SOC-T1
Outdoor Temperature Transmitter

Features

- Outdoor temperature measurement
- Minimum and maximum value memory
- 0…10V, 0…20mA or 2…10V, 4…20mA measuring signals selectable with jumpers
- Optional alternative signal ranges programmable
- Selectable averaging signal
- Optional LCD display (OPC-S) or external display (OPA-S)
- LED operation status

Applications

- Outdoor temperature measurement in heating, ventilation and air conditioning applications.
- Recording of minimum and maximum values for critical environments
- Supervision of critical temperatures

Temperature Transmitter

The transmitter measures the temperature by the use of a precision sensing element. The microprocessor samples the temperature once per second. It calculates an averaging signal over a preset number of seconds and generates an output signal based on lower and upper signal range values. Standard range is -40…60°C (-40…140°F) and 10 seconds average. The signal range and the averaging samples may be customized.
The output signal range and type may be customized by jumpers and if required by a programming tool. Standard signal ranges are 0-10VDC, 2-10VDC, 4-20mA and 0-20mA. These ranges can be set by jumpers. Other ranges can be set by using a programming tool. (OPA-S or OPC-S)
A version with display is possible by ordering the integrated display accessory OPC-S

Minimum and Maximum Values:
Using the programming tool, the user has the option to read out and reset minimum and maximum values. The minimum and maximum values may as well be used as output signals. The minimum and maximum values are saved into the EEPROM and are available after a power interruption.

Ordering

The temperature transmitter comes without conduit connector or cable gland. They need to be ordered separately. Optionally a display module may be added.

Item Name	Item Code	Description/Option	
SOC-T1	40-30 0059	Temperature transmitter	
SOC-T1-W0	40-30 00xx-0	**0**	**Temperature Range: -40…60°C (-40…140°F) (Default)**
SOC-T1-W1	40-30 00xx-1	1	Temperature Range: -35…35°C (-31…95°F)
SOC-T1-W2	40-30 00xx-2	2	Temperature Range: 0…50°C (32…122°F)
SOC-T1-W3	40-30 00xx-3	3	Temperature Range: Special – Specify in order

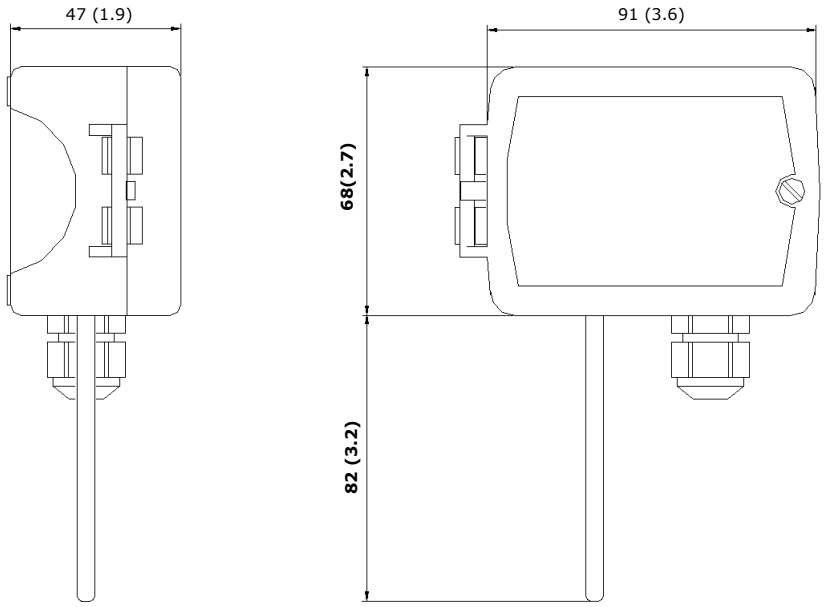
Accessories

Item Name	Item Code	Description/Option
OPC-S	40-50 0029	Built in display & programming module
OPA-S	40-50 0006	External display module
AMC-1	20-10 0035	Cable gland PG9 for cables ∅ 4 – 8 mm (AWG 6 – 1)
AMC-2	20-10 0067	Conduit connector NPT 1/2

Technical Specification

Power Supply	Operating Voltage Transformer	24 V AC 50/60 Hz ± 10%, 24VDC ± 10% SELV to HD 384, Class II, 48VA max
	Power Consumption	Max 2 VA
	Terminal Connectors	For wire 0.34…2.5 mm² (AWG 24…12)
Sensing Probe	Temperature: Accuracy: -40…0°C (-40…32°F): 0…50°C (32…122°F): 50…70°C (122…158°F):	 0.5 K 0.2 K 0.5 K
Signal Outputs	Analog Outputs Output Signal Resolution Maximum Load	 DC 0-10V or 0…20mA 10 Bit, 9.7 mV, 0.019.5 mA 20 mA, 500Ω
Environment	Operation Climatic Conditions Temperature Humidity	To IEC 721-3-3 class 3 K5 -40…70°C (-40…158°F) <95% R.H. non-condensing
	Transport & Storage Climatic Conditions Temperature Humidity Mechanical Conditions	To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -40…80°C (-40…176°F) <95% R.H. non-condensing class 2M2
Standards	CE conformity EMC Directive Low Voltage Directive	 2004/108/EC 2006/95/EC
	Product standards Automatic electrical controls for household and similar use Special requirement on temperature dependent controls	EN 60 730 –1 EN 60 730 – 2 – 9
	Electromagnetic compatibility for domestic and industrial sector	Emissions: EN 60 730-1 Immunity: EN 60 730-1
	Degree of Protection	IP64 to EN 60 529
	Safety Class	III (IEC 60536)
General	Housing materials Cover, back part Probe	PC+ABS (UL94 class V-0) Stainless Steel
	Dimensions (H x W x D):	150 x 91 x 47mm (5.9 x 3.7 x 1.9 in)
	Weight (including package)	220g (7.8 oz)

Dimensions mm(in)



Mechanical design and installation

The unit consists of two parts: (a) The back part with the probe and (b) the cover.

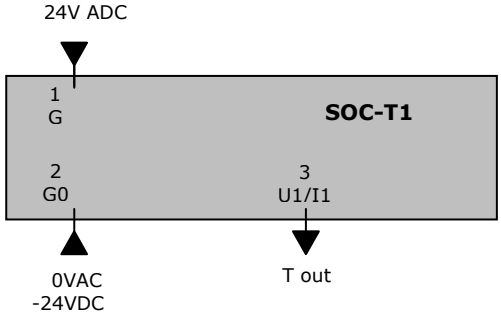
Mounting location

The transmitter should be installed, probe facing down, directly on the wall, in a weather protected area. The weather shield accessory is recommended, in case the transmitter is exposed to weather and direct sunlight.

Installation

1. Turn the single screw on the cover counterclockwise and remove cover.
2. Mark the location for the mounting holes on the wall.
3. Depending on the wall material, drill two holes for plugs or use self tapping screws.
4. Mount the transmitter flat on a wall in a weather protected area. The probe must face downwards. A weather shield should be added to protect the sensor element from direct water and sun light.
5. Connect the conductors to the terminals according to wiring diagram.
6. While in the open position, slide the two hooks of the cover into the latch at the left side of the back part.
7. Close the front part.
8. Tighten the single screw on the cover clockwise to secure the cover to the back part. There is no need to tighten the screw too much.

Connection terminals



1: G Power supply 24VAC, +24VDC
2: G0 Power supply 0VAC, -24VDC
3: U1 JP1 = 1-2, voltage output of temperature transmitter 0…10V or 2…10V (JP3)
3: I1 JP1 = 2-3, current output of temperature transmitter 0…20mA or 4…20mA (JP3)

Configuration parameters

The transmitter can be adapted to fit perfectly into any application by adjusting the software parameters. The parameters are set with the operation terminals OPA-S or OPC-S. The OPA-S may also be used as remote indicator.

Input configuration

Parameter	Description	Range	Default
IP 00	TI1: Celsius or Fahrenheit, C = OFF, F = ON	ON, OFF	OFF
IP 01	TI1: Samples taken for averaging control signal	1…255	10
IP 02	TI1: Calibration	-10…10	0
IP 03	TI1: Minimum temperature	-40…215 °C/F	0 °C
IP 04	TI1: Maximum temperature	-40…215 °C/F	50°C

Output configuration

Parameter	Description	Range	Default
OP 00	AO1: Configuration of output signal: 0 = Feedback temperature input, 1 = Feedback temperature minimum value 2 = Feedback temperature maximum value	0 – 2	0
OP 01	AO1: Minimum limitation of output signal	0 – Max %	0%
OP 02	AO1: Maximum limitation of output signal	Min – 100%	100%

Output signal configuration

The analog output signal type may be configured with a jumper for 0-10 VDC or 0-20 mA control signals. The jumpers are located next to the terminal connector of each analog output. See table below for jumper placement. The factory setting is to 0-10 VDC.

Signal Type	JP1
0 – 10 V	(1-2)
0 – 20 mA	(2-3)

The signal range may be set with JP3 for both analog outputs. JP3 will only operate if the output range specified with OP01 and OP02 is left at the default position of 0…100%. With any other setting the position of JP3 has no influence and the range defined with the output parameters applies.

Signal Range	JP3
0 – 10 V, 0 – 20 mA	(1-2)
2 – 10 V, 4 – 20 mA	(2-3)

Jumper Settings