STATUS INSTRUMENTS

SEM1720
USER INSTRUCTIONS

Important - Please read this document before installing.

Every effort has been taken to ensure the accuracy of this document; however, we do not accept responsibility for damage, injury, loss or expense resulting from errors and omissions, and we reserve the right of amendment without notice.

IMPORTANT – CE, UKCA & SAFETY REQUIREMENTS

Product must be DIN rail mounted, inside a suitable enclosure providing environmental protection to IP65 or greater.

To maintain CE EMC requirements, input and supply wires must be less than 30 metres.

The product contains no serviceable parts, or internal adjustments. No attempt must be made to repair this product. Faulty units must be returned to supplier for repair.

Before attempting any electrical connection work, please ensure all supplies are switched off.

ABSOLUTE MAXIMUM CONDITIONS (To exceed may cause damage to the unit).	
Working voltage terminals Inputs	±24 Vdc @ 10 mA
Working voltage terminals Outputs	±30 Vdc @ 50 mA
Supply voltage	(20 to 240) Vac 50/60 Hz or (20 to 240) Vdc,3 W
Ambient	Temperature (-20 to 70) °C Approvals EN61010_1, EN61326
External supply	1 A anti-surge fuse recommended
Isolation supply to input/output	4200 V
Any input to output	3750 V
Output to output, input to input	3750 V

UK CA CE
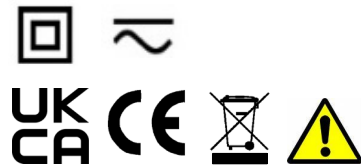
Important – Read this document before installing.

1~DESCRIPTION.

SEM1720 is a dual channel signal conditioner designed to accept RTD, Thermocouple or Potentiometer sensors and provide isolated, industrial process output signals in mA or Volts. Each output channel may be linked to either an input sensor or to a maths function of both sensor signals. This powerful feature allows the device to operate in several different modes.

The output signal can also be adjusted over the full working ranges (0 to 20) mA or (0 to 10) V, to provide common or custom process signals, examples (4 to 20) mA, (0 to 1) mA, (1 to 5) V.

SEM1720 is configured using the free software that allows the user to configure the device without requiring calibration equipment. Maths functions on each channel can be set up using the software as well as a 22-segment profile tool. Input/output simulation tools for diagnostic purposes are also available

2~RECEIVING AND UNPACKING.

Please inspect the packaging and instrument thoroughly for any signs of transit damage. If the instrument has been damaged, please notify your supplier immediately.

3~SPECIFICATION.

Refer to data sheet for full specification. Download at www.status.co.uk

Factory defaults	Basic mode, dual channel operation, (Ch1, Ch2) = Pt100, Range (0 to 100) °C = (4 to 20) mA output. Burnout high

4~INSTALLATION AND WIRING.

⚠ Important safety requirements

This equipment is suitable for environment Installation category II pollution degree 1 and is classed as "PERMANENTLY CONNECTED EQUIPMENT". The equipment is intended for industrial and commercial application only and not suitable for domestic or medical use.

The equipment must be mounted inside an enclosure that provides protection >= IP65. In NORMAL USE, the equipment will only be accessed for maintenance by qualified personnel. Please ensure the equipment is mounted vertically with terminals (101 to 204) at the bottom. This will provide maximum ventilation. This equipment may generate heat: ensure the enclosure size is adequate to dissipate heat. Be sure to consider any other equipment inside the enclosure.

The equipment surfaces may be cleaned with a damp cloth. Use a mild detergent/water. Ensure the supply is OFF before cleaning and on completion of cleaning the equipment is completely dry before the supply is turned back ON.

This equipment must be installed by a qualified person. All electrical wiring must be carried out in accordance with the appropriate regulations for the place of installation.

DC supply must be derived from a local supply and not a distribution system.
Supply (20 to 240) Vac 50/60 Hz (20 to 240) Vdc. If supply is a HAZARDOUS VOLTAGE, a supply isolation switch must be installed close to the equipment with **the "OFF" position clearly marked.** Also, the supply must be fused with a suitable 1 A (T) fuse (circuit breaker) installed close to the equipment.
USB configuration can be performed without the supply being connected. For safety reasons, use 24 Vdc for a functional test of the unit prior to fixed installation. The following operations should only be carried out on a disconnected device and under ESD safe conditions: General mounting, connection and disconnection of wires.
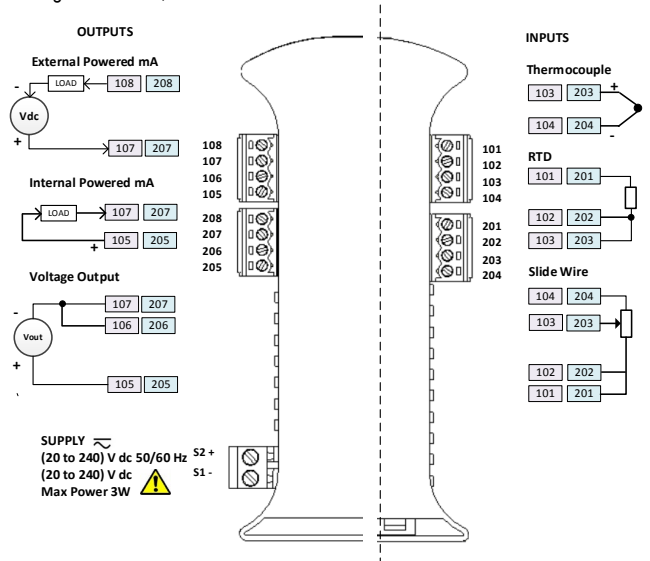
4.1~MECHANICAL.
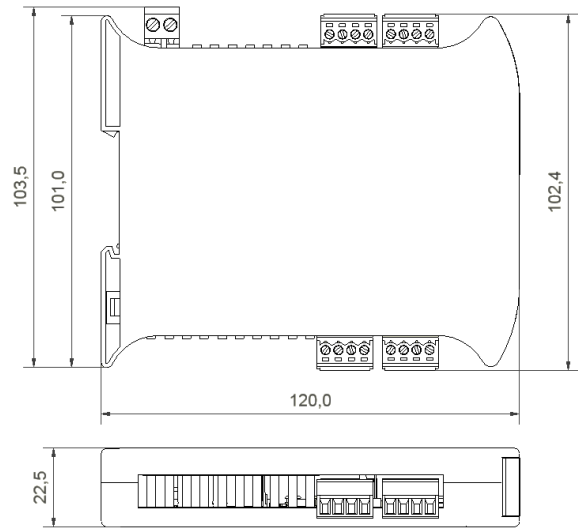
The equipment must be mounted on a DIN rail style DIN EN50022 inside a plastic or metal enclosure with a protection level >= IP65. All wiring must be secured. Maximum cable sizes 2.5 mm. Connection two-part screw terminals.

4.2~ELECTRICAL
CONNECTIONS

For wiring connections, refer to the side label on the SEM1720 and this document.

Input connections for cable length >3 metres: use screen or twisted pair cables. Max cable run 30 metres.
Output connections for cable length >3 metres: use screen or twisted pair cables. For current outputs max cable run 1000 metres, Voltage output 30 metres.
Supply maximum cable run 30 metres. As stated in the IMPORTANT SAFETY REQUIREMENTS the supply must be fused with a 1A (T) fuse and provision provided to isolate the circuit when hazardous voltages are being switched.

LED front panel indication.
Channel 1 and channel 2 LEDs show green for in-range input condition.
Channel 1 and channel 2 LEDs show red for out-of-range input condition.
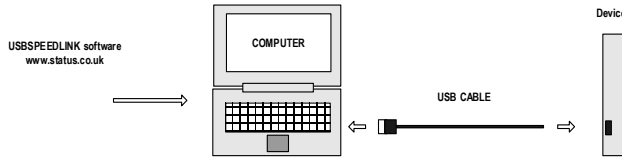
5~USER CONFIGURATION.

⚠️ Read the Important safety requirements

PC CONFIGURATION

During configuration the equipment takes its power from the USB port, therefore no power connection is required. The equipment can be configured whilst powered but the computer used must be isolated from the supply earth to avoid grounded earth loop effects.

USBSPEEDLINK software
www.status.co.uk

COMPUTER

USB CABLE

Device

| Configuration steps using USBSpeedLink |
|---|
| Download, install and run USBSpeedLink |
| Up to 8 configurations can be stored, the configuration chosen is set using a DIP switch. |
| Set the switch on the SEM1720 to the required position (default position 1). The switch is located behind the front panel. Repower the device after changing the DIP switch position. |
| Do not remove front panel while the device is powered! |
| Connect device to PC using an A to mini B USB lead |
| Upload device set-up into the configuration software, "Basic" and "Advanced" options are available for configuring the device.

⚠️ Basic mode should be suitable for most applications.
An enhanced set of programming options are available in the Advanced configuration mode. |
| Adjust settings as required |
| Send new configuration to the device |

USBSpeedLink software configuration screen for SEM1720
Note: When the device is correctly connected, the "Send" and "Receive" menu buttons will turn black and the "Read Data" button will become visible.

Basic configuration screen shown below.
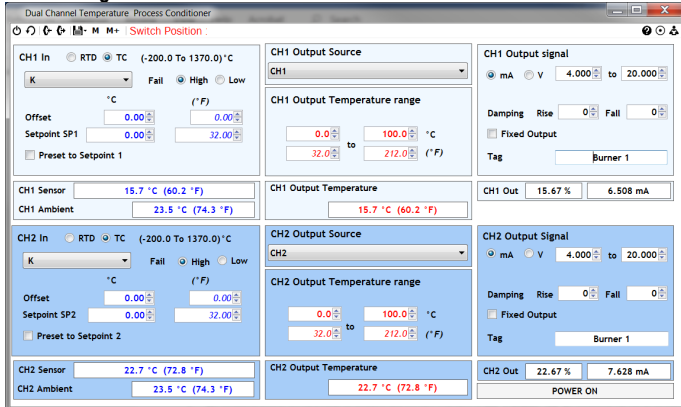
Advanced configuration screen shown below
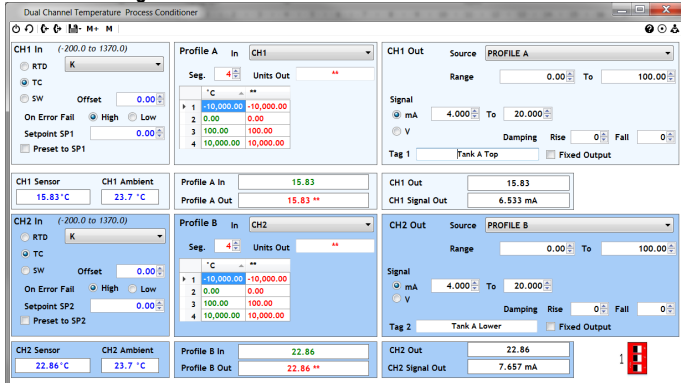
The following covers the Advanced mode, but descriptions apply to Basic mode as well.

CH In/Input (Ch1 and Ch2)
Select: RTD, TC or Slide-wire. RTD and TC will give a dropdown option for type.

CH In/Input (Ch1 and Ch2)
Select: High or Low condition for On Error Fail (burnout).

CH In/Input Pre-set (Ch1 and Ch2)
This will open a box to enter a value for the input (°C, %) that the device will take as its input condition. The actual input will be ignored while this input pre-set is selected. The device will respond accordingly to the pre-set input value on its output.

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Profile In (A and B)
Select the input source for the Profile, normally CH1 or CH2 input, but can use the dropdown tool to select from a range of maths comparisons such as Average.

Profile Seg/Segments (A and B)
The number of segments
Up to 22 user-segments can be used to create a user-curve or non-linear relationship table, for example add corrections or calibration points to a probe with known errors.

This tool can also be used to enter the °C units to °F units if required.
Segments can be used if required to control out of limit conditions or create banded temperature zones.

Profile Units Out (A and B)
Normally °C but can be any relevant unit such as °F (see above Seg/Segments)

CH Out/Output Source (Ch1 and Ch2)
Select the Profile source for the Output, normally Profile A or Profile B, but can use the dropdown tool to select from a range of maths comparisons such as Average.

CH Out/Output Range (Ch1 and Ch2)
Set the engineering range, normally °C to be scaled to the output.

CH Out/Output Signal (Ch1 and Ch2)
Select mA or V and the output range to be scaled to the engineering range. This can be any value within the physical capability of the device.
For a voltage output, the output load value, if known, can also be entered.

CH Out/Output Damping (Ch1 and Ch2)
A value to slow the rate of change on the output can be added for a rising and a falling signal.

CH Out/Output Fixed Output (Ch1 and Ch2)
The output can be fixed to a known value. This can be useful for diagnostics on a system

CH Out/Output Tag (Ch1 and Ch2)
A free type field for information to be stored onto the SEM1720

Menu Options
The configuration can be saved to PC file for back-up and re-use as required.

The USBSpeedLink software will allow live readings to be taken from the device showing input and output conditions.
For diagnostic use, the device can save live readings to a text file on the PC.