



Manual RF-15 Modbus Bridge (v16)

Art. 21800160

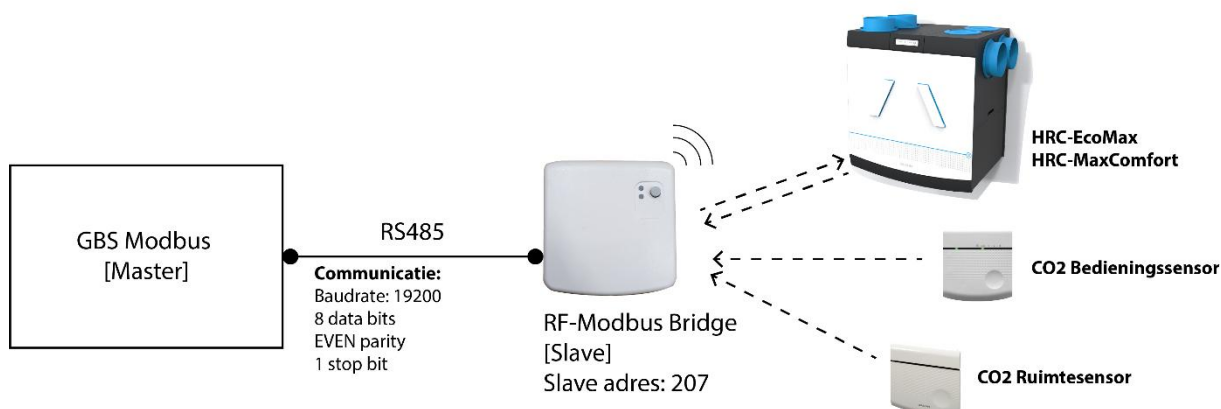
Rev. 5.1

Bridge version sw 16.

September 2025



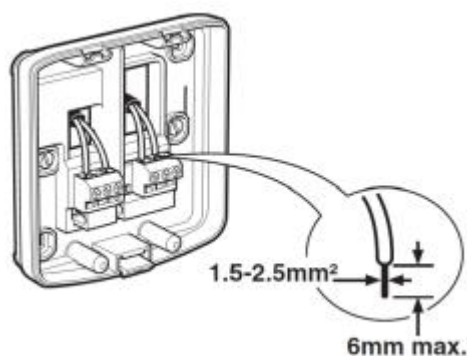
Product overview



The **RF-15 Modbus bridge** is a modbus RS485 module which communicates through RF with multiple Orcon products.

The **RF-15 Modbus bridge** acts as a bridge between the building management system (BMS) and ventilation products from ORCON. Through the bridge, data from these products can be obtained and the products can be controlled.

Connections



Aansluiting:	Functie
P	24VAC power supply
B	RS485 B
G	Earth 24VAC
A	RS485 A

RS485

The **RF-15 Modbus bridge** acts as a Modbus slave, which communicates through a serial RS485 line to the so called “Modbus Master”. This Modbus master is most likely a Building Management System [BMS].

To communicate with the BMS the master device must have the same communication settings as below:

Default RS485 settings	
Slave address	207
Baud rate	19200
Data bits	8
Parity	Even
Stop bits	1

To change the default communication settings of the Modbus bridge, please see register 41998 - 42000.

Connect with the MODBUS BRIDGE

First establish a connection with the modbus bridge itself before connecting any devices. To check the communication between the master and the bridge, the OEM code of the bridge can be read out and changed.

- Step 1. Check the wiring to the modbus master and the power supply.
- Step 2. Check the connection by reading register 41101 on slave address 207. Default this is 106
- Step 3. Change the value of Register 41101 to **103**

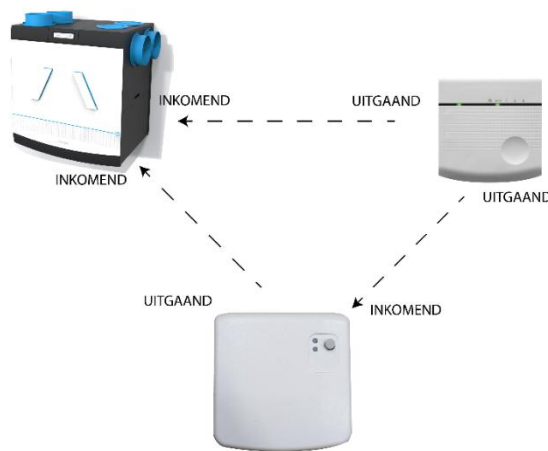
OEM CODE:

Before any products are bound, the OEM code of the Bridge itself needs to be set to **103** in register **41101** of the bridge itself. This register has only to be set once.

Connect ORCON devices with the **RF-15 Modbus bridge**

Orcon devices know two ways of RF binding, it depends on the product type to bind. Each product will be bound to a unique slave address.

1. **Outgoing binding.** To connect a device to the HRC, the HRC needs to be set in "Binding Mode". After re-starting the HRC, the unit listens for 3 minutes to new incoming binding requests.
In order to connect the **RF-15 Modbus bridge** to the HRC, an **OUTGOING** binding request needs to be sent from the Bridge.
2. **Incoming binding:** To connect the Bridge to an external CO2 sensor. The Bridge needs to be set in binding mode, and listen for any incoming binding requests.



Connect the HRC to the **RF-15 Modbus bridge**

1. **Set product type to bind:** Write "0001C895h" in register 43000- 43001 (Product type) to the Modbus Bridge.
0001 has to be written in register 43001, C895 has to be written in register 43000.
Please make sure HEX values are used.
2. Start the Binding mode on the HRC, by restarting the device. The HRC listens now for 3 min for any new incoming binding requests.
3. **Bind command:** Write **0x0203** in register 43004 (bind command) -> 02 is the Modbus slave address of the HRC [HB], 03 is the outgoing binding type [LB].
Note: Register 43004 needs to be written as: 0x[HB][LB]
Note 2: Make sure value is written in HEX
4. **Check:** Read register 43901 (no. of bound nodes) to see if the no. of bound nodes has increased.
5. Register 43900 shows the actual binding status.
6. Now specific registers of bound product can be read out on the set slave address (see step 3)

Binding a CO₂ sensor



CO₂ Sensor with manual control



CO₂ Roomsensor



CO₂ Flush mount sensor

Binding a CO₂ sensor:

1. **Set product type:** Write the product type number (e.g. 0001C88Dh for flush mount sensor) to register **43000** (Product type), see register 43000 in the address list for all product types.
2. **Start bind command:** Write "0x0301" to register 43004 (bind command), 03 is the slave address for the CO₂ sensor [HB], 01 indicates an incoming binding type [LB].
Register 43004 needs to be written as: 0x[HB][LB]
3. **Connect the CO₂ sensor with the RF-15 Modbus Bridge:**
 - a. Restart the CO₂ sensor
 - b. Hold the button on the sensor for at least 3 seconds to initiate a binding. (see manual CO₂ sensor)
 - c. When the binding is successful the LED on the CO₂ sensor blinks 10x green
4. **Check:** Read register 43901 (no. of bound nodes) to see if the no. of bound nodes has increased.
5. Register 43900 shows the actual binding status.
6. Now specific registers of bound product can be read out on the set slave address (see step 2)

Modbus address list

General																													
Register	Read/ write	Function		Unit	Data type																								
41101	W	OEM Code: 103 This value needs to be set to 103 before a product is bound.			UINT 8																								
41998	RW	Parity bit <table><tr><td>Value</td><td>Parity</td></tr><tr><td>0</td><td>None</td></tr><tr><td>1</td><td>Odd</td></tr><tr><td>2</td><td>Even (default)</td></tr></table>		Value	Parity	0	None	1	Odd	2	Even (default)	-	UINT 8																
Value	Parity																												
0	None																												
1	Odd																												
2	Even (default)																												
41999	RW	Stop bits <table><tr><td>Value</td><td>Stop bits</td></tr><tr><td>0</td><td>1 stop bit (default)</td></tr><tr><td>1</td><td>2 stop bits</td></tr></table>		Value	Stop bits	0	1 stop bit (default)	1	2 stop bits	-	UINT 8																		
Value	Stop bits																												
0	1 stop bit (default)																												
1	2 stop bits																												
42000	RW	Baud rate <table><tr><th>Value</th><th>Baudrate</th><th>value</th><th>Baudrate</th></tr><tr><td>0</td><td>300</td><td>5</td><td>9600</td></tr><tr><td>1</td><td>600</td><td>6</td><td>19200</td></tr><tr><td>2</td><td>1200</td><td>7</td><td>38400</td></tr><tr><td>3</td><td>2400</td><td>8</td><td>57600</td></tr><tr><td>4</td><td>4800</td><td>9</td><td>115200</td></tr></table>		Value	Baudrate	value	Baudrate	0	300	5	9600	1	600	6	19200	2	1200	7	38400	3	2400	8	57600	4	4800	9	115200	-	UINT 16
Value	Baudrate	value	Baudrate																										
0	300	5	9600																										
1	600	6	19200																										
2	1200	7	38400																										
3	2400	8	57600																										
4	4800	9	115200																										
42001	RW	Slave address RF-15 Modbus bridge Standard address: 207		-	UINT 8																								
43000-43001	RW	Product type to bind: 0001C895h = HRC- EcoSmart/ SmartComfort & HRC-EcoMax/ MaxComfort (since 2021) 0001C87Dh = HRC-EcoMax/ MaxComfort (2018-2019) 0001C850h = CO ₂ Roomsensor 0001C851h = CO ₂ Manual control sensor 0001C88Dh = CO ₂ Flush-mount		-	UINT 32																								
43004	W	Initiate binding 1 – incoming binding 2 – incoming binding + serial no 3 – Outgoing binding 4 – Outgoing binding + serial no		-	UINT 16																								
43900	R	Actual binding status 0 N/A Not Available 1 outgoing binding active. 2 Outgoing binding successful 3 Incoming binding active 4 Incoming binding successful 100 Outgoing binding fail, no answer 101 Binding failed, Unknown product 102 Binding failed, max bound product reached. 103 Binding failed, false Modbus address 105 Binding failed, false serial no. 200 Unknown binding command 201 Unknown product type		-	UINT 16																								

General				
Register	Read/ write	Function	Unit	Data type
40101	R	RF Communication status 0: No Fault 1: Communication Fault	-	UINT 16
40103	R	Fault status bound products FFFFh = Unknown fault 0 = No active faults 1 = One or more faults active in product	-	UINT 16
40100	R	RF node info Last seen Number of seconds ago the last message was received from this device.	Sec	UINT 16
43901	R	<i>Number of bound RF nodes</i>		UINT 16
43399	W	Remove bound RF node The value written is the slave address		UINT 8

HRC Registers/MaxComfort

Register	Read/ write	Function	Unit	Data type
41000	R	Actual Ventilation speed 0 = OFF 1 = Speed 1, low 2 = Speed 2, medium 3 = Speed 3, high 11 = Speed 1 temporary override, timer 12 = Speed 2 temporary override, timer 13 = Speed 3 temporary override, timer 21 = Absolute minimum speed, away 23 = Absolute maximum speed, boost 24 = Auto mode	-	UINT 8
41001	R	Actual Exhaust Fan speed 0 = Off 200 = Highest speed. FFh = Not available	%	UINT 8
41002	R	Actual Inlet Fan speed 0 = Off 200 = Highest speed. FFh = Not available	%	UINT 8
41003	R	Error Code 0 No fault 1 Nonspecific fault 2 Emergency stop 3 Fan 1 supply error 4 X22 sensor error 5 X23 sensor error 6 X21 sensor error 7 X20 sensor error 8 Fan 2 error 254 Binding mode active 255 Device identification active	-	UINT 8
41005- 41006	R	Indoor Temperature Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT
41007- 41008	R	Outdoor Temperature	°C	FLOAT
41009- 41010	R	Exhaust Temperature	°C	FLOAT
41011- 41012	R	Supply Temperature	°C	FLOAT
41013	R	Preheater 0% = Preheater off 100% = Pre heater maximum EFh = Not available	%	UINT 8
41014	R	Filter Dirty 0 = Filter OK 1 = Filter dirty	-	UINT 8
41040	R	Filter time remaining	Dagen	UINT 16
41042	R	Filter time percentage	%	UINT 8
42000	W	Reset Filter timer Value 0 reset de filter time	-	UINT 8

HRC Registers /MaxComfort

Register	Read/ write	Function	Unit	Data type
41015	R	Defrost 0 = Defrost inactive 1 = Defrost active	-	UINT 8
41016	R	Bypass position 0% = closed 100% = Open EFh = Not available	%	UINT 8
41017	R	Indoor Humidity	%	UINT 8
41019 41020	R	Inlet Flow Level 7FFFh: Not Available	m3/h	FLOAT
41021 41022	R	Exhaust Flow Level 7FFFh: Not Available	m3/h	FLOAT
41500	RW	Requested system ventilation speed 0: Away 1: Low 2: Middle 3: High 4: Auto 5: Free Cool 6: Boost 7: Off <i>Note: the value returned by reading is the BRDG internal value and not the value from the fan.</i>	-	UINT 8
41550	RW	Bypass Mode only VMD-02RPS66 and VMD-02RPS78 0 = Manual closed (0%) 100 = Manual open (100%) FFh = Auto	%	UINT 8

Register	Read/ write	Function	Unit	Data type
40002 40003	R	Product Type 0001C850h = CO ₂ Roomsensor 0001C851h = CO ₂ Manual control sensor 0001C88Dh = CO ₂ Flush-mount sensor	-	UINT 32
40103	R	Fault status 0 = CO ₂ sensor OK 1 = CO ₂ sensor fault	-	UINT 16
41000	R	CO₂ value	ppm	UINT 16
41001	R	Ventilation demand to HRC	%	UINT 8