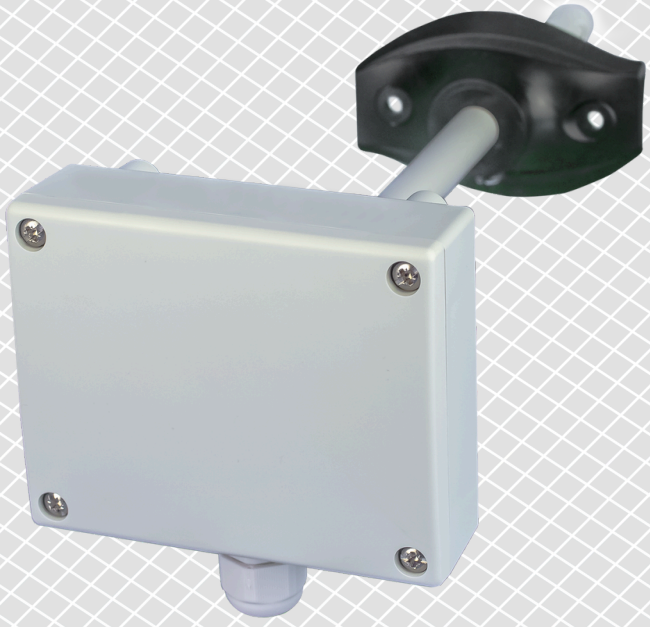
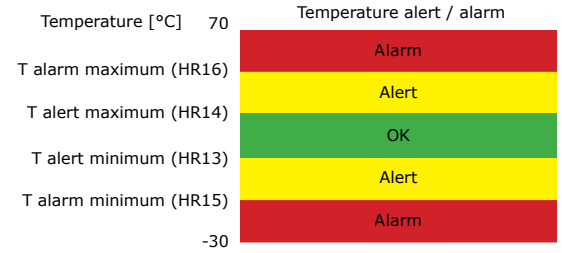
DSTHG2-4 | DUCT SENSOR FOR T, RH AND DEW POINT

Modbus register map

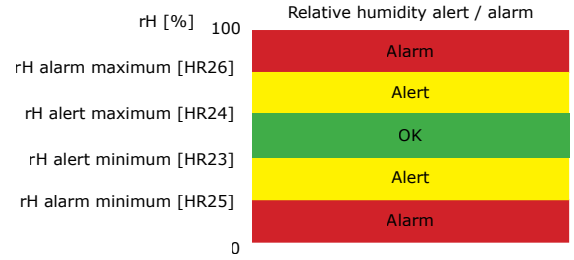


MODBUS REGISTER MAP

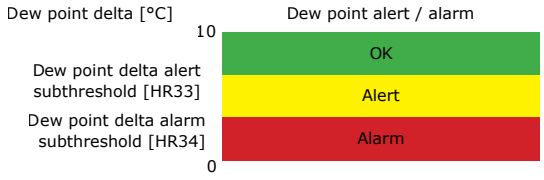
INPUT REGISTERS

Input register		Data Type	Description	Raw Data Range	Resolution / Unit	Values
			↓ General ↓			
1	Device status – errors	R	Indicates the critical faults of the specific device part. When powered by AC, Supply Voltage Fault is not valid.	Bitwise b0—b15		b0 = Supply Voltage Fault b1 = Internal Voltage Fault b2 = Memory Fault b3 = Sensor Fault b4—b15 = Reserved
2	Device status – warnings	R	Indicates non-critical warnings related to the specific device part. When powered by AC, Supply Voltage Warning is not valid.	Bitwise b0—b15		b0 = Supply Voltage Warning b1 = Internal Voltage Warning b2 = Reserved b3 = Sensor Warning b4—b15 = Reserved
3	Supply voltage	R	Shows the actual supply voltage of the device. When powered by AC, the displayed value is not valid.	150—340	1/10 VDC	**Example**: 240 = 24 VDC
			↓ Temperature ↓			
11	Temperature level	R	The measured temperature level.	-300—700	1/10 °C	**Example**: 200 = 20 VDC
12	Temperature output level	R	The output value according to the measured temperature and the configured measurement range (HR11 and HR12).	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output
13	Temperature alert / alarm	R	Indicates that the measured temperature level is within the OK range (HR13 and HR14), within the Alert range (HR15 and HR16) or in Alarm. 	0—2		0 = OK 1 = Alert 2 = Alarm

INPUT REGISTERS

Input register		Data Type	Description	Raw Data Range	Resolution / Unit	Values
14	Temperature sensor state	R	Indicates the state of the temperature sensor.	Bitwise b0—b15		b0 = Sensor problem b1 = Sensor replacement b2 = Sensor preheating b3—b15 = Reserved
↓ Relative Humidity ↓						
21	Relative humidity level	R	The measured level of relative humidity.	0—1.000	1/10 % rH	**Example**: 500 = 50 % rH
22	Relative humidity output level	R	The output value according to the relative humidity and the configured measurement range (HR21 and HR22).	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output
23	Relative humidity alert / alarm	R	Indicates that the relative humidity level is within the OK range (HR23 and HR24), within the Alert range (HR25 and HR26) or in Alarm. 	0–2		0 = OK 1 = Alert 2 = Alarm
24	Relative humidity sensor state	R	Indicates the state of the relative humidity sensor.	Bitwise b0—b15		b0 = Sensor problem b1 = Sensor replacement b2 = Sensor preheating b3—b15 = Reserved
↓ Dew Point ↓						
31	Dew point level	R	The calculated dew point level.	- 500—700	1/10 °C	**Example**: 100 = 10 °C
32	Dew point output level	R	The output value according to the dew point and the configured measurement range (HR31 and HR32).	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output

INPUT REGISTERS

Input register		Data Type	Description	Raw Data Range	Resolution / Unit	Values
33	Dew point delta alert / alarm	R	Indicates whether the dew point difference (measured temperature (IR11) minus dew point (IR31)) is below the alert and alarm sub-thresholds (HR33 and HR34). 	0–2		0 = OK 1 = Alert 2 = Alarm
34	Dew point state	R	Indicates the state of the dew point calculation.	Bitwise b0—b15		b0 = Sensor problem b1 = Sensor replacement b2 = Sensor preheating b3—b15 = Reserved
↓ Analogue Output ↓						
162	Output 1 value	R	Output value according to the selected source (HR161).	0—1.000	1/10 %	0 = 0 % Output 1.000 = 100 % Output
↓ Relay Output ↓						
192	Relay output 1 state	R	Indicates the state of relay output 1 based on the selected source and settings.	0—1		0 = De-energised 1 = Energised

Note: The input registers can be read via the Modbus command: "Read input registers".

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
↓ General ↓							
1	Device slave address	R/W	Modbus device address.	1—247			1
2	Modbus baud rate	R/W	Modbus communication baud rate.	0—6		0 = 4.800 1 = 9.600 2 = 19.200 3 = 38.400 4 = 57.600 5 = 115.200 6 = 230.400	2
3	Modbus parity	R/W	Parity check mode.	0—2		0 = 8N1 1 = 8E1 2 = 8O1	1
4	Device type	R	Sentera article code of the device.	XXXX		Device specific	1840 = DSTHG2-4
5	HW version	R	Hardware version of the device.	XXXX		Hardware version specific 0x0100 = HW version 1.00	Depends on the hardware release
6	FW version	R	Firmware version of the device.	XXXX		Firmware version specific 0x0100 = FW version 1.00	Depends on the firmware release
9	Modbus network resistor termination (NBT)	R/W	To avoid communication losses and reflections on the Modbus line, the NBT in two devices (at both ends of the line) must be activated.	0—1		0 = NBT disconnected 1 = NBT connected	0
10	Modbus registers reset		To reset the Modbus Holding registers to their default values, set this register to "1". After the reset is completed, the register is automatically set back to "0".	0—1		0 = Idle 1 = Reset Modbus Registers	0
↓ Temperature ↓							
11	Minimum temperature range	R/W	Minimum temperature value that corresponds to the minimum output value.	-300—HR12	1/10°C	**Example**: -100 = -10 °C	0

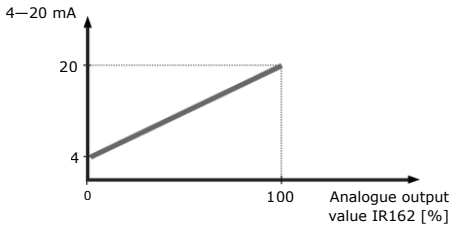
HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
12	Maximum temperature range	R/W	Maximum temperature value that corresponds to the maximum output value.	HR11—700	1/10 °C	**Example**: 500 = 50 °C	500
13	Temperature alert minimum	R/W	Temperature alert minimum level used to control IR13.	HR15—HR14	1/10 °C	**Example**: 200 = 20 °C	190
14	Temperature alert maximum	R/W	Temperature alert maximum level used to control IR13.	HR13—HR16	1/10 °C	**Example**: 300 = 30 °C	300
15	Temperature alarm minimum	R/W	Temperature alarm minimum level used to control IR13.	-300—HR13	1/10 °C	**Example**: 100 = 10 °C	100
16	Temperature alarm maximum	R/W	Temperature alarm maximum level used to control IR13.	HR14—700	1/10 °C	**Example**: 400 = 40 °C	400
19	Temperature relay activation threshold	R/W	Temperature threshold at which the relay is activated.	-300—700	1/10 °C	**Example**: 400 = 40 °C	400
↓ Relative Humidity ↓							
21	Minimum relative humidity range	R/W	Minimum relative humidity value that corresponds to the minimum output value.	0—HR22	1/10 % rH	**Example**: 50 = 5 % rH	50
22	Maximum relative humidity range	R/W	Maximum relative humidity value that corresponds to the maximum output value.	HR21—1.000	1/10 % rH	**Example**: 950 = 95 % rH	950
23	Relative humidity alert minimum	R/W	Relative humidity alert minimum level used to control IR23.	HR25—HR24	1/10 % rH	**Example**: 300 = 30 % rH	300
24	Relative humidity alert maximum	R/W	Relative humidity alert maximum level used to control IR23.	HR23—HR26	1/10 % rH	**Example**: 700 = 70 % rH	700
25	Relative humidity alarm minimum	R/W	Relative humidity alarm minimum level used to control IR23.	0—HR23	1/10 % rH	**Example**: 100 = 10 % rH	100

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
26	Relative humidity alarm maximum	R/W	Relative humidity alarm maximum level used to control IR23.	HR24—1000	1/10 % rH	**Example**: 900 = 90 % rH	900
29	Relative humidity relay activation threshold	R/W	Relative humidity threshold at which the relay is activated.	0—1.000	1/10 % rH	**Example**: 900 = 90 % rH	900
↓ Dew Point ↓							
31	Minimum dew point range	R/W	Minimum dew point value that corresponds to the minimum output value.	-500—HR32	1/10 °C	**Example**: -350 = -35 °C	-350
32	Maximum dew point range	R/W	Maximum dew point value that corresponds to the maximum output value.	HR31—700	1/10 °C	**Example**: 500 = 50 °C	500
33	Dew point delta alert sub-threshold	R/W	Dew point delta alert sub-threshold used to control IR33.	HR34—100	1/10 °C	**Example**: 20 = 2 °C	40
34	Dew point delta alarm sub-threshold	R/W	Dew point delta alarm sub-threshold used to control IR33.	0—HR33	1/10 °C	**Example**: 20 = 2 °C	20
↓ Analogue Output ↓							
161	Output 1 source	R/W	Indicates the source or combination of sources used for analogue output 1.	0—8		2 = Temperature 4 = Relative Humidity 8 = Dew Point	2
162	Output 1 Overwrite value	R/W	Override value for output 1.	0—1.000	1/10 %	**Example**: 1.000 = 100 % Output	0

HOLDING REGISTERS

Holding register		Data Type	Description	Raw Data Range	Resolution / Unit	Values	Factory Default Values
163	Output type	R/W	Selects the analogue / modulating output type. 	0—6		0 = 0—10 VDC 1 = 0—20 mA 2 = PWM 12 VDC 3 = PWM Open Collector 4 = 2—10 V 5 = 4—20 mA 6 = 0—5 V	0
↓ Relay Output ↓							
191	Relay output 1 source	R/W	Indicates the source used for relay output 1.	1—4		1 = Overwrite 2 = Temperature 4 = Relative Humidity	2
192	Relay output 1 Overwrite value	R/W	Override value for relay output 1.	0—1		0 = De-energised 1 = Energised	0

Note: The holding registers can be managed via the following Modbus commands: "Read Holding Registers", "Write Single Register" or "Write Multiple Registers".

The free Sentera configuration and monitoring software SenCom can be accessed at: https://www.senteraweb.eu/en/sencom