OCMFM-R | INTELLIGENT SENSOR FOR HARSH ENVIRONMENTS

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	Temperature output value	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	Humidity, temperature sensor fault	unsigned integer	Flag that shows if the communication with temperature & humidity sensor is lost	0, 1	0 = No 1 = Yes
6—9			Reserved, return 0		
10	Relative humidity level	unsigned integer	Actual relative humidity level	0—1.000	1.000 = 100,0 % rH
11	Relative humidity output value	unsigned integer	Relative humidity output value	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, temperature sensor fault	unsigned integer	Flag that shows if the communication with temperature & 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

INPUT REGISTERS

		Data type	Description	Raw data range	Values
16—20			Reserved, return 0		
21	CO_2 level	unsigned integer	Actual CO_2 level	0—2.000	2.000 = 2.000 ppm
22	CO_2 output value	unsigned integer	CO_2 output value	0—1.000	0 = 0 % 1.000 = 100 %
23	CO_2 alert flag	unsigned integer	Flag indicates that measured CO_2 level is outside set alert values. Set to '1' when the measured value is outside the CO_2 values defined by holding registers 25 and 26	0, 1	0 = CO_2 measurement OK 1 = CO_2 measurement too low/high
24	CO_2 range limit flag	unsigned integer	Flag indicates that measured CO_2 is outside set range limit values. Set to '1' when the measured CO_2 is outside limit range values set defined by holding registers 23 and 24	0, 1	0 = CO_2 range OK 1 = CO_2 range too low/high
25	CO_2 Sensor fault	unsigned integer	Flag that shows if the communication with the CO_2 sensor is lost	0, 1	0 = No 1 = Yes
26—38			Reserved, return 0		
39	Actual output value	unsigned integer	Actual output 1 value - the highest of three output values (T, rH or CO_2)	0—1.000	0 = 0 % 1.000 = 100 %
40	Output control mode	unsigned integer	Output mode corresponds to highest T, rH or CO_2 value (the highest of three output values controls)	1—3	1 = Temperature 2 = rH 3 = CO_2
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 light intensity)	0—2	0 = Low light intensity 1 = Active 2 = Standby
43	Ambient light sensor fault	unsigned integer	Flag that shows if the communication with the ambient light sensor is lost	0, 1	0 = No 1 = Yes
44—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	1.664	OCMFM-R = 1.664	
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	0x0200 = FW version 2.0	
7—8			Reserved, return 0			
9	Modbus network resistor 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 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	signed integer	Minimum value of temperature range, cannot be set higher than maximum temperature range minus 5°C	-300—(Max -50)	100 = 10,0°C	0
12	Maximum temperature range	signed integer	Maximum value of temperature range, cannot be set less than minimum temperature range plus 5°C	(Min + 50)—700	500 = 50,0°C	500
13	Minimum temperature alert	signed integer	Minimum temperature alarm value	Min. temperature range—Max. temperature alarm	500 = 50,0°C	0

HOLDING REGISTERS

		Data type	Description	Raw data range	Values	Factory default values
14	Maximum temperature alert	signed 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	850 = 85 % 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	850 = 85 % rH	1.000
23	Minimum CO_2 range	unsigned integer	Minimum CO_2 range, cannot be set higher than maximum CO_2 range minus 100 ppm	0—(Max - 100)	1.000 = 1.000 ppm	400
24	Maximum CO_2 range	unsigned integer	Maximum CO_2 range, cannot be set less than minimum CO_2 range plus 100 ppm	(Min + 100)—Max	2.000 = 2.000 ppm	2.000
25	Minimum CO_2 alert	unsigned integer	Minimum CO_2 alarm value	Min. CO_2 range—Max. CO_2 alarm	400 = 400 ppm	400
26	Maximum CO_2 alert	unsigned integer	Maximum CO_2 alarm value	Min. CO_2 alarm—Max. CO_2 range	2.000 = 2.000 ppm	2.000
27—34			Reserved, return 0			
35	Active mode light level	unsigned integer	The ambient light level above which 'Active' is indicated in input register 42	0—32.000	100 = 100 lux	100

HOLDING REGISTERS

		Data type	Description	Raw data range	Values	Factory default values
36	Standby mode light level	unsigned integer	The ambient light level below which 'Standby' is indicated in input register 42	0—32.000	10 = 10 lux	10
37—39			Reserved, return 0			
40	CO_2 module self calibration	unsigned integer	Enables or disables the CO_2 module self calibration technique. If enabled it is advisable that the CO_2 concentration drops to outside level (400 ppm) in a 7 day period	0, 1	0 = Disabled 1 = Enabled	1
41—44			Reserved, return 0			
45	Minimum output value	unsigned integer	Set minimum value of output signal in percentage	0—40	20 = 20 %	0
46	Maximum output value	unsigned integer	Set maximum value of output signal in percentage	60—100	60 = 60 %	100
47—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*