SPRKM-R | CAR PARK GAS SENSOR

Modbus register map

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SENTERA CONTROLS
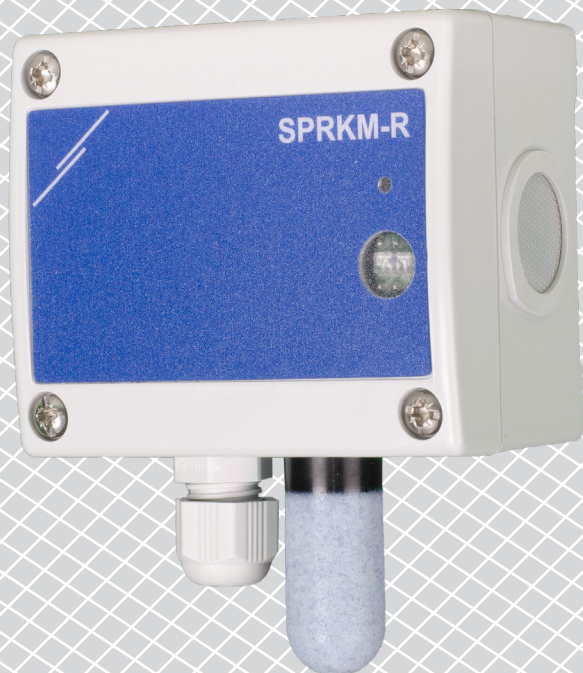
MODBUS REGISTER MAP

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 = OK 1 = Fault
6—9			Reserved, returns 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	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 = OK 1 = Fault
15	Dew point level	signed integer	Calculated dew point	-700—700	200 = 20,0°C
16—25			Reserved, returns 0		

INPUT REGISTERS

		Data type	Description	Raw data range	Values
26	CO level	unsigned integer	Relevant CO level	0—1.000	100 = 100 ppm
27	CO output value	unsigned integer	Output value according to CO value	0—1.000	1.000 = 100 %
28	CO warning flag	unsigned integer	Flag indicates that measured CO level is higher than alert level. It will set to '1' when the measured value is higher than CO level value defined by holding register 30	0, 1	0 = CO level OK 1 = CO level too high
29	CO range limit / alarm flag	unsigned integer	Flag indicates that measured CO is higher than maximum range limit value. It will set to '1' when the measured CO is higher than maximum range value defined by holding register 28	0, 1	0 = CO range OK 1 = CO level outside the range
30	CO sensor state	unsigned integer	Flag that shows if the communication with the CO sensor is lost	0, 1, 4	0 = OK 1 = Fault 4 = Pre-heating
31	LPG PPM level	unsigned integer	Propane level in PPM	0—10.000	2.100 = 2.100 ppm = 10% LEL
32	LPG Output value	unsigned integer	Output value according to propane level	0—1.000	0 = 0 % 1.000 = 100 %
33	LPG warning flag	unsigned integer	Flag indicates that measured LPG level is higher than alert level. It will set to '1' when the measured value is higher than LPG level value defined by holding register 34	0, 1	0 = LPG level OK 1 = LPG level too high
34	LPG range limit / alarm flag	unsigned integer	Flag indicates that measured LPG is higher than maximum range limit value. It will set to '1' when the measured LPG is higher than maximum range value defined by holding register 32	0, 1	0 = LPG range OK 1 = LPG level outside the range
35	LPG Sensor state	unsigned integer	Flag that shows if the communication with the LPG sensor is lost	0, 1, 4	0 = OK 1 = Fault 4 = Warming-up
36—40			Reserved, returns 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 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 = OK 1 = Fault

INPUT REGISTERS

		Data type	Description	Raw data range	Values
44—49			Reserved, return 0		
50	Global status register	unsigned integer	Global status register flags. Flags are set when active.	0-65535	Bit 0 = Temperature alert flag (IR 3) Bit 1 = Temperature range limit flag (IR 4) Bit 2 = Temperature & rH sensors state (IR 5 or IR 14) Bit 3 = Relative humidity alert flag (IR 12) Bit 4 = Relative humidity range limit flag (IR 13) Bit 5 = CO alert flag (IR 28) Bit 6 = CO range limit flag (IR 29) Bit 7 = CO pre-heat (1 means IR 30 = 4) Bit 8 = CO sensor state (IR 30 = 0 or 1) Bit 9 = LPG alert flag (IR 33) Bit 10 = LPG range limit flag (IR 34) Bit 11 = LPG pre-heat (1 means IR 35 = 4) Bit 12 = LPG sensor state (IR 35 = 0 or 1) Bit 13 & 14 = Active/standby state (IR 42) Bit 15 = Ambient light sensor state (IR 43)

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	1.737	SPRKM-R = 1.737			
5	HW version	unsigned integer	Hardware version of the device. Read only	XXXX	0x0100 = HW version 1.0			

HOLDING REGISTERS

		Data type	Description	Raw data range	Values		Factory default values
6	FW version	unsigned integer	Firmware version of the device. Read only	XXXX	0x0140 = FW version 1.4		
7			Reserved, return 0				
8	Modbus communication timeout	unsigned integer	Timeout setting for no Modbus communication.	0—60	0 = no timeout 60 = 60 minutes		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	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
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

HOLDING REGISTERS

		Data type	Description	Raw data range	Values	Factory default values
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 CO range	unsigned integer	Minimum value of CO, cannot be set higher than maximum value minus 10 ppm. If CO level is above this value, alarm is set.	0—(Max. range—10)	100 = 100 ppm	0
28	Maximum CO range	unsigned integer	Maximum value of CO, cannot be set lower than minimum value plus 10 ppm. If CO level is above this value, alarm is set.	(Min. range +10)—1.000	1.000 = 1.000 ppm	150
29			Reserved, returns 0			
30	CO warning value	unsigned integer	CO warning value	Min. CO alarm—Max. CO range	100 = 100 ppm	100
31	Minimum LPG range	unsigned integer	Minimum LPG range, cannot be set higher than maximum LPG range minus 100 ppm. If LPG level is below this value, alarm is set.	300—(Max. range—100)	300 = 300 ppm	300
32	Maximum LPG range	unsigned integer	Maximum LPG range, cannot be set less than minimum LPG range plus 100 ppm. If LPG level is above this value, alarm is set.	(Min. range + 100)—10.000	4.200 = 4.200 ppm = 20 % LEL	4.200
33			Reserved, returns 0			
34	LPG warning value	unsigned integer	LPG warning value	Min. LPG range—Max. LPG range	2.100 = 2.100 ppm = 10 % LEL	2.100
35	Active 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 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—78			Reserved, return 0			
79	LED indication	unsigned integer	LED indication related to one of the parameters	1, 2, 5, 7	1 = temperature 2 = relative humidity 5 = CO 7 = LPG	7
80	LED intensity / brightness	unsigned integer	LED intensity (incrementing with step of 10 %)	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*