2 Modes of Operation

Independent and Simultaneous Relay Control Modes

Independent Relay Control Mode

- Relays A and B are controlled with independent Trip Points and Release Points for each relay. Relays A and B can be independently set to operate in Increasing or Decreasing mode (see next section). This mode can be used to control two loads in sequence, or monitor for multilevel alarm conditions.

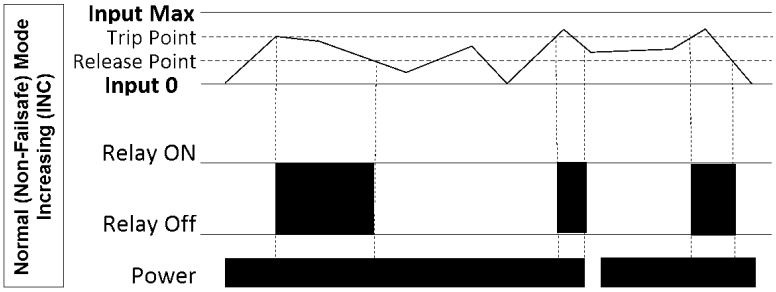
Simultaneous Relay Control Mode

- Relays A and B operate simultaneously, both controlled by Trip Point A and Release Point A settings. Both relays operate in Increasing or Decreasing mode (see next section).
- This mode can be used where it is desired to have both relays controlled by common Trip and Release points such as using one relay for local alarm indication with a horn or strobe and the other relay for remote alarm monitoring by a PLC.

Relay Trip/Release Point Control Modes
Normal (Non-failsafe)

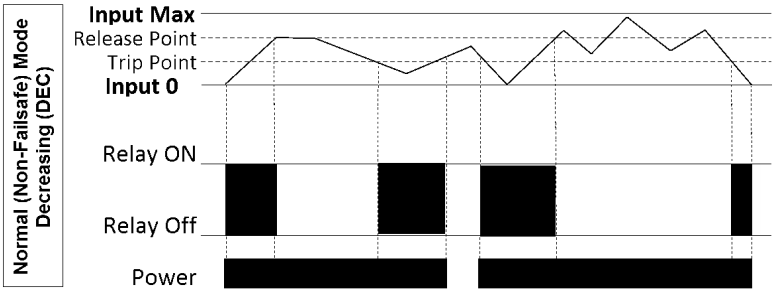
Increasing (INC) Mode

The relay will turn ON when the input signal increases to the programmed Trip Point. The relay will remain ON until the input signal decreases below the Release Point. In INC mode, the Trip Point must always be greater than the Release Point (TP > RP).



Decreasing (DEC) Mode

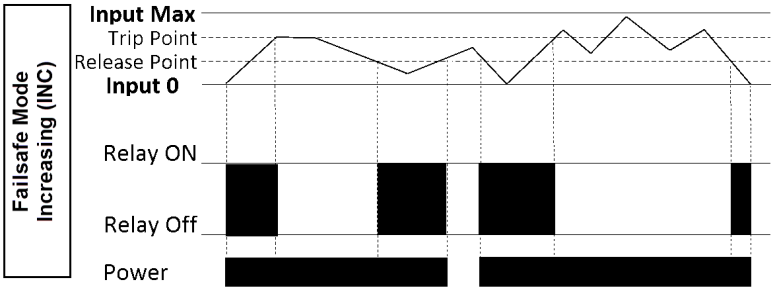
The relay will turn ON when the input signal decreases below the programmed Trip Point. The relay will remain ON until the input signal increases above the Release Point. In DEC mode, the Trip Point must always be less than the Release Point (TP < RP).



Failsafe Mode

Increasing (INC) Mode

The relay will turn OFF when the input signal increases to the programmed Trip Point. The relay will remain OFF until the input signal decreases below the Release Point. In INC mode, the Trip Point must always be greater than the Release Point (TP > RP).

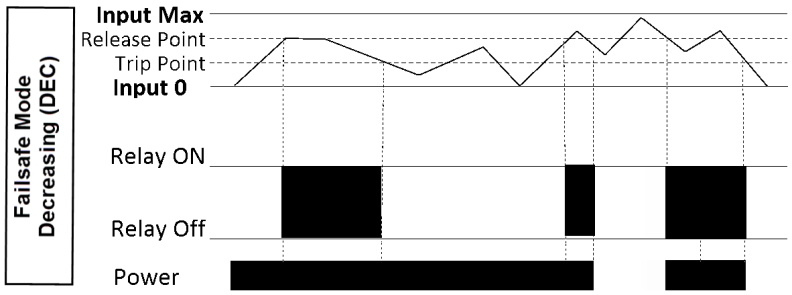


FC-3RLY2 Modes of Operation (continued)

Failsafe Mode (continued)

Decreasing (DEC) Mode

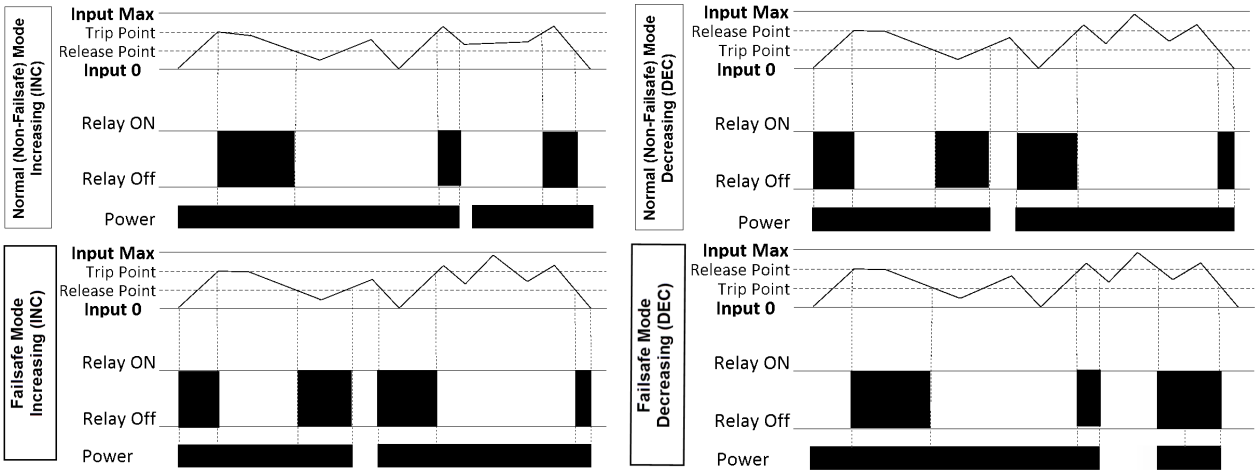
The relay will turn OFF when the input signal decreases below the programmed Trip Point. The relay will remain OFF until the input signal increases above the Release Point. In DEC mode, the Trip Point must always be less than the Release Point (TP < RP).



Non-Latching and Latching Relay Control Modes

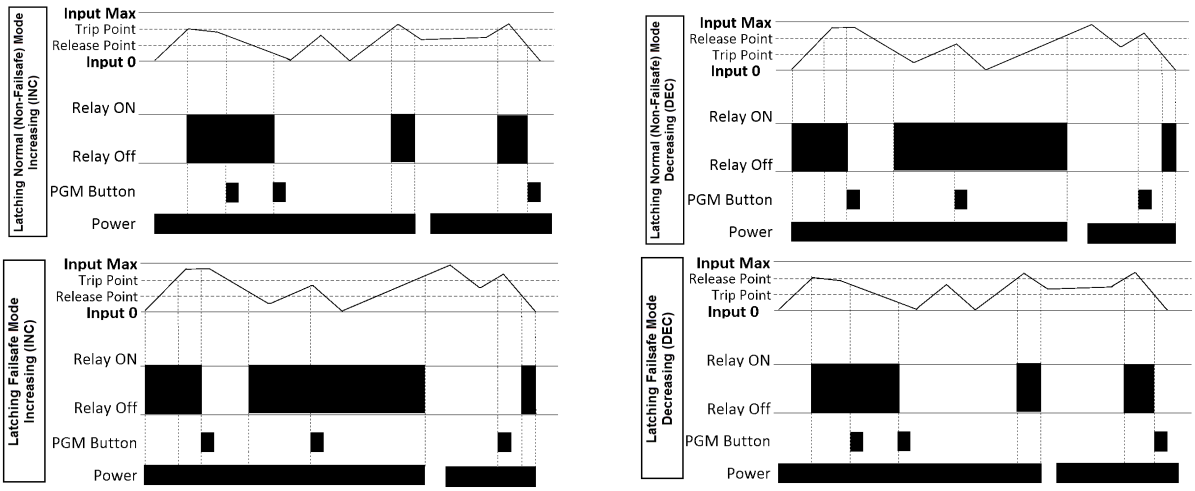
Non-Latching Relay Control Mode

Relays A and B operate automatically at the Trip and Release Point settings.



Latching Relay Control Mode

Relays A and B operate automatically at the Latch Trip Point settings and remain electrically latched until the input signal reaches the Manual Release Point, at which time the FC-3RLY2 relays can be manually reset by pressing the PGM-button as shown in the following diagrams. Latching Relay Control Mode is available in both Normal and Failsafe modes.

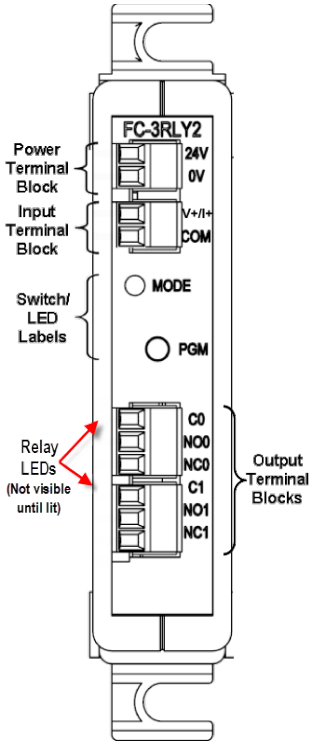


FC-3RLY2 Dimensions

Wiring Connections

External Power Terminal Block	
Faceplate Label	*Description*
24V	24VAC/VDC ±10% (Class 2)
0V	0V

Input Terminal Block	
Faceplate Label	*Description*
V+ / I+	Voltage + / Current In
COM	Input Common

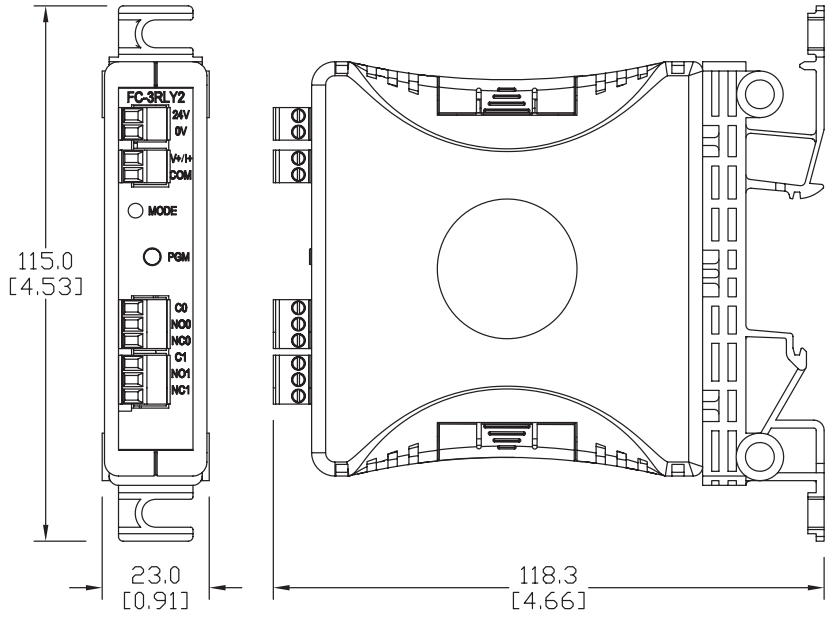


Switch/LED Labels	
Faceplate Label	*Description*
MODE	Programming Diagnostic LED indication
PGM	Pushbutton switch input to initiate programming, etc.

Output Terminal Block	
Faceplate Label	*Description*
C0/NO0/ NC0	Common # / Normally Open # / Normally Closed #
C1/NO1/ NC1	

Dimensions

mm [inches]



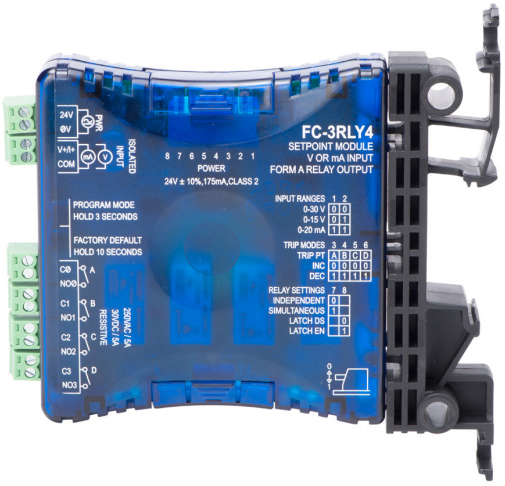
FC-3RLY4 Analog Input, 4-Relay, Limit Alarm Module

$010hg:

CE cULus *UL file E157382*

Overview

This an Analog to Relay Limit Alarm module that is field configurable for a variety of alarm and control applications. The FC-3RLY4 can be powered by 24VAC or 24VDC and accept input signals of 0-15V, 0-30V, or 0-20mA. Configuration and Trip/Release Point programming is accomplished with DIP switches, and a single PGM-pushbutton. LED's provide an indication of operating status and are used during the Trip/Release Point programming. The module can be 35mm DIN rail or side mounted.



Specifications	
Input Specifications	
Number of Inputs and Type	(1) Single Ended, (1) Common
Input Ranges	0-15VDC, 0-30VDC, 0-20mA (DIP Switch Selectable)
Input Impedance	100KΩ voltage input / 250 Ohms current input
External DC Power Required	24VAC or 24VDC @ 100mA ±10%
Low-pass Filtering	-3dB at 100Hz, (-6dB per octave)
Set/Release Point Voltage Repeatability	0.05% of full scale Voltage range (Constant temperature)
Set/Release Point Current Repeatability	0.1% of full scale Current range (Constant temperature)
Output Specifications	
Relay Contacts	4 SPST, Form A, non-latching
Current Contact Rating	250VAC @ 5A, 30VDC @ 5A (Resistive Load) 380VAC Max., 30VDC Max.
Relay Operation	DIP Switch selectable
Relay Trip Point Setting	Program Mode enabled by pushbutton
Relay Release Point Setting	
Relay Dead-band = Trip Point ± Release Point	0-15 VDC Range: 1.0% minimum deadband (150mV) 0-30 VDC Range: 1.0% minimum deadband (300mV) 0-20 mA Range: 3.0% minimum deadband (600µA)
Terminal Block Specifications	
Field Wiring	Removable Screw Type Terminal Blocks, (included)
Number of Positions	(6) Two Position (Dinkle: EC350V-02P)
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	
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 IEC 60068-2-6 (Test Fc)
Shock	MIL STD 810C 516.2 IEC 60068-2-27 (Test Ea)
Insulation Resistance	>10MΩ @ 500VDC
Noise Immunity	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000 V @ 1µS pulse IEC 61000-4-4 (FTB) RFI, (145 MHz, 440 MHz 5W @ 15 cm) IEC 61000-4-3 (RFI)
Weight	0.3lbs
Isolation	1800VDC Power to Output 1800VDC Input to Output applied for 1 second (100% tested)
Agency Approvals	UL508**, File Number: E157382, CE

*** The 0V and COM terminals should be considered the same reference point. There is no isolation between the External Power and Input Terminal blocks.**
**** In order to comply with UL508, the supplied power must be less than 26VDC and fused at a maximum of 3 amps.**

FC-3RLY4 Modes of Operation

Independent and Simultaneous Relay Control Modes

Independent Relay Control Mode

- Relays A, B, C and D are controlled with independent Trip Points and Release Points for each relay. All relays can be independently set to operate in Increasing or Decreasing mode (see next section). This mode can be used to control multiple loads in sequence, or monitor for multilevel alarm conditions.

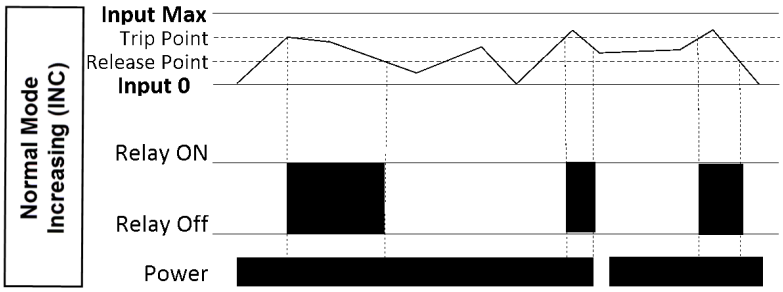
Simultaneous Relay Control Mode

- Relays A and B operate simultaneously, both controlled by Trip Point A and Release Point A settings. Both relays operate in Increasing or Decreasing mode (see next section).
- Relays C and D operate simultaneously, both controlled by Trip Point B and Release Point B settings. Both relays operate in Increasing or Decreasing mode (see next section).
- This mode can be used where it is desired to have two relays controlled by common Trip and Release Points such as using one relay for local alarm indication with a horn or strobe and the other relay for remote alarm monitoring by a PLC.

Relay Trip Point / Release Point Control Modes

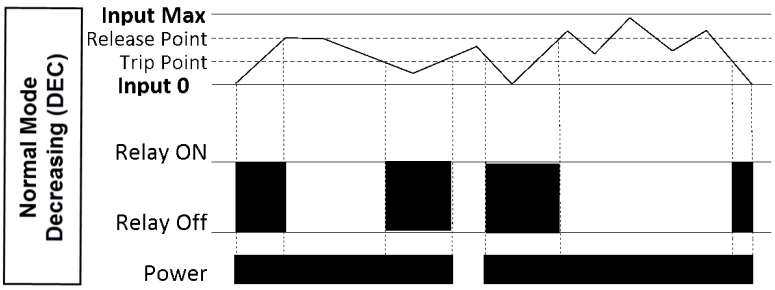
Increasing (INC) Mode

The relay will turn ON when the input signal increases to the programmed Trip Point. The relay will remain ON until the input signal decreases below the Release Point. In INC mode, the Trip Point must always be greater than the Release Point (TP > RP).



Decreasing (DEC) Mode

The relay will turn on when the input signal decreases below the programmed trip point. The relay will remain on until the input signal increases above the release point. In DEC mode, the Trip Point must always be less than the release point (TP < RP).

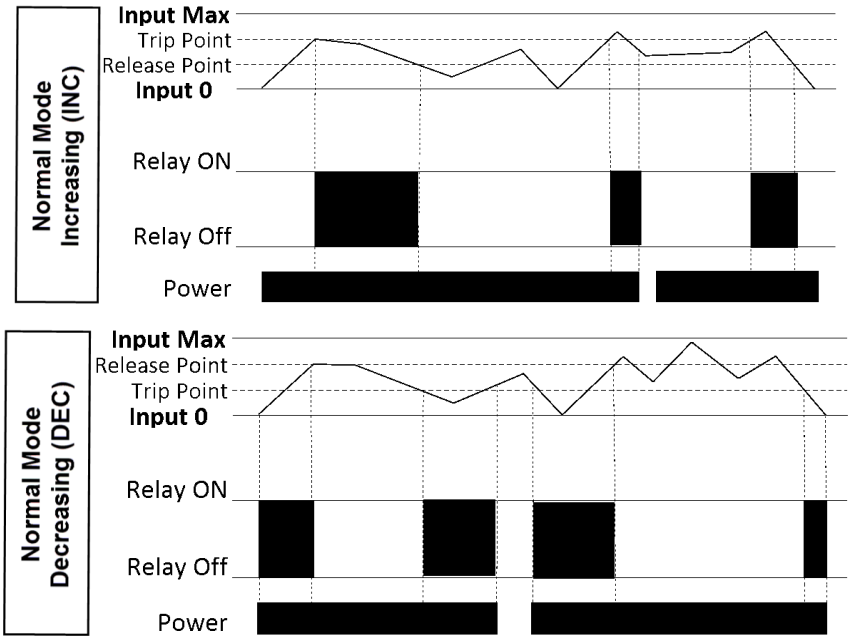


FC-3RLY4 Modes of Operation (continued)

Non-Latching and Latching Relay Control Modes

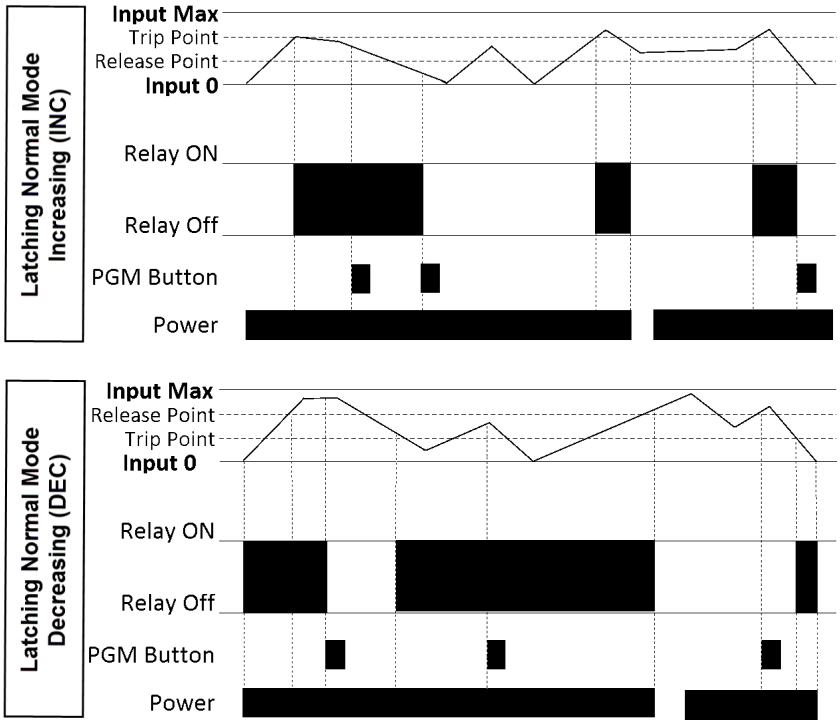
Non-Latching Relay Control Mode

All relays operate automatically at the Trip and Release Point settings.



Latching Relay Control Mode

All relays operate automatically at the Latch Trip Point settings and remain *electrically* latched until the input signal reaches the Manual Release Point, at which time the FC-3RLY4 relays can be manually reset by pressing the PGM-pushbutton as shown in the following diagrams.

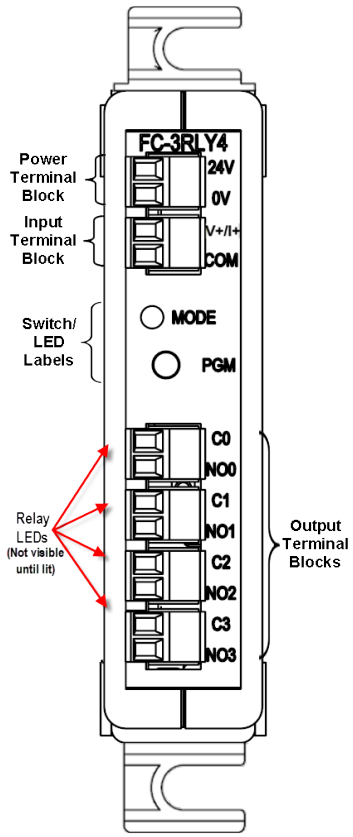


FC-3RLY4 Dimensions

Wiring Connections

Power Terminal Block	
Faceplate Label	*Description*
24V	24VAC/VDC ±10% (Class 2)
0V	0V

Input Terminal Block	
Faceplate Label	*Description*
V+ / I+	Voltage + / Current In
COM	Input Common

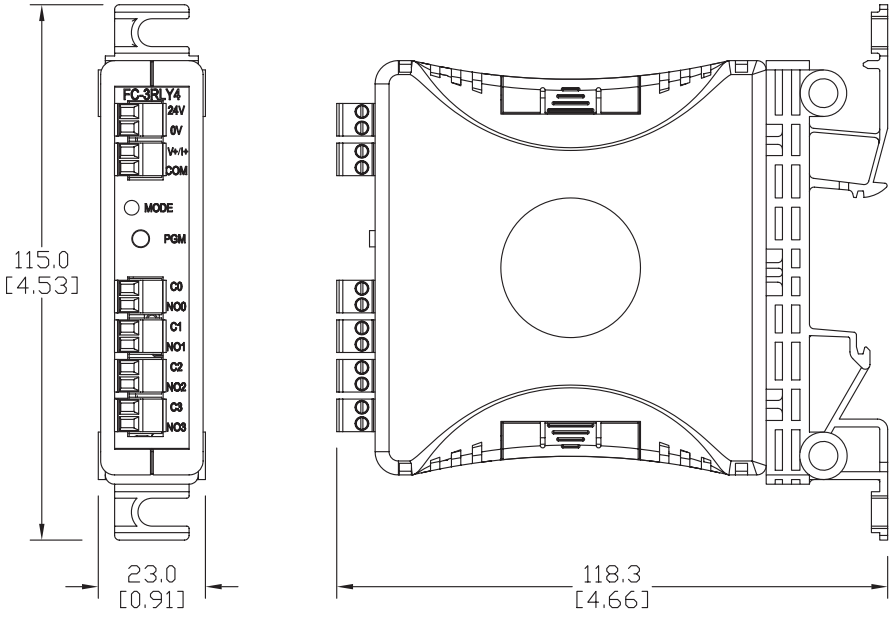


Switch/LED Labels	
Faceplate Label	*Description*
MODE	Diagnostic LED flashing indication
PGM	Pushbutton switch input to initiate programming, etc.

Output Terminal Block	
Faceplate Label	*Description*
C0/NO0	Common # / Normally Open #
C1/NO1	
C2/NO2	
C3/NO3	

Dimensions

mm [inches]



FC-ISO-C Encoder Signal Conditioner and Optical Isolator - Open Collector Output

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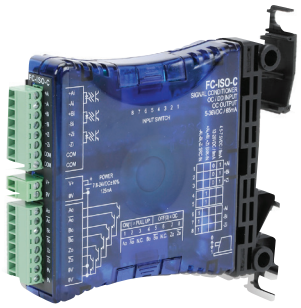


Overview

The FC-ISO-C high speed optical isolator module has the versatility to solve various interface problems between an incremental encoder signal and a PLC, servo drive, or other input device. Ideal for use with single-ended (open collector, NPN, pull-up, push-pull, totem pole) or differential line driver encoder signals, the three complementary inputs (A, B, Z, A-not, B-not, Z-not) are rated for 4.5-7.5 VDC and 12-26 VDC and frequency response up to 1 MHz. Input terminals A, B, and Z can be internally connected together and complementary input terminals A-not, B-not, and Z-not can be internally connected to common through DIP switches for simplified wiring.

The FC-ISO-C has three complementary open collector outputs (A, B, Z, A-not, B-not, Z-not) rated for 5-36 VDC that can be used in single ended configurations. The open collector output terminals can be connected to internal pull-up resistors through DIP switches for quick troubleshooting. Optical isolation rated at 1800V separates the input signals from the outputs. The slim-line plastic housing includes an integral 35mm DIN rail mounting adapter, LED indication, and removable screw terminal blocks for easy installation and wiring. The FC-ISO-C module is UL508 listed and CE marked.

Applications:

- Provide optical isolation between an encoder signal and PLC, servo drive, or other input device
- Solve electrically noisy signal problems
- Use as a repeater to allow longer cable runs
- Convert a differential line driver encoder signal to an open collector single-ended signal
- Change encoder signal voltage to match receiving electronics input
- Ideal for use with encoders, servo drive encoder signal inputs and outputs, or as a multi-channel, high speed optically isolated interface for sensors like photoelectric and proximity switches

Specifications		
Input Specifications		
Input Voltage (DIP selectable)	4.5-7.5 VDC	12-26 VDC
Input Current	9mA typical, 18mA maximum	
Protection Type, Component	Surge, Suppressor Diode; Over current/temperature, Microprocessor	
Switching Threshold "0" Signal	< 2.2 VDC	< 3.9 VDC
Switching Threshold "1" Signal	> 2.6 VDC	> 4.8 VDC
Output Specifications		
Output Circuit	Open collector: 2-wire - floating or pull-up (DIP switch selectable); Sinking	
Output Rating	5-36 VDC	
Continuous Output Current	65mA maximum	
Overcurrent Trip Level	76mA minimum	
Quiescent Current	25µA maximum	
Output Voltage Protection	Polarity reversal, surge voltage protection	
Output Current Protection	Short circuit/Over Current/Over Current Limiting/Thermal Shutdown	
Timing Specifications		
Input to Output Response Time	1.3µs (max w/ 4.7k ohm internal pull-up resistor)	
Output Timing Difference (Ch. to Ch. Lag)	<20ns channel to channel (max)	
Rise Time (t_{on} w/ 1k ohm Load)	250ns	
Fall Time (t_{off} w/ 1k ohm Load)	38ns	
Max Frequency Response w/ 1k ohm Load	1MHz	
Rise Time (t_{on} w/ 2.2k ohm Load)	512ns	
Fall Time (t_{off} w/ 2.2k ohm Load)	56ns	
Max Frequency Response w/ 2.2k ohm Load	750kHz	
Rise Time (t_{on} w/ 4.7k Internal Pull-Up)	1.2µs	
Fall Time (t_{off} w/ 4.7k Internal Pull-Up)	25ns	
Max Frequency Response w/ 4.7k Internal Pull-Up	200kHz	
Terminal Block Specifications		
Number of Positions	2 pole (Dinkle: EC350V-02P), 8 pole (Dinkle: EC350V-08P)	
Wire Range	28-16 AWG Solid or Stranded Conductor; Wire strip length 9/32" (6-7mm)	
Screw Size (Slotted)	M 2.5 size, 0.4 T x 2.5 W mm (Screwdriver part number DN-SS1)	
Screw Torque	1.7 inch-pounds (0.19 Nm)	

FC-ISO-C Specifications Continued

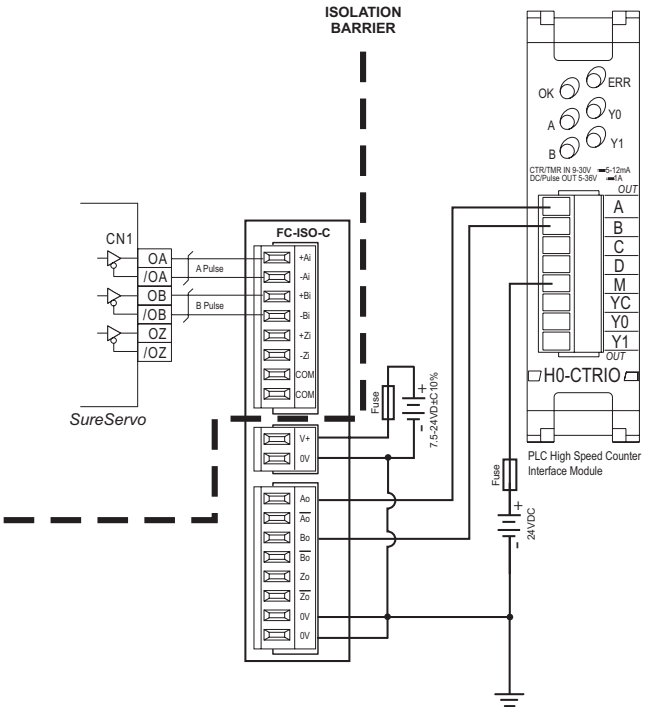
Specifications (continued)	
General Specifications	
External DC Power Required	7.8-24VDC ±10% @ 125mA, 3.5W*
Power Dissipation Within Module	10W (maximum power with all outputs at max current and max voltage)
Thermal Dissipation	34.13 BTU/hr (1W = 3.413 BTU/hr)
Isolation	1800VAC input-output applied for 1 second
Mounting	35mm DIN Rail or panel mount (with no restrictions)
Operating 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 IEC 60068-2-6 (Test Fc)
Shock	MIL STD 810C 516.2 IEC 60068-2-27 (Test Ea)
Insulation Resistance	>10MΩ @ 500VDC
Noise Immunity	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000V @ 1µS pulse IEC 61000-4-4 (FTB) RFI, (145MHz, 440MHz 5W @ 15cm) IEC 61000-4-3 (RFI)
Weight	0.3 lbs
Agency Approvals	UL*, cUL (File # E157382), CE

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

Unit Front Face

Applications

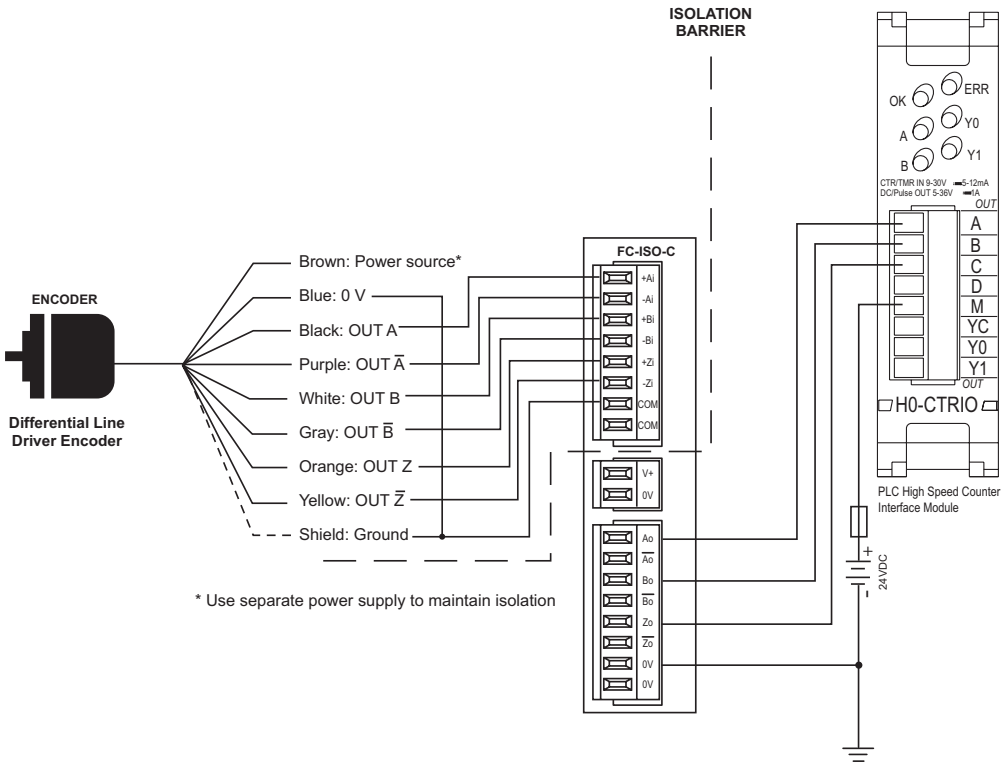
Convert SureServo line driver Input/Output Terminals (CN1) to a 24VDC open collector single ended signal that is compatible with a PLC high speed counter interface module.



FC-ISO-C Applications and Dimensions

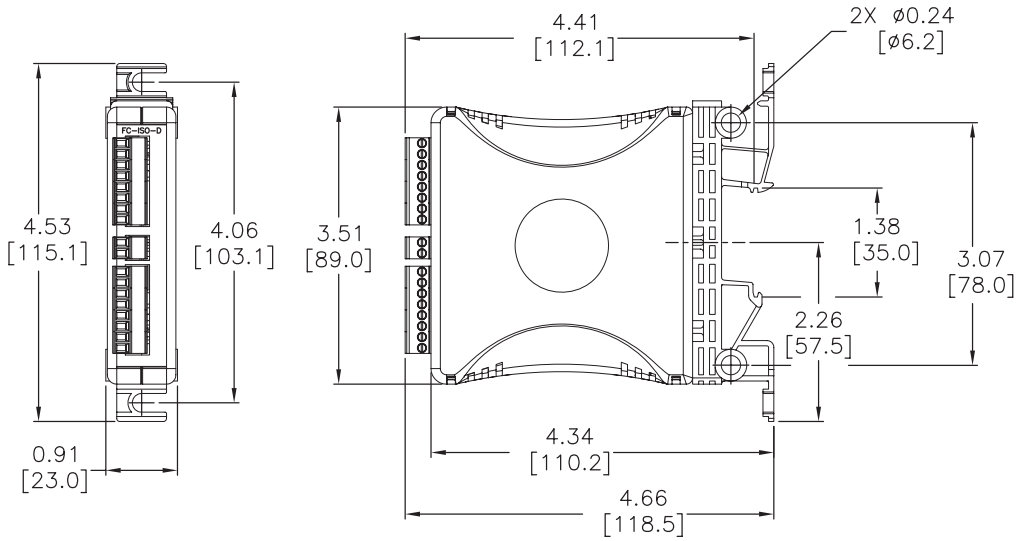
Applications Continued

Convert a 5VDC differential line driver encoder signal to a 24VDC open collector single- ended signal that is compatible with a PLC high speed counter interface module.



Dimensions

inches [mm]



FC-ISO-D Encoder Signal Conditioner and Optical Isolator - Differential Line Driver Output

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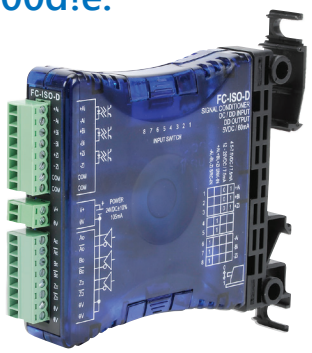


Overview

The FC-ISO-D high speed optical isolator module has the versatility to solve various interface problems between an incremental encoder signal and a PLC, servo drive, or other input device. Ideal for use with single-ended (open collector, NPN, pull-up, push-pull, totem pole) or differential line driver encoder signals, the three complementary inputs (A, B, Z, A-not, B-not, Z-not) are rated for 4.5-7.5 VDC and 12-26 VDC and frequency response up to 1 MHz. Input terminals A, B, and Z can be internally connected together and complementary input terminals A-not, B-not, and Z-not can be internally connected to common through DIP switches for simplified wiring.

The FC-ISO-D has three differential line driver outputs (A, B, Z, A-not, B-not, Z-not) rated for 5 VDC. Optical isolation rated at 1800V separates the input signals from the outputs. The slim-line plastic housing includes an integral 35mm DIN rail mounting adapter, LED indication, and removable screw terminal blocks for easy installation and wiring. The FC-ISO-D module is UL508 listed and CE marked.

Applications:

- Provide optical isolation between an encoder signal and PLC, servo drive, or other input device
- Solve electrically noisy signal problems
- Use as a repeater to allow longer cable runs
- Convert a single ended encoder signal to a differential line driver signal
- Convert a differential line driver encoder signal to a single-ended signal
- Change encoder signal voltage to match receiving electronics input
- Ideal for use with encoders and servo drive encoder signal inputs and outputs

Specifications		
Input Specifications		
Input Voltage (DIP selectable)	4.5-7.5 VDC	12-26 VDC
Input Current	7.5 mA typical, 14mA maximum	
Protection Type, Component	Output Short Circuit Protection, Output Current Limiting, Output Thermal Shutdown, 15kV ESD protection; Differential Driver Chip	
Switching Threshold "0" Signal	< 2.2 VDC	< 3.9 VDC
Switching Threshold "1" Signal	> 2.6 VDC	> 4.8 VDC
Output Specifications		
Output Circuit	Differential line drive; Sourcing	
Output	5VDC	
Continuous Output Current	70mA maximum	
Overcurrent Level	Limited to 70mA	
Quiescent Current	1.0 mA maximum	
Output Voltage Protection	None (not reverse polarity protected); Voltage less than -9V or greater than 14V will damage chip	
Voltage Drop at Max Continuous Current	1.75VDC	
Output Current Protection	Short Circuit, Current Limiting, Thermal Shutdown, 15kV ESD Protection	
Timing Specifications		
Input to Frequency Response Time	1.3 µs	
Output Timing Difference (Ch. to Ch. Lag)	<20ns	
Output Rise Time (t_{on})	<15ns	
Output Fall Time (t_{off})	<15ns	
Max Frequency Response	1MHz	
Terminal Block Specifications		
Number of Positions	2 pole (Dinkle: EC350V-02P), 8 pole (Dinkle: EC350V-08P)	
Wire Range	28-16 AWG Solid or Stranded Conductor; Wire strip length 5/16" (7-8mm)	
Screw Size (Slotted)	M 2.5 size, 0.4 T x 2.5 W mm (Screwdriver part number DN-SS1)	
Screw Torque	1.7 inch-pounds (0.19 Nm)	

FC-ISO-D Specifications Continued

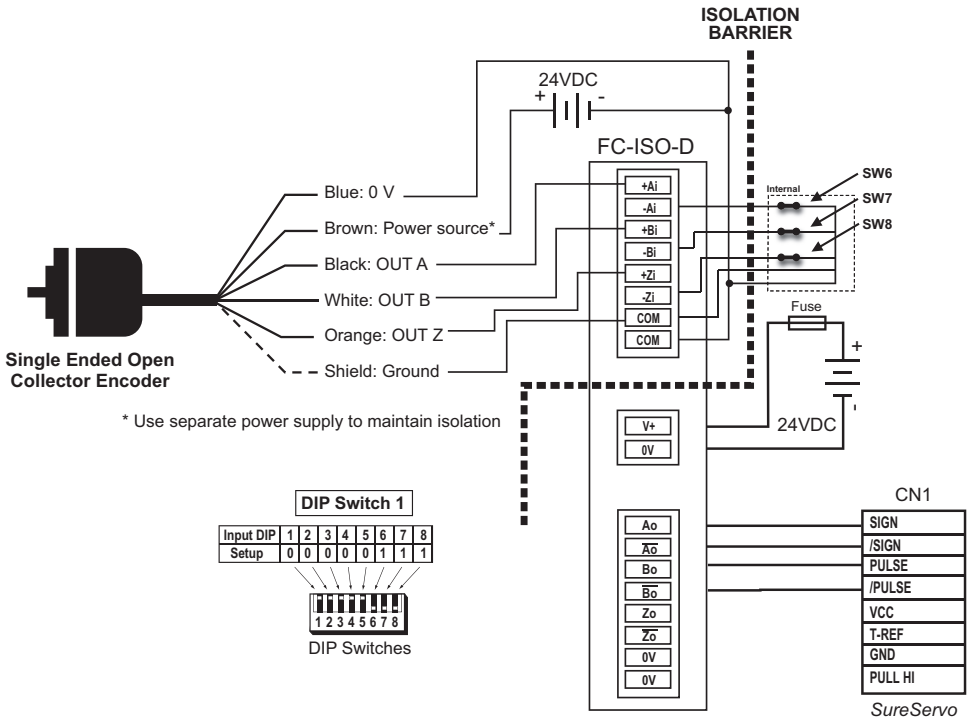
Specifications (continued)	
General Specifications	
External DC Power Required	24VDC ±10% @ 105mA*
Power Dissipation Within Module	9W (all outputs at max current at max voltage)
Thermal Dissipation	30.72 BTU/hr (1W = 3.413 BTU/hr)
Isolation	1800VAC input-output applied for 1 second
Mounting	35mm DIN Rail or panel mount (with no restrictions)
Operating 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 IEC 60068-2-6 (Test Fc)
Shock	MIL STD 810C 516.2 IEC 60068-2-27 (Test Ea)
Insulation Resistance	>10MΩ @ 500VDC
Noise Immunity	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000V @ 1µS pulse IEC 61000-4-4 (FTB) RFI, (145MHz, 440MHz 5W @ 15cm) IEC 61000-4-3 (RFI)
Agency Approvals	UL*, cUL (File # E157382), CE

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

Unit Front Face

Applications

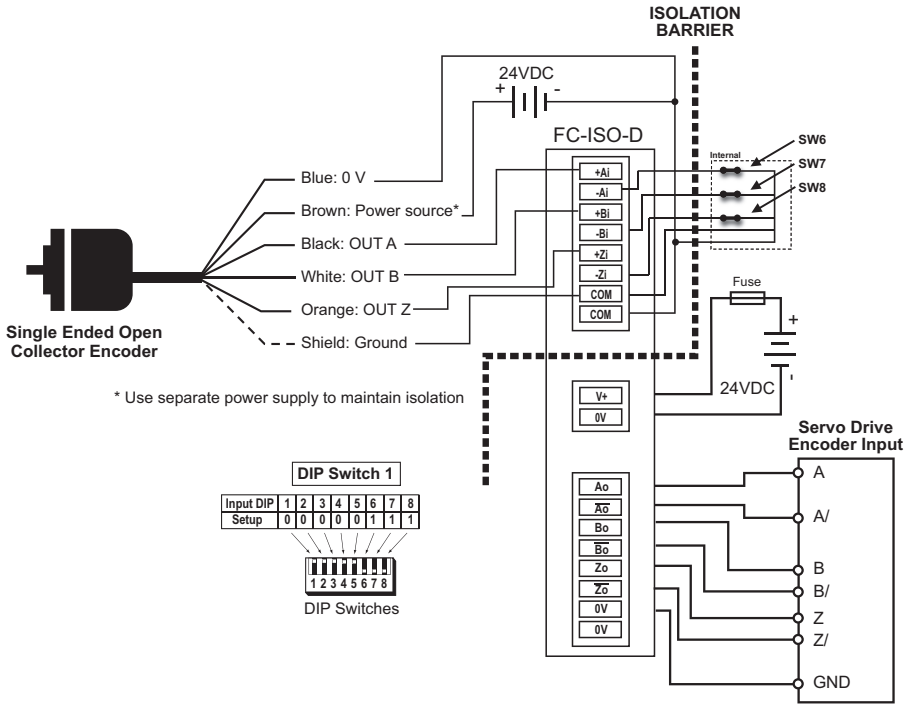
Convert a 24VDC single ended open collector encoder signal to a 5VDC differential line driver signal compatible with SureServo Input/Output Terminals (CN1).



FC-ISO-D Applications and Dimensions

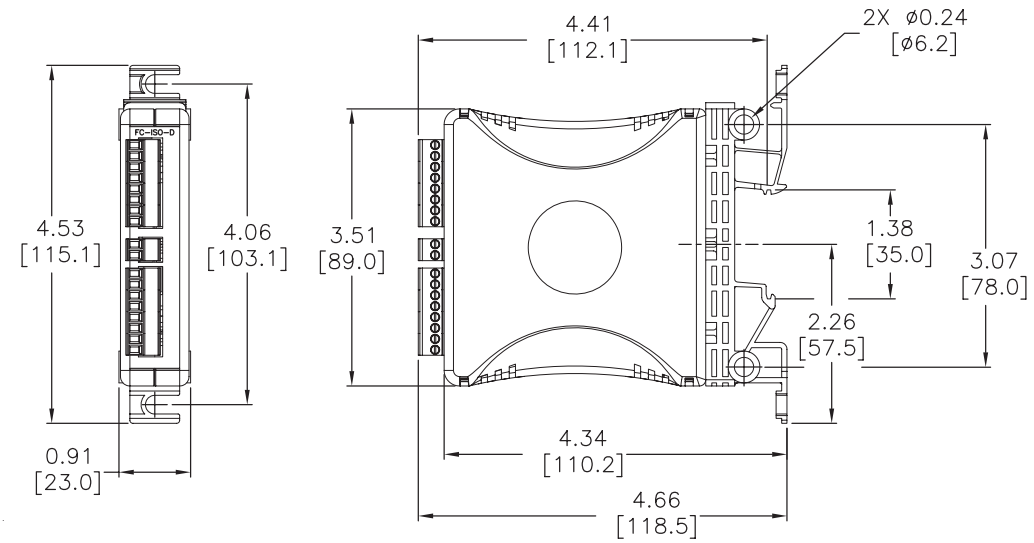
Applications Continued

Convert a 24VDC single-ended open-collector encoder signal to a 5VDC differential line driver signal compatible with the encoder input on a servo drive.



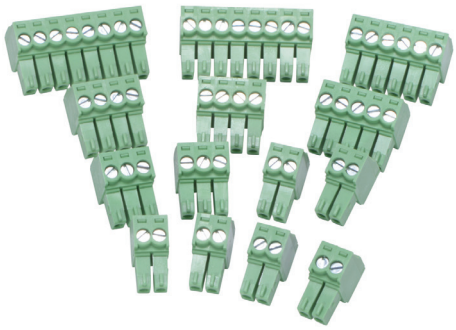
Dimensions

inches [mm]



FC Series Accessories

FC-5MM



FC-35MM

Description

Universal terminal block replacements for the FC Series signal conditioners. Each packcage includes enough terminal blocks to replace all the terminal blocks on any FC Series signal conditioner according to the following table:

FC Series Terminal Blocks		
FC Series Model	***Terminal Block Replacement Part Number***	***Package Includes***
FC-11	FC-5MM	(2) 2-pole blocks (2) 3-pole blocks (1) 4-pole blocks
FC-33		
FC-R1		
FC-T1		
FC-ISO-C	FC-35MM	(6) 2-pole blocks (2) 3-pole blocks (2) 4-pole blocks (1) 5-pole blocks (1) 6-pole blocks (2) 8-pole blocks
FC-ISO-D		
FC-B34		
FC-35B		
FC-P3		
FC-3RLY2		
FC-3RLY4		

Note: Depending on the model, some terminal blocks in the package may be unused.

Universal Signal Conditioners				
Part No.	***Description***	***Rated Torque (N·m)***	***Weight (Lbs)***	***Price***
FC-5MM	Terminal block, replacement, 5mm. Package of 5. For use with FC Series signal conditioners.	0.5	0.1	$10hd:
FC-35MM	Terminal block, replacement, 3.5mm. Package of 14. For use with FC Series signal conditioners.	0.2	0.1	$10hc:

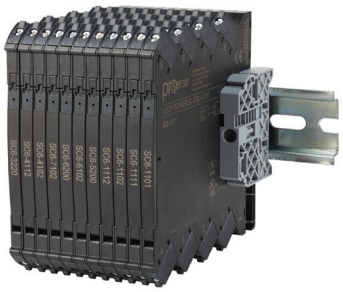
ProSense® SC6 Series Signal Conditioners

SC6 Series Signal Conditioners

The ProSense SC6 Series of signal conditioners are housed in a narrow 6mm width package that allows for high density mounting on a 35mm DIN rail, saving panel space. Various models are available for conversion of standard DC voltage and current signals, bipolar signals, thermocouples and RTDs with isolation that eliminates ground loop problems. The SC6 Series includes single channel, two channel and signal splitter models. Depending on the SC6 Series model, power options include an in-rail power bus, loop powered output, as well as models that are powered directly from the input signal. Application specific models that have fixed configuration require no set up; DIP switch configured models provide flexibility to meet a variety of applications. All models are UL Listed as well as FM approved for use in Class 1 Division 2 hazardous locations.

Features

- Conversion of standard DC voltage and current signals, bipolar signals, thermocouples and RTDs
- Single channel, two channel and signal splitter models
- Isolation eliminates ground loop problems
- Narrow 6mm width allows for high density mounting on a DIN rail saving panel space
- Various power options, including an in-rail power bus for certain models
- Fixed configuration or DIP switch selectable configuration for simple setup
- LED operation status on some models
- Excellent accuracy and fast response time
- Wide operating temperature range
- Suitable for high vibration environments
- UL Listed; FM approved for use in Class 1 Division 2 hazardous locations



SC6 Series Signal Conditioner Selection Guide - Analog Signal Input Modules

Part Number		SC6-1100	SC6-1110	SC6-2200	SC6-2220	SC6-3200	SC6-3220	SC6-1101	SC6-1111	SC6-1102	SC6-1112	SC6-4102	SC6-4112
Price		$;02d8t:	$02d8v:	$02d8u:	$02d8x:	$02d8y:	$02d8z:	$;02d8]:	$;02d8,:	$;02d8[:	$02d8_:	$02d91:	$02d92:
Weight (lb)		0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Input	Current Input	X	X	X	X	X	X	X	X	X	X	–	–
	Voltage Input	–	–	X	X	X	X	–	–	–	–	–	–
	2-Wire Transmitter Input (Loop power provided)	–	–	X	X	–	–	–	–	–	–	X	X
	Bipolar Voltage/Current Input	–	–	–	–	X	X	–	–	–	–	–	–
Output	Current Output	X	X	X	X	X	X	X	X	X	X	X	X
	Voltage Output	–	–	X	X	X	X	–	–	–	–	–	–
	Bipolar Current Output	–	–	–	–	–	X	–	–	–	–	–	–
Power	2-wire, Loop Powered by Input Signal	–	–	–	–	–	–	X	X	–	–	–	–
	2-wire, Loop Powered (Output Side)	–	–	–	–	–	–	–	–	X	X	X	X
	4-wire, External Power (In-rail Power Bus or Terminal)	X	X	X	X	X	X	–	–	–	–	–	–
Application	One Channel	X	–	X	–	X	–	X	–	X	–	X	–
	Two Channels	–	–	–	–	–	–	–	X	–	X	–	X
	One Input to Two Output Signal Splitter	–	X	–	X	–	X	–	–	–	–	–	–
Isolation	Input / Output/ Power Isolated	X	X	X	X	X	X	X	X	X	X	X	X

ProSense® SC6 Series Signal Conditioners

SC6 Series Signal Conditioner Selection Guide - Temperature Input Modules					
Part Number		SC6-5200	SC6-6200	SC6-7102	SC6-6102
Price		$02d8#:	$;02d8!:	$02d8?:	$02d90:
Weight (lb)		0.27	0.27	0.27	0.27
Input	Type J/K Thermocouple Input	X	–	X	–
	Pt100 RTD Input	–	X	X	X
Output	Current Output	X	X	X	X
	Voltage Output	X	X	–	–
Power	2-wire, Loop Powered (Output Side)	–	–	X	X
	4-wire, External Power (In-Rail Power Bus or Terminal)	X	X	–	–
Application	One Channel	X	X	X	X
	Two Channels	–	–	–	–
	One Input to Two Output Signal Splitter	–	–	–	–
Isolation	Input / Output/ Power Isolated	X	X	X	–

Unit Features

SC6-1100

- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- Fixed configuration - requires no setup
- LED indication

SC6-1110

- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- Signal splitter – one input to two outputs
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- Fixed configuration - requires no setup
- LED indication

SC6-2200

- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V, 2-wire transmitter input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

SC6-2220

- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V, 2-wire transmitter input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V outputs
- Signal splitter – one input to two outputs
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

SC6-3200

- Bipolar +/-10 mA, +/-20 mA, +/-5V, +/-10V inputs
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

SC6-3220

- Bipolar +/-10 mA, +/-20 mA, +/-5V, +/-10V inputs
- 0-20 mA, 4-20 mA, +/-10 mA, +/-20 mA, 0-5V, 1-5V, 0-10V, 2-10V outputs
- Signal splitter – one input to two outputs (or one bipolar output)
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

ProSense® SC6 Series Signal Conditioners

Unit Features Continued

SC6-1101

- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- One channel
- Isolation
- Powered by input current signal
- Fixed configuration - requires no setup

SC6-1111

- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- Two channels
- Isolation
- Powered by input current signal
- Fixed configuration - requires no setup

SC6-1102

- 3.5 - 23 mA input
- 3.5 - 23 mA output (1:1 signal conversion)
- One channel Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

SC6-1112

- 3.5 - 23 mA input
- 3.5 - 23 mA output (1:1 signal conversion)
- Two channels
- Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

SC6-4102

- 2-wire transmitter (3.5 - 23 mA) input
- 3.5 - 23 mA output (1:1 signal conversion)
- One channel
- Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

SC6-4112

- 2-wire transmitter (3.5 - 23 mA) input
- 3.5 - 23 mA outputs (1:1 signal conversion)
- Two channels
- Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

SC6-5200

- Thermocouple Type J, Type K input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

SC6-6200

- RTD Pt100 input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

SC6-7102

- Thermocouple Type J, Type K, RTD Pt100 input
- 4-20 mA, 20-4 mA output
- One channel
- Isolation
- 2-wire, 5.5-35 VDC loop powered output
- DIP switch configured

SC6-6102

- RTD Pt100 input
- 4-20 mA, 20-4 mA output
- One channel
- Non-isolated
- 2-wire, 3.3-35 VDC loop powered output
- DIP switch configured

ProSense® SC6 Series Signal Conditioners

4- Wire, External Powered Analog Signal Input Modules - Technical Specifications

Part No.	SC6-1100	SC6-2200	SC6-1110	SC6-2220	SC6-3200	SC6-3220
Application	One channel	One channel	Signal splitter	Signal splitter	One channel	Signal splitter
DIP switch configurable	No	Yes	No	Yes	Yes	Yes
Supply voltage	16.8 - 31.2 VDC (terminals or bus rail)					
Max. required power*	0.80 W	1.20 W	0.80 W	1.20 W	0.80 W	1.20 W
Max. power dissipation**	0.60 W	0.55 W	0.48 W	0.60 W	0.43 W	0.43 W
Isolation voltage, test	2.5 kVAC					
Isolation voltage, working	300VAC (reinforced) / 250VAC (Zone 2, Div. 2)					
Double isolation	Input / Output 1 / Output 2 / Supply					
Signal dynamics, input / output	Analog signal chain					
Signal / noise ratio	> 60dB					
Cut-off frequency (3 dB)	>100Hz				>100Hz or 10Hz (DIP switch selectable)	
Response time filter (0-90%, 100-10%)	<7ms				<7ms or <44ms (DIP switch selectable)	
Accuracy	< +/-0.05% of span					
Temperature coefficient	< +/-0.01% of span / °C					
EMC immunity influence	< +/-0.5% of span					
Extended EMC immunity:						
NAMUR NE 21, A criterion, burst	< +/-1% of span					
Current input						
Overall measurement range	0-23 mA				- 23mA to + 23mA	
Selectable measurement ranges	0-20 mA, 4-20 mA				+/- 10mA, +/- 20mA	
Input voltage drop	< 1.5 VDC				< 1VDC	
Input resistance	190Ω nominal @ 4mA 70Ω nominal @ 20mA				40Ω nominal	
Transmitter (Tx) auxiliary supply	None	> 17VDC / 20mA	None	> 17VDC / 20mA	None	
Voltage input						
Overall measurement range	0-10.25 VDC				- 11.5 VDC to + 11.5 VDC	
Selectable measurement range	0-10 VDC, 2-10 VDC, 0-5 VDC, 1-5 VDC				+/-5 VDC, +/- 10 VDC	
Input resistance	≥ 500 kΩ				≥ 1 MΩ	
Current output						
Overall signal range (span)	0-23 mA					
Selectable signal ranges	0-20 mA, 4-20 mA				0-20 mA, 4-20 mA or +/-10 mA, +/-20 mA	
Load	≤ 600Ω		≤ 300Ω / channel		≤ 600Ω	≤ 300Ω / channel
Load stability	< 0.002% of span / 100Ω					< 0.02% of span / 100Ω
Current limit	≤ 28mA					
Voltage output						
Overall signal range (span)	None	0-10 VDC	None	0-10 VDC		
Selectable signal ranges	None	0-10 VDC, 2-10 VDC, 0-5 VDC, 1-5 VDC	None	0-10 VDC, 2-10 VDC, 0-5 VDC, 1-5 VDC		
Load (minimum)	None	> 10kΩ	None	> 10kΩ		

***Max. required power is the maximum power needed at power supply terminals or rail connector.**
****Max. power dissipation is the maximum power dissipated at nominal operating values.**
"of span" = of the seleted range

ProSense® SC6 Series Signal Conditioners

2-Wire, Loop Powered Analog Signal Input Modules - Technical Specifications

Part No.	SC6-1101	SC6-1111	SC6-4102	SC6-4112	SC6-1102	SC6-1112
Application	One channel	Two channel	One channel	Two channel	One channel	Two channel
DIP switch configurable	No	No	No	No	No	No
Loop supply voltage	None (powered by input signal)		6-35 VDC			
Power dissipation	30mW / channel		50mW / channel		V terminal x I / channel	
Isolation voltage, test	2.5 kVAC					
Isolation voltage, working	300VAC (reinforced) / 250VAC (Zone 2, Div. 2)					
Double isolation	Input 1 / Input 2 / Output 1 / Output 2					
Signal dynamics, input / output	Analog signal chain					
Signal / noise ratio	> 60dB					
Cut-off frequency (3 dB)	100Hz					
Response time (0-90%, 100-10%)	< 5ms					
Accuracy	≤ +/-10uA + 0.05% of max. value of span		≤ ± 8uA			
Temperature coefficient	≤ ± 2uA / °C		Vloop supply ≤ 24V: ± 0.48 uA/°C (>25°C); ± 1.68 uA/°C (< 25°C) Vloop supply > 24V: ± 0.02 uA/°C x Vloop supply (> 25°C); +/-0.047 uA/degC x Vloop supply (<25°C)		Vloop supply ≤ 24V: ± 0.48 uA/°C (> 25°C); ± 1.12 uA/°C (< 25°C) Vloop supply >24V: ± 0.02 uA/°C x Vloop supply (> 25°C); ± 0.047 uA/°C x Vloop supply (< 25°C)	
EMC immunity influence	< ± 0.5% of span					
Extended EMC immunity:						
NAMUR NE 21, A criterion, burst	< ± 1% of span					
Current input						
Overall measurement range	0-23 mA		3.5-23 mA			
Nominal measurement range	0-20.5 mA 10uA start up current, typical		3.8-20.5 mA			
Signal conversion	1:1					
Input voltage drop	1.35 + (0.02335*R_{out} load) @ 23mA max. R_{out} load 600Ω: 15.36 V R_{out} load 250Ω: 7.19 V		2.5 VDC input to output		≤ 3VDC	
Input resistance	R_{out} load @ 600Ω: 668Ω* R_{out} load @250Ω: 313Ω*		Not applicable		130Ω nominal	
Transmitter (Tx) auxiliary supply	None		3.5-32.5 VDC (Loop supply voltage - Input voltage drop)		None	
Current output						
Overall signal range (span)	0-23 mA		3.5-23 mA			
Nominal signal range	0-20.5 mA		3.8-20.5 mA			
Load	≤ 600Ω		900Ω max at 24 Vloop supply 1450Ω max at 35 Vloop supply See derating chart above 60°C ambient		900Ω max at 24 Vloop supply 1450Ω max at 35 Vloop supply See derating charts above 50°C ambient	
Load stability	<0.01% of span / 100Ω		N/A			

"of span" = 0-20 mA
*** Because the input signal drives both the SC6 unit and the output signal loop, the input resistance changes with the output load. Calculate the input voltage drop using the formula shown and divide by the maximum current signal of 23mA to determine the Input resistance.**

ProSense® SC6 Series Signal Conditioners

Temperature Input Modules - Technical Specifications				
Part No.	***SC6-5200***	***SC6-6200***	***SC6-7102***	***SC6-6102***
Application	One channel	One channel	One channel	One channel
DIP switch configurable	Yes	Yes	Yes	Yes
Supply voltage	16.8 - 31.2 VDC (terminals or bus rail)		5.5 - 35 VDC	3.3 - 35 VDC
Max. power dissipation	0.7 W	0.7 W	0.8 W	0.8 W
Isolation voltage, test	2.5 kVAC			None
Isolation voltage, working	300VAC (reinforced) / 250VAC (Zone 2, Div. 2)			None
Double isolation	Input / Output 1 / Supply			None
Signal dynamics, input / output	23bit / 18bit			
Signal / noise ratio	> 60dB			
Response time (0-90%, 100-10%)	< 30ms or < 300ms, DIP switch selectable			
Accuracy	Basic: ≤ 0.5°C; General: ≤ ±0.05% of span	Basic: ≤ 0.1°C; General: ≤ ±0.05% of span	Basic: ≤ 0.1°C (Pt100), ≤ 0.5°C (TC); General: ≤ ±0.05% of span	Basic: ≤ 0.2°C; General: ≤ ±0.1% of span
Temperature coefficient	0.1°C/°C (basic) or ≤ ±0.01% of span/°C	0.02°C/°C (basic) or ≤ ±0.01% of span/°C	0.1°C/°C (basic) or ≤ ±0.01% of span/°C	0.02°C/°C (basic) or ≤ ±0.01% of span/°C
EMC immunity influence	< ±0.5% of span			
Extended EMC immunity:				
NAMUR NE 21, A criterion, burst	< ±1% of span			
RTD (Pt100) input				
Overall measurement range	N/A	-200 to 850°C (IEC 60751)		
Min. measurement span	N/A	10°C		
Sensor current	N/A	< 150uA		
Sensor cable resistance	N/A	< 50Ω per wire		
Effect of sensor cable resistance 3/4-wire	N/A	< 0.002 Ω/Ω		
Sensor error detection	N/A	Yes, DIP switch selectable		
Broken sensor	N/A	> 800Ω		
Shorted sensor	N/A	< 18Ω		
Thermocouple (TC) input				
Overall mesasurement range, Type J	-100 to 1200°C (IEC60584-1)	N/A	-100 to 1200°C (IEC60584-1)	N/A
Overall mesasurement range, Type K	-180 to 1372°C (IEC60584-1)	N/A	-180 to 1372°C (IEC60584-1)	N/A
Selectable measurement range	See temperature range programming table			
Min. measurement span	50°C	N/A	50°C	N/A
Sensor cable resistance	< 5kΩ per wire	N/A	< 5kΩ per wire	N/A
External Pt100 CJC sensor accuracy	< ±0.15°C	N/A	< ±0.15°C	N/A
Internal CJC sensor accuracy	< ±2.5°C	N/A	< ±2.5°C	N/A
Open thermocouple detection	Yes, DIP switch selectable	N/A	Yes, DIP switch selectable	N/A
External CJC error detection	Yes, DIP switch selectable	N/A	Yes, DIP switch selectable	N/A
Internal CJC error detection	Yes	N/A	Yes	N/A
Current output				
Overall signal range (span)	0 / 3.8-20.5 mA		3.8-20.5 mA	
Nominal signal range	0 / 4-20 mA DIP switch selectable		4-20 mA or 20-4 mA, DIP switch selectable	
Load	≤ 600Ω		Rload=(Vsupply-5.5) / 0.023 Ω	Rload=(Vsupply-3.3) / 0.023 Ω
Sensor error output	Downscale: 0 / 3.5 mA, Upscale: 23mA DIP switch selectable		Downscale: 3.5 mA, Upscale: 23mA DIP switch selectable	
Voltage output				
Overall signal range (span)	0 / 0.875-5.125 V, 0 / 1.75-10.25 V		N/A	
Nominal signal range	0 / 1-5 V, 0 / 2-10 V DIP switch selectable		N/A	
Load	≥ 10kΩ		N/A	
Sensor error output	Downscale: 0V, Upscale: 5.5 / 11V DIP switch selectable		N/A	
Load stability	≤ 0.01% of span / 100ohms			
Updating time	10ms			

ProSense® SC6 Series Signal Conditioners

Temperature Range Programming Table (for models SC6-5200, SC6-6200, SC6-6102, SC6-7102)

Temperature Range Programming

DIP S2 • = ON Temperature Range °C (°F)

Start Temp.	1	2	3	4	End Temp.	5	6	7	8	9	10	End Temp.	5	6	7	8	9	10	End Temp.	5	6	7	8	9	10
-200°C (-328°F)					0°C (32°F)							105°C (221°F)		•		•		•	375°C (707°F)	•		•		•	
-180°C (-292°F)				•	5°C (41°F)						•	110°C (230°F)		•		•	•		400°C (752°F)	•		•		•	•
-150°C (-238°F)			•		10°C (50°F)					•		115°C (239°F)		•		•	•	•	450°C (842°F)	•		•	•		
-100°C (-148°F)			•	•	15°C (59°F)					•	•	120°C (248°F)		•	•				500°C (932°F)	•		•	•		•
-50°C (-58°F)		•			20°C (68°F)				•			125°C (257°F)		•	•			•	550°C (1022°F)	•		•	•	•	
-25°C (-13°F)		•		•	25°C (77°F)				•		•	130°C (266°F)		•	•		•		600°C (1112°F)	•		•	•	•	•
-10°C (14°F)		•	•		30°C (86°F)				•	•		135°C (275°F)		•	•		•	•	650°C (1202°F)	•	•				
-5°C (23°F)		•	•	•	35°C (95°F)				•	•	•	140°C (284°F)		•	•	•			700°C (1292°F)	•	•				•
0°C (32°F)	•				40°C (104°F)			•				145°C (293°F)		•	•	•		•	750°C (1382°F)	•	•			•	
5°C (41°F)	•			•	45°C (113°F)			•			•	150°C (302°F)		•	•	•	•		800°C (1472°F)	•	•			•	•
10°C (50°F)	•		•		50°C (122°F)			•		•		160°C (320°F)		•	•	•	•	•	850°C (1562°F)	•	•		•		
20°C (68°F)	•		•	•	55°C (131°F)			•		•	•	170°C (338°F)	•						900°C (1652°F)	•	•		•		•
25°C (77°F)	•	•			60°C (140°F)			•	•			180°C (356°F)	•					•	950°C (1742°F)	•	•		•	•	
50°C (122°F)	•	•		•	65°C (149°F)			•	•		•	190°C (374°F)	•				•		1000°C (1832°F)	•	•		•	•	•
100°C (212°F)	•	•	•		70°C (158°F)			•	•	•		200°C (392°F)	•				•	•	1050°C (1922°F)	•	•	•			
200°C (392°F)	•	•	•	•	75°C (167°F)			•	•	•	•	225°C (437°F)	•			•			1100°C (2012°F)	•	•	•			•
					80°C (176°F)		•					250°C (482°F)	•			•		•	1150°C (2102°F)	•	•	•		•	
Sens.Type	Temp. Range				85°C (185°F)		•				•	275°C (527°F)	•			•	•		1200°C (2192°F)	•	•	•		•	•
Pt100	-200°C (-328°F) to 850°C (1562°F)				90°C (194°F)		•			•		300°C (572°F)	•			•	•	•	1250°C (2282°F)	•	•	•	•		
TC J	-100°C (-148°F) to 1200°C (2192°F)				95°C (203°F)		•			•	•	325°C (617°F)	•		•				1300°C (2372°F)	•	•	•	•		•
TC K	-180°C (-292°F) to 1372°C (2502°F)				100°C (212°F)		•		•			350°C (662°F)	•		•			•	1350°C (2462°F)	•	•	•	•	•	
																			1372°C (2502°F)	•	•	•	•	•	•

Note: °F values are calculated equivalents for °C values

SC6 Series Common Technical Specifications

Environmental Conditions		
Operating Temperature	-25°C to +70°C (-13°F to +158°F)	
Storage Temperature	-40°C to +85°C (-40°F to +185°F)	
Calibration Temperature	+20°C to +28°C (+68 to +82.4°F)	
Relative Humidity	< 95% RH (non-cond.)	
Protection Degree	IP20*	
Mechanical Specifications		
Dimensions (HxWxD)	113 x 6.1 x 115 mm	
Weight Approx.	70g	
DIN Rail Type	DIN EN 60715 - 35mm	
Wire Size	0.13 - 2.5 mm2 / AWG 26 - 12 stranded wire	
Screw Terminal Torque	0.5 N·m	
Vibration	2 to 25 Hz	± 1.6 mm
	25 to 100 Hz	± 4g
Observed Authority Requirements	EMC	2014/30/EU
	LVD	2014/35/EU
	RoHS 2	2011/65/EU
Approvals	cULus, Standard for Safety	UL 61010-1, File E498965
	cFMus	FM18US0045X, FM18CA0023X
	Safe Isolation	EN 61140

*** Installation in pollution degree 2 & overvoltage category II, No corrosive gases**

ProSense® SC6 Series Signal Conditioners

ProSense Power Connector Unit

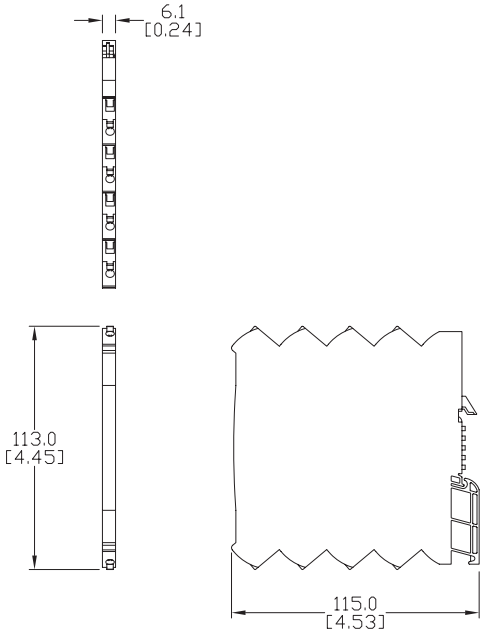
The SC6-PCU1 power connector unit allows easy connection of a 24 VDC / 2.5 A source to the in-rail-bus to provide power to multiple SC6 signal conditioners mounted on the rail.

Part No.	Description	Weight (lb)	Price
SC6-PCU1	ProSense power connection unit, for use with SC6 series signal conditioners.	0.19	$02d9e:

Power Connection Module - Technical Specifications	
Part No.	SC6-PCU1
Supply voltage	16.8-31.2 VDC
Internal power dissipation	0.25 W max.
Required external fuse	2.5 A

Dimensions

mm [inches]



See our website www.AutomationDirect.com for complete Engineering drawings.

ProSense® SC6 Series Signal Conditioners Accessories

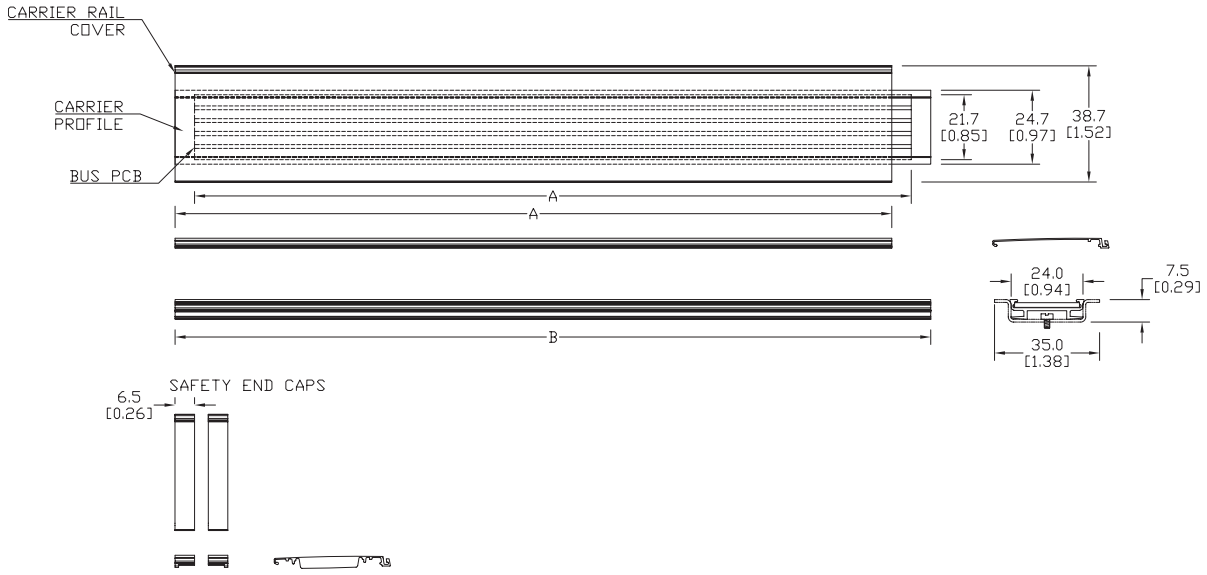
In-Rail-Bus

Part No.	Description	"A"	"B"	Weight (lb)	Price
0068060	In-rail-bus, 250mm length. For use with SC6 series signal conditioners and DN-R35S1 series DIN rail.	239mm	252mm	0.2	$;2daf:

Note: Order DIN rail and signal conditioners separately

Part No.	In-Rail-Bus-Set / 250mm 0068060	Materials
Each Set Includes	BUS-PCB 250mm	Polyamide with copper traces
	Carrier profile 250mm	
	Carrier rail cover 250mm	Polyamide
	Safety cap right	Polycarbonate
	Safety cap left	Polycarbonate

Dimensions mm [inches]



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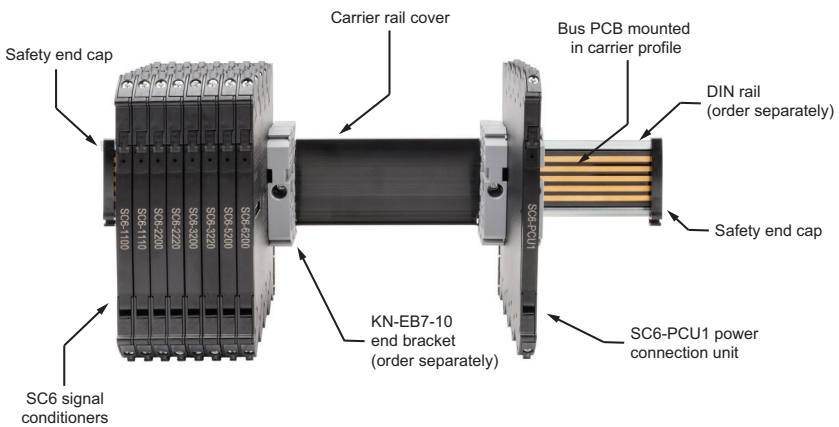


ProSense® SCU Series Universal Signal Conditioners

SCU-3100, SCU-1400, SCU-1600, SCU-2200 Signal Conditioners

Part No. SCU-1400 Shown

(SCU-3100/1400/1600 only when SCU-PDM2 is not attached)

The Universal Signal Conditioners from AutomationDirect are extremely versatile, providing the flexibility to convert, transmit, scale, and isolate signals from a wide variety of process sensors and controller I/O. Scalable input signal types supported include mA, VDC, thermocouple with internal or optional external cold junction compensation, 2-, 3-, 4-wire RTDs, linear resistance or potentiometer signals. Numerous selectable input and output ranges, two-point field scalability, and configuration for direct or inverse acting signals will handle hundreds of applications. The SCU-3100 has two individually programmable relay outputs used for alarming and control functions. The output on the SCU-1400 is a range selectable mA or VDC analog signal while the SCU-1600 provides both selectable mA or VDC analog signal and two individually programmable relays. The SCU-2200 offers NPN, PNP, and TTL frequency outputs that are scalable from 0 to 25,000 Hz. An integral excitation power supply output is available to power a 2-wire transmitter or a 3-wire potentiometer. The isolated universal supply voltage input eliminates the need for separate transformers or power supplies. Isolation is also provided between input and output.

The signal conditioners are easily configured with the SCU-PDM2 menu-structured LCD programming/display module (a computer running special calibration software is not required, and there are no confusing DIP switches or jumpers to set). Automatic scrolling Help text identifies each menu item. The detachable programming/display module can store and transfer configuration parameters from one signal conditioner to another, minimizing set-up time in multiple unit applications. Programming is available in seven different languages, and the programming/display module can be password protected to prevent unauthorized changes to the configuration. A process simulation function allows manual manipulation of the input signal to control the output signal for trouble-shooting and checkout. When not used for configuration, the programming/display module can remain on the signal conditioner in non-hazardous locations to display the input signal value and engineering units, output signal, and relay status (if equipped). The SCU-PDM2 and SCU-2200 are NOT approved for use in Hazardous Locations.

Features

- Flexibility to accept mA, VDC, thermocouple, RTD, linear resistance or potentiometer signal types
- Selectable input and output ranges, two-point field scalability, and direct or reverse signal configuration to handle hundreds of applications
- SCU-3100: two individually programmable relay outputs
- SCU-1400: selectable direct or reverse acting mA or VDC analog output signal
- SCU-1600: selectable direct or reverse acting mA or VDC analog output signal and two programmable relay outputs.
- SCU-2200: NPN, PNP, and TTL frequency outputs scalable from 0 to 25,000 Hz.
- Universal supply voltage, 21.6 to 253 VAC or 19.2 to 300 VDC, polarity insensitive
- 3-way isolation between input, output, and power
- Auxiliary power supply output for 2-wire transmitters and 3-wire potentiometers
- Easy-to-use detachable LCD programming/display module SCU-PDM2
  (Sold separately and required for programming)
- Transfer configuration settings from one signal conditioner to another with SCU-PDM2
- LEDs indicate operation and relay status (SCU-3100, SCU-1600) when display module is not installed
- Integral 35mm DIN rail mounting adapter
- Removable screw terminal blocks are keyed to ensure correct installation
- cULus, FM (when SCU-PDM2 is not attached. SCU-2200 not FM approved.), and CE marked
- 5 year warranty

SCU-3100, SCU-1400, SCU-1600, SCU-2200 Universal Signal Conditioners												
Part No.	Application	Isolation	Input	Output	Field Configurable	Operating Voltage	Mounting	Electrical Connection	Quantity	Weight (lbs)	Drawing Link	Price
SCU-3100	Limit alarm	Yes	Current, potentiometer, RTD, thermocouple, voltage	(2) relays	Yes*	21.6-253 VAC/19.2-300 VDC	35mm DIN rail	Removable screw terminal plugs	1	0.32	PDF	$044eb:
SCU-1400	Signal conditioner			Current, voltage					1	0.38	PDF	$044ec:
SCU-1600				Current, voltage, (2) relays					1	0.38	PDF	$044ed:
SCU-2200				Frequency					1	0.44	PDF	$05kcx:

* Requires SCU-PDM2

SCU-3100, SCU-1400, SCU-1600, SCU-2200 Universal Signal Conditioners

SCU-3100, SCU-1400, SCU-1600, SCU-2200 Universal Signal Conditioners Technical Specifications		
General Specifications		
Power	AC Power	21.6 to 253 VAC, 50/60 Hz
	DC Power	19.2 to 300 VDC
Consumption	≤ 2.0W (SCU-3100 & SCU-1400) ≤ 2.5W (SCU-1600)	
Fuse	400 mA slow blow / 250 VAC (not user replaceable)	
Auxiliary Power Supply Output	16-25 VDC, 20 mA max (Terminal 43 and 44)	
Isolation Voltage, Test / Operation	2.3 kVAC/250 VAC	
Configuration Interface	Programming/display module, SCU-PDM2 (sold separately) or SCU-PDM1 (discontinued and replaced by SCU-PDM2)	
Signal/noise Ratio	Min. 60 dB (0 to 100 kHz)	
Response Time (0 to 90%, 100 to 10%)	Temperature input	≤ 1 sec
	mA / V input	≤ 400ms
Calibration Temperature	20 to 28°C [68 to 82.4°F]	
Accuracy	The greater of the general and basic values (See Accuracy Table)	
Vibration	IEC 60068-2-6, UL 508/C22.2 No. 14 2 to 13.2 Hz...± 1mm 13.2 to 100Hz...± 0.7 g	
EMC Immunity	≤ ± 0.5% of span	
Extended EMC Immunity: NAMUR NE 21, A criterion, burst	≤ ± 1% of span	
Environmental Conditions	Operating Temperature	-20 to +60°C [-4 to 140°F]
	Storage Temperature	-20 to +85°C [-4 to 185°F]
	Operating and Storage Humidity	95% relative humidity (non-condensing)
Approvals	UL: E191072, UL 508/C22.2 No. 14 FM: FM19US0054X, 3600, 3611, 3819, ISA 61010-1, Class I, Div. 2, Group A-D, T5, Class I, Div. 2, Group IIC, T5 Zone 2 (SCU-3100/1400/1600 only when SCU-PDM2 is not attached). The SCU-PDM2 and SCU-2200 are NOT approved for use in Hazardous Locations. CE: EMC 2014/30/EU LVD 2014/35/EU RoHS2 2011/65/EU amended by 2015/863	
Construction	IP 20, case body is black high impact plastic. Pollution degree 1.	
Connections	Wire strip length	7.5 mm [0.3 in]
	Wire gauge	26 - 14 AWG standard wire
	Torque	0.5 N-m [4.5 inch-lbs]
Weight	SCU-1400	145g [5.1 oz], 160 g [5.6 oz] with programming module
	SCU-1600	170g [5.9 oz], 185 g [6.5 oz] with programming module
	SCU-2200	155g [5.9 oz], 170 g [6.5 oz] with programming module
	SCU-3100	170g [5.9 oz], 185 g [6.5 oz] with programming module
Dimensions (HxWxD)	109 x 23.5 x 104mm [4.3 x 0.93 x 4.1 in], 109 x 23.5 x 116 or 131mm depending on which programming module, PDM1 or PDM2 [4.3 x 0.93 x 4.6 or 5.16 in] with programming module	

Accuracy Table		
General Values		
Input Type	***Absolute Accuracy***	***Temperature Coefficient***
All	≤ ± 0.1% of span	≤ ± 0.01% of span/°C [± 0.01% of span/°F]
Basic Values		
Input Type	***Basic Accuracy***	***Temperature Coefficient***
mA	≤ ± 4 µA	≤ ± 0.4 µA/°C [w0.22µA/°F]
Volt	≤ ± 20 µV	≤ ± 2 µV/°C [w1.1µV/°F]
Pt100	≤ ± 0.2°C [w0.36°F]	≤ ± 0.01°C/°C [w0.001°F/°F]
Linear resistance	≤ ± 0.1 Ω	≤ ± 0.01 Ω/°C [w0.0056Ω/°F]
Potentiometer	≤ ± 0.1 Ω	≤ ± 0.01 Ω/°C [w0.0056Ω/°F]
TC Type: E, J, K, L, N, T, U	≤ ± 1°C [w1.8°F]	≤ ± 0.05°C/°C [w0.05°F/°F]
TC Type: B, R, S, W3, W5, LR	≤ ± 2°C [3.6°F], TC Type B ≤ ± 4°C, 200...1820°C	≤ ± 0.2°C/°C [w0.2°F/°F], TC Type B ≤ ± 4°C, 200...1820°C

SCU-3100, SCU-1400, SCU-1600, SCU-2200 Universal Signal Conditioners

Input/Output Specifications

Inputs			
Current Input			
Programmable Ranges		0 to 20 and 4 to 20 mA DC	
Measurement Range		0 to 20 mA (0 to 23mA SCU-2200)	
Input Resistance		Nom. 70Ω	
Sensor Error Detection		4 to 20 loop break, ≤3.6mA; ≥21mA	
Voltage Input			
Voltage Input drop, nom.		1.4 V @ 20 mA	
Programmable Ranges		0 to 1, 0.2 to 1, 0 to 5, 1 to 5, 0 to 10, and 2 to 10 VDC (0 to 2.5 / 0.5 to 2.5 SCU-2200)	
Measurement Range		0V to 12 VDC	
Input Resistance		Nom. 10 MΩ	
Thermocouple Inputs			
Thermocouple Type		B, E, J, K, L, N, R, S, T, U, W3, W5, and LR	
Cold Junction Compensation		Via internally mounted sensor: < ± 2.0°C [< ± 3.6°F] (+ 0.4°C * Δt), Δt = internal temperature - ambient temperature Via external sensor in connector SCU-CJC1: 20 to 28°C [68 to 82.4°F] m ± 1°C [1.8°F] and -20 to 20°C / 8 to 70°C [-4 to 68°F / 82.4 to 158°F] m ± 2°C [3.6°F]	
Sensor Error Detection		Sensor break, >750kOhm/(1.25V)	
Sensor Error Current		When detecting 2µA, otherwise 0 µA	
Type	***Min. value***	***Max. value***	***Standard***
B	0°C [+32°F] (204.4°C [+400ºC] SCU-2200)	+1820°C [+3308°F]	IEC 60584-1
E	-100°C [-148°F]	+1000°C [+1832°F]	IEC 60584-1
J	-100°C [-148°F]	+1200°C [+2192°F]	IEC 60584-1
K	-180°C [-292°F]	+1372°C [+2502°F]	IEC 60584-1
L	-200°C [-328°F]	+900°C [+1652°F]	DIN 43710
N	-180°C [-292°F]	+1300°C [+2372°F]	IEC 60584-1
R	-50°C [-58°F]	+1760°C [+3200°F]	IEC 60584-1
S	-50°C [-58°F]	+1760°C [+3200°F]	IEC 60584-1
T	-200°C [-328°F]	+400°C [+752°F]	IEC 60584-1
U	-200°C [-328°F]	+600°C [+1112°F]	DIN 43710
W3	0°C [+32°F]	+2300°C [+4172°F]	ASTM E988-90
W5	0°C [+32°F]	+2300°C [+4172°F]	ASTM E988-90
LR	-200°C [-328°F]	+800°C [+1472°F]	GOST 3044-84
RTD, Linear Resistance, Potentiometer Inputs			
RTD Types		Pt10, Pt20, Pt50, Pt100, Pt200, Pt250, Pt300, Pt400, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000, (Cu10, Cu20, Cu50, Cu100 only SCU-3100/1400/1600)	
Cable Resistance per Wire		RTD, 50 Ω max	
Sensor Current		RTD, Nom. 0.2 mA	
Sensor Error Detection		Sensor break >15kΩ Sensor short <15Ω (N/A for Cuxx, Pt10, Pt20, Pt50)	
Input type	***Min. value***	***Max. value***	***Standard***
Pt10 to Pt1000	-200°C [-328°F]	+850°C [+1562°F]	IEC60751
Ni50 to Ni1000	-60°C [-76°F]	+250°C [+482°F]	DIN 43760
Cu10 to Cu100	-200°C [-328°F]	-260°C [-436°F]	α = 0.00427 (only SCU-3100/1400/1600)
Linear Resistance	0Ω	10kΩ	–
Potentiometer	10Ω	100kΩ	–

SCU-3100, SCU-1400, SCU-1600, SCU-2200 Universal Signal Conditioners

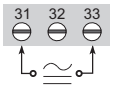
Outputs	
Analog Output - Current (SCU-1400 and SCU-1600)	
Signal Range	0 to 20 mA
Programmable Signal Range	0 to 20, 4 to 20, 20 to 0, and 20 to 4 mA
Load Resistance	800Ω max, 20mA, 16VDC
Load Stability	0.01% of span, 100Ω load
Output state on sensor error detection	0 / 3.5 mA / 23 mA / none selectable
Output Limitation	For 4 to 20 and 20 to 4 mA signals: 3.8 to 20.5 mA
	For 0 to 20 and 20 to 0 mA signals: 0 to 20.5 mA
Current Limit	≤28mA
Analog Output - Voltage (SCU-1400 and SCU-1600)	
Signal Range (Span)	0 to 10 VDC
Programmable Signal Ranges	0 to 1, 0.2 to 1, 0 to 10, 0 to 5, 1 to 5, 2 to 10, 1 to 0, 1 to 0.2, 5 to 0, 5 to 1, 10 to 0, and 10 to 2 V
Load	500kΩ min
Relay outputs (SCU-3100 and SCU-1600)	
Relay Functions	Setpoint, Window, Sensor Error, Latch, Power and Off
Hysteresis	0 to 100%
On and Off Delay	0 to 3600 sec
Relay state on sensor error detection	Break / Make / Hold selectable
Relay contact ratings	AC: 230Vrms 2A 500VA / DC: 24V 1A
Frequency output (SCU-2200)	
Frequency range	0...25000 Hz
Min. frequency (span)	0 Hz
Duty cycle (0...25000 Hz)	50% or
Programmable pulse time (f ≤ 500 Hz)	1...1000 ms (max. 90% duty cycle)
PNP output (SCU-2200)	
Iout max	30mA
Vout	24VDC ± 10%
Cout	10nF
Rout typ.	20Ω
Electromechanical counter	24V / 135mA / 20ms / ≤ 10Hz
NPN output (SCU-2200)	
Isink max	150mA
Isink/source peak	300mA
External voltage (terminal 23) max	55VDC
Cout	10nF
Rout typ	10Ω
TTL output (SCU-2200)	
Isink max	15mA
Isink/source peak	100mA
Vout	5 V ±5%
Cout	10nF
Rout typ	55Ω
Sensor and error detection (SCU-2200)	
Programmable	0...26250 Hz

SCU-3100, SCU-1400, SCU-1600, SCU-2200 Universal Signal Conditioners

Wiring Diagrams

Models SCU-1400/1600/3100

Supply



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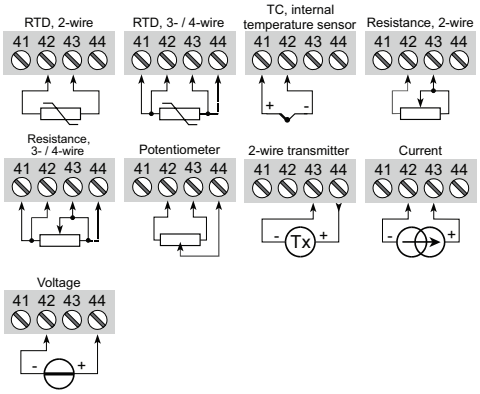

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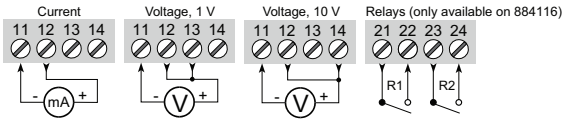
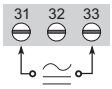
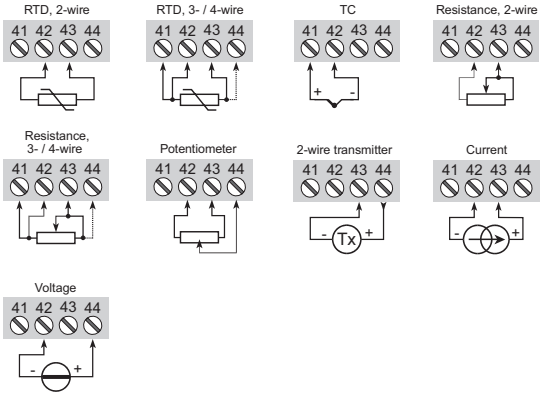


Model SCU-2200

Supply



Inputs:



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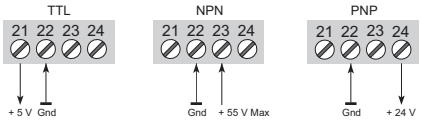


ProSense® SCU Series Universal Signal Conditioner

SCU-8400 Signal Conditioner

Part No. SCU-8400

The SCU-8400 Universal Signal Conditioner from AutomationDirect is extremely versatile, providing the flexibility to convert, transmit, scale, and isolate unipolar and bipolar signals from a wide variety of process sensors and controller I/O. The scalable input accepts signals up to +/-100 mA or +/-300 VDC with spans as low as 0.5 mA or 25 mVDC. Numerous selectable input and output ranges, two-point field scalability, and configuration for direct or inverse acting signals will handle most any DC voltage or current conversion application. The SCU-8400 also features the ability to establish a square root relationship between input and output, which is useful in flow measurement applications. An integral excitation power supply output is available to power a 2-wire transmitter or a 3-wire potentiometer. The isolated universal supply voltage input eliminates the need for separate transformers or power supplies. Isolation is also provided between input and output. The fast response time of < 20 ms is ideal for measuring signals produced by torque, position, current and acceleration sensors.

The SCU-8400 is easily configured with the SCU-PDM2 menu-structured LCD programming/display module (a computer running special calibration software is not required, and there are no confusing DIP switches or jumpers to set). Automatic scrolling Help text identifies each menu item. The detachable programming/display module can store and transfer configuration parameters from one signal conditioner to another, minimizing set-up time in multiple unit applications. Programming is available in seven different languages, and the programming/display module can be password protected to prevent unauthorized changes to the configuration. When not used for configuration, the programming/display module can remain on the signal conditioner to display the input signal value, engineering units, and output signal. A process simulation function allows manual manipulation of the input signal to control the output signal for trouble-shooting and checkout.

Features

- Scalable unipolar or bipolar inputs of +/-100 mA or +/-300 VDC
- Selectable input ranges, two-point field scalability, and direct or inverse acting signal configuration to handle most any DC voltage or current conversion
- Available square root function
- Fast response time of < 20 ms is ideal for measuring torque, position, current and acceleration sensors
- Buffered voltage output option to handle high current load devices
- Universal supply voltage, 21.6 to 253 VAC or 19.2 to 300 VDC, polarity insensitive
- 3-way isolation between input, output, and power
- Auxiliary power supply output for 2-wire transmitters and 3-wire potentiometers
- Easy-to-use detachable LCD programming/display module SCU-PDM2 (Sold separately and required for programming)
- Transfer configuration settings from one signal conditioner to another with SCU-PDM2
- Integral 35mm DIN rail mounting adapter
- Removable screw terminal blocks are keyed to ensure correct installation
- cULus and CE marked
- 5 year warranty

SCU-8400 Universal Signal Conditioner

Part No.	Application	Isolation	Input	Output	Field Configurable	Operating Voltage	Mounting	Electrical Connection	Quantity	Weight (lbs)	Drawing Link	Price
SCU-8400	Signal conditioner	Yes	Unipolar or bipolar current, potentiometer, voltage	Unipolar or bipolar current, voltage	Yes*	21.6-253 VAC/19.2-300 VDC	35mm DIN rail	Removable screw terminal plugs	1	0.34	PDF	$;044ef:

* Requires SCU-PDM2

SCU-8400 Universal Signal Conditioner

SCU-8400 Universal Signal Conditioner Technical Specifications		
General Specifications		
Power	AC Power	21.6 to 253 VAC, 50/60 Hz
	DC Power	19.2 to 300 VDC
Consumption	≤2.5W	
Fuse	400mA slow blow / 250VAC (Not user replaceable)	
Auxiliary Power Supply Output	Auxiliary supplies: 2-wire loop supply (terminal 43, 44).....> 16 V @ 20mA 3-wire loop supply (terminal 42, 44).....> 18...< 28V @ 23...0 mA Loop supply limitation (terminal 42, 44).....27...35 mA avg., < 80mA peak Reference voltage.....2.5V ±0.5% Reference voltage, load.....0...15 mA Current limit, reference voltage.....< 60mA	
Isolation Voltage, Test / Working	2.3 kVAC / 250 VAC (reinforced) / 500 VAC (basic)	
Configuration Interface	Programming/display module, SCU-PDM2 (sold separately) or SCU-PDM1 (discontinued and replaced by SCU-PDM2)	
Signal Dynamics, Input / Output	24bit / 18bit	
Signal/noise Ratio	Min. 60dB	
Response Time (0 to 90%, 100 to 10%)	< 20ms	
Calibration Temperature	20 to 28°C [68 to 82.4°F]	
Accuracy	The greater of the general and basic values (See Accuracy Table)	
EMC Immunity	≤ ± 0.5% of span	
Extended EMC Immunity: NAMUR NE 21, A criterion, burst	≤ ± 1% of span	
Conducted emission, class A	150kHz to 10MHz	
Environmental Conditions	Operating Temperature	-20 to +60°C [-4 to 140°F]
	Storage Temperature	-20 to +85°C [-4 to 185°F]
	Operating and Storage Humidity	95% relative humidity (non-condensing)
Approvals	UL: E197592, UL 508/C22.2 No. 14 CE: EMC 2014/30/EU LVD 2014/35/EU RoHS2 2011/65/EU amended by 2015/863	
Construction	IP 20, case body is black high impact plastic. Pollution degree 2.	
Connections	Wire strip length	7.5 mm [0.3 in]
	Wire gauge	26 - 14 AWG standard wire
	Torque	0.5 N-m [4.5 inch-lbs]
Weight	250g [8.8 oz], 285g [10.1 oz] with programming module	
Dimensions (HxWxD)	109 x 23.5 x 104mm [4.3 x 0.93 x 4.1 in], 109 x 23.5 x 116 or 131mm depending on which programming module, PDM1 or PDM2 [4.3 x 0.93 x 4.6 or 5.16 in] with programming module	

Accuracy Table		
General Values		
Input Type	***Absolute Accuracy***	***Temperature Coefficient***
All	≤ ± 0.05% of span	≤ ± 0.01% of span/°C
Basic Values		
Type	***Basic Accuracy***	***Temperature Coefficient***
Current input	± 0.334 µA	± 0.067 µA/°C
Voltage input	± 8.33 µV	± 1.67 µV/°C
Current output	± 1.33 µA	± 0.266 µA/°C
Buffered voltage output	± 267 µV	± 53.4 µV/°C
Shunted voltage output (±1 V)	± 267 µV	± 53.4 µV/°C
Shunted voltage output (±10V)	± 1333 µV	± 0.267 µV/°C

SCU-8400 Universal Signal Conditioner

Input/Output Specifications

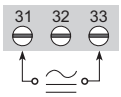
Model	SCU-8400
Input	
Current input ranges	0...1, 0...5, 1...5, 0...20, 4...20, ±1, ±5, ±10, ±20, ±50, ±100mA
Current input resistance	Nom. 20Ω + PTC 10Ω
Current min. span	0.5 mA
Input voltage drop, nom.	0.6 V @ 20mA
Voltage input ranges	0...0.1, 0...1, 0.2...1, 0...2.5, 0...5, 1...5, 0...10, 2...10, 0...100, 0...300, ±0.1, ±1, ±2.5, ±5, ±10, ±100, ±300 V
Voltage min. span	25mV
Voltage input resistance	> 2.5 V input: 3 MΩ nom. ≤ 2.5 V input: > 10 MΩ
3-wire potentiometer input (terminal 41, 42 & 44)	0...100%
Potentiometer reference voltage (terminal 42, 44)	2.5 V
Potentiometer calibration resistance	5kΩ
Min. potentiometer resistance	200Ω
Output	
Current output ranges (direct or inverted action)	0...5, 1...5, 0...10, 2...10, 0...20, 4...20, S4-20 mA, ±5, ±10, ±20 mA
Current output min. span	4mA
Load (max.), current output	≤ 1000 Ω / ± 20V @ ± 20mA
Current limit	≤ 28 mA (unipolar) / ±28 mA (bipolar)
Load stability	0.001% of span / 100 Ω
Response time, programmable	0.0 to 60.0 sec
Passive 2-wire programmable ranges	0 to 20 and 4 to 20mA (direct or inverted action)
External 2-wire loop supply	3.5 to 28.8 VDC
Voltage output programmable ranges (direct or inverted action)	0/0.2...1, 0/1...5, 0/2...10, ±1, ±5, ±10 V
Response time, programmable	0.0 to 60.0 sec
Shunted voltage output signal range	±1.2 V / ±12V
Shunted programmable standard ranges	0...1, 0...2.5, 0...5, 0...10, 2...10, ±1, ±2.5, ±5, ±10V
Shunted custom configurable output range	±10V
Shunted min. span	0.8 V
Load (min.), shunted voltage output	≥ 500kΩ
Buffered voltage output signal range	±23 V
Buffered programmable standard ranges	0...1, 0.2...1, 0...2.5, 0...5, 1...5, 0...10, 2...10, 0...20, 4...20, ±1, ±2.5, ±5, ±10, ±20 V
Buffered custom configurable output range	± 20V
Buffered min. span	0.8 V
Load (min.), buffered voltage output	> 2kΩ
Current limit, buffered voltage output	< 50mA

SCU-8400 Universal Signal Conditioner

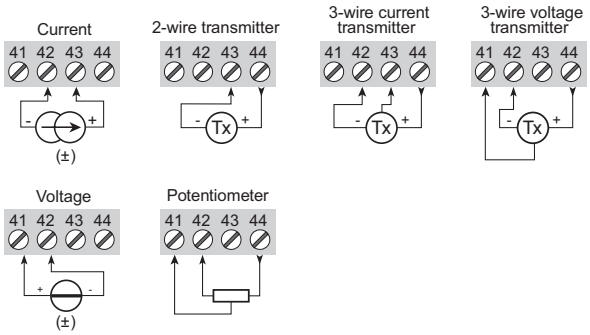
Wiring Diagram

Model SCU-8400

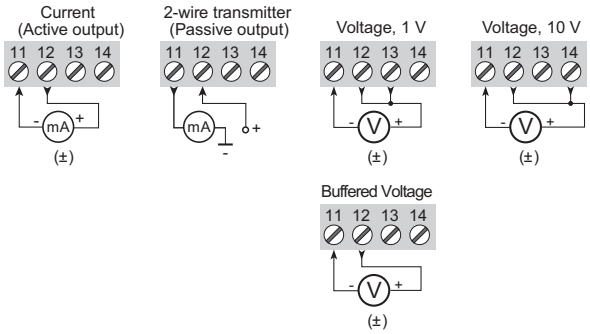
Supply:



Inputs:



Outputs:



ProSense® SCU Series Universal Signal Conditioner

SCU-7900 Signal Conditioner

Part No. SCU-7900

The SCU-7900 Universal Signal Conditioner from AutomationDirect provides the flexibility to accurately measure AC RMS current or AC RMS voltage. The selectable input can measure AC supply voltage up to 300 VAC RMS or AC current transformers up to 5A RMS. The measured AC voltage or current input can be converted to numerous selectable unipolar or bipolar DC current or voltage output ranges or custom configured with two-point field scalability. The isolated universal supply voltage input eliminates the need for separate transformers or power supplies. Isolation is also provided between input and output.

The SCU-7900 is easily configured with the SCU-PDM2 menu-structured LCD programming/display module (a computer running special calibration software is not required, and there are no confusing DIP switches or jumpers to set). Automatic scrolling Help text identifies each menu item. The detachable programming/display module can store and transfer configuration parameters from one signal conditioner to another, minimizing set-up time in multiple unit applications. Programming is available in seven different languages, and the programming/display module can be password protected to prevent unauthorized changes to the configuration. When not used for configuration, the programming/display module can remain on the signal conditioner to display the input signal value, engineering units, and output signal. A process simulation function allows manual manipulation of the input signal to control the output signal for trouble-shooting and checkout.

Features

- Accurate measurement of AC RMS voltage up to 300 VAC RMS or AC RMS current to 5 A RMS (Not suitable for VFD or non-sine wave sources.)
- Selectable input and output ranges and two-point field scalability
- Universal supply voltage, 21.6 to 253 VAC or 19.2 to 300 VDC, polarity insensitive
- 3-way isolation between input, output, and power
- Easy-to-use detachable LCD programming/display module SCU-PDM2 (Sold separately and required for programming)
- Transfer configuration settings from one signal conditioner to another with SCU-PDM2
- Integral 35mm DIN rail mounting adapter
- Removable screw terminal blocks are keyed to ensure correct installation
- cULus and CE marked
- 5 year warranty

SCU-7900 Universal Signal Conditioner				
Part No.	***Description***	***Quantity***	***Weight (lbs)***	***Price***
SCU-7900	ProSense AC signal conditioner, isolated, AC current, AC voltage input, current or voltage output, 21.6-253 VAC/19.2-300 VDC operating voltage, 35mm DIN rail mount, removable screw terminal plugs.	1	0.34	$044ee:

SCU-7900 Signal Conditioner

SCU-7900 Universal Signal Conditioner Technical Specifications		
General Specifications		
Power	AC Power	21.6 to 253 VAC, 50/60 Hz
	DC Power	19.2 to 300 VDC
Consumption	≤2.5W	
Fuse	400 mA slow blow / 250 VAC (Not user replaceable)	
Isolation Voltage, Test/Working	2.3 kVAC / 250 VAC (reinforced) / 500 VAC (basic)	
Configuration Interface	Programming/display module, SCU-PDM2 (sold separately) or SCU-PDM1 (discontinued and replaced by SCU-PDM2)	
Signal Dynamics, Input/Output	20bit / 18bit	
Signal/noise Ratio	Min. 60 dB	
Output Referred Common Mode Rejection Ratio	0.02 ppm/√Hz	
Response Time (0 to 90%, 100 to 10%)	< 0.75 sec	
Calibration Temperature	20 to 28°C [68 to 82.4°F]	
Accuracy	The greater of the general and basic values (See Accuracy Table 1)	
EMC Immunity	≤ ± 0.5% of span	
Extended EMC Immunity: NAMUR NE 21, A criterion, burst	≤ ± 1% of span	
Environmental Conditions	Operating Temperature	-20 to +60°C [-4 to 140°F]
	Storage Temperature	-20 to +85°C [-4 to 185°F]
	Operating and Storage Humidity	95% relative humidity (non-condensing)
Approvals	UL: E197592, UL 508/C22.2 No. 14 CE: EMC 2014/30/EU LVD 2014/35/EU RoHS2 2011/65/EU amended by 2015/863	
Construction	IP 20, case body is black high impact plastic. Pollution degree 2.	
Connections	Wire strip length	7.5 mm [0.3 in]
	Wire gauge	26 - 14 AWG standard wire
	Torque	0.5 N-m [4.5 inch-lbs]
Weight	250g [8.8 oz], 285 g [10.1 oz] with programming module	
Dimensions (HxWxD)	109 x 23.5 x 104mm [4.3 x 0.93 x 4.1 in], 109 x 23.5 x 116mm [4.3 x 0.93 x 4.6 in] with programming module	

Accuracy Table 1		
General Values		
Input Type	***Absolute Accuracy***	***Temperature Coefficient***
All	≤ ± 0.3% of span	≤ ± 0.01% of span/°C
Basic Values		
Input Type	***Basic Accuracy***	***Temperature Coefficient***
Current	1.5 mA	50 µA/°C
Voltage	1.5 mVAC	50 µVAC/°C

SCU-7900 Signal Conditioner

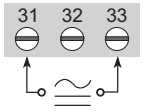
Input/Output Specifications

Model	SCU-7900
Input	
Current input ranges	0...0.5; 0...1; 0...2.5 & 0...5 Arms / 40...400 Hz
Maximum input limit	6A @ 40°C [104°F]
Current input resistance	Nom. < 0.07 Ω
Input voltage drop, nom.	Nom. < 0.35 V
Voltage input ranges	0...0.5, 0...1, 0...2.83, 0…5, 0…120, 0…230 & 0…300 Vrms / 40...400 Hz
Voltage input resistance	Nom. 3 MΩ || 100 pF
Output	
Current output (direct or inverted action)	0...20, 4...20, S4...20, ±10, ±20 mA
Load (max.), current output	≤ 800Ω
Current limit	≤ 28mA (unipolar) / ± 28mA (bipolar)
Passive 2-wire programmable ranges	0 to 20 and 4 to 20mA (direct or inverted action)
External 2-wire loop supply	3.5 to 30VDC
Load stability	≤ 0.001% of span / 100Ω
Response time, programmable	0.0 to 60.0 sec
Voltage output (direct or inverted action)	0/0.2...1, 0/1...5, 0/2...10, ±1, ±5, ±10V
Load (min.), voltage output	≥ 500kΩ
Response time, programmable	0.0 to 60.0 sec

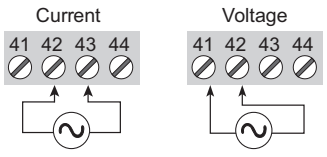
Wiring Diagram

Model SCU-7900

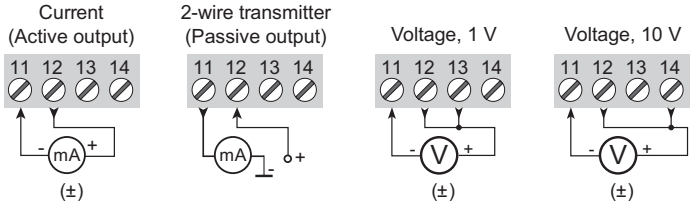
Supply:



Inputs:



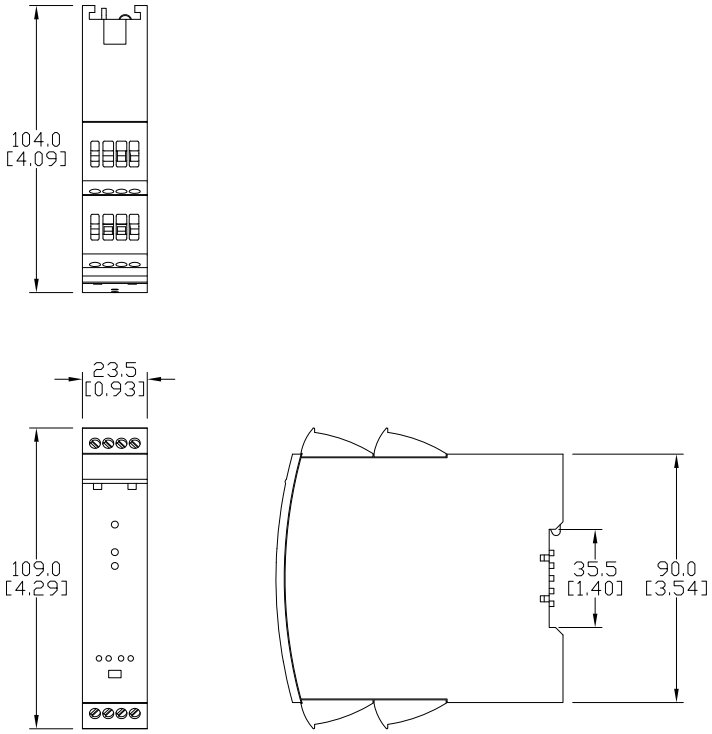
Outputs:



SCU-7900 Signal Conditioner

Dimensions

mm [inches]



See our website www.AutomationDirect.com for complete Engineering drawings.

ProSense® SCU Series Universal Signal Conditioners

Part No. SCU-2501 Shown

SCU-2501, SCU-2502, SCU-2503 Signal Conditioners

The SCU-2501, SCU-2502, and SCU-2503 Universal Signal Conditioners from AutomationDirect are extremely versatile, providing the flexibility to convert, transmit, scale, and isolate frequency input signals from a wide variety of process sensors and controller I/O. The input accepts frequency signals up to 100 kHz from NPN, PNP, TTL, Tachometer, and NAMUR sensors. The SCU-2501 provides a range selectable unipolar or bipolar mA or VDC analog output and a programmable relay output. The outputs on the SCU-2502 are two programmable relays used for alarming and control functions. The SCU-2503 outputs provide a range selectable unipolar or bipolar mA or VDC analog signal and scalable frequency output up to 100 kHz. The SCU-2500 series also features the ability to establish a square root relationship between input and output, which is useful in flow measurement applications. An integral excitation power supply output is available to power various types of input sensors. The isolated universal supply voltage input eliminates the need for separate transformers or power supplies. Isolation is also provided between input and output.

The SCU-2500 series is easily configured with the SCU-PDM2 menu-structured LCD programming/display module (a computer running special calibration software is not required, and there are no confusing DIP switches or jumpers to set). Automatic scrolling Help text identifies each menu item. The detachable programming/display module can store and transfer configuration parameters from one signal conditioner to another, minimizing set-up time in multiple unit applications. Programming is available in seven different languages, and the programming/display module can be password protected to prevent unauthorized changes to the configuration. When not used for configuration, the programming/display module can remain on the signal conditioner to display the input signal value, engineering units, and output signal. A process simulation function allows manual manipulation of the input signal to control the output signal for trouble-shooting and checkout.

Features

- Frequency input signals up to 100 kHz from NPN, PNP, TTL, Tachometer, and NAMUR sensors
- SCU-2501: range selectable unipolar or bipolar mA or VDC analog output and a programmable relay output
- SCU-2502: two individually programmable relay outputs
- SCU-2503: range selectable unipolar or bipolar mA or VDC analog signal and scalable frequency output up to 100 kHz
- Available square root function
- Buffered voltage output option to handle high current load devices
- Universal supply voltage, 21.6 to 253 VAC or 19.2 to 300 VDC, polarity insensitive
- 3-way isolation between input, output, and power
- Auxiliary power supply output for various types of input sensors
- Easy-to-use detachable LCD programming/display module SCU-PDM2 (Sold separately and required for programming)
- Transfer configuration settings from one signal conditioner to another with SCU-PDM2
- Integral 35mm DIN rail mounting adapter
- Removable screw terminal blocks are keyed to ensure correct installation
- cULus and CE marked
- 5 year warranty

SCU-2501, SCU-2502, SCU-2503 Universal Signal Conditioners

Part No.	Application	Isolation	Input	Output	Field Configurable	Operating Voltage	Mounting	Electrical Connection	Quantity	Weight (lbs)	Drawing Link	Price
SCU-2501	Signal conditioner	Yes	Frequency	Unipolar or bipolar current, (1) relay	Yes*	21.6-253 VAC/19.2-300 VDC	35mm DIN rail	Removable screw terminal plugs	1	0.46	PDF	$;05kct:
SCU-2502				(2) relays					1	0.48	PDF	$05kcu:
SCU-2503				Unipolar or bipolar current, voltage, frequency					1	0.44	PDF	$05kcv:

* Requires SCU-PDM2

SCU-2501, SCU-2502, SCU-2503
Universal Signal Conditioners

SCU-2501, SCU-2502, SCU-2503 Universal Signal Conditioners Technical Specifications		
General Specifications		
Power	AC Power	21.6 to 253 VAC, 50/60 Hz
	DC Power	19.2 to 300 VDC
Consumption	≤ 2.6 W	
Max. Power Dissipation	≤ 2.1 W	
Fuse	400 mA slow blow / 250 VAC (not user replaceable)	
Auxiliary Power Supply Output	5-17 VDC, 20 mA max (Terminal 43 and 44)	
Isolation Voltage, Test / Operation	2.3 kVAC/250 VAC	
Configuration Interface	Programming/display module, SCU-PDM2 (sold separately) or SCU-PDM1 (discontinued and replaced by SCU-PDM2)	
Signal/noise Ratio	Min. 60 dB	
Response Time (0 to 90%, 100 to 10%)	Frequency input	< 30ms
Calibration Temperature	20 to 28°C [68 to 82.4°F]	
Accuracy	The greater of the general and basic values (See Accuracy Table)	
Vibration	IEC 60068-2-6, UL 508/C22.2 No. 14 2 to 13.2 Hz...± 1mm 13.2 to 100Hz...± 0.7 g	
EMC Immunity	≤ ±0.5% of span	
Extended EMC Immunity: NAMUR NE 21, A criterion, burst	≤ ±1% of span	
Environmental Conditions	Operating Temperature	-20 to +60°C [-4 to 140°F]
	Storage Temperature	-20 to +85°C [-4 to 185°F]
	Operating and Storage Humidity	95% relative humidity (non-condensing)
Approvals	UL CE: EMC 2014/30/EU LVD 2014/35/EU RoHS2 2011/65/EU amended by 2015/863	
Construction	IP 20, case body is black high impact plastic. Pollution degree 1.	
Connections	Wire strip length	7.5 mm [0.3 in]
	Wire gauge	26 - 14 AWG standard wire
	Torque	0.5 N-m [4.5 inch-lbs]
Weight	SCU-2501	160g [5.6 oz], 175 g [6.2 oz] with programming module
	SCU-2502	165g [5.8 oz], 180 g [6.3 oz] with programming module
	SCU-2503	150g [5.3 oz], 165 g [5.8 oz] with programming module
Dimensions (HxWxD)	109 x 23.5 x 104mm [4.3 x 0.93 x 4.1 in], 109 x 23.5 x 116 or 131mm depending on which programming module, PDM1 or PDM2 [4.3 x 0.93 x 4.6 or 5.16 in] with programming module	

Accuracy Table			
Input			
Input Type	***Basic Accuracy***	***Absolute Accuracy***	***Temperature Coefficient***
Frequency	≤ 0.0002 Hz	≤ ±0.01% of input frequency	≤ ±0.0005% / °C
Output			
Current output	8 µA	≤ ±0.05% of span	≤ ±0.005% / 0.8 µA / °C
Voltage output	2 mV	≤ ±0.05% of span	≤ ±0.005% / 200 µV / °C
Frequency output	n.a.	≤ ±0.002% of output frequency +0.0004% of fmax.	≤ ±0.0005% / °C

SCU-2501, SCU-2502, SCU-2503
Universal Signal Conditioners
Input/Output Specifications

Inputs				
Model		**SCU-2501**	**SCU-2502**	**SCU-2503**
Frequency input	Frequency Range	0.001 Hz to 100 kHz		
	Time range, time function	10 µs to 999.9 s		
	Max. frequency, with input filter ON	75Hz		
	Min. pulse width with input filter ON	8ms		
	Min. pulse width with input filter OFF	4µs		
	Response time (0...90%, 100...10%)	< 30ms		
NAMUR input	Trig-level LOW	≤ 1.2 mA		
	Trig-level HIGH	≥ 2.1 mA		
	Input impedance	1 kΩ || < 220pF		
	Breakage detection	≤ 0.1 mA		
	Short-circuit detection	≥ 6.9 mA		
	Sensor supply - pin 44, fixed	8.3 V		
Tacho input	Trig-level LOW	≤ -50 mV		
	Trig-level HIGH	≥ +50 mV		
	Input impedance	100 kΩ || < 220 pF		
	Max. input voltage	80VAC pp		
	Sensor supply - pin 44, programmable	5...17 V / 23mA		
NPN / PNP input	Trig-level LOW	≤ 4.0 V		
	Trig-level HIGH	≥ 7.0 V		
	Input impedance	3.48 kΩ || < 220 pF		
	Trigger edge	NPN = Neg. edge, PNP = Pos. edge.		
	Sensor supply - pin 44, programmable	5...17 V / 23mA		
TTL input	Trig-level LOW	≤ 0.8 V		
	Trig-level HIGH	≥ 2.0 V		
	Input impedance	≥ 100 kΩ || < 220 pF		
	Sensor supply - pin 44, programmable	5...17 V / 23mA		
S0 input	Trig-level LOW	≤ 2.2 mA		
	Trig-level HIGH	≥ 9.0 mA		
	Input impedance	758 Ω || < 220 pF		
	Sensor supply - pin 44, fixed.	17V		
Special voltage input	User-programmable trig-levels	-0.05...6.50 V		
	*Hysteresis, min	50 mV		
	Input impedance, programmable:	High Z: ≥100 kΩ || < 220 pF Pull up/down; 3.48 kΩ || < 220 pF		
	Programmable sensor supply - pin 44	5...17 V / 23 mA		
	Max. input voltage	17V		
Special current input	User-programmable trig-levels.	0.0...10.0 mA		
	*Hysteresis, min	0.2 mA		
	Input impedance	1 kΩ || < 220 pF		
	Sensor supply - pin 44, programmable	5...17 V / 23 mA		
	Max. input current	17mA		

*** For low signal levels with input trigger level hysteresis below 100 mV / 0.1 mA it is recommended to use shielded cables with correct grounding, to avoid false triggering due to induced EMC.**

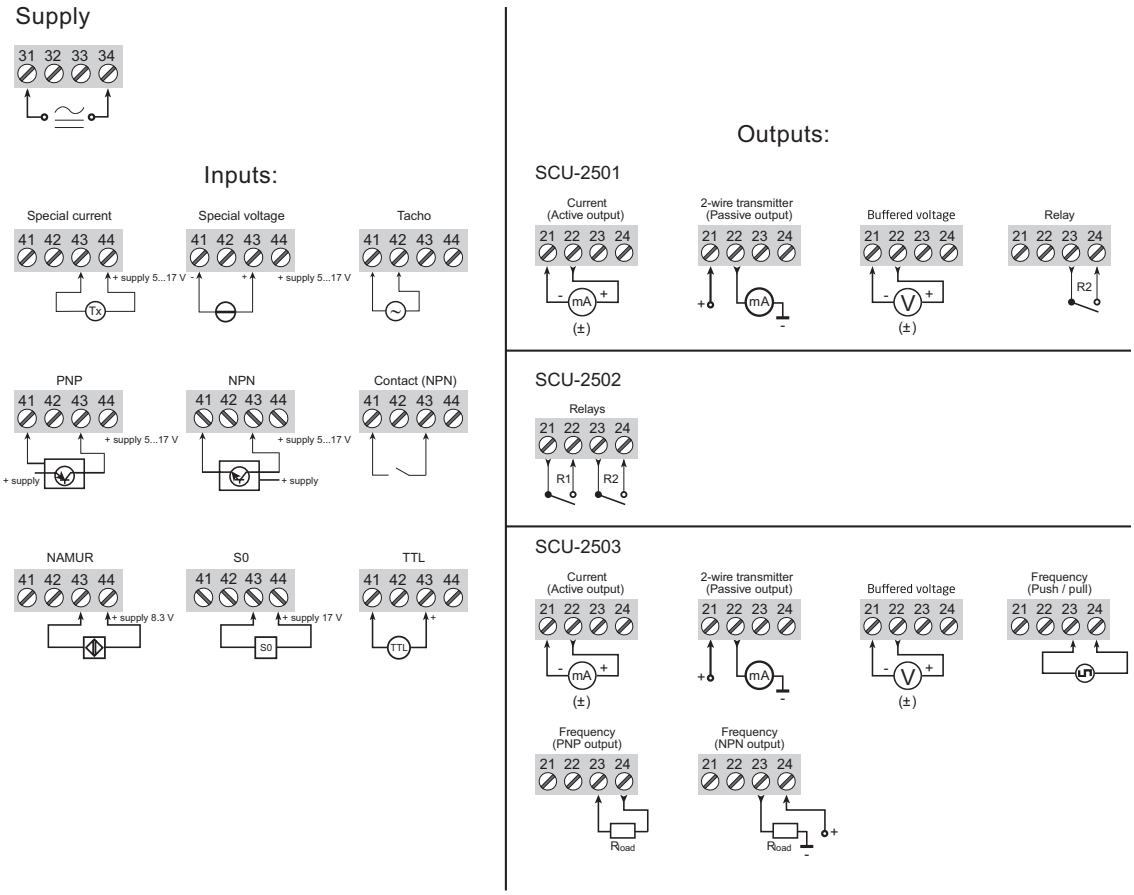
SCU-2501, SCU-2502, SCU-2503
Universal Signal Conditioners

Input/Output Specifications Continued

Outputs			
Model	***SCU-2501***	***SCU-2502***	***SCU-2503***
Current output	0...20, 4...20, S4-20, ±10 mA, ±20 mA	----------	0...20, 4...20, S4-20, ±10 mA, ±20 mA
Load (max.), current output	≤ 600 Ω	----------	≤ 600 Ω
Current limit	≤ 28 mA	----------	≤ 28 mA
Voltage output	0…5, 1…5, 0...10, 2…10, ±5, ±10 VDC	----------	0…5, 1…5, 0...10, 2…10, ±5, ±10 VDC
Load (min.), voltage output	≥ 2 kΩ	----------	≥ 2 kΩ
Relay output	AC: 230Vrms 2A 500VA / DC: 24V 1A	2 x AC: 230Vrms 2A 500VA / DC: 24V 1A	----------
Frequency output	----------	----------	0.001 Hz...100kHz
PNP output	----------	----------	24VDC at 30mA max
NPN output	----------	----------	30VDC at 130mA max
Push-Pull output	----------	----------	5...24VDC

Wiring Diagrams

Models SCU-2501/2502/2503



SCU Series Universal Signal Conditioner Accessories

Programming/Display Module SCU-PDM2

Application:

- The AutomationDirect SCU-PDM2 module easily connects to the front of the Universal Signal Conditioners and is used as a display and to enter or adjust the programming of the module.
- Can be moved from one module to another and download the configuration of the first transmitter to subsequent transmitters.
- Fixed display for visualization of process data and status.
- Required for programming all SCU Series Universal Signal Conditioner models.

Technical characteristics:

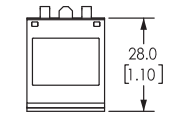
- LCD display with 4 lines; Line 1 (H = 5mm, 0.20 in) shows input signal, line 2 (H = 3.5 mm, 0.14 in) shows units, line 3 (H = 3.5 mm, 0.14 in) shows analog output or user defined text and line 4 shows communication and relay status.
- Programming access can be blocked by assigning a password. The password is saved in the transmitter in order to ensure against unauthorized modifications to the configuration.
- Not capable of standalone or remote operation.
- For Use With: SCU-3100, SCU-1400, SCU-1600, SCU-8400, SCU-7900, SCU-2200, SCU-2501, SCU-2502, SCU-2503

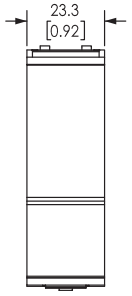
Mounting/Installation:

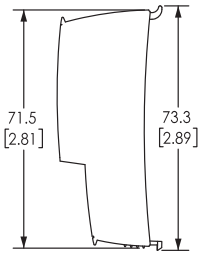
- Snap SCU-PDM2 onto the front of the universal signal conditioners.
- Can be installed or removed whether the signal conditioner is powered or not.

Selectable Engineering Units

°C	hP	kW	mA	pH	MHz
°F	hPa	kWh	mbar	rpm	p/m
%	Hz	l	mils	s	p/h
A	in	l/h	min	S	p/d
bar	in/h	l/min	mm	t	
cm	in/min	l/s	mm/s	t/h	
ft	in/s	m	mol	uA	
ft/h	ips	m/h	MPa	um	
ft/min	K	m/min	mV	uS	
ft/s	kA	m/s	MW	V	
g	kg	m/s2	MWh	W	
gal/h	kJ	m3	N	Wh	
gal/min	kPa	m3/h	Ohm	yd	
GW	kV	m3/min	Pa	KHz	







See our website www.AutomationDirect.com for complete Engineering drawings.

External Cold Junction Compensation Connector

Part No. SCU-CJC1

Installation:

- Remove terminal block included with SCU-1400, SCU-1600 or SCU-3100 signal conditioner and replace with SCU-CJC1.

SCU Series Signal Conditioner Accessories				
Part No.	***Description***		***Weight (lb)***	***Price***
SCU-PDM2	ProSense detachable programming/display module, for use with SCU series signal conditioners.	1	0.04	$-5hjv:
SCU-CJC1	ProSense external cold junction compensation (CJC) connector, for use with SCU-3100, SCU-1400, SCU-1600 signal conditioners.	1	0.02	$44eh:

Twin Link Series Wireless Transmitter/Receiver & Signal Repeater

Part No. DEFINE-TWIN-LINK

Part No. DEFINE-REPEATER

Effortlessly bridge the gap between remote devices with the Define Instruments Twin Link Point-to-Point Wireless System. Designed for industrial environments where cabling is costly or impractical, this pre-paired solution delivers reliable signal transmission up to 0.9 miles line-of-sight with the included antennas. With universal analog inputs, scalable 4-20mA outputs, and flexible digital I/O, Twin Link simplifies setup and ensures seamless control and monitoring. Configure in minutes using the intuitive Define ToolBox software and extend your reach by adding up to 15 repeaters to your Twin Link system. No configuration required when used in the default transparent mode for 4-20mA and discrete signal passing with robust, out-of-the-box wireless connectivity.

Features

- Transmits signals up to 0.9 miles line-of-sight, perfect for remote field applications. Transmits 300-500ft through walls and building materials, ideal for complex indoor industrial environments as well, using included antenna.
- Accepts a wide range of inputs (thermocouple, RTD, mA, frequency) and provides two isolated 4-20mA outputs for seamless integration.
- Out-of-the-box ready for 4-20mA and discrete signal applications, minimizing setup time and technical expertise needed.
- Easy Configuration via USB programming cable (DEFINE-BRIDGE-KEY required) with Define ToolBox software (DEFINE-TOOLBOX-SW), enabling quick scaling, customization, and control (Programmable temperature and pump control logic).
- 4 digital inputs, 2 digital outputs, and 2 relay outputs per node for advanced control, alarms, or pass through (transparent mode).
- Industrial-grade design with 1400Vrms isolation, IP20-rated DIN rail mount casing, and FCC/CE approval for dependable performance.
- Optional repeaters allow for line of sight around obstacles and boost transmission distance.
- Eliminates expensive cabling, reduces installation time, and supports both transmission and control in one system.
- 5-year warranty

5 YEAR WARRANTY CE

Define Instruments Twin Link Series Wireless Selection

Part No.	Description	Manufacturer Specifications	Manufacturer Manual	Weight (lb)	Drawing Link	Price
DEFINE-TWIN-LINK	Define Instruments Twin Link series wireless signal transmitter/receiver, isolated, Input: 2-channel, current/ bipolar voltage/frequency/potentiometer/thermocouple/ RTD, deg F or deg C, Output: 2-channel, loop powered current, ZigBee: 2.4 GHz, 9-36 VDC operating voltage.	PDF	PDF	0.92	PDF	$06noc:
DEFINE-REPEATER	Define Instruments Twin Link series wireless signal repeater, ZigBee: 2.4 GHz, 9-36 VDC operating voltage, 35mm DIN rail mount, screw terminals.	PDF	PDF	0.38	PDF	$06nod:

For complete technical information and installation see Manufacturer Tech Specs and Manufacturer Manual links.

Define Instruments Twin Link Series Wireless Accessory

Part No.	Description	Manufacturer Manual	Weight (lb)	Price
DEFINE-BRIDGE-KEY	Define Instruments fob USB adapter, for use with Define Instruments DEFINE-TWIN-LINK and DEFINE-REPEATER. (1) 2.3ft interface cable and (1) 3.2ft/1m USB extension cable included. Requires DEFINE-TOOLBOX-SW configuration software.	PDF	0.208	$6noe:

For additional information see Manufacturer Manual link.

Define INSTRUMENTS Windows Configuration Software

DEFINE-TOOLBOX-SW

Easily connect, configure, simulate, and monitor.

FREE Download

Easily configure and optimize your Define Instruments Twin Link Point-to-Point Wireless I/O system with the intuitive ToolBox software. Designed for simplicity and power, ToolBox enables rapid setup of the Twin Link's universal analog inputs, 4-20mA outputs, and digital I/O, all in under 60 seconds via USB Bridge Key. Select from pre-calibrated input ranges, scale outputs with ease, and program sophisticated setpoint functions for alarms, remote control, temperature control, or pump operations. Simulation Mode enables configuration testing without hardware, making it ideal for troubleshooting or pre-deployment planning. The Import/Export feature simplifies backups and cloning, while Configuration Certificates provide professional PDF summaries for easy sharing and record keeping. Whether you're a novice or expert, ToolBox delivers flexible, click-and-select options to streamline your wireless signal transmission, ensuring reliable and consistent setup. Download ToolBox from AutomationDirect.com.