SEM1605TC THERMOCOUPLE DIN RAIL TRANSMITTER

> **THERMOCOUPLE TYPES K J E N T R S L U B C G**

> **(4 to 20) mA TWO WIRE OUTPUT**

> **USER OUTPUT TRIM (ZERO and SPAN)**

> **SIMPLE CONFIGURATION VIA USB PORT**

> **FREE CONFIGURATION SOFTWARE**

> **INTRODUCTION**

The SEM1605TC is a DIN rail mounted temperature transmitter from Status Instruments. It has been designed to accept most common thermocouple sensor inputs and provide the user with a standard two wire (4 to 20) mA output signal. Galvanic isolation is provided between input and output and 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 SEM1605TC and your PC. Our free configuration software will guide you through any changes you wish to make. To further help save time, the SEM1605TC does not need to be wired to a power supply during the configuration process, it is powered via the USB interface from your PC.

> **FEATURE HIGHLIGHTS**

ACTIVE RANGE
The SEM1605TC is provided with a user push button ranging option, allowing adjustments at both 4 mA and 20 mA for a live value.
The 'user adjust' function can be locked during configuration if not required. The state LED indicates out of range input during normal operation, during 'user adjust' it is also used to indicate the stage of adjustment.

(4 and 20) mA TRIM
The buttons can also be used for 4 mA and 20 mA current trim adjustment to add small offsets to (4 or 20) mA output.

SENSOR REFERENCING
The SEM1605TC sensor referencing via the Windows based USBSpeedlink software allows for close matching to a known reference sensor, eliminating possible sensor errors.

SENSOR BURN OUT DETECTION
If a sensor wire is broken or becomes disconnected, the SEM1605TC output will automatically go to its user defined level (upscale or downscale) or a pre-set value.

STABILITY
The SEM1605TC DIN rail transmitter incorporates the latest digital technology to ensure accurate low drift performance.
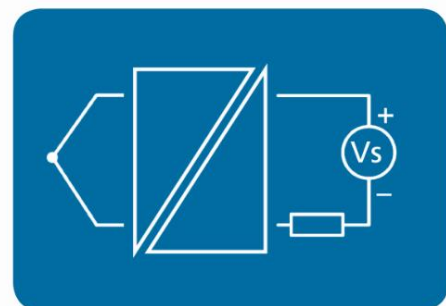
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TC SENSOR INPUT		SPECIFICATIONS @20˚C
Type/ Function	**Range/ Description**	**Accuracy/ Stability/ Notes**
K	(-200 to 1370) ˚C	± 0.1% of full input range ± CJ error *1
J	(-100 to 1200) ˚C	
E	(-200 to 1000) ˚C	
N	(-180 to 1300) ˚C	
T	(-200 to 400) ˚C	± 0.2% of full input range ± CJ error *1
R	(-10 to 1760) ˚C	± 0.1% of full input range ± CJ error *1 over the range (800 to 1600) ˚C
S	(-10 to 1760) ˚C	± 0.1% of full input range ± CJ error *1 over the range (800 to 1600) ˚C
mV	(-10 to 70) mV	± 0.02 % of full input range
Thermal drift	(-20 to 50)˚C	(± 0.15 ˚C/ ˚C at zero) + (± 0.1 ˚C/ ˚C at span)
	(50 to 70) ˚C	Typically as above
Any span may be selected; full accuracy is only guaranteed for spans greater 25˚C		
Basic measurement accuracy includes the effects of calibration, linearization and repeatability		
*1 plus any sensor error		

COLD JUNCTION (CJ)		SPECIFICATIONS @20˚C
Type	**Range ˚C**	**Accuracy/ Stability**
Thermistor bead	(-40 to 85)˚C	± 0.5 ˚C
Thermal drift	Zero at 20 ˚C	± 0.05 ˚C/ ˚C

OUTPUT		SPECIFICATIONS @20˚C
Type/ Function	**Range/ Description**	**Accuracy/ Stability/ Notes**
Two wire current	(4 to 20) mA	(mA output/2000) or 5 uA (Whichever is the greater)
Thermal drift	Zero at 20˚C	2 uA /˚C
Maximum output current	21.5 mA	In high burnout condition
Minimum output current	< 3.9 mA	In low burnout condition
Loop voltage effect		0.2 uA / V
Maximum output load	[(V supply – 10)/20] KΩ	700 Ω @ 24 V DC
Loop supply	(10 to 30) V DC	SELV
Power		< 1 W full power
Thermal stability		± 2 uA/ ˚C

◀ STATUS
INSTRUMENTS

SEM1605TC THERMOCOUPLE DIN RAIL TRANSMITTER

USB USER INTERFACE

Type/ Function	Range/ Description	Notes
Configuration hardware		USB A to mini B lead
Configuration software	USBSpeedLink	Download www.status.co.uk
Sensor configuration	Sensor type	Thermocouple list
	Temperature range for (4 to 20) mA retransmission	˚C or ˚F Active or manual range
	Sensor offset	±10 ˚C or ±18˚F
	Burnout current	Upscale, downscale or user set
Pre-set temperature (diagnostics)	Any within sensor range	˚C or ˚F
Pre-set output current (diagnostics)	Any within output range	mA
Tag		20 characters
Button function	Active range	On, off
Read live data	Temperature Output	˚C or ˚F mA
Save/ open configuration	To/ from PC file	

USER PUSH BUTTON INTERFACE

Function	Description
Active range	Range 4 mA and 20 mA points against live input

GENERAL

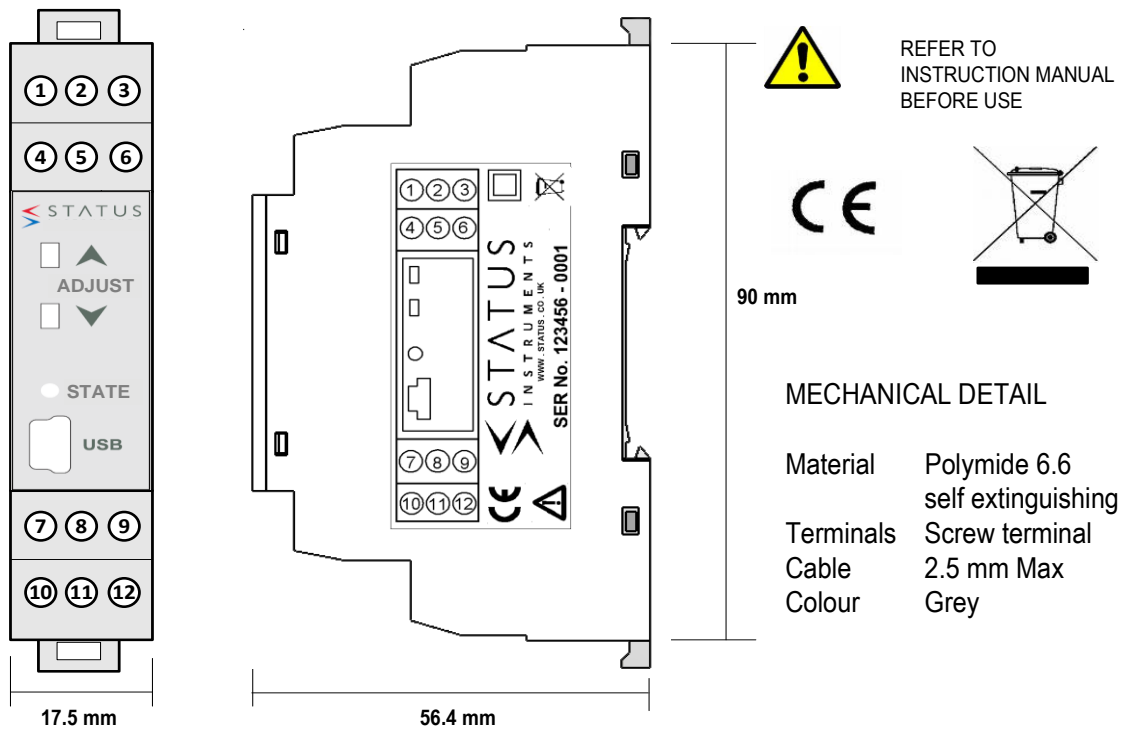| Function	Description
Update time	500 ms
Response time	1 s
Start-up time	8 s
Warm up time	120 s to full accuracy
Default configuration	Type K (0 to 1000) ˚C, upscale burnout, 0 ˚C offset, active range buttons
LED (red)	If mA output < -0.1% or > 100.1 % LED ON
Protection	Reverse connection

ENVIRONMENTAL

Function	Description
Ambient temperature	Operating (-30 to 70) ˚C Storage (-40 to 85) ˚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

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

STATUS INSTRUMENTS

SEM1605TC THERMOCOUPLE DIN RAIL TRANSMITTER

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

> MECHANICAL

REFER TO
INSTRUCTION MANUAL
BEFORE USE

CE

90 mm

17.5 mm

56.4 mm

MECHANICAL DETAIL

Material	Polymide 6.6 self extinguishing
Terminals	Screw terminal
Cable	2.5 mm Max
Colour	Grey

ORDER CODE	SEM1615P

ACCESSORIES	
USB configuration software	USBSpeedLink free of charge from www.statinst.com
Probe options	Refer to www.statinst.com

To maintain full accuracy annual calibration is required contact sales@statinst.com for details
The data in this document is subject to change. Status Instruments assumes no responsibility for errors

< STATUS
INSTRUMENTS