FCTHX

Intelligent temperature and humidity sensor

The FCTHX are intelligent sensors featuring adjustable temperature and relative humidity ranges. Their algorithm controls a single analogue / modulating output based on the measured T and rH values, which can be used to directly control an EC fan or an actuator powered damper. All parameters are accessible via Modbus RTU.

Key features

- Selectable temperature and relative humidity ranges
- Fan speed control based on T and rH
- Inset or surface mounting
- Bootloader for updating the firmware via Modbus RTU communication
- Ambient light sensor with adjustable 'active' and 'standby' level
- Modbus RTU (RS485)
- 3 LEDs with adjustable light intensity for status indication
- Long-term stability and accuracy

Technical specifications

Analogue / modulating output	0—10 VDC mode: $R_L \geq 50$ kΩ	
	0—20 mA mode: $R_L \leq 500$ Ω	
	PWM (open-collector type) mode: 1 kHz, $R_L \geq 50$ kΩ, PWM voltage level: 3,3 VDC or 12 VDC	
Typical field of use	Temperature range	0—50 °C
	Relative humidity range	0—95 % rH (non-condensing)
Accuracy	± 0,4 °C (range 0—50 °C)	
	± 3% rH (range 0—95 %)	
Protection standard	IP30 (according to EN 60529)	

Article codes

Article code	Supply	Imax
FCTHG	18—34 VDC	35 mA
	15—24 VAC ±10%	95 mA
FCTHF	18—34 VDC	38 mA

Area of use

- Ventilation based on temperature and relative humidity levels in residential and commercial buildings
- Demand controlled ventilation
- For indoor use only

Wiring and connections

Article type	FCTHF	FCTHG	
V+	18—34 VDC	18—34 VDC	15—24 VAC ±10%
V-	Ground	Common ground*	AC ~*
A	Modbus RTU (RS485), signal A		
/B	Modbus RTU (RS485), signal /B		
Ao	Analogue / modulating output - T or rH (0—10 VDC / 0—20 mA / PWM)		
GND	Ground AO	Common ground*	
Connections	Spring contact terminal block, cable cross section: 2,5 mm²; pitch 5 mm; shielded cable		

**Attention!* The -F version of the product is not suited for 3-wire connection. It has separate grounds for power supply and analogue output. Connecting both grounds together might result in incorrect measurements. Minimum 4 wires are required to connect -F type sensors.*

The -G version is intended for 3-wire connection and features a 'common ground'. This means that the ground of the analogue output is internally connected with the ground of the power supply. For this reason, -G and -F types cannot be used together on the same network. Never connect the common ground of -G type articles to other devices powered by a DC voltage. Doing so might cause permanent damage to the connected devices.

Indications

1 - Red LED	Continuous	Measured temperature or relative humidity are out of range
	Blinking	Communication with one of the sensors fails
2 - Yellow LED	On	Measured temperature or relative humidity are in the alert range
3 - Green LED	On	Measured temperature or relative humidity are within range
4 - Ambient light sensor		Low light intensity / Active / Standby

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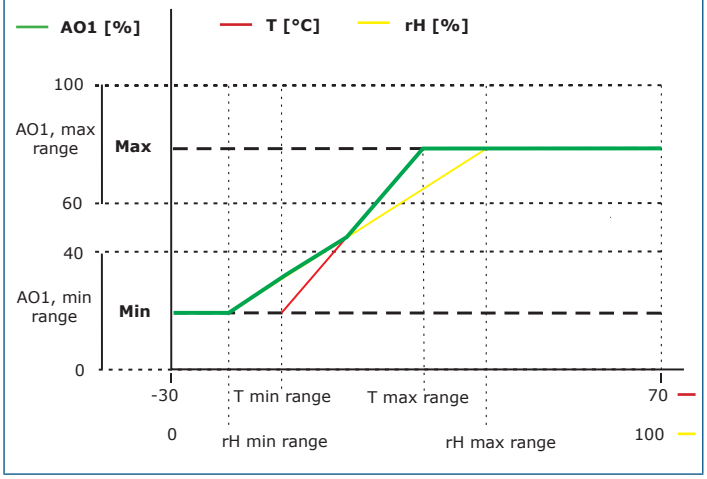
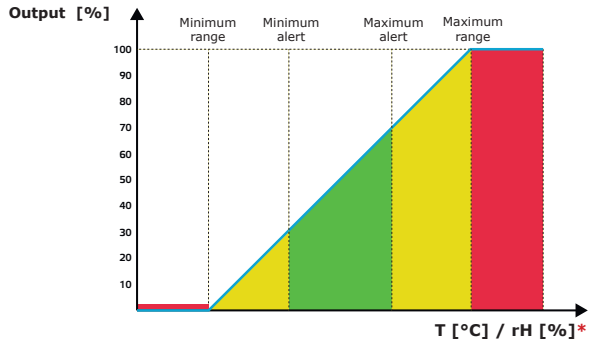
Operational diagram

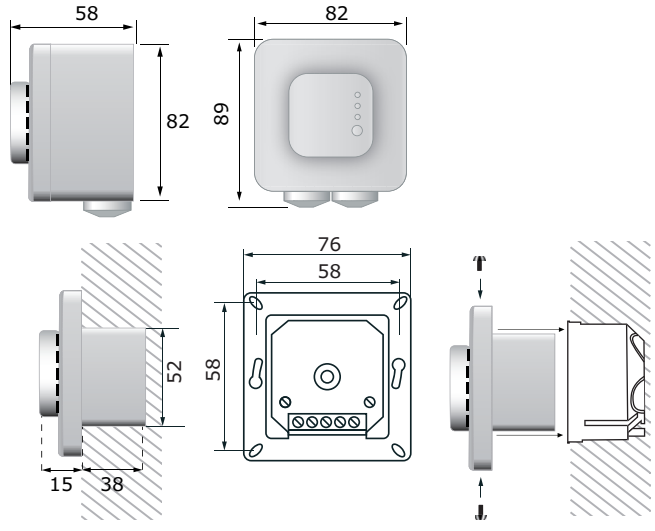


Note: *The output changes automatically depending on the higher of the T and rH values, i.e. the higher of two output values controls the output. See the green line in the operational diagram above.*



*** LED indications - T (default) or rH**

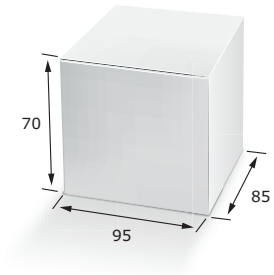
Fixing and dimensions



Standards

- Low Voltage Directive 2014/35/EC
  - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendment AC:1993 to EN 60529
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
- EMC directive 2014/30/EU:
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
  - EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
  - EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
  - EN 61326-2-3:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements. Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning
- WEEE 2012/19/EC
- RoHs Directive 2011/65/EC

Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
FCTHG FCTHF	Unit (1 pc.)	95	85	70	0,2 kg	0,21 kg
	Carton (10 pcs.)	492	182	84	2 kg	2,3 kg
	Box (60 pcs.)	590	380	280	12 kg	14,2 kg

Global trade item numbers (GTIN)

Packaging	FCTHF	FCTHG
Unit	05401003006245	05401003006252
Carton	05401003300770	05401003300787
Box	05401003501184	05401003501191

Modbus registers

The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters.

The parameters of the unit can be monitored / configured through the 3SModbus software platform. You can download it from the following link:
https://www.sentera.eu/en/3SMCenter

For more information about the Modbus registers, please refer to the product Modbus Register Map.