

SEM710TM USER GUIDE

(4 to 20) mA OUTPUT TEMPERATURE TRANSMITTER WITH DISPLAY + DATA LOGGING FUNCTION

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

The instrument is designed to be directly attached to the sensor probe assembly. The user must ensure all cable entries maintain environmental protection to at least IP65 rating. 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. This product 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. Before attempting any electrical connection work, please ensure power is removed.

ABSOLUTE MAXIMUM CONDITIONS (To exceed may cause damage to the unit).	
Supply Voltage	± 30.0 VDC (Protected for over-voltage and reverse connection)
Supply Current	± 30.0 mA DC (Protected for over-voltage and reverse connection)
Ambient	Temperature (-30 to 70) °C, Humidity (10 to 95) % RH (Non-condensing)



Important – Read this document before installing.

1-DESCRIPTION.

The SEM710TM is a two wire (4 to 20) mA temperature transmitter with indicator, designed to accept RTD or Thermocouple temperature sensors or a mA control signal. The device displays the sensor temperature in °C or °F on a 6-digit LCD display. Configuration is achieved by operating three-push buttons and navigating the menu.

USB and contactless (NFC) interfaces are also provided for configuration and data logger function, with up to 5000 time-stamped logs at adjustable rates. The indicator also has an alert LED for signal error indication.

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.

Factory default	Input: Pt100 EU (0 to 100) °C, Offset = 0.0 °C High burnout, Decimal place 0.00
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4-INSTALLATION AND ELECTRICAL WIRING

4.1-MECHANICAL.

To ensure correct operation, the following must be observed:
The product must be stored in a dry clean environment and remain in original packaging prior to installation.
The instrument must not be installed adjacent to electro-mechanical starters, controllers, thyristor power units or electrical switch gear.
Any cleaning of the instrument must be done using a mild detergent and soft cloth. No solvents or abrasive cleaners should be used.
Stated ambient operating conditions must not be exceeded.
As the display is physically connected to a possible source of heating or cooling (the temperature sensor), the temperature at the point of connection shall be within the ambient temperature range as given above to maintain correct operation.

Cable entries should be to IP65 or better to maintain protection.
If the cap ring becomes seized over time, the use of a strap wrench is recommended for disassembly.

4.2-ELECTRICAL.

For a wiring diagram please refer to the rear panel of the SEM710TM inside the case housing and this document.

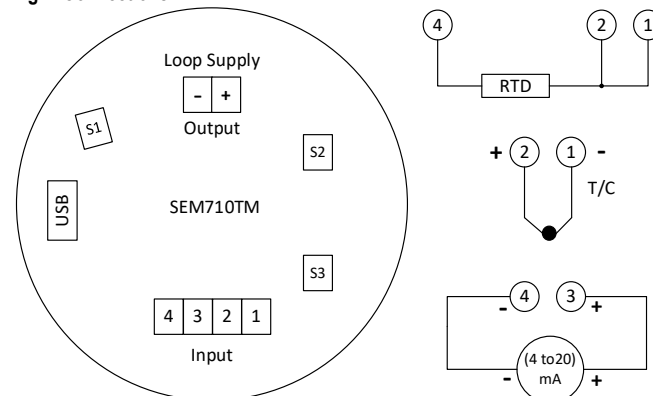
Two-part connectors are used allowing the unit to be easily removed from the housing for reprogramming or data download if this is not possible in situ.

IMPORTANT: Always turn off the power supply before any wiring takes place. Gain access to the connectors by unscrewing the cap ring to release front panel assembly from case.

OUTPUT CONNECTION: A two-part connector is used for the (4 to 20) mA output loop output. It is recommended the supply loop is grounded at the power supply.

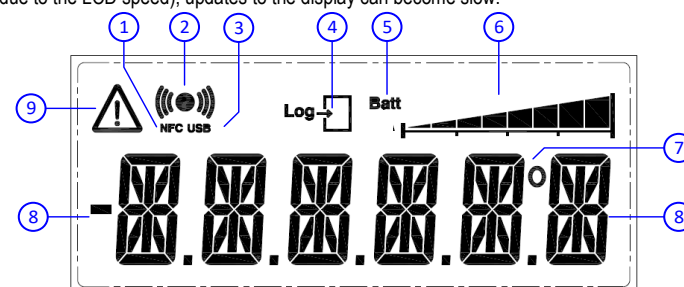
INPUT CONNECTION: The input sensor is wired using a two-part connector.
BS EN 61326: The SEM710TM has been tested to maintain full CE EMC requirements for industrial applications with 3 metres sensor wire.
The maximum recommended sensor wire length is 10 metres.

Fig. 1 Connections



4.3-THE DISPLAY

The display provides six 14-segment characters for display of temperature and mA process, together with an 8-segment bar graph and six icons. The display can operate in an ambient temperature range of (-30 to 70) °C, but at temperatures lower than -5 °C (due to the LCD speed), updates to the display can become slow.



1. NFC - The Symbol is on when an NFC field is detected. When a detected field is lost the symbol will turn off after a few seconds.
2. TRANSMIT/RECEIVE: Symbol on when either NFC or USB communication is active.
3. USB: Symbol on when USB port is connected to a PC.
4. LOG: Not used
5. Batt symbol, not used
6. BAR GRAPH: Indicates the state of the logger. The condition is dependent on the selected logger mode, either Single or Rolling mode.

Single Mode (Log to the maximum number of logs then stop)
Start of Log Mid Log End of Log (alternating)



Rolling Mode (Log to the maximum number of logs then as each new log is taken the oldest log is discarded)
Start of Log Mid Log Rolled over Log (max bar toggles)



7. DEG: Degree symbol "°" used to indicate either °C or °F on the last digit.
8. DIGITS: Six-digit 14 segment display with - sign, range 9999.9 to -9999.9.
9. WARNING ICON: This symbol will toggle on and off to indicate a warning. The warning symbol will be active either when the sensor signal is out of range or not connected.

4.4- ALERT LED

The Alert LED, located below the main display, will flash if the input signal is lost.

5-USER-CONFIGURATION. IMPORTANT READ COMPLETE SECTION BEFORE ATTEMPTING CONFIGURATION.

The instrument is provided with a USB interface for direct connection to a PC. Free software USB-SpeedLink is available. Please refer to the USB-SpeedLink software for further information on configuration. The software can be downloaded from www.status.co.uk.

5.1~USB CONFIGURATION

Using the USB-SpeedLink software to program a new configuration into the device, work from left to right through the option tabs.

The USB port is located inside the housing on the rear panel (see Fig.1).

Configuration steps
Install and run the USB-SpeedLink software to a Windows PC
Select the correct programming page in the software (follow any on-screen safety precaution warnings)
Connect the USB lead to the PC, connect the USB lead to the device. A short delay may be experienced on first connection while drivers load
Read the unit configuration into the software
Re-configure or adjust configuration options as required
Send the new configuration to the unit

5.1.1~Input tab

Use this tab to confirm the Input type.

For Temperature inputs: This tab can also be used to apply a sensor offset, select the °C/°F unit and number of decimal places.

For mA Input: This tab can also be used to apply the mA input only settings. Pre-set input value for diagnostics, Maths functions, Engineering units, Range, and Adjustable damping for Rise and Fall times on the input.

A user non-linearisation table of up to 22 points can also be applied as required.

5.1.2~mA Output/Display tab

Use this tab to select the preferred range for mA output.

5.1.3~Other Device Options tab

Use this tab to set the "Tag" and "Contact" free-type fields stored to the device.

A passcode to protect the device log from being overwritten by an Android device can be added.

Longitude and Latitude data can be entered. This will show in the log files and can help identify data logs recorded from multiple devices.

5.1.4~Live data reading: Process Data

The section on the right-hand side of the software can be used to view live readings of process values and the output mA signal.

The Android compatibility for the unit can also be selected.

5.2~NFC CONFIGURATION

Using the NFC-Link software to program a new configuration into the device.

NFC configuration is not compatible with mA input setups.

Configuration steps
Install and run the NFC-Link app on a suitable Android device
Select the READ CONFIG action.
Re-configure or adjust configuration options as required
Send the new configuration to the unit

It is possible to configure the SEM710TM using NFC-Link software. A suitable NFC enabled Android device is required.

NFC-Link software is available from the www.status.co.uk website.

5.3~PUSH-BUTTON CONFIGURATION

Using the 3 push buttons on the back of the SEM710TM instrument to program a new configuration into the device.

Push-button configuration is not compatible with mA input setups.

It is intended that the user programs the device while viewing the display. Hold the device with the screen facing up, place the index finger of the right hand on S1 (Enter), place the index finger of the left hand on S2 (Up) and place the second finger of the left hand on S3 (Down). Refer to Fig.1 Section 4.2

Configuration steps
A single press on the Enter button will scroll the configuration on the display
To enter the programming main menu press either Up or Down
Continue with single presses to reach the required menu item.
When the desired menu is shown on screen single, press Enter
Sensor
Units
DP Pos.
Lo out
Hi out
Burnout
Offset
When the desired parameter is shown on the display, press Enter for >2 s to save the value and move back to the main menu.
Allow >5 s with no button press to save the parameter shown on the display and exit programming.

Refer to flow charts in the online version of this document if required.

6~DATA LOGGING

USB and Android NFC software allows the user to read existing logs, change the log manifest, start a new log, synchronise the instrument clock and reset the maximum/minimum readings.

Logs can run to a fixed number and stop or continually roll over. Up to 5000 log points can be recorded. The start of the log can be delayed up to one month.

Data can be viewed on screen as a graph or table and can also be saved to a csv file.

6~1 USB LOGGING

USB LOGGER INTERFACE (connector inside housing)

The USB interface allows the instrument to communicate with a PC running the USB-LogLink software.

The prime function of the interface is to read logged data from the device using free software available to download.

The software allows the user to read existing logs, change the log manifest, start a new log, synchronise the instrument clock.

USB-LogLink is available from www.status.co.uk.

6~2 NFC LOGGING

NFC LOGGER INTERFACE

The NFC interface allows the instrument to communicate with an Android device using NFC connectivity.

The prime function of the interface is to read logged data from the device using a free app, which is available for downloading to Android devices.

The app allows the user to read existing logs, change the log manifest, start a new log, synchronise the instrument clock. Logs can run to a fixed number and stop or continually roll over. The start of the log can be delayed up to one month.

Note: For larger logs the data may take over a minute to fully download via the NFC interface.

Note: Not all Android devices fully implement the near field communication (NFC) standard and may not hold the full number of log points.

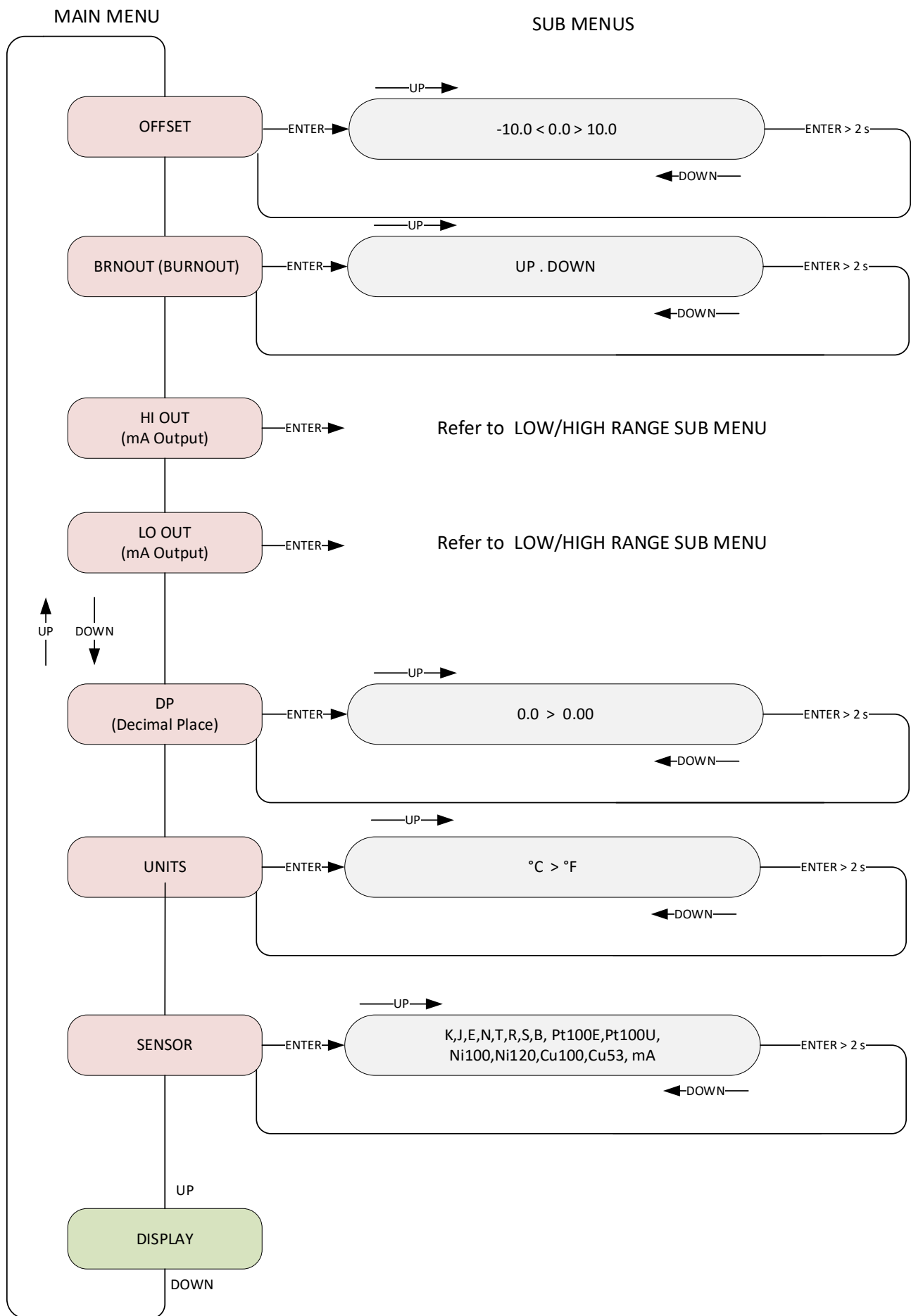
NFC-LogLink is available from www.status.co.uk.

Status Instruments Ltd, Status Business Park, Gannaway Lane, Tewkesbury, Gloucestershire, UK, GL20 8FD.

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LOW/HIGH RANGE SUB MENU (SHOWN FOR LO OUT)

