DSTHX -3

DUCT TEMPERATURE AND RELATIVE HUMIDITY TRANSMITTER

Modbus register map

MODBUS REGISTER MAP

		Data type	Description	Raw data range	Values
	INPUT REGISTERS				
1	Temperature reading	signed integer	Actual temperature level	-300—700	500 = 50,0°C
2	Output value Ao1 (T)	unsigned integer	Output value Ao1 (Temperature)	0—1.000	0 = 0 % 1.000 = 100 %
3	Temperature Alert Flag 1	unsigned integer	Flag indicates that measured Temperature is outside set alert values. Set to '1' when the measured value is outside the Temperature alert values defined by holding registers 13 and 14	0, 1	0 = Temperature measurement OK 1 = Temperature measurement too low / high
4	Temperature Range Limit Flag 1	unsigned integer	Flag indicates that measured temperature is outside set range limit values. Set to '1' when the measured temperature is outside limit range values defined by holding registers 11 and 12	0, 1	0 = Temperature range OK 1 = Temperature range too low / high
5	Temperature Sensor State	unsigned integer	Flag that shows if the communication with temperature sensor is lost	0, 1	0 = OK 1 = Fault
6			Reserved, returns 0		
7	Temperature alert Flag 2	unsigned integer	Flag indicates that measured Wall Temperature is outside set alert values. Set to '1' when the measured value is outside the Wall Temperature alert values defined by holding registers 17 and 18	0, 1	0 = Temperature measurement 2 OK, 1 = Temperature measurement 2 too low/high
8	Temperature range limit Flag 2	unsigned integer	Flag indicates that measured Wall Temperature is outside set range limit values. Set to '1' when the measured Wall Temperature is outside Wall limit range values defined by holding registers 15 and 16	0, 1	0 = Temperature range 2 OK 1 = Temperature range 2 too low/high
9			Reserved, returns 0		
10	Relative Humidity Level	unsigned integer	Actual relative humidity level	0—1.000	1.000 = 100 % rH

INPUT REGISTERS

		Data type	Description	Raw data range	Values
11	Output value Ao2 (rH)	unsigned integer	Output value Ao2 (Relative humidity)	0—1.000	0 = 0 % 1.000 = 100 %
12	Relative Humidity Alert Flag 1	unsigned integer	Flag indicates that measured Relative humidity is outside set alert values. Set to '1' when the measured value is outside the Relative humidity alert values defined by holding registers 21 and 22	0, 1	0 = Relative humidity measurement 1 OK 1 = Relative humidity measurement 1 too low/high
13	Relative Humidity Range Limit Flag 1	unsigned integer	Flag indicates that measured Relative humidity is outside set range limit values. Set to '1' when the measured Relative humidity is outside limit range values defined by holding registers 19 and 20	0, 1	0 = Relative humidity range 1 OK 1 = Relative humidity range 1 too low/high
14	Humidity Sensor State	unsigned integer	Flag that shows if the communication with humidity sensor is lost	0, 1	0 = No 1 = Yes
15	Dew Point Level	signed integer	Calculated dew point	-700—700	200 = 20,0°C
16	Relative Humidity Alert Flag 2	unsigned integer	Flag indicates that measured Relative humidity is outside set alert values. Set to '1' when the measured value is outside the Relative humidity alert values defined by holding registers 25 and 26	0, 1	0 = Relative humidity measurement 2 OK 1 = Relative humidity measurement 2 too low/high
17	Relative Humidity Range Limit Flag 2	unsigned integer	Flag indicates that measured Relative humidity is outside set range limit values. Set to '1' when the measured Relative humidity is outside limit range values defined by holding registers 23 and 24	0, 1	0 = Relative humidity range 2 OK 1 = Relative humidity range 2 too low/high
18—21			Reserved, return 0		
22	Output value Ao3 (T or rH)	unsigned integer	Output value Ao3 (Temperature or Relative humidity). Depending from Holding Register 70 settings	0—1.000	0 = 0 % 1.000 = 100 %
23—50			Reserved, return 0		

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

HOLDING REGISTERS

		Data type	Description	Raw data range	Values			Factory default values
1	Device Slave Address	unsigned integer	Modbus device address	1—247				1
2	Modbus Baud Rate	unsigned integer	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	unsigned integer	Parity check mode	0—2	0 = 8N1 1 = 8E1 2 = 8O1			0
4	Device Type	unsigned integer	Device type, read only	1.750—1.751	1.750 = DSTHF-3 1.751 = DSTHG-3			
5	HW version	unsigned integer	Hardware version of the device. Read only	XXXX	0x0100 = HW version 1.0			
6	FW version	unsigned integer	Firmware version of the device. Read only	XXXX	0x0100 = FW version 1.0			
7			Reserved, returns 0					
8	Modbus safety timeout	unsigned integer	After time with no Modbus communication, outputs are set to 0	0—60	0 = no timeout 60 = 60 minutes			1
9	Modbus Network Bus Termination (NBT)	unsigned integer	Set device as end device of the line / or not by connecting NBT	0, 1	0 = NBT disconnected 1 = NBT connected			0
10	Modbus Registers Reset	unsigned integer	Resets Modbus Holding registers (above 10) to default values. When finished this register is automatically reset to '0'	0, 1	0 = Idle 1 = Reset Modbus Registers			0
11	Minimum Temperature Range 1	unsigned integer	Minimum value of temperature range 1, cannot be set higher than maximum temperature range minus 5°C	0 - (Max—50)	100 = 10,0°C			0
12	Maximum Temperature Range 1	unsigned integer	Maximum value of temperature range 1, cannot be set less than minimum temperature range plus 5°C	(Min+50)—500	500 = 50,0°C			500

HOLDING REGISTERS

		Data type	Description	Raw data range	Values		Factory default values
13	Minimum Temperature Alert 1	unsigned integer	Minimum temperature alarm value 1	Min. temperature range 1—Max. temperature alarm 1	100 =	10,0°C	0
14	Maximum Temperature Alert 1	unsigned integer	Maximum temperature alarm value 1	Min. temperature alarm 1—Max. temperature range 1	500 =	50,0°C	500
15	Minimum temperature range 2	unsigned integer	Minimum value of temperature range 2, cannot be set higher than maximum temperature range 2 minus 5°C	0 – Max—50	100 =	10,0°C	0
16	Maximum temperature range 2	unsigned integer	Maximum value of temperature range 2, cannot be set less than minimum temperature range 2 plus 5°C	Min+50—500	500 =	50,0°C	500
17	Minimum temperature alert 2	unsigned integer	Minimum wall temperature alarm value	Min. temperature range 2—Max. temperature alarm 2	100 =	10,0 °C	0
18	Maximum temperature alert 2	unsigned integer	Maximum wall temperature alarm value	Min. temperature alarm 2—Max. temperature range 2	500 =	50,0 °C	500
19	Minimum relative humidity range 1	unsigned integer	Minimum value of relative humidity range 1, cannot be set higher than maximum relative humidity range minus 5%	0 – Max—50	200 =	20,0 % rH	0
20	Maximum relative humidity range 1	unsigned integer	Maximum value of relative humidity range 1, cannot be set less than minimum relative humidity range plus 5%	Min+50—1.000	850 =	85 % rH	1.000
21	Minimum relative humidity alert 1	unsigned integer	Minimum relative humidity alarm value 1	Min. relative humidity range 1—Max. relative humidity alarm 1	200 =	20,0 % rH	0
22	Maximum relative humidity alert 1	unsigned integer	Maximum relative humidity alarm value 1	Min. relative humidity alarm 1 —Max. relative humidity range 1	850 =	85 % rH	1.000
23	Minimum relative humidity range 2	unsigned integer	Minimum value of relative humidity range 2, cannot be set higher than maximum relative humidity range minus 5%	0 – Max—50	200 =	20,0 % rH	0

HOLDING REGISTERS

		Data type	Description	Raw data range	Values		Factory default values
24	Maximum relative humidity range 2	unsigned integer	Maximum value of relative humidity range 2, cannot be set less than minimum relative humidity range plus 5%	Min+50—1.000	850 =	85 % rH	1.000
25	Minimum relative humidity alert 2	unsigned integer	Minimum relative humidity alarm value 2	Min. relative humidity range 2—Max. relative humidity alarm 2	200 =	20,0 % rH	0
26	Maximum relative humidity alert 2	unsigned integer	Maximum relative humidity alarm value 2	Min. relative humidity alarm 2—Max. relative humidity range 2	850 =	85 % rH	1.000
27—40			Reserved, return 0				
41	Output type Ao1	unsigned integer	Select analogue/modulating type Ao1	1—3	1 = 2 = 3 =	0—10 VDC 0—20 mA PWM	1
42	Output overwrite enable Ao1	unsigned integer	Enables the direct control over output Ao1	0, 1	0 = 1 =	Disabled Enabled	0
43	Output overwrite value Ao1	unsigned integer	Overwrite value for output Ao1. Active only if Holding register 42 is set to 1	0—1.000	0 = 1.000 =	0 % 100%	0
44	Output internal voltage source selection Ao1	unsigned integer	Selection of internal voltage source for modulating output Ao1	0, 1	0 = 1 =	3,3 VDC 12,0 VDC	0
45	Minimum value output Ao1	unsigned integer	Set minimum value of output Ao1 in percentage	0—40	20 =	20 % output	0
46	Maximum value output Ao1	unsigned integer	Set maximum value of output Ao1 in percentage	60—100	80 =	80 % output	100
47—50			Reserved, return 0				

HOLDING REGISTERS

		Data type	Description	Raw data range	Values	Factory default values
51	Output type Ao2	unsigned integer	Select analogue/modulating type Ao2	1—3	1 = 0—10 VDC 2 = 0—20 mA 3 = PWM	1
52	Output overwrite enable Ao2	unsigned integer	Enables the direct control over output Ao2	0, 1	0 = Disabled 1 = Enabled	0
53	Output overwrite value Ao2	unsigned integer	Overwrite value for output Ao2. Active only if Holding register 52 is set to 1	0—1.000	0 = 0 % 1.000 = 100 %	0
54	Output internal voltage source selection Ao2	unsigned integer	Selection of internal voltage source for modulating output Ao2	0, 1	0 = 3,3 VDC 1 = 12,0 VDC	0
55	Minimum value output Ao2	unsigned integer	Set minimum value of output Ao2 in percentage	0—40	20 = 20 % output	0
56	Maximum value output Ao2	unsigned integer	Set maximum value of output Ao2 in percentage	60—100	80 = 80 % output	100
57—60			Reserved, return 0			
61	Output type Ao3	unsigned integer	Select analogue/modulating output Ao3	1—3	1 = 0—10 VDC 2 = 0—20 mA 3 = PWM	1
62	Output overwrite enable Ao3	unsigned integer	Enables the direct control over output Ao3	0, 1	0 = Disabled 1 = Enabled	0
63	Output overwrite value Ao3	unsigned integer	Overwrite value for output Ao3. Active only if Holding register 62 is set to 1	0—1.000	0 = 0 % 1.000 = 100 %	0

HOLDING REGISTERS

		Data type	Description	Raw data range	Values	Factory default values
64	Output internal voltage source selection Ao3	unsigned integer	Selection of internal voltage source for modulating output Ao3	0, 1	0 = 3,3 VDC 1 = 12 VDC	0
65	Minimum value output Ao3	unsigned integer	Set minimum value of output Ao3 in percentage	0—40	20 = 20 % output	0
66	Maximum value output Ao3	unsigned integer	Set maximum value of output Ao3 in percentage	60—100	80 = 80 % output	100
67—69			Reserved, return 0			
70	Output Ao3 measurement selection	unsigned integer	Selection which measurement range 2 to be used for output Ao3	0—2	0 = Off 1 = Temperature 2 = Relative humidity	0
71—80			Reserved, return 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 3SModbus can be downloaded via: *https://www.sentera.eu/en/3SMCenter*