

SDC-T1 Duct Temperature Transmitter

Features

- Temperature measurement for air ducts
- 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)
- Status LED

Applications

- Temperature measurement for supply and return air ducts 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
SDC-T1-08	40-30 0056	Transmitter for duct mounting: probe length 77 mm (3")
SDC-T1-16	40-30 0057	Transmitter for duct mounting: probe length 157 mm (6.2")
SDC-T1-24	40-30 0078	Transmitter for duct mounting: probe length 237 mm (9.3")
SDC-T1-x-W0	40-30 00xx-0	0 Temperature Range: -40...60°C (-40...140°F) (Default)
SDC-T1-x-W1	40-30 00xx-1	1 Temperature Range: -35...35°C (-31...95°F)
SDC-T1-x-W2	40-30 00xx-2	2 Temperature Range: 0...50°C (32...122°F)
SDC-T1-x-W3	40-30 00xx-3	3 Temperature Range: Special – Specify in order

Accessories

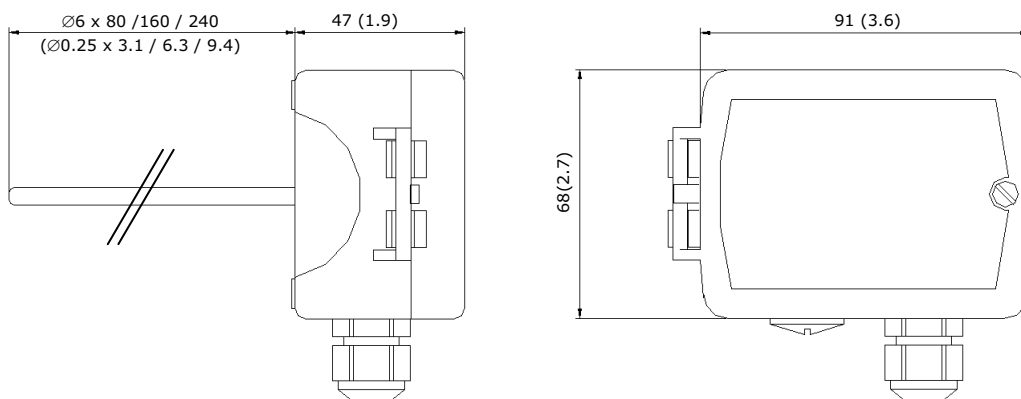
Item Name	Item Code	Description/Option
OPC-S	40-50 0029	Built in display & programming module
OPA-S	40-50 0006	External display module
AMC-1	20-10 0035	Cable gland PG9 for cables Ø 4 – 8 mm (AWG 6 – 1)
AMC-2	20-10 0067	Conduit connector NPT 1/2

Combine with AMI immersion stainless steel pocket for use as immersion sensor.

Spring loaded		Fixing screw		Immersion length (L)
Item name	Article #	Item name	Article #	
AMI-S05	40-51 0001	AMI-S05-1	40-51 0012	5 cm (2")
AMI-S07	40-51 0002	AMI-S07-1	40-51 0013	7.5 cm (3")
AMI-S10	40-51 0003	AMI-S10-1	40-51 0014	10 cm (4")
AMI-S15	40-51 0004	AMI-S15-1	40-51 0015	15 cm (5.9")
AMI-S20	40-51 0021	AMI-S20-1	40-51 0016	20 cm (7.9")
AMI-S30	40-51 0019	AMI-S30-1	40-51 0017	30 cm (11.8")
AMI-S40	40-51 0020	AMI-S40-1	40-51 0018	40 cm (15.7")

Technical Specification

Power Supply	Operating Voltage Transformer	24 V AC 50/60 Hz \pm 10%, 24VDC \pm 10% SELV to HD 384, Class II, 48VA max	
	Power Consumption	Max 2 VA	
	Terminal Connectors	For wire 0.34...2.5 mm ² (AWG 24...12)	
Sensing Probe	Accuracy: -40...0°C (-40...32°F):	0.5 K	
	0...50°C (32...122°F):	0.2 K	
	50...70°C (122...158°F):	0.5 K	
Signal Outputs	Analog Outputs		
	Output Signal	DC 0-10V or 0...20mA	
	Resolution	10 Bit, 9.7 mV, 0.019.5 mA	
	Maximum Load	20 mA, 500 Ω	
Environment	Operation Climatic Conditions	To IEC 721-3-3 class 3 K5	
	Temperature	-40...70°C (-40...158°F)	
	Humidity	<95% R.H. non-condensing	
	Transport & Storage Climatic Conditions	To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3	
	Temperature	-40...80°C (-40...176°F)	
	Humidity	<95% R.H. non-condensing	
Standards	Mechanical Conditions	class 2M2	
	conformity EMC Directive Low Voltage Directive	2004/108/EC 2006/95/EC	
		Product standards Automatic electrical controls for household and similar use	EN 60 730 -1
	Special requirement on temperature dependent controls	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	PC+ABS (UL94 class V-0)
		Probe	Stainless Steel
		Dimensions (H x W x D): Transmitter case:	68 x 91 x 47mm (2.7 x 3.7 x 1.9in)
Probe:		\varnothing 6 x 80/160/240 mm (\varnothing 0.25 x 3.1/6.3/9.4in)	
Weight (inc. package)	SDC-T1-08	225g (7.9 oz)	
	SDC-T1-16	260g (9.2 oz)	
	SDC-T1-24	295g (10.4 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 Duct controller should be installed directly on the duct, in a dry, protected area where the air stream is well mixed.

- Locate a supply air sensor two or three meters downstream from the nearest fan and coil.
- Mount the return air sensor close to the air inlet but downstream from a return fan if one is present.
- At least three duct diameters away from a bend or another source of turbulence.

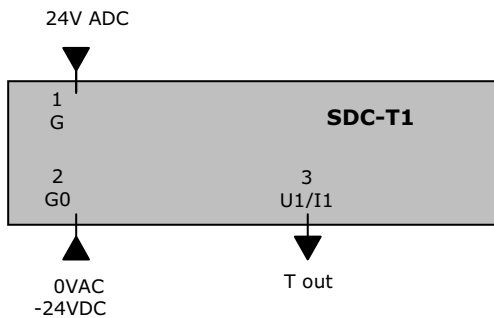
Installation

1. Stick the round seal on the back part to prevent air leakage.
2. Turn the single screw on the cover counterclockwise and remove cover.
3. Drill a hole with a diameter of 8mm (3/8") in the air duct.
4. Insert the back part and mark the location for the mounting holes on the duct. Remove the back part from the duct.
5. Drill two holes for the duct screws or use self tapping screws diagonal according to the marks made in previous step.
6. Insert the probe in the hole; secure the back part to the duct with two screws.
7. Connect the conductors to the terminals of the back part according to wiring diagram.
8. While in the open position, slide the two hooks of the cover into the latch at the left side of the back part.
9. Close the front part.
10. 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.

To install immersion transmitters

- Weld a nut to the water pipe according to local regulations.
- Fix an AMI immersion pocket to the nut
- Insert the probe into the immersion pocket
- For AMI-Sx-1 only: Secure the probe with the horizontal fixing screw of the AMI immersion pocket.

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

JP1 Signal type	
3 2 1	U1 0-10V, 2-10V
3 2 1	I1 0-20mA, 4-20mA

JP3 Signal range	
3 2 1	U1: 0-10V I1: 0-20mA
3 2 1	U1: 2-10V I1: 4-20mA

