

# SEM1750 DUAL CHANNEL CONDITIONER FOR PROCESS INPUTS

- **TWO mA OR VOLTAGE PROCESS SIGNAL INPUTS**

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- **TWO ISOLATED mA OR VOLTAGE OUTPUTS**

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- **ISOLATED UNIVERSAL AC/DC POWER SUPPLY**

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- **MATHS AND PROFILING TOOLS IN SOFTWARE**

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- **DIRECT USB CONFIGURATION**

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- **LOOP POWER SUPPLY FOR I/Ps AND O/Ps**

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- **INTRODUCTION**

SEM1750 is a dual channel signal conditioner designed to accept mA or voltage inputs and provide isolated, industrial process output signals in mA or Volts. Each output channel may be linked to either an input signal or to a maths function of both input signals. This powerful feature allows the device to operate in several different modes.

The output signal can also be adjusted over the full working ranges (0 to 20) mA or (0 to 10) V, to provide common or custom process signals, examples (4 to 20) mA, (0 to 1) mA, (1 to 5) V.

The SEM1750 is configured using the free software that allows the user to configure the device without requiring calibration equipment. Maths functions on each channel can be set up using the software as well as a 22-segment profile tool. Input/output simulation tools for diagnostic purposes are also available.

## ➤ **FEATURE HIGHLIGHTS**

### **FLEXIBLE**

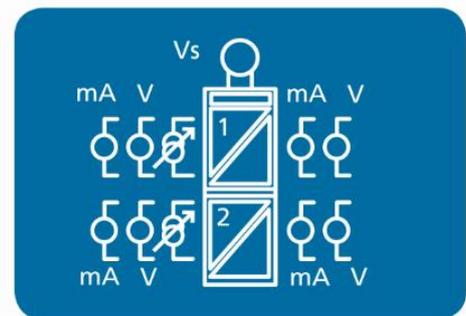
The SEM1750 has a wide range of process input options (-50 to 50) mA, (-50 to 50) V. With comparison functions between channels, paired with the configuration functionality it has to offer, it is a flexible and versatile tool for many varied process applications. Live readings can be displayed to a PC via the configuration software.

### **UNIVERSAL SUPPLY**

Supply: From 20 VDC to 240 VAC and everything in-between, the auto-detecting power supply is simple but effective, giving the SEM1750 the capability to be powered from a variety of supplies.

### **DIRECT USB CONFIGURATIONS**

The SEM1750 has a USB port on the front panel for direct programming of its configuration using the free Windows software. The configuration functionality it has to offer makes it a hugely flexible and versatile tool for many varied applications. Live readings can be displayed to a PC via the configuration software.



# SEM1750 DUAL CHANNEL CONDITIONER FOR PROCESS INPUTS

<b>V INPUT (Channels 1 &amp; 2)</b>			<b>SPECIFICATIONS @20°C</b>
Type	Range	Stability	Accuracy/Notes
± 50 V DC	(-50 to 50) V	0.02 % FSR*1/°C	± 10 mV*2
	(-22 to 22) V		± 5 mV*2
Impedance			1 MΩ
User selectable range			Any within FSR
*1 FSR = Full Scale Range			
*2 At 420 ms update rate			

<b>mA INPUT (Channels 1 &amp; 2)</b>			<b>SPECIFICATIONS @20°C</b>
Type	Range	Stability	Accuracy/Notes
± 50 mA DC	(-50 to 50) mA	0.02 % FSR*1/°C	± 10 mV*2
	(-22 to 22) mA		± 5 mV*2
Impedance			10 Ω
Transmitter supply	Source (internal supply)		22 VDC @ 25 mA
Transmitter supply	Sink (external supply)		SELV
User selectable range			Any within FSR
*1 FSR = Full Scale Range			
*2 At 420 ms update rate			

<b>OUTPUT ANALOGUE mA CURRENT (Channels 1 &amp; 2)</b>			<b>SPECIFICATIONS @20°C</b>
Type/Function	Range/Description	Accuracy/Notes	
Two wire current Sink or source	(0 to 20) mA (4 to 20) mA User mA, any within full range	(mA output /2000) or 5 uA (Whichever is the greater)	
Calibration Accuracy		± 5 uA	
Supply in sink mode	(11 to 30) V DC, 24 V nominal	SELV	
Maximum load current source	(0 to 20) mA	Maximum load 550 Ω	
Maximum load current sink	Supply voltage @24 Vdc	Maximum load 650 Ω	
Response time	< 500 ms to reach 95 % of final value; Start-up time < 3 s		
Loop voltage effect		Loop ripple 0.03 % of FSR;	
Supply sensitivity	Supply ripple rejection < ± 5 uA error @ 1 V rms 50 Hz ripple		
Protection	Reverse connection and over-voltage protection. Maximum over-voltage current 100 mA		
Current Output Damping	Programmable rise and fall (0 to 250) seconds, for a (0 to 20) mA swing.		
Thermal stability	Zero at 20 °C	± 2 uA/°C typically	
The mA output range can be set to anywhere within the maximum capability			

<b>OUTPUT ANALOGUE VOLTAGE (Channels 1 &amp; 2)</b>			<b>SPECIFICATIONS @20°C</b>
Type/Function	Range/Description	Accuracy/Stability/Notes	
Two wire voltage	(0 to 10) VDC User V, any within full range	± 5 mV	
Calibration Accuracy		± 5 mV	
Maximum output		10.1 VDC	
Min Load	10 KΩ User Configurable correction for Load		
Response time	< 500 ms to reach 95 % of final value; Start-up time < 3 s		
Current drive		± 2 mA, minimum load 5 KΩ @ 10 VDC	
Thermal stability	Zero at 20 °C	± 1 mV/°C	
Voltage generated across 500 Ω resistor			
The voltage output range can be set to anywhere within the maximum capability			

# SEM1750 DUAL CHANNEL CONDITIONER FOR PROCESS INPUTS

USB CONFIGURATION USER INTERFACE		
Type/Options/Function	Description	Notes
Configuration hardware	USB mini B	Cable not included
Configuration software	USBSpeedLink	Download <a href="http://www.status.co.uk">www.status.co.uk</a>
Operating system	Microsoft Windows	Windows 7 or later

USB CONFIGURATION USER INTERFACE (Channels 1 & 2)		
Type/Options/Function	Description	Notes
Configuration: basic or advanced	Select mode on connection to instrument	Some options only available in advanced mode
Input Type Scale	High, low	Voltage or milli Amps Any within range
Output configuration Type Scale Fixed output Error signal Load correction Output damping mA, V	Output signal High, low For diagnostics Up, down, user For voltage output Rise/fall for full range	mA, V mA, V any value within output range mA, V any value within output range User = any value within output range In ohms (0 to 250) s
Maths functions	Derived from CH1, CH2	A+B, A-B (signed or unsigned), average, multiply, divide, highest, lowest, square.
Profile tool (interpolation) Output source selection	CH1, CH2 CH1, CH2	Up to 22 segments X, Y data Comparison options
Live data	Input Signal Output signal Record live data Store configuration to PC	Value mA, V value Save data to CSV file Save data to file
Other device options	Tag number	20 Characters

GENERAL	
Function	Description
Power supply	(20 to 240) V DC SELV, (20 to 240) V AC 50/60 Hz
Power	3 W max
Protection	Internal fuse, over-voltage, external protection recommended
Galvanic Isolation Supply to I/P and O/P ports	4000 VDC test, 253 VAC working
Galvanic Isolation I/P to O/P ports	3750 VDC test, 250 VAC working
Sample rate	420 ms (18 Bits full range) 140 ms (16 Bits full range) 70 ms (14 Bits full range)
Start-up time	4 s
Indication (State LED)	Green = OK Red = input/output/configuration error indication
Note	USB terminal shares the same GND as CH1 output

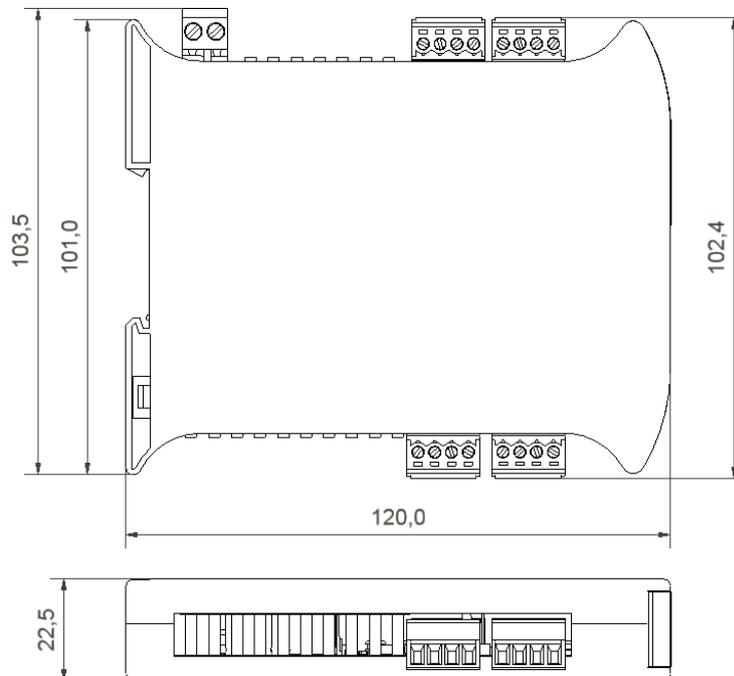
MECHANICAL	
Function	Description
Dimensions	120 mm (from back of rail) x 22.5 mm wide x 106 mm high
Enclosure colour	Grey
Material	Blend PC/ABS self-extinguishing
Connections	Two-part screw connectors for power, inputs, outputs
Weight	145 g approximate
Rail mount	DIN 60715

# SEM1750 DUAL CHANNEL CONDITIONER FOR PROCESS INPUTS

ENVIRONMENTAL	
Function	Description
Ambient temperature	Operating/Storage (-30 to 70) °C
Ambient humidity	Operating/Storage (10 to 90) %RH non-condensing
Protection requirement	Device must be installed in an enclosure offering >IP65 Protection
USB configuration ambient	(10 to 30) °C

APPROVALS	
EMC	BS EN 61326: Note - Sensor input wires to be less than 30 m to comply
Electrical Safety	BS EN 61010-1
Ingress Protection	BS EN 60529
RoHS	Directive 2011/65/EU

## MECHANICAL



<b>ORDER CODE</b>	<b>SEM1750</b>
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ACCESSORIES	
USB configuration software	USBSpeedLink free of charge from <a href="http://www.status.co.uk">www.status.co.uk</a>
Loop powered display	Refer to <a href="http://www.status.co.uk">www.status.co.uk</a>
48-200-0001-01	Standard USB A to USB mini B cable for configuration

To maintain full accuracy, annual calibration is required. Contact [support@status.co.uk](mailto:support@status.co.uk) for details  
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