RSVCXB-R | MULTIFUNCTIONAL AIR QUALITY ROOM SENSOR WITH BUZZER

Modbus register map

MODBUS REGISTER MAP

INPUT REGISTERS

		Data type	Description	Raw data range	Values
1	Temperature reading	signed integer	Actual temperature level	-300—700	500 = 50,0°C
2	Temperature output value	unsigned integer	Output value according to temperature	0—1.000	0 = 0 % 1.000 = 100 %
3	Temperature alert flag	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	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—9			Reserved, return 0		
10	Relative humidity level	unsigned integer	Actual relative humidity level	0—1.000	1.000 = 100 % rH
11	Relative humidity output value	unsigned integer	Output value according to relative humidity	0—1.000	0 = 0 % 1.000 = 100 %
12	Relative humidity alert flag	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 OK 1 = Relative humidity measurement too low / high
13	Relative humidity range limit flag	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 OK 1 = Relative humidity range too low / high
14	Humidity sensor state	unsigned integer	Flag that shows if the communication with humidity sensor is lost	0, 1	0 = OK 1 = Fault
15	Dew point level	signed integer	Calculated dew point	-700—700	200 = 20,0°C

INPUT REGISTERS

		Data type	Description	Raw data range	Values
16—25			Reserved, returns 0		
26	TVOC level	unsigned integer	TVOC level	0—60.000	1000 = 1000 ppb
27	TVOC output value	unsigned integer	Output value according to TVOC	0—1.000	0 = 0 % 1.000 = 100 %
28	TVOC alert flag	unsigned integer	Flag indicates that measured TVOC level is outside set alert values. Set to '1' when the measured value is outside the TVOC values defined by holding registers 29 and 30	0, 1	0 = TVOC measurement OK 1 = TVOC measurement too low / high
29	TVOC range limit flag	unsigned integer	Flag indicates that measured TVOC is outside set range limit values. Set to '1' when the measured TVOC is outside limit range values set defined by holding registers 27 and 28	0, 1	0 = TVOC range OK 1 = TVOC range too low / high
30	TVOC sensor state	unsigned integer	Flag that shows if the communication with the TVOC sensor is lost	0, 1 and 4	0 = OK 1 = Fault 4 = Prestabilising
31—40			Reserved, return 0		
41	Ambient light intensity	unsigned integer	Measured ambient light intensity	0—32.000	1.000 = 1.000 lux
42	Active / Standby	unsigned integer	Active or Standby indication according the Active / Standby light level defined by holding registers 35 and 36. If the measured light level is between the two levels the indication is 0 (Low intensity)	0—2	0 = Low light intensity 1 = Active 2 = Standby
43	Ambient light sensor state	unsigned integer	Flag that shows if the communication with the ambient light sensor is lost	0, 1	0 = OK 1 = Fault
44	Buzzer alarm state	unsigned integer	Flag that shows buzzer is ON/OFF when min./max. alert flag active	0, 1	0 = OFF 1 = ON
45—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	1
4	Device type	unsigned integer	Device type, read only	1.765—1.767	RSVCGB-R = 1.765 RSVCFB-R = 1.766 RSVCHB-R = 1.767	
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	0x0110 = FW version 1.1	
7			Reserved, returns 0			
8	Modbus safety timeout	unsigned integer	Timeout setting for no Modbus communication. After time runs out, output(s) is set to 0	0—60	0 = no timeout 60 = 60 minutes	0
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 (8 and 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	unsigned integer	Minimum value of temperature range, cannot be set higher than maximum temperature range minus 5°C	0—(Max-50)	100 = 10,0°C	0
12	Maximum temperature range	unsigned integer	Maximum value of temperature range, 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	unsigned integer	Minimum temperature alarm value	Min. temperature range—Max. temperature alarm	100 = 10,0°C	0
14	Maximum temperature alert	unsigned integer	Maximum temperature alarm value	Min. temperature alarm—Max. temperature range	500 = 50,0°C	500
15—18			Reserved, return 0			
19	Minimum relative humidity range	unsigned integer	Minimum value of relative humidity range, cannot be set higher than maximum relative humidity range minus 5%	0—(Max-50)	200 = 20,0 % rH	0
20	Maximum relative humidity range	unsigned integer	Maximum value of relative humidity range, cannot be set less than minimum relative humidity range plus 5%	(Min+50)—1.000	1.000 = 100 % rH	1.000
21	Minimum relative humidity alert	unsigned integer	Minimum relative humidity alarm value	Min. relative humidity range—Max. relative humidity alarm	200 = 20,0 % rH	0
22	Maximum relative humidity alert	unsigned integer	Maximum relative humidity alarm value	Min. relative humidity alarm—Max. relative humidity range	1.000 = 100 % rH	1.000
23—26			Reserved, return 0			
27	Minimum TVOC range	unsigned integer	Minimum TVOC range, cannot be set higher than maximum TVOC range minus 100 ppb	0—(Max-100)	100 = 100 ppb	0
28	Maximum TVOC range	unsigned integer	Maximum TVOC range, cannot be set less than minimum TVOC range plus 100 ppb	(Min+100)—60.000	1.000 = 1.000 ppb	2.000
29	Minimum TVOC alert	unsigned integer	Minimum TVOC alarm value	Min. TVOC range—Max. TVOC alarm	100 = 100 ppb	0
30	Maximum TVOC alert	unsigned integer	Maximum TVOC alarm value	Min. TVOC alarm—Max. TVOC range	1.000 = 1.000 ppb	2.000

HOLDING REGISTERS

		Data type	Description	Raw data range	Values	Factory default values
31—34			Reserved, return 0			
35	Active level	unsigned integer	The ambient light level above which 'Active' is indicated in input register 42	0—32.000	100 = 100 lux	100
36	Standby level	unsigned integer	The ambient light level below which 'Standby' is indicated in input register 42	0—32.000	10 = 10 lux	10
37—40			Reserved, return 0			
41	Output 1 temperature type	unsigned integer	Select analogue / modulating output 1 type	1—3	1 = 0—10 VDC 2 = 0—20 mA 3 = PWM	1
42	Output 1 overwrite enable / disable	unsigned integer	Enables the direct control over output 1	0, 1	0 = Disabled 1 = Enabled	0
43	Output 1 overwrite value	unsigned integer	Overwrite value for output 1. Active only if Holding register 42 is set to 1	0—1.000	1.000 = 100 %	0
44	Output 1 internal voltage source selection	unsigned integer	Select internal voltage source for PWM output 1	0, 1	0 = 3,3 VDC 1 = 12 VDC	0
45—50			Reserved, return 0			
51	Output 2 humidity - type	unsigned integer	Select analogue / modulating output 2 type	1—3	1 = 0—10 VDC 2 = 0—20 mA 3 = PWM	1
52	Output 2 overwrite enable/ disable	unsigned integer	Enables the direct control over output 2	0, 1	0 = Disabled 1 = Enabled	0
53	Output 2 overwrite value	unsigned integer	Overwrite value for output 2. Active only if Holding register 52 is set to 1	0—1.000	1.000 = 100 %	0
54	Output 2 internal voltage source selection	unsigned integer	Select internal voltage source for PWM output 2	0, 1	0 = 3,3 VDC 1 = 12 VDC	0

HOLDING REGISTERS

		Data type	Description	Raw data range	Values	Factory default values
55—60			Reserved, return 0			
61	Output 3 TVOC type	unsigned integer	Select analogue / modulating output 3 type	1—3	1 = 0—10 VDC 2 = 0—20 mA 3 = PWM	1
62	Output 3 overwrite enable/ disable	unsigned integer	Enables the direct control over output 3	0, 1	0 = Disabled 1 = Enabled	0
63	Output 3 overwrite value	unsigned integer	Overwrite value for output 3. Active only if Holding register 62 is set to 1	0—1.000	1.000 = 100 %	0
64	Output 3 internal voltage source selection	unsigned integer	Select internal voltage source for PWM output 3	0, 1	0 = 3,3 VDC 1 = 12 VDC	0
65—77			Reserved, return 0			
78	Buzzer alarm output	unsigned integer	Set piezo buzzer alarm output	0—2	0 = OFF 1 = Continuous 2 = Pulsed	1
79	LED indication	unsigned integer	Select sensor to be related to LED indication	1, 2, 4	1 = Temperature 2 = Relative humidity 4 = TVOC	4
80	LED brightness	unsigned integer	Set LED brightness	0—10	0 = OFF 5 = 50 %	5

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