

## 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 (OPU-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 (OPU-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 Ø 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 | <b>0 Temperature range: -40...60 °C (-40...140 °F) (default)</b> |
| SDC-T1-x-1-W1 | 40-30 0xxx-1 | <b>1 Temperature range: -35...35 °C (-31...95 °F)</b>            |
| SDC-T1-x-1-W2 | 40-30 0xxx-2 | <b>2 Temperature range: 0...50 °C (32...122 °F)</b>              |
| SDC-T1-x-1-W3 | 40-30 0xxx-3 | <b>3 Temperature range: Special – Specify in order</b>           |

### Accessories

| Item name | Item code  | Description/Option                      |
|-----------|------------|-----------------------------------------|
| OPC-S     | 40-50 0029 | Built in display and programming module |
| OPU-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.

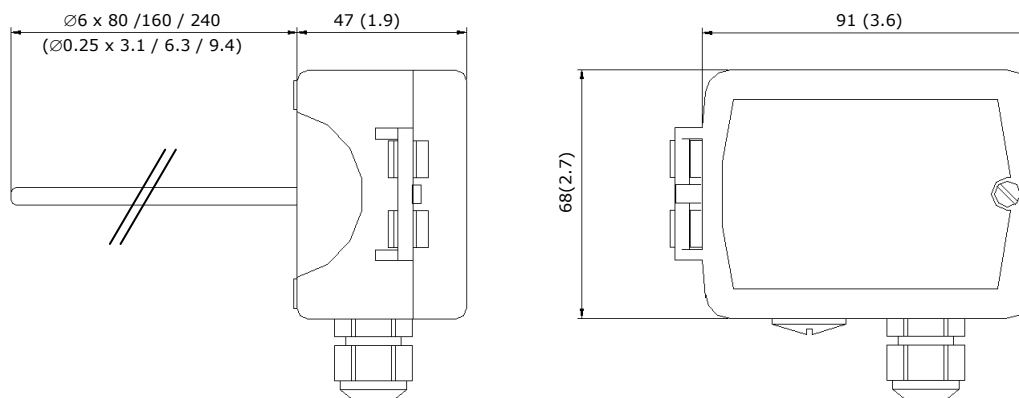
| Item name | Article #  | Immersion length (L) |
|-----------|------------|----------------------|
| AMI-S05-1 | 40-51 0012 | 5 cm (2")            |
| AMI-S07-1 | 40-51 0013 | 7.5 cm (3")          |
| AMI-S10-1 | 40-51 0014 | 10 cm (4")           |
| AMI-S15-1 | 40-51 0015 | 15 cm (5.9")         |
| 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 <sup>2</sup> (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                                                                               |                                                                                            |
|                | Output signal                                                                                | DC 0...10 V or 0...20 mA                                                                   |
|                | Resolution                                                                                   | 10 Bit, 9.7 mV, 0.019.5 mA                                                                 |
|                | Maximum load                                                                                 | Voltage: $\geq$ 5 k $\Omega$ Current: $\leq$ 250 $\Omega$                                  |
| 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                                                                    |
| 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 60730-1                                                                                 |
|                | Electromagnetic compatibility for domestic and industrial sector                             | Emissions: EN 60730-1<br>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.)<br>SDC-T1-16-1 264 g (9.3 oz.)<br>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](http://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 OPU-S or OPC-S. The OPU-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:<br>0 = Feedback temperature input,<br>1 = Feedback temperature minimum value<br>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

