

SDC-T1 Duct temperature transmitter

Features

- Temperature measurement for air ducts
- Minimum and maximum value memory
- 0...10 V, 0...20 mA or 2...10 V, 4...20 mA 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 measuring range and the averaging samples may be customized with the programming tool. Standard output signal range and types may be selected by jumpers. Standard signal ranges are: 0...10 VDC, 0...10 VDC, 4...20 mA and 0...20 mA. Other ranges can be defined 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

Per default a PG9 cable gland for cables \varnothing 4 – 8 mm (AWG 6 – 1) is included. Contact your local sales contact if you prefer a sensor with conduit connectors or a built in display module.

Item name	Item code	Description/Option
SDC-T1-08-1	40-30 0143	Transmitter for duct mounting: probe length 77 mm (3")
SDC-T1-16-1	40-30 0144	Transmitter for duct mounting: probe length 157 mm (6.2")
SDC-T1-24-1	40-30 0145	Transmitter for duct mounting: probe length 237 mm (9.3")
SDC-T1-x-1-W0	40-30 0xxx-0	0 Temperature range: -40...60 °C (-40...140 °F) (default)
SDC-T1-x-1-W1	40-30 0xxx-1	1 Temperature range: -35...35 °C (-31...95 °F)
SDC-T1-x-1-W2	40-30 0xxx-2	2 Temperature range: 0...50 °C (32...122 °F)
SDC-T1-x-1-W3	40-30 0xxx-3	3 Temperature range: Special – Specify in order

Accessories

Item name	Item code	Description/Option
OPC-S	40-50 0029	Built in display and programming module
OPA-S	40-50 0006	External display module
AMC-2	40-50 0074	Conduit connector NPT 1/2

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

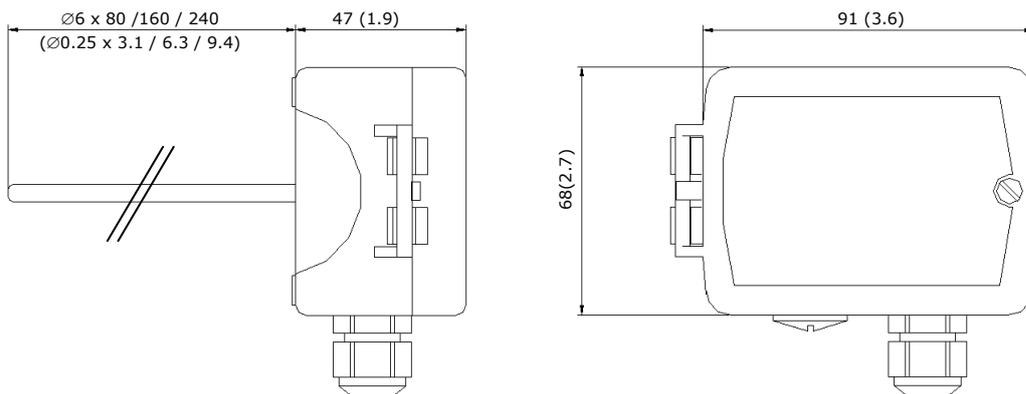
Item name	Article #	Immersion length (L)
AMI-S05-1	40-51 0012	5 cm (2")
AMI-S07-1	40-51 0013	7.5 cm (3")
AMI-S10-1	40-51 0014	10 cm (4")
AMI-S15-1	40-51 0015	15 cm (5.9")
AMI-S20-1	40-51 0016	20 cm (7.9")
AMI-S30-1	40-51 0017	30 cm (11.8")
AMI-S40-1	40-51 0018	40 cm (15.7")

Technical specification

Warning! Safety advice! This device is intended to be used for comfort applications. Where a device failure endangers human life and/or property, it is the responsibility of the owner, designer and installer to add additional safety devices to prevent or detect a system failure caused by such a device failure. The manufacturer of this device cannot be held liable for any damage caused by such a failure. Failure to follow specifications and local regulations may endanger life, cause equipment damage and void warranty.

Power supply	Operating voltage	24 VAC 50/60 Hz \pm 10%, 24 VDC \pm 10%
	Transformer	SELV to HD 384, Class II, 48 VA max
	Power consumption	Max 2 VA
	Terminal connectors	For wire 0.34...2.5 mm ² (AWG 22...13)
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	DC 0...10 V or 0...20 mA
	Output signal	10 Bit, 9.7 mV, 0.019.5 mA
	Resolution	Voltage: \geq 5 k Ω Current: \leq 250 Ω
	Maximum load	
Environment	Operation	To IEC 721-3-3
	Climatic conditions	class 3K5
	Temperature	-40...70 °C (-40...158 °F)
	Humidity	< 95% RH non-condensing
	Transport & storage	To IEC 721-3-2 and IEC 721-3-1
	Climatic conditions	class 3K3 and class 1 K3
Temperature	-40...80 °C (-40...176 °F)	
Humidity	< 95% RH non-condensing	
Mechanical conditions	class 2M2	
Standards	 conformity	
	EMC Directive	2004/108/EC
	Low voltage directive	2006/95/EC
	Product standards Automatic electrical controls for household and similar use	EN 60730-1
	Electromagnetic compatibility for domestic and industrial sector	Emissions: EN 60730-1 Immunity: EN 60730-1
	Degree of protection	IP65 to EN 60529
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 47 mm (2.7 x 3.7 x 1.9 in)
	Probe:	\varnothing 6 x 80/160/240 mm (\varnothing 0.25 x 3.1/6.3/9.4 in)
	Weight (incl. package)	SDC-T1-08-1 229 g (8.1 oz) SDC-T1-16-1 264 g (9.3 oz) SDC-T1-24-1 299 g (10.5 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.

Mounting instruction

See installation sheet no. 70-000529 (www.vectorcontrols.com).

Configuration

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	
	U1
	0...10 V, 2...10 V
	I1
	0...20 mA,

JP3 Signal range	
	U1: 0...10 V
	I1: 0...20 mA
	U1: 2...10 V
	I1: 4...20 mA

