RSCOM-R

Modbus Register Template

Table of Contents

1. General

1.1. Modbus Map of article RSCOM-R

Input Registers		Data type	Description	Data	Values
1	Actual temperature value	signed int.	Actual temperature level	-300 – 700	500 = 50,0°C
2	Temperature output value	unsigned int.	Output value according to temperature	0 – 1000	0 = 0 % 1000 = 100 %
3	Temperature alert flag	unsigned int.	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 int.	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 int.	Flag that shows if the communication with temperature sensor is lost	0 – 1	0 = Sensor OK 1 = Temperature sensor problem
6			Reserved, returns 0		
7			Reserved, returns 0		
8			Reserved, returns 0		
9			Reserved, returns 0		
10	Actual relative humidity value	unsigned int.	Actual relative humidity level	0 – 1000	1000 = 100,0 % rH
11	Relative humidity output value	unsigned int.	Output value according to relative humidity	0 – 1000	0 = 0 % 1000 = 100 %
12	Relative humidity alert flag	unsigned int.	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 int.	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 int.	Flag that shows if the communication with humidity sensor is lost	0 – 1	0 = Sensor OK 1 = Humidity sensor problem
15	Calculated dew point	signed int.	Calculated dew point	-700 – 700	200 = 20,0°C
16			Reserved, returns 0		
17			Reserved, returns 0		
18			Reserved, returns 0		
19			Reserved, returns 0		
20			Reserved, returns 0		
21			Reserved, returns 0		
22			Reserved, returns 0		
23			Reserved, returns 0		
24			Reserved, returns 0		
25			Reserved, returns 0		
26	CO level	unsigned int.	Relevant CO level	0 – 1000	100 = 100 ppm

27	CO Output value	unsigned int.	Output value according to CO	0 – 1.000	0 = 0 % 1.000 = 100 %
28	CO alert flag	unsigned int.	Flag indicates that measured CO level is outside set alert values. Set to '1' when the measured value is outside the CO values defined by holding registers 29 and 30	0 – 1	0 = CO measurement OK 1 = CO measurement too low/high
29	CO range limit flag	unsigned int.	Flag indicates that measured CO is outside set range limit values. Set to '1' when the measured CO is outside limit range values set defined by holding registers 27 and 28	0 – 1	0 = CO range OK 1 = CO range too low/high
30	CO Sensor state	unsigned int.	Shows the state of the communication with the CO sensor	0 – 4	0 = Sensor OK 1 = CO sensor problem 4 = Preheating
31	NO2 level	unsigned int.	Relevant NO2 level	0 – 1000	100 = 1 ppm
32	NO2 Output value	unsigned int.	Output value according to NO2	0 – 1.000	0 = 0 % 1.000 = 100 %
33	NO2 alert flag	unsigned int.	Flag indicates that measured NO2 level is outside set alert values. Set to '1' when the measured value is outside the NO2 values defined by holding registers 33 and 34	0 – 1	0 = NO2 measurement OK 1 = NO2 measurement too low/high
34	NO2 range limit flag	unsigned int.	Flag indicates that measured NO2 is outside set range limit values. Set to '1' when the measured NO2 is outside limit range values set defined by holding registers 31 and 32	0 – 1	0 = NO2 range OK 1 = NO2 range too low/high
35	NO2 Sensor state	unsigned int.	Shows the state of the communication with the NO2 sensor	0 – 4	0 = Sensor OK 1 = NO2 sensor problem 4 = Preheating
36			Reserved, returns 0		
37			Reserved, returns 0		
38			Reserved, returns 0		
39			Reserved, returns 0		
40			Reserved, returns 0		
41	Ambient light intensity	unsigned int.	Measured ambient light intensity	0 – 32 000	1000 = 1000 lux
42	Active / Standby	unsigned int.	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 int.	Flag that shows if the communication with the ambient light sensor is lost	0 – 1	0 = OK 1 = Ambient light sensor problem
44			Reserved, returns 0		
45			Reserved, returns 0		
46			Reserved, returns 0		
47			Reserved, returns 0		
48			Reserved, returns 0		
49			Reserved, returns 0		
50			Reserved, returns 0		

Available commands:

Read Holding Registers
Write Single Register
Write Multiple Registers

Holding Registers		Data type	Description	Data	Values
1	Device slave address	unsigned int.	Modbus device address	1 – 247 default: 1	
2	Modbus baud rate	unsigned int.	Modbus communication baud rate	0 – 6 default: 2	0 = 4.800 1 = 9.600 2 = 19.200 3 = 38.400 4 = 57.600 5 = 115.200 6 = 230.400
3	Modbus parity	unsigned int.	Parity check mode	0 - 2 default: 1	0 = 8N1 1 = 8E1 2 = 8O1
4	Device type	unsigned int.	Device type, *read only*	RSCOM-R = 1615	
5	HW version	unsigned int.	Hardware version of the device, *read only*	XXXX	0x0100 = HW version 1.0
6	FW version	unsigned int.	Firmware version of the device, *read only*	XXXX	0x0100 = FW version 1.0
7			Reserved, returns 0		
8			Reserved, returns 0		
9	Modbus network Bus termination (NBT)	unsigned int.	Set device as end device of the line / or not by connecting NBT	0 – 1 default: 0	0 = NBT disconnected 1 = NBT connected
10	Modbus registers reset	unsigned int.	Resets Modbus Holding registers to default values. When finished this register is automatically reset to '0'	0 – 1 default: 0	0 = Idle 1 = Reset Modbus Registers
11	Minimum temperature range	signed int.	Minimum value of temperature range, cannot be set higher than maximum temperature range minus 5°C	0 – (Max. range - 50) default: 0	100 = 10,0°C
12	Maximum temperature range	signed int.	Maximum value of temperature range, cannot be set less than minimum temperature range plus 5°C	(Min. range + 50) – 500 default: 500	700 = 70,0°C
13	Minimum temperature alert	signed int.	Minimum temperature alarm value	Min. temperature range – Max. temperature alarm default: 0	100 = 10,0°C
14	Maximum temperature alert	signed int.	Maximum temperature alarm value	Min. temperature alarm – Max. temperature range default: 500	700 = 70,0°C
15			Reserved, returns 0		
16			Reserved, returns 0		
17			Reserved, returns 0		
18			Reserved, returns 0		
19	Minimum relative humidity range	unsigned int.	Minimum value of relative humidity range, cannot be set higher than maximum relative humidity range minus 5%	0 – (Max. range - 50) default: 0	200 = 20,0 % rH
20	Maximum relative humidity range	unsigned int.	Maximum value of relative humidity range, cannot be set less than	(Min. range + 50) – 1000 default: 1000	1000 = 100 % rH

			minimum relative humidity range plus 5%		
21	Minimum relative humidity alert	unsigned int.	Minimum relative humidity alarm value	Min. relative humidity range – Max. relative humidity alarm default: 0	200 = 20,0 % rH
22	Maximum relative humidity alert	unsigned int.	Maximum relative humidity alarm value	Min. relative humidity alarm – Max. relative humidity range default: 1000	1000 = 100 % rH
23			Reserved, returns 0		
24			Reserved, returns 0		
25			Reserved, returns 0		
26			Reserved, returns 0		
27	Minimum CO range	unsigned int.	Minimum value of CO, cannot be set higher than maximum value minus 10 ppm	0 – (Max. range – 10) default: 0	100 = 100 ppm
28	Maximum CO range	unsigned int.	Maximum value of CO, cannot be set lower than minimum value plus 10 ppm	(Min. range +10) - 1000 default: 1000	100 = 100 ppm
29	Minimum CO alert	unsigned int.	Minimum CO alarm value	Min. CO range – Max. CO alarm default: 0	0 = 0 ppm
30	Maximum CO alert	unsigned int.	Maximum CO alarm value	Min. CO alarm – Max. CO range default: 100	200 = 200 ppm
31	Minimum NO2 range	unsigned int.	Minimum value of NO2, cannot be set higher than max value minus 0,1 ppm	0 – (Max. range -10) default: 0	0 = 0 ppm
32	Maximum NO2 range	unsigned int.	Maximum value of NO2, cannot be set lower than min value plus 0,1 ppm	(Min. range + 10) - 1000 default: 1000	100 = 1 ppm
33	Minimum NO2 alert	unsigned int.	Minimum NO2 alarm value	Min. NO2 range – Max. NO2 alarm default: 0	0 = 0 ppm
34	Maximum NO2 alert	unsigned int.	Maximum NO2 alarm value	Min. NO2 alarm – Max. NO2 range default: 100	100 = 1 ppm
35	Active level	unsigned int.	The ambient light level above which 'Active' is indicated in input register 42	0 – 32000 default: 100	100 = 100 lux
36	Standby level	unsigned int.	The ambient light level below which 'Standby' is indicated in input register 42	0 - 32000 default: 10	10 = 10 lux
37			Reserved, returns 0		
38			Reserved, returns 0		
39			Reserved, returns 0		
40			Reserved, returns 0		
41			Reserved, returns 0		
42			Reserved, returns 0		
43			Reserved, returns 0		

44			Reserved, returns 0		
45			Reserved, returns 0		
46			Reserved, returns 0		
47			Reserved, returns 0		
48			Reserved, returns 0		
49			Reserved, returns 0		
50			Reserved, returns 0		
51			Reserved, returns 0		
52			Reserved, returns 0		
53			Reserved, returns 0		
54			Reserved, returns 0		
55			Reserved, returns 0		
56			Reserved, returns 0		
57			Reserved, returns 0		
58			Reserved, returns 0		
59			Reserved, returns 0		
60			Reserved, returns 0		
61			Reserved, returns 0		
62			Reserved, returns 0		
63			Reserved, returns 0		
64			Reserved, returns 0		
65			Reserved, returns 0		
66			Reserved, returns 0		
67			Reserved, returns 0		
68			Reserved, returns 0		
69			Reserved, returns 0		
70			Reserved, returns 0		
71			Reserved, returns 0		
72			Reserved, returns 0		
73			Reserved, returns 0		
74			Reserved, returns 0		
75			Reserved, returns 0		
76			Reserved, returns 0		
77			Reserved, returns 0		
78			Reserved, returns 0		
79	LED indication	unsigned int.	LED indication related to one of the parameters	1 - 4 default: 1	1= Temperature 2 = rH 5 = CO 6 = NO2
80	LED intensity / brightness	unsigned int.	LED intensity (incrementing with step of 10 %)	0 - 10 default: 5	0 = All LED's OFF 1 = 10 % 10 = 100 %

1.2. Referenced documents

Doc. Id.	Title
BDS	BDS-RSCOM-R

1.3. Hidden (private) addresses and their function if any (not to be published)

None.

1.4. Special Registers – available in all versions, UID and PID registers.

1000	UID 1	unsigned int.	Unique Identifier – field 1	0-65535	Device specific
1001	UID 2	unsigned int.	Unique Identifier – field 2	0-65535	Device specific
1002	UID 3	unsigned int.	Unique Identifier – field 3	0-65535	Device specific
1003	UID 4	unsigned int.	Unique Identifier – field 4	0-65535	Device specific
1004	UID 5	unsigned int.	Unique Identifier – field 5	0-65535	Device specific
1005	UID 6	unsigned int.	Unique Identifier – field 6	0-65535	Device specific
1006	PID 1	unsigned int.	Production Identifier – field 1	0-65535	Device specific
1007	PID 2	unsigned int.	Production Identifier – field 2	0-65535	Device specific
1008	PID 3	unsigned int.	Production Identifier – field 3	0-65535	Device specific
1009	PID 4	unsigned int.	Production Identifier – field 4	0-65535	Device specific
1010	PID 5	unsigned int.	Production Identifier – field 5	0-65535	Device specific

2. Notes

The way to include PID manually is described in a document: **How to add manually production ID for Innovations production.xls** located in the **\General\Modbus** folder.

3. Appendixes

None.

4. Revision History

Rev. 1.X (05/05/2020) – Initial Release (FW ver. 1.0 from 09/09/2019)

- Sensor Pre-heating state defined.
- Output = 0 when preheating.

30/06/2020 – Adjusted description for holding register 35 and 36
10/12/2020 – Changed the LED Indication assignment now CO is 5 and NO2 is 6 in HR79, HR80 – 0 means ALL LED's OFF. Fixed bug with temperature and humidity alarm flags. HR79 controls ALL LED's brightness.