

FC Series Signal Conditioners

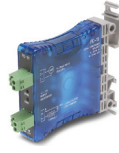


FC-33

DC Selectable Signal Conditioner with 3-way isolation

Field configurable input and output ranges of 0-5V, 0-10 V, 0-20 mA and 4-20 mA with 1500 VDC isolation between input and output, and 1500 VDC isolation from 24 volt power and input/output. LED indicates normal operation and is used in conjunction with the calibration pushbutton for the internal calibration process.

- 3-way 1500 V isolation
- Push button calibration



FC-11

4-20 mA Isolated Signal Conditioner

Loop powered 4-20 mA input/output signal with 1500 VDC isolation between input and output.

- 1500 V isolation
- Loop powered



FC-T1

Thermocouple/mV Isolated Signal Conditioner

Field configurable input for type J, K, E, T, R, S, B, N and C thermocouples or ± 156.25 mV inputs with 1500 VDC isolation between input and the 4-20 mA output. Cold junction compensation and burnout detection. Alarm/run LED.

- 1500 V isolation
- Cold junction compensation (CJC)
- Internal diagnostics (burnout detection or calibration errors)



FC-R1

RTD Input Signal Conditioner

Loop powered, non-isolated, 3-wire unit converts an RTD input to a linear 4-20 mA signal. User selectable CU10, PT100 or PT1000 input.



FC-P3

Potentiometer Input, Analog Output Signal Conditioner

Field configurable input and output, input ranges of 3-wire potentiometer 0 to 100 ohms through 0 to 100 kilohms, and output ranges of 0-5V, 0-10 V, 0-20 mA or 4-20 mA. Field calibrated to 10% of potentiometer full range.



FC-35B

Unipolar Voltage or Current to Bipolar Voltage Signal Conditioner

Field configurable input and output, unipolar input ranges of 0-5V, 0-10 V, 0-20 mA or 4-20 mA, and bipolar output ranges of ± 100 mV, ± 50 mV, ± 5 V, ± 10 V, ± 15 V. Field calibrated with offset and span adjustments.



FC-B34

Bipolar Voltage to Unipolar Voltage or Current Signal Conditioner

Field configurable input and output, bipolar input ranges of ± 100 mV, ± 50 mV, ± 5 V, ± 10 V, ± 15 V, and unipolar output ranges of 0-5V, 0-10 V, 0-20 mA or 4-20 mA. Field calibrated with offset and span adjustments.



FC-ISO-C

Encoder Signal Conditioner and Optical Isolator - Open Collector Output

Ideal for use with single-ended (open collector, NPN, pull-up, push-pull, totem pole) or differential line driver encoders. Three complementary inputs (A, B, Z, A-not, B-not, Z-not) are rated for 4.5-7.5 and 12-26 VDC and frequency response up to 1 MHz.



FC-ISO-D

Encoder Signal Conditioner and Optical Isolator - Differential Line Driver Output

Ideal for use with single-ended (open collector, NPN, pull-up, push-pull, totem pole) or differential line driver encoders. Three complementary inputs (A, B, Z, A-not, B-not, Z-not) are rated for 4.5-7.5 and 12-26 VDC and frequency response up to 1 MHz.

Optical isolation separates the input signals from three differential line driver outputs (A, B, Z, A-not, B-not, Z-not) rated for 5VDC.

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

\$129.00



Overview

The FC-35B is a 35 mm 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 an inversion (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.

Specifications	
Input Specifications	
Input Ranges	0-5V, 0-10 V, 0-20 mA, 4-20 mA (DIP Switch Selectable/Invertable)
Input Impedance	410 kilohm voltage input, 250 ohm current input
Protection Type, Component	Polarity Protection Diode
External DC Power Required	24 VDC \pm 10%, 40 mA, 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	\pm 50 mV, \pm 100 mV, \pm 5V, \pm 10 V, \pm 15 V
Load Impedance	2 kilohm Minimum
Sample Duration Time	10 ms
Maximum Inaccuracy	0.1% FSO @ 25°C (1.0% 50 mV / 100 mV)
Accuracy vs. Temperature	\pm 60 PPM of Full Scale / °C Maximum
Output Current	\pm 50 mV/ \pm 100 mV @ 2.5mA max, \pm 5V, \pm 10 V, \pm 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 @ 1 μ s pulse IEC 61000-4-4 (FTB) RFI, (145 MHz, 440 MHz 5W @ 15 cm) IEC 61000-4-3 (RFI)
Weight	0.3lbs
Isolation	1800 VDC Power to Input 1800 VDC Power to Output 1800 VDC Input to Output applied for 1 second (100% tested)
Agency Approvals	UL508*, File Number: E157382, CE

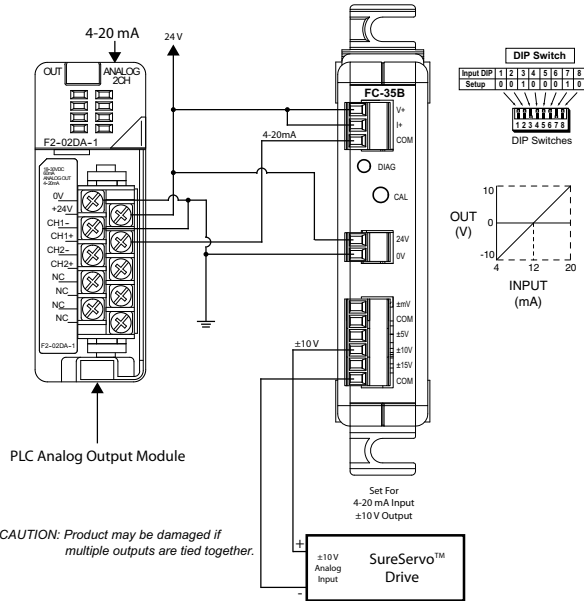
* In order to comply with UL508, the supplied power must be less than 26 VDC and fused at a maximum of 3 amps.



FC-35B Applications and Dimensions

Application Example 1

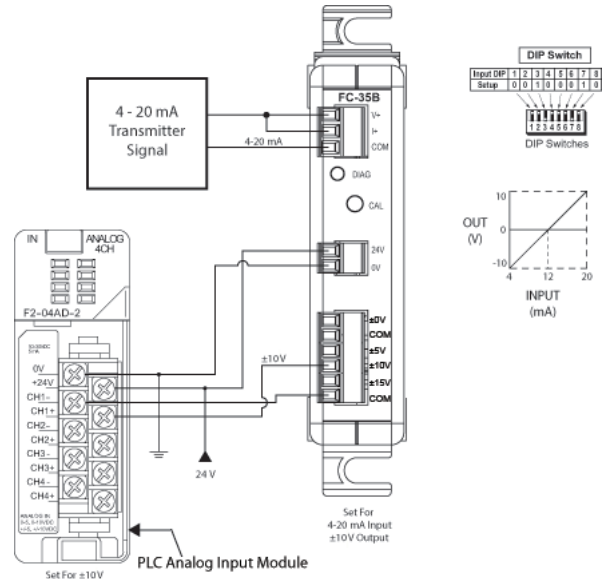
Use the FC-35B to convert a unipolar output from a PLC analog card to a bipolar ± 10 VDC signal to control a SureServo's External Velocity Command.



*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 ± 10 VDC 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

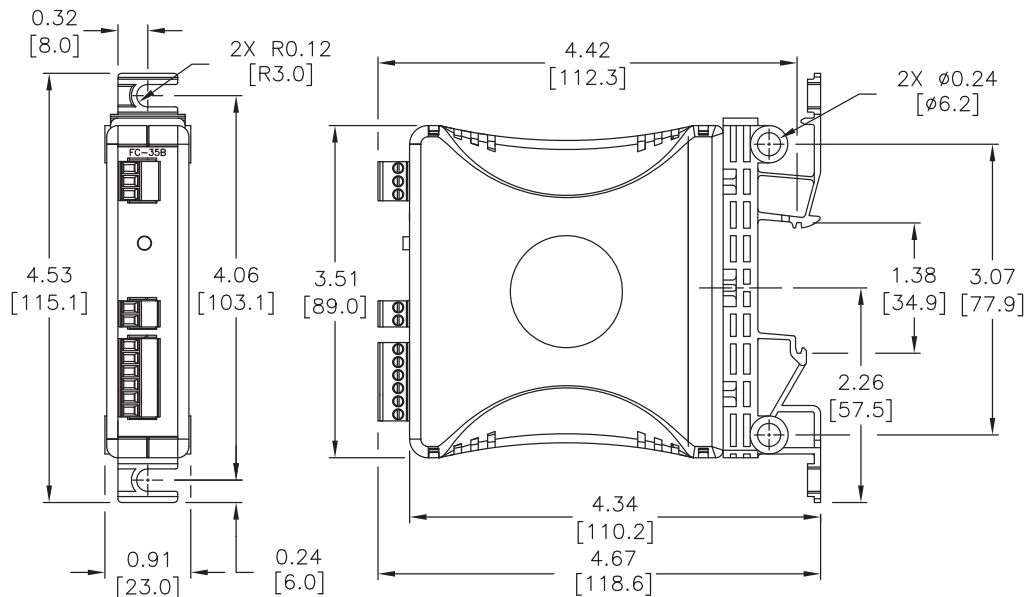
Output Terminal Block	
Faceplate Label	Description
$\pm mV$	± 50 mV or ± 100 mV Output
COM	COM Connection (used with mV signals)
$\pm 5V$	$\pm 5V$ Output
$\pm 10V$	$\pm 10V$ Output
$\pm 15V$	$\pm 15V$ Output
COM	COM Connection (used with non-mV signals)

External Power Terminal Block	
Faceplate Label	Description
24 V	24 VDC $\pm 10\%$ (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]



Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Encoders

Sensors: Limit Switches

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow Switches

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions

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

\$129.00



Overview

The FC-B34 is a 35 mm 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 an inversion (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.

Specifications	
Input Specifications	
Input Ranges	±15 V, ±10 V, ±5V, ±100 mV, ±50 mV (DIP Switch Selectable)
Input Impedance	2 M ohm
Protection Type, Component	Polarity Protection Diode
External DC Power Required	24 VDC ±10%, 50 mA, 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	2 kilohm Minimum, Voltage Output 550 ohm Maximum, Current Output
Sample Duration Time	10 ms
Maximum Inaccuracy	0.1% FSO (±15 V, ±10 V, ±5V Inputs), 1.5% FSO (±100 mV, ±50 mV Inputs) @ 25°C
Accuracy vs. Temperature	+/-60 PPM of Full Scale/ °C Maximum
Output Current	21 mA max for mA-Out mode/ 10 mA 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	>10 M Ω @ 500 VDC
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	1800 VDC Power to Input 1800 VDC Power to Output 1800 VDC 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 26 VDC and fused at a maximum of 3 amps.

