SMART UNIVERSAL SIGNAL CONDITIONER

SEM1700

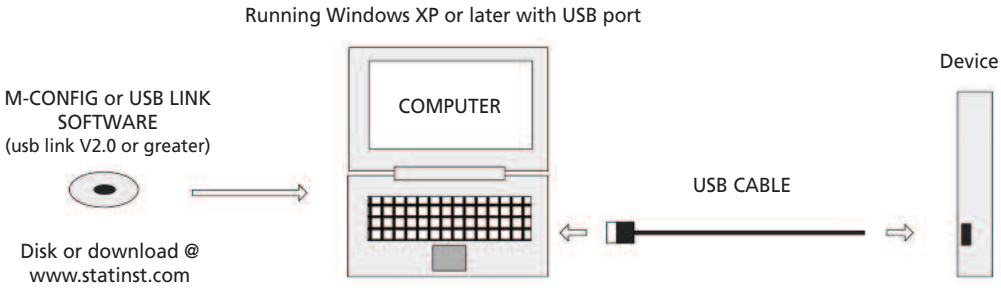
- DIRECT USB CONNECTION FOR CONFIGURATION
- RTD, THERMOCOUPLE, mV, V, mA and SLIDEWIRE INPUTS
- ISOLATED UNIVERSAL VOLTAGE or CURRENT OUTPUT
- DUAL SPDT RELAY OUTPUTS WITH PROGRAMMABLE DELAY
- UNIVERSAL AC / DC POWER SUPPLY, 3 PORT ISOLATION
- USER TRIM / USER MANUAL CONFIGURATION PUSH BUTTONS
- 5 YEAR WARRANTY

INTRODUCTION

The **SEM1700** is a new generation DIN rail mounted universal signal conditioner from Status Instruments. It has been designed to accept most common process and temperature sensor inputs and provide the user with a programmable current or voltage output signal plus dual output relays with programmable delay function. Isolation is provided between input, output and supply. All temperature ranges are linear to temperature. Both input and output loop excitation is provided as well as a fully universal power supply.

Designed for ease of use, our latest USB interface is fitted for quick and easy configuration. Just connect a standard USB cable between the **SEM1700** and your PC. Using our free configuration software, your PC will automatically upload the existing configuration data and guide you through any change you wish to make. To further help save time, the **SEM1700** does not need to be wired to a power supply during the configuration process, it is powered via the USB interface from your PC.

PC CONFIGURATION



The following parameters are configurable:-

INPUTS

INPUT TYPE		SCALE / RATE	ANALOG OUTPUT	RELAY OUTPUTS	USER TRIM OPTIONS
T/C	K, J, E, N, T, R, S, L, U, B C(W5), D(W3), G(W)	°F / °C / °K Update Rate	**Current** 4 to 20 mA Preset 0 to 20 mA Preset User Programmable Range **Voltage** 0 to 10V Preset User Programmable Range **Fault Condition** Up Scale Down Scale User Programmable Range **Output Damping Rise** **Output Damping Fall**	RELAY 1(A) / RELAY 2(B) Setpoint Hysteresis High Alarm Low Alarm High Control Low Control Off On Delay Off Delay	1. Off 2. Trim 3. Push Button Configuration
RTD	Pt100 0.00385 (IEC) Pt100 0.00391 (IPTS-68) Pt100 0.00392 (IPTS-68) Pt100 0.00393 (ITS-90) Ni100 0.00618 (DIN) Ni120 0.00672 (Nickel A) Cu100 0.00427 Cu53				
SLIDEWIRE	> 1k	Process Variable Scaling Update Rate			
CURRENT (MA)	± 30mA				
VOLTAGE	50mV 200mV 1V 10V				
TAG ID.		Up to 15 Characters can be used			

STATUS INSTRUMENTS

SEM1700
SMART UNIVERSAL SIGNAL CONDITIONER

TEMPERATURE INPUTS

INPUT		RANGE	ACCURACY @ 68°F	STABILITY WITH TEMPERATURE
Thermocouples				
K		-320°F to 2498°F	1 Reading / Second ±0.9°F + (0.06% of FSR)	±0.03% FSR/°F
J		-320°F to 2190°F		
E		-320°F to 1832°F		
N		-292°F to 2372°F		±0.05% FSR/°F
T		-320°F to 750°F	4 Readings / Second ±1.8°F + (0.06% of FSR)	±0.08% FSR/°F
R *1 *2		-148°F to 3200°F		±0.06% FSR/°F
S *1 *2				
L		-148°F to 1100°F		±0.05% FSR/°F
B *1 *2		32°F to 3000°F	10 Readings / Second ±3.6°F + (0.06% of FSR)	±0.06% FSR/°F
U		32°F to 1100°F		±0.05% FSR/°F
C(W5) *2		32°F to 4200°F		±0.03% FSR/°F
D(W3) *2				
G(W) *2				
RTD				
Pt100	0.00385 (IEC)	-320°F to 1560°F	1 Reading / Second ±0.27°F + (0.03% of FSR)	±0.008% of FSR/°F *3
Pt100	0.00391 (IPTS-68)	-320°F to 1160°F		
Pt100	0.00392 (IPTS-68)			
Pt100	0.00393 (ITS-90)	-320°F to 1760°F	4 Readings / Second ±0.9°F + (0.06% of FSR)	
Ni100	0.00618 (DIN)	-76°F to 320°F		
Ni120	0.00672 (Nickel A)	-112°F to 460°F	10 Readings / Second ±1.8°F + (0.06% of FSR)	
Cu100	0.00427			
Cu53	(GOST)	-58°F to 320°F		

Key: Rdg = Reading; FSR = Full Scale Range; *1 Only over range 1472°F to 2912°F; *2 Cold junction tracking range 32°F to 158°F; *3 Ambient 14°F to 122°F

Note: Accuracy for Pt100 and T/C do not include sensor and cold junction errors.

Impedance (Thermocouple)	1 MΩ
Open Circuit Sensor Bias	0.2 µA
Cold Junction Range	-4°F to 158°F
Cold Junction Accuracy	±0.9°F
Cold Junction Tracking	±0.09°F
RTD Connection	2 or 3 Wire
RTD Lead Resistance	20 Ω Maximum
RTD Lead Effect	0.027°F / Ω
RTD Excitation Current	< 1 mA
Update Rate (Resolution)	1 reading / second (16 Bits); 4 Readings / Second (14 Bits); 10 Readings / Second (12 Bits)
Isolation	500 V to Output : 3750 V to Supply and Trips
Display	OK LED blinks when signal is within range, Continuously when in fault

PROCESS INPUTS

INPUT	RANGE	ACCURACY @ 68°F	STABILITY WITH TEMPERATURE
50 mV	±50mV (Max. ±75 mV)	1 Reading / Second ±0.04% + (0.06% of FSR)	±0.025% FSR / °F
200 mV	±200 mV (Max. ±230 mV)		
1V	±1V (Max. ±1.3V)	4 Readings / Second ±0.1% + (0.06% of FSR)	
10V	±10V (Max. 11V)		
mA	±25 mA (Max. ±30 mA)		
Slide Wire	(0 to 100)% (1 to 1000) KΩ Pot.	10 Readings / Second ±0.2% + (0.06% of FSR)	±0.03% FSR / °F
Ohms	(20 to 400)Ω Max. (0 to 480) Ω		±0.015% FSR / °F

Key: Rdg = Reading; FSR = Full Scale Range

Voltage Input Impedance 1 MΩ
Current Input Impedance 20 Ω
Slide Wire Input Range 1 KΩ to 1000 KΩ Pot.
Resistance Connection 2 or 3 Wire
Isolation 500 V to Output : 3750 V to Supply and Trips
Update Rate (Resolution) 1 Reading / Second (16 Bits); 4 Readings / Second (14 Bits); 10 Readings / Second (12 Bits)

CURRENT OUTPUTS

RANGES mA				FAULT / ERROR SIGNAL mA		
	Min	Max	Min Span	Up	Down	User
4 to 20 mA	4.0	20.0	-	22.5	3.8	0.0 to 25 mA
0 to 20 mA	0.0	20.0	-			
USER	0.0	24.0	0.5			

Type Two Wire Current Sink; or Two Current Source
Supply In Sink Mode 11 to 30 Vdc, 24 V Nominal
Max Loop Load Sink Mode Loop Load of 600 Ω @ 24 V; Source Mode 550 Ω
Response Time <500 ms to Reach 95% of Final Value; Start Up Time < 3 s
Calibration Accuracy ±5 µA
Loop Effects Loop Ripple 0.03% of FSR
Supply Sensitivity 0.03 µA / °F; Supply Ripple Rejection < ± 5µA Error @ 1 V rms 50 Hz Ripple
Protection Reverse Connection and Over-Voltage Protection. Max Over Voltage Current 100 mA
Isolation 500 V to Input : 3750 V to Supply and Trips
User Trim Options
1. Off (Locked)
2. Push Button User Trim at Both ± 10% of Zero and ± 10% of Span
3. Manual Push Button Range Configuration
Current Output Damping Programmable Rise and Fall (0 to 250) Seconds, for a (0 to 20) mA Swing.

VOLTAGE OUTPUTS

RANGES V				FAULT / ERROR SIGNAL V		
	Min	Max	Min Span	Up	Down	User
0 to 10 V	0.0	10.0	-	11.5	0.0	0.0 to 13 V
USER	0.0	12.0	0.5			

Type Voltage Generated Across 500Ω Resistor
Min Load 10 KΩ User Configurable Correction for Load
Response Time <500 ms to Reach 95% of Final Value; Start Up Time < 3 s
Calibration Accuracy ±5 mV
Isolation 500 V to Input : 3750 V to Supply and Trips
User Trim Push Button User Trim at Both Zero and Span
Current Output Damping Programmable Rise and Fall (0 to 250) Seconds, for a (0 to 10) V Swing.

TRIP OUTPUTS

Type	Dual Form C Relay Contacts
Contact Rating	1 amp @ 240 VAC or 30 VDC Resistive Load
Trip Type	Individual Trips 1(A) & 2 (B), High or Low Level, Full Range Setpoint Plus Adjustable Hysteresis.
Ranges	Setpoint Programmed On Units, Covering Full Range of Input.
Hysteresis	Set In Units.
Isolation	To Any Other Port 3750 V
Delay	Programmable On / Off Delay 0 to 250 Seconds For Each Trip.

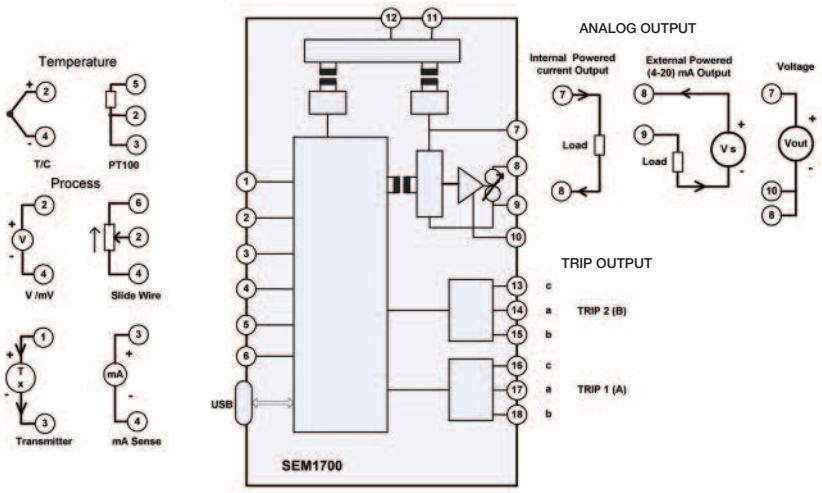
SUPPLY

Range	20 to 240 VDC, 20 to 240 VAC 50/60 Hz
Power	3 W Max.
Protection	Internal Fuse, Over Voltage
Isolation	Supply To Any Other Port 3750 V

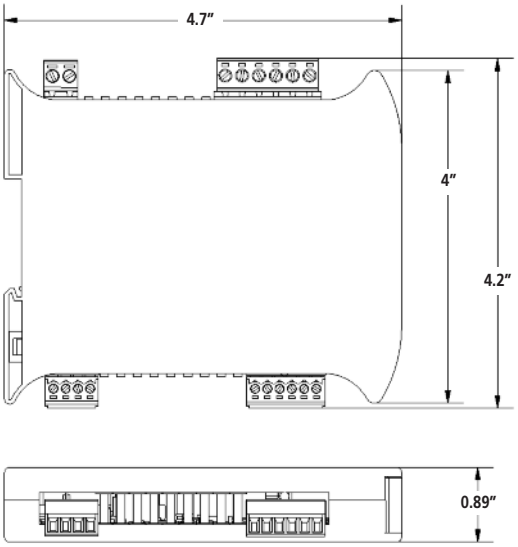
GENERAL

Ambient	-4°F to 158°F 10 to 95% RH Non Condensing. Storage -40°F to 185°F
Approvals	CE Tested to BS EN 61326; BS EN 61010_1

INPUT **SUPPLY 20 to 240 V AC or DC** **OUTPUT**



MECHANICAL



ORDER CODES:

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Accessories

USB3	3 FOOT USB A/M TO MINI B/M CABLE
USB6	6 FOOT USB A/M TO MINI B/M CABLE
USB10	10 FOOT USB A/M TO MINI B/M CABLE
USB15	15 FOOT USB A/M TO MINI B/M CABLE

Local Representation

STATUS INSTRUMENTS

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