SEM1630 UNIVERSAL DIN RAIL TRIP AMPLIFIER

> **ISOLATED Pt100, THERMOCOUPLE, mV, mA INPUT**

> **DUAL RELAY OUTPUTS 250 VAC 1 A**

> **ISOLATED RELAYS**

> **PC CONFIGURATION USING USB PORT**

> **LIVE DATA CAN BE VIEWED ON AN ANDROID PHONE OR TABLET**

> **INTRODUCTION**

The SEM1630 is a DIN rail mounted trip amplifier. It has been designed to accept most common process and temperature sensor inputs and provide the user with a dual relay output. Isolation is provided on all three ports. All temperature ranges are linear to temperature.
Designed for ease of use, our latest USB interface is fitted for quick and easy configuration. Just connect a standard USB cable between the SEM1630 and your PC. Using our free configuration software, your PC will automatically upload the existing configuration data and guide you through any changes you wish to make.
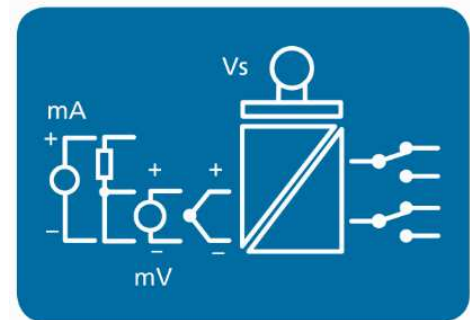
> **FEATURE HIGHLIGHTS**

TEMPERATURE SENSOR BURN-OUT DETECTION If a temperature sensor wire is broken or becomes disconnected, the SEM1630 relays will automatically trip and the LED illuminate.

STABILITY The SEM1630 DIN rail trip amplifier incorporates the latest digital technology to ensure accurate, low-drift performance.

FRONT PANEL LED INDICATION The state LED indicates out of range input during normal operation. LEDs are provided for each relay and will illuminate in alarm condition. "On" if the relay is in an alarm condition.

USB CONFIGURATION The SEM1630 is quick and easy to set up using a standard type USB lead and the free-of-charge configuration software.

USB PC CONFIGURATION The SEM1630 is quick and easy to configure using a standard-type USB lead and the free-of-charge USBSpeedLink Windows software.

USB ANDROID VIEW The SEM1630 can be connected to an android phone or tablet using an OTG USB adaptor. Running a free App, the Android device can then be used to view live data from the SEM1630

INPUT Pt100	SPECIFICATIONS @20°C

SEM1630 UNIVERSAL DIN RAIL TRIP AMPLIFIER

Type/Function	Range/Description	Accuracy/Stability
Pt100 3 wire	(-200 to 850) °C	±0.2 °C ±0.05% of reading *1
Thermal drift	Zero at 20 °C	±0.01% of full-scale range/°C
Minimum span		25 °C *2
Linearisation		BS EN 60751(IEC 751)
Excitation current		Less than 450 uA
Lead resistance effect		0.015 °C/Ω
Maximum lead resistance		20 Ohms per leg
*1 Basic measurement accuracy includes the effects of calibration, linearisation and repeatability		
*2 Any span may be selected; full accuracy is only guaranteed for spans greater than the minimum recommended		

INPUT THERMOCOUPLE			SPECIFICATIONS@20°C
Type	**Range**	**Stability**	**Accuracy/Notes**
K	(-200 to 1370) °C	Zero at 20 °C ±0.01% of FSR/°C	±0.1% of FSR ±0.5 °C
J	(-100 to 1200) °C		
E	(-100 to 1000) °C		
N	(-180 to 1300) °C		
T	(-100 to 400) °C		±0.2% FSR ±0.5 °C
R	(-10 to 1760) °C		±0.1% of FSR ±0.5 °C *1
S	(-10 to 1760) °C		±0.1% of FSR ±0.5 °C *1
Cold Junction error	(-20 to 70) °C	Zero at 20°C ±0.05 °C/°C	±0.5 °C
Impedance			1 MΩ *2
*1 Only over the range (800 to 1600) °C			
*2 Not including 0.2 uA open circuit detect bias current effect			

INPUT mA and mV		SPECIFICATIONS @20°C
Type/Function	**Range/Description**	**Accuracy/Stability**
mV	(-20 to 75) mV	± 0.04 mV
mV Thermal drift	Zero at 20 °C	± 0.01 % of FSR/°C
mV Impedance		1 MΩ *1
mA Active current	(-10 to 25) mA, (4 to 20) mA capability Externally powered current	± 0.008 mA
mA Thermal drift		± 0.01% of FSR /°C
mA Impedance	Maximum current over load ± 100 mA	2.7 Ω
FSR = Full Scale Range		
*1 Not including 0.2 uA open circuit detect bias current effect		

OUTPUT @20°C Dual relays		SPECIFICATIONS
Type/Function	**Range/Description**	**Accuracy/Stability/Notes**
Independent relays	Relay 1, relay 2	Form C contacts
Contact rating	(250 V ac rms @ 1A ; 30 V dc @ 1 A)	Resistive Load

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USB USER INTERFACE

Type/Function	Range/Description	Notes
Configuration hardware	USB Lead	A to mini B
Configuration software	USBSpeedLink	Download www.status.co.uk
Sensor configuration	Input type, from list Temperature unit	RTD, T/C, mA, mV °C or °F
Relay configuration Relay (1,2) independently set	Alarm action Setpoint Dead band	High, low °C/°F, mA, mV °C/°F, mA, mV
Read live data	Temperature/process Output	°C/°F, mA, mV Relay (1,2) condition
Save/Open configuration		From file
Default configuration	Pt100, Relay (1,2) Action high, setpoint 100 °C, dead band 0.1 °C	

ANDROID USER INTERFACE

Type/Function	Range/Description	Accuracy/Stability/Notes
Hardware	USB Lead	OTG plus A to Mini B
Software	USBVeiwLink	Download from Google play store
Read live data	Input signal Output value	°C, °F, mA, mV Relay state

GENERAL

| Function	Description	
Galvanic Isolation	3750 VAC input to relays; relay to relay	
Supply voltage	24 VDC ±5%, SELV	
Supply current	40 mA maximum	
Response time	< 500 ms to reach 95 % of final value	
Start-up time	Start-up time < 3 s	
Protection	Reverse connection and over-voltage protection. Max over-voltage current 100 mA	
Loss of input signal	Pt100 and thermocouple mV (open circuit) mA (open circuit)	Relays will trip Relays will trip No detection
LED (State)	Off = OK On (Red) = Input/output error plus trim function: refer to manual.	
Relay LED (1,2)	Off = Not in alarm/trip condition On (Red) = In alarm/trip condition	

ENVIRONMENTAL

Function	Description
Ambient temperature	Operating/Storage (-20 to 70) °C
Ambient Humidity	Operating/Storage (10 to 95) %RH non-condensing
Protection requirement	>= IP65 recommended
USB configuration ambient	(10 to 30) °C

MECHANICAL

Function	Description
Dimensions	17.5 mm width, 56.4 mm depth from rail, 90 mm height
Enclosure	DIN rail mount
Material	Polymide 6.6 self-extinguishing: Grey
Connections	Screw terminals 2.5 mm wire maximum
Weight	60 g approximate

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APPROVALS	
EMC	BS EN 61326: Note: Sensor input wires to be less than 30 m to comply
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU
LVD	BS EN 61010

MECHANICAL
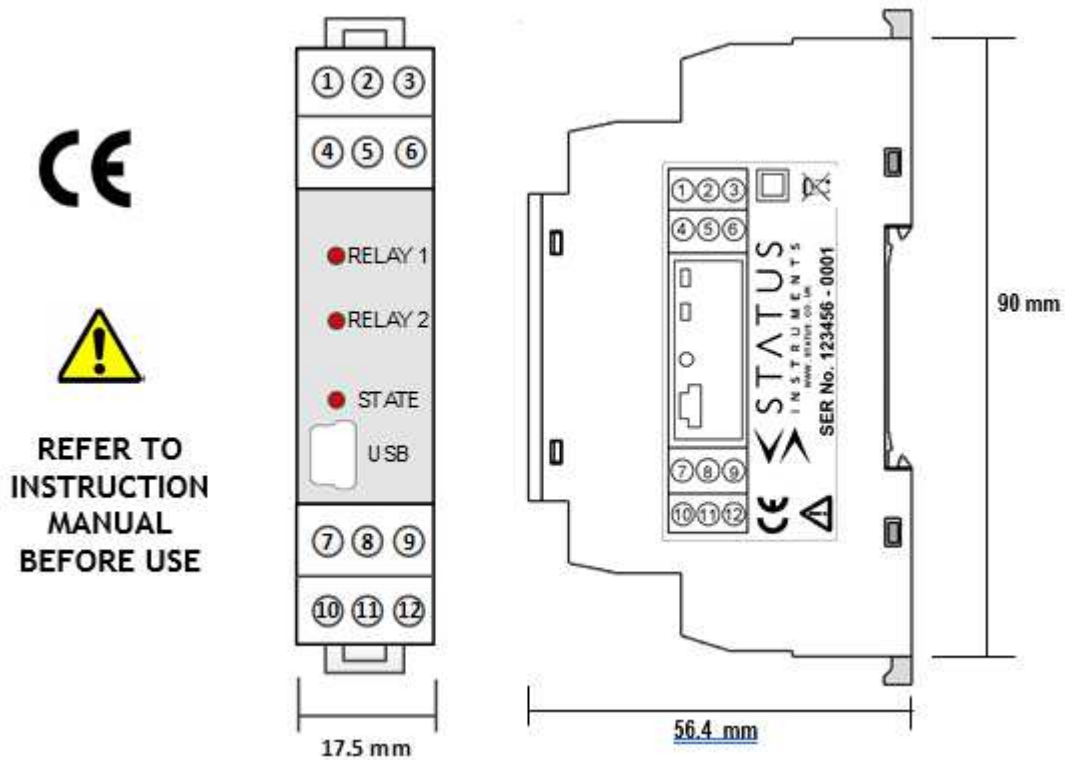
ORDER CODE	**SEM1630**

ACCESSORIES	
Configuration software	USBSpeedLink (free of charge from www.status.co.uk)
Android live data view	USBViewLink (free of charge from Google play store)
USB Leads	Contact sales@status.co.uk
Temperature probe options	Please refer to www.status.co.uk

To maintain full accuracy annual calibration is required contact support@status.co.uk for details.
The data in this document is subject to change. Status Instruments assumes no responsibility for errors.