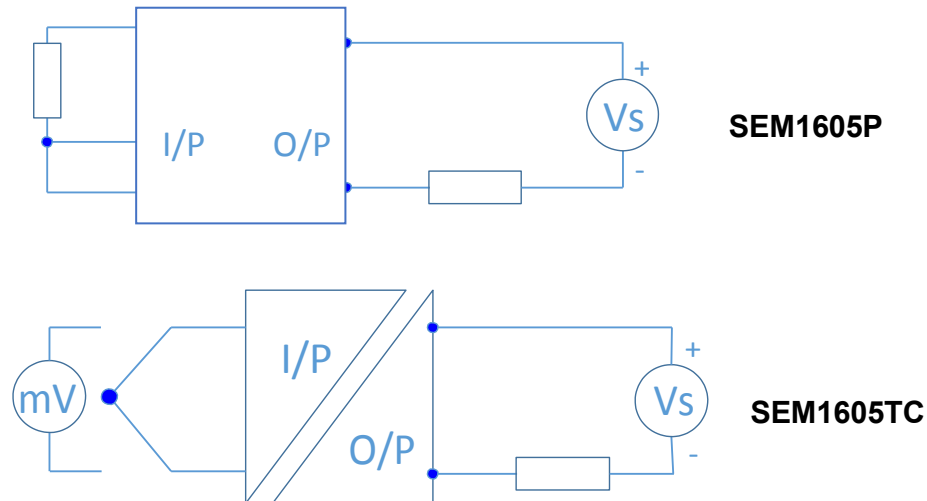


Z1566-01-02

SEM1605P and SEM1605TC DIN rail loop powered temperature transmitters.

Basic block diagram for SEM1605P and SEM1605TC.



The most common uses for a SEM1605P or SEM1605TC

- To connect directly to a RTD (Pt100, Ni, Cu) type temperature probe to give a (4 to 20) mA control loop signal SEM1605P.
- To connect directly to a thermocouple type temperature probe to give a (4 to 20) mA control loop signal SEM1605TC.
- To provide a stable (4 to 20) mA signal at a preset value for diagnostic of the control loop.
- To record input vs output* process data to a PC in a date and time stamped, value text format
*Certain limits apply`

SEM1605

SEM1605P, SEM1605TC

Are DIN rail mounting temperature transmitters with a range of common probe types, PT100 and thermocouple, input options.

Sometimes poor isolation or low impedance to earth through sensors can give an undesired path to earth and cause errors, isolating the signal from the monitoring/control equipment such as a PLC or display can help remove this type of problem.

This can occur with any type of sensor where some of the loop signal current can find a path to earth.

USBSpeedlink software.

The SEM1605 range of products can be configured using the Status Instruments USBSpeedlink software.

A USB A to USB mini B lead will be required

Configuring a SEM1605P (4 to 20) mA temperature transmitter: See screenshot one.

Changing the software screen will not automatically change the configuration on the device, the send configuration command button must be clicked.

The input type for the device is an RTD type temperature probe.

This is selected via the Sensor drop down control in the Sensor block area of the software screen.

The complete working range, minimum and maximum, is also shown in the Sensor block area.

The SEM1605 has a dropdown control for entering an offset to the measured input value in °C or °F.

This can be used to fine tune a control loop system to eliminate measurement errors. As the correction applies across the entire measurement range it is normally applied as either a averaged value or at the application critical measurement point.

The required operating range is entered in the output block.

The burnout value can be entered into the Error Signal value box, this is normally set high or low but any mA value within the output range can be selected.

Burnout is the condition when the device recognizes that its input has failed is out of range or is missing and drives the loop current either high or low as an indication to the monitoring equipment that an input fault has occurred.

The front LED will also light to indicate burnout.

Preset Temperature and Preset Loop Current are similar in operation, both are used to aid diagnostics on the control loop. Enter a value and the device will act as a mA source to the control circuit.

The preset control will need to be removed to return to normal operation.

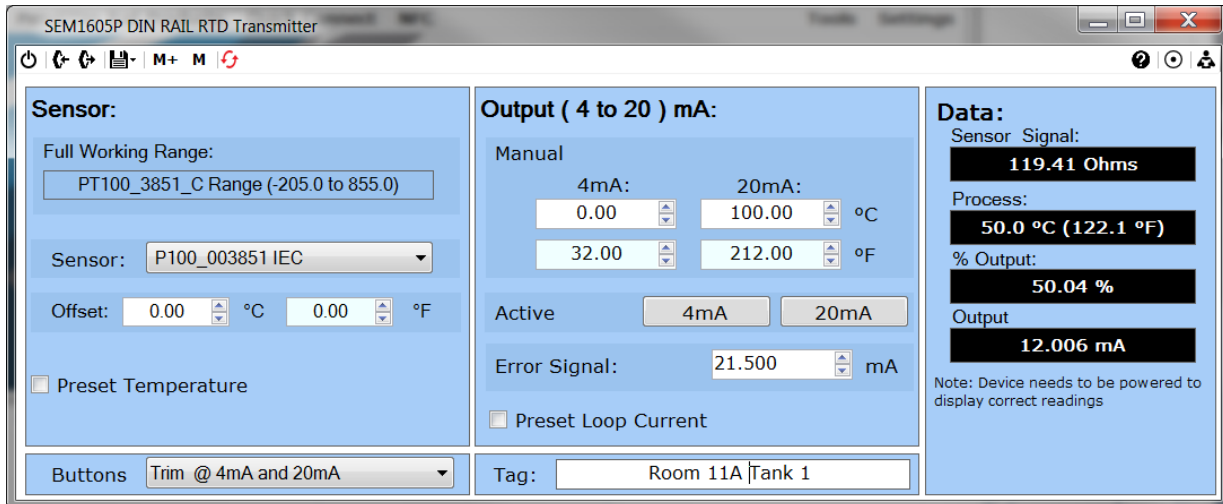
The front Buttons control has three modes of operation

Trim @ 4 mA and 20 mA: This allows the mA output from the device to be adjusted within limits to correct for system errors

Active range @ 4 mA and 20 mA: This Function allows the device to be ranged against a "active" input signal at the 4mA and the 20 mA points

Off: Disables the Buttons function

Screenshot one



SEM1605P DIN RAIL RTD Transmitter

Sensor:
 Full Working Range: PT100_3851_C Range (-205.0 to 855.0)
 Sensor: P100_003851 IEC
 Offset: 0.00 °C 0.00 °F
☐ Preset Temperature

Output (4 to 20) mA:
 Manual
 4mA: 0.00 20mA: 100.00 °C
 32.00 212.00 °F
 Active
 Error Signal: 21.500 mA
☐ Preset Loop Current

Data:
 Sensor Signal: 119.41 Ohms
 Process: 50.0 °C (122.1 °F)
 % Output: 50.04 %
 Output: 12.006 mA
 Note: Device needs to be powered to display correct readings

Buttons: Trim @ 4mA and 20mA Tag: Room 11A Tank 1

Although not intended for continuous connection as it is primarily a configuration tool the USB Speedlink software can be used to monitor the condition of the SEM1605 in the Data block. In this example the SEM1605P has been ranged to (0 to 100) °C. A temperature of approximately 50 °C is applied to the probe connected on the input of the SEM1605P. If the Read Data function is selected the Process input (temperature) and corresponding mA output from the SEM1605P can be displayed. The "I/P Signal" is shown as well and is the value in ohms of the connected device.

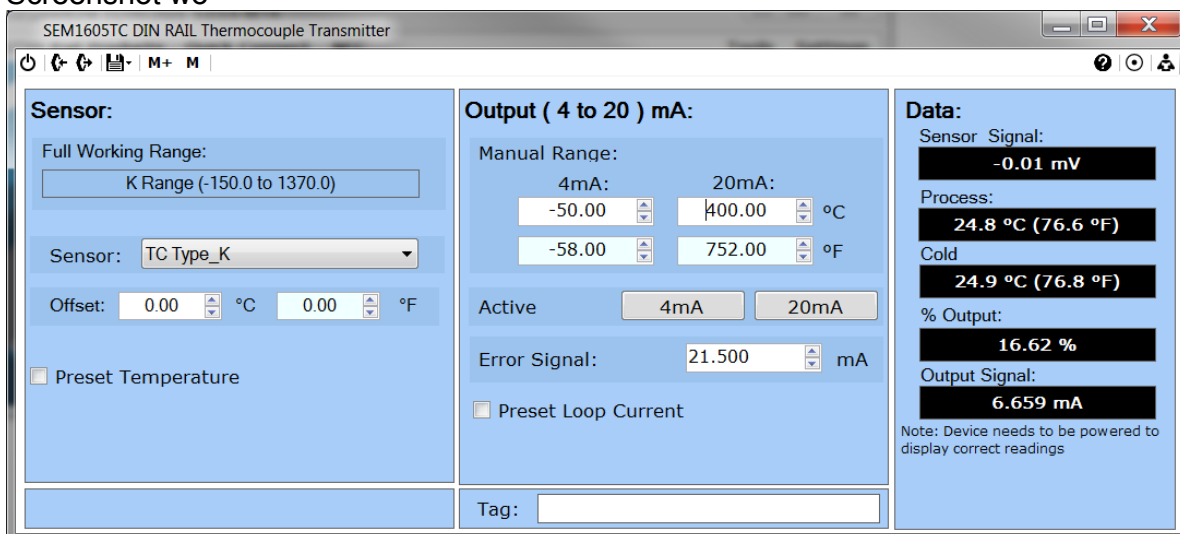
Refer to the product user guide for further instructions

Configuring a SEM1605TC (4 to 20) mA temperature transmitter: See screenshot two.

The same functionality is available for the SEM1605TC as shown above for the SEM1605P apart from the Buttons function is limited to Active range @ 4 mA and 20 mA.

The input type is a Thermocouple temperature probe, selected from the Select Input Type dropdown control in the Sensor block.

Screenshot two



SEM1605TC DIN RAIL Thermocouple Transmitter

Sensor:
 Full Working Range: K Range (-150.0 to 1370.0)
 Sensor: TC Type_K
 Offset: 0.00 °C 0.00 °F
☐ Preset Temperature

Output (4 to 20) mA:
 Manual Range:
 4mA: -50.00 20mA: 400.00 °C
 -58.00 752.00 °F
 Active
 Error Signal: 21.500 mA
☐ Preset Loop Current

Data:
 Sensor Signal: -0.01 mV
 Process: 24.8 °C (76.6 °F)
 Cold: 24.9 °C (76.8 °F)
 % Output: 16.62 %
 Output Signal: 6.659 mA
 Note: Device needs to be powered to display correct readings

Tag:



Note: While the SEM1605 is connected with a USB lead the (4 to 20) mA loop ground may be earthed via the PC, so incorrect readings can be given, to avoid this use a laptop with battery power for taking live readings.

Alternatives

Status Instruments have a large range of powered, and loop powered, transmitters, isolators and signal conditioners to meet a variety of conditions.

Please see our website for the full list or call and ask for assistance with choosing the correct instrument for your application.

See also.

SEM1615

SEM315

SEM170