

ISOLATING THERMOCOUPLE TRANSMITTER

SEM1500/TC

- > 10 YEAR WARRANTY
- > J, K, N, R, S, T, THERMOCOUPLE
- > GALVANICALLY ISOLATED
- > SMALL SIZE / HIGH PACKING DENSITY
- > (4 TO 20) mA OUTPUT
- > HIGH PERFORMANCE



INTRODUCTION

The SEM1500/TC is a universal thermocouple input DIN rail mounted transmitter designed to accept most common thermocouple types and to isolate and convert them to the industry standard (4 to 20) mA transmission signal. Automatic cold junction compensation is provided. The unit can also accept millivolt inputs between -5 and +50 millivolts from, for example, strain gauges.

The small size of the unit (only 12.5 mm wide) enables many more units to be fitted in a smaller space than was previously possible. The output signal is galvanically isolated from the thermocouple by 500 VDC to remove the effects of earth loops or earth leakage.

SPECIFICATIONS @ 20 °C

INPUT	
T/C type	J, K, N, R, S, T
Millivolt	(-5 to 50) mV signals
Isolation	INPUT to OUTPUT 500 VDC (Flash tested to 1 KV)
Burn Out	UP scale standard (DOWN scale to order)
Impedance	> 1 MΩ
Cold Junction	Automatic compensation may be selected for use with the TC types indicated or fixed zero compensation may be selected for mV or differential TC measurement.
CJ Accuracy	± 0.2 °C @ 20 °C ± 0.05 °C/°C Typical

OUTPUT	
Type	Passive 2 wire current output
Range	(4 to 20) mA (30 mA maximum)
Linearity	mV input linearity ± 0.005 % T/C ranges are cold junction compensated and directly referenced to TC mV values
Protection	Reverse connection plus over voltage

GENERAL	
Supply	(10 to 30) VDC
Load	700 Ω @ 24 V
Thermal Stability	2 μV/°C plus cold junction errors
Ripple	< 40 μA/V (measured at 1 V ripple 50 Hz)
Response Time	200 ms to reach 70 % of final value
Operating	ambient temperature (0 to 50) °C RH (10 to 95) % Non-condensing

ENCLOSURE	
Case Material	Polyamide (Grey)
Case Flammability	To UL94-VO VDE 0304 Part 3 Level IIIA
Mounting	Top Hat rail to DIN EN 50022-35
Protection	IP20
Connections	Captive screw connections
Cable Size	4 mm ² solid/2.5 mm ² stranded

APPROVALS	
EMC	BS EN61326

STANDARD RANGES

RANGE °C		THERMOCOUPLE TYPE						MILLIVOLT V
FROM	TO	N	K	T	J	R	S	
0	100	•	•	•	•			
0	200	•	•	•	•			
0	400	•	•	•	•			
0	600	•	•		•			
0	800	•	•		•			
0	1000	•	•			•	•	
0	1200	•	•			•	•	
0	1600					•	•	
Range	mV							
0	50 mV							•

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NON STANDARD RANGES

Units can be supplied set up to other non-standard ranges for a small extra charge or alternatively the unit can be re-ranged as follows;

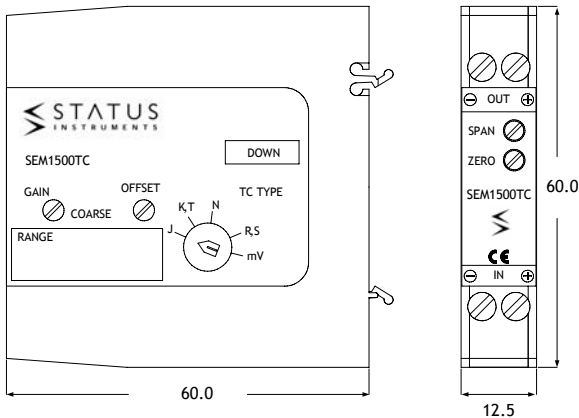
ADJUSTMENTS

Range selection GAIN and OFFSET Coarse settings are made by two 16 position rotary screw adjustment switches on the side of the unit. Fine adjustment is by front access potentiometers. Full re-calibration details are supplied with each transmitter.

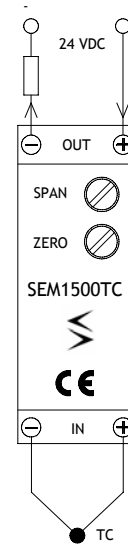
INPUT TYPE	OFFSET RANGE °C	GAIN RANGE °C
	4 mA	(4 to 20) mA
K T/C	-200 to 400	100 to 1200
T T/C	-200 to 300	100 to 400
J T/C	-200 to 400	70 to 750
N T/C	200 to 400	150 to 1200
R T/C	0 to 1000	500 to 1700
S T/C	0 to 1000	500 to 1760
V m/V	(-5 to 15) mV	(3 to 50) mV

MECHANICAL DETAILS

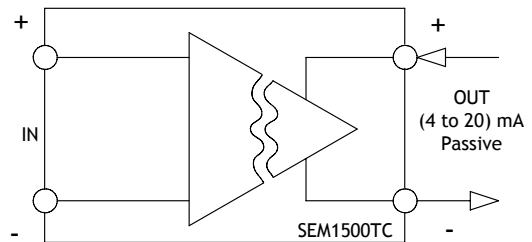
(All dimensions are in mm)



ELECTRICAL CONNECTIONS



BLOCK DIAGRAM



ORDER CODE

SEM1500/Input type / value @ 4 mA / value @ 20 mA

Example: SEM1500/K/0/1000 For "K" type thermocouple range (0 to 1000) °C.

ALSO AVAILABLE:

SEM1000 SERIES Isolators
 SEM1300 Power Supply
 SEM1400 SERIES Trip Amplifiers/Alarms
 SEM1500/P Pt100 Transmitter

CHECK WITH SALES OFFICE FOR FULL DETAILS