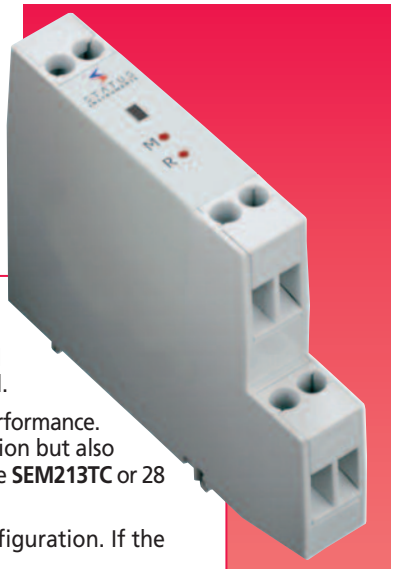
PUSH BUTTON DIN RAIL TEMPERATURE TRANSMITTER

SEM213 Series

- SIMPLE PUSH BUTTON CONFIGURATION
- ADVANCED USER CONFIG FOR ACCESS TO 56 PRE SET RANGES
- 4 to 20 mA TWO WIRE OUTPUT
- PROGRAMMABLE BURNOUT
- USER PUSH BUTTON TRIM



INTRODUCTION

The **SEM213** is a cost effective "smart" DIN Rail transmitter that accepts various temperature sensors and converts sensor output over a configured range to a standard industrial 4 to 20 mA transmission signal.

The **SEM213** DIN Rail transmitter incorporates the latest digital technology to ensure accurate drift free performance. A simple push button operation allows the user to not only select the desired range and burnout direction but also perform user trim at both 4 and 20 mA points. User also has the ability to choose from 28 preset ranges in the **SEM213TC** or 28 preset ranges in the **SEM213P**.

If required the desired range can be specified at the time of order, eliminating the need for user configuration. If the range is not specified then the transmitter will be shipped with the factory default range.

MODEL	INPUT TYPE	DEFAULT RANGE	LOW RANGE	HIGH RANGE	BURNOUT	USER TRIM
SEM213TC	**T/C** K, J, E, N, T, R, S, mV	0°C to 1,000°C Type "K"	Input @ 4 mA	Input @ 20 mA	Up/Scale or Down/Scale (Up/Scale is Standard)	Trim Adjustments @ 4mA & 20mA User Trim Activated When Configuring Unit
SEM213P	Pt100* IEC - 0.003851 Coefficient	0°C to 100°C Pt100 0.003851				
	Pt100 IPTS-68 - 0.00391 & 0.00392 Coefficients					
	Ni100 - DIN 0.00618 Coefficient					
	Ni120 - 0.00672 Coefficient					
	Cu100 - 0.00427 Coefficient					
	Cu53					
	Ω					

** Also available for Pt500 (Model SEM213-500) or Pt1000 (Model SEM213-1000), on these versions no other RTD inputs are available.*

INPUTS

MODEL	INPUT	RANGE	MIN. SPAN	ACCURACY (Note 1)	STABILITY	O/C	CJ* (Note 3)	SENSOR EXCITE
SEM213TC	K	-328°F to 2498°F	20°F	±0.1% of FSR ±0.9°F	Offset 0.18°F/°F Span 0.09°F/°F	Yes	Yes	N/A
	J	-148°F to 2192°F						
	E	-328°F to 1832°F						
	N	-292°F to 2372°F						
	T	-328°F to 752°F		±0.2% FSR ±0.9°F				
	R	14°F to 3200°F		±0.1% of FSR ±0.9°F **(Note 2)**				
	S	14°F to 3200°F						
	mV	-10 to 70mV	0.5mV	±0.02% FSR	Zero 1µV/0.18°F Span 75ppm/0.18°F	N/A	N/A	
SEM213P	Pt100 0.00385	-328°F to 1562°F	45°F	±0.36°F + 0.05% of Rdg	±0.005% of FSR/°F	Yes	N/A	200µA max **(Note 4)**
	Pt100 0.00391 & 0.00392	-328°F to 1166°F						
	Ni100	-76°F to 356°F	20°F					
	Ni120	-112°F to 500°F						
	Cu100							
	Cu53	-58°F to 356°F						
	Ω	10 to 400 Ω	5 Ω	±0.01 % FSR	0.025% of FSR/°F	N/A	N/A	

*** Key: Rdg = Reading: FSR = Full Scale Range; O/C = Programmable Open Circuit Sensor Detect; CJ = Cold Junction Error**

Notes:
1. Accuracy for Pt100 and T/C do not include sensor and cold junction errors.
2. Only over the range 1472°F to 2912°F.
3. Cold junction range: -4°F to 158°F, Accuracy: ±0.9°F, Tracking: ±0.09°F/°F.
4. Excitation current switches from positive to negative, thus we suggest using a decade box to calibrate SEM213P.

GENERAL

Update Time	500 mS
Response Time	1 second
Start Up Time	4 seconds (Output < 4mA during start-up)
Warm-Up Time	1 minute to full accuracy
Power Supply	10 to 30 VDC
Isolation	Input to output tested at 250VDC (T/C version only)
Ambient	Operating -4°F to 158°F, 10 to 90% RH non condensing. Storage -58°F to 194°F
Approvals	CE tested to BS EN 61326:1998 (Sensor input wires to be < 30 meters to comply) IEC 61000-4-2 Electrostatic discharge; IEC 61000-4-3 EM Field; IEC 61000-4-4 Transient Burst (output); & IEC 61000-4-5 Surge (output)

MECHANICAL

Dimensions	2.96" x 0.5" x 2.37"
Weight	45 grams
Terminals	Screw terminals
Cable	2.5 mm maximum

SEM213TC and SEM213P OUTPUT

Type	Two wire current sink; signal range 4 to 20mA; (full range 3.8 to 21.5mA)
Calibration Accuracy	(mA output / 2000) or ±5µA (which ever is greater)
Loop Voltage Effect	±0.2 µA / V
Thermal Drift	±1 µA / °C Typically ±1.5 µA
Maximum Output Load	[(Vsupply-10)/20] K ohms (Example: 700 ohms @ 24V
Protection	Reverse Polarity Protection

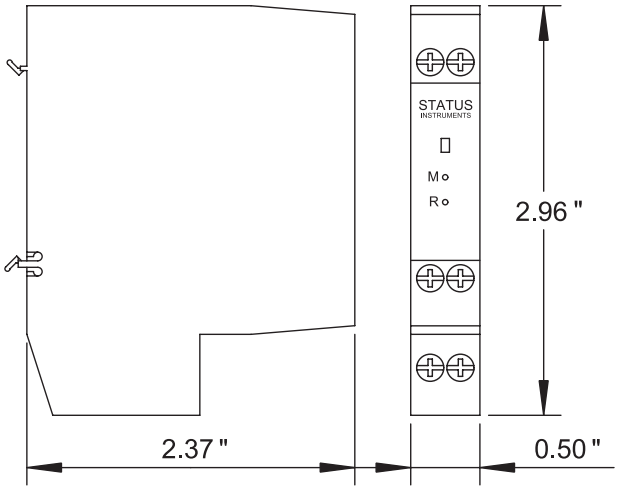
Units settable to any range above the minimum range and within the usable range of the sensor connected, plus the below listed fixed ranges:

Thermocouple Fixed Ranges

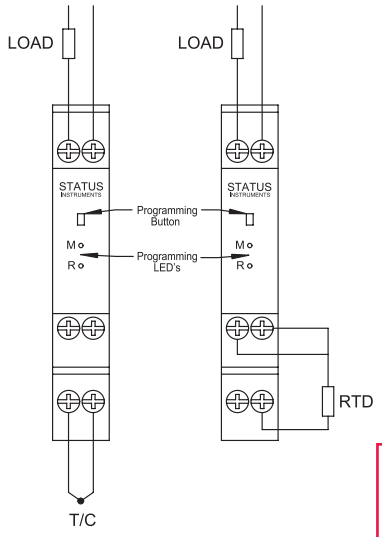
Range	Inputs K, J, E, & N (°C)	Input T (°C)	Input R, & S (°C)	Input mV
1	User	User	User	User
2	0 to 1000	0 to 400	800 to 1760	0 to 70
3	0 to 1200	0 to 250	800 to 1600	0 to 5
4	0 to 600	0 to 200	800 to 1400	0 to 10
5	0 to 500	0 to 150	1000 o 1760	0 to 20
6	0 to 250	0 to 100	1000 to 1600	0 to 25
7	0 to 100	0 to 50	1000 to 1400	0 to 50
8	-100 to 100	-100 to 100	0 to 1600	-10 to 10

RTD Fixed Ranges

Range	Inputs Pt100 (°C)	Input Ni100 Cu53 (°C)	Input Ni120 Cu100 (°C)	Input Ω Ω
1	User	User	User	User
2	0 to 50	0 to 50	0 to 50	0 to 50
3	0 to 100	0 to 100	0 to 100	0 to 100
4	0 to 150	0 to 150	0 to 150	0 to 150
5	0 to 200	0 to 180	0 to 260	0 to 200
6	-20 to 30	-20 to 30	-20 to 30	0 to 250
7	-30 to 70	-30 to 70	-30 to 70	0 to 300
8	-100 to 100	-100 to 100	-100 to 100	0 to 400



PHYSICAL DIMENSIONS



SEM213TC SEM213P

WIRING

ORDER CODES:

SEM213TC	Universal Thermocouple Input
SEM213P	Universal RTD Input

Local Representation

STATUS INSTRUMENTS

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