

General

Connecting a Brink Excellent heat recovery (HRV) appliance to a Modbus network, for instance a building automation system (BAS), requires an interface. This interface, called "Brink Connect", allows communication between the Brink HRV appliance and a Modbus network. The interface described here is only suitable for communication between a Brink HRV appliance with UWA control PCB (with software version from S1.06.06) and a Modbus network. The interface comes with a 1,5 m long connecting cable for connecting the "Brink Connect" to an Excellent HRV appliance.

Note: It is not possible to use a control unit, humidity sensor or multiple switch in combination with a Brink Connect interface on the Brink HRV Excellent. If the Brink Connect is used exclusively for reading out values, the control module/Brink Air Control and multiple switch can still be used.

The system does support an eBus CO₂ sensor (code 532196 - 4 sensors max.) that is connected to the HRV appliances. If the Brink HRV-appliances are cascaded, the Brink Connect must be connected to the Master appliance.

Application

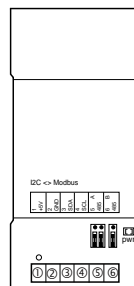
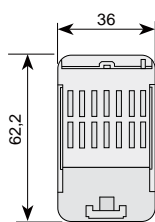
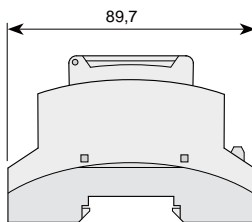
Brink Connect (Interface module I2C<->Modbus) allows making a connection between an RS485 interface and an I2C interface. That way products or installations that do not have a Modbus interface as standard can still be incorporated into a Modbus network using a (free) I2C interface.



The PCB comes with the standard Modbus slave address 11. That address must be used for the first communication session. Then a new Modbus slave address between 1 and 247 can be entered at register address 1000, using function code 0x06, write single register. When entered correctly, the Modbus slave address will directly be active.

The standard register address is 1000; Dependent on the program used, it may have shifted 1 step (999 or 1001). After changing the slave address, you must call up this address using function code 0x03 and then check whether the changed address is correct. Then the power to the Brink Connect must be switched off. Now the slave address has been changed correctly.

Technical specifications:	
Appliance Interface	Brink HRVs fitted with a I2C bus connection (connector X4 on Brink UWA PCB). (Delivery configuration) MODBUS-RTU-SLAVE
Dimensions WxHxD	Dimensions WxHxD 36 x 89.7 x 62.2 mm
Connection	Connection through screw plug terminals up to 1.5 mm ²
Housing	Housing as per DIN 43880 for use in electrical distribution boxes (RAL 7035)
Weight	Weight ca. 100 g
Storage temperature	Storage temperature -10...+70 °C
Power consumption	Power consumption 0.2 W
Relative humidity	Relative humidity up to 85% without condensation VDE 0160, EN 50178, Class 3K3
Installation position	Installation position on vertical surfaces (wall installation, connectors top and bottom)
Interfaces	Interfaces 1 x RS485 / 1x I2C interface
Protection class	Protection class IP 20
Power supply	Power supply +5 VDC ±10 %
Module status display	Power supply indication by green LED
System bus	RS485
Ambient operating temperature	+5...+40°C



Connector no.	Function
1	+5V system voltage
2	GND system voltage
3	I2C bus Serial Data (SDA)
4	I2C bus Serial Clock (SCL)
5	RS485 - A
6	RS485 - B

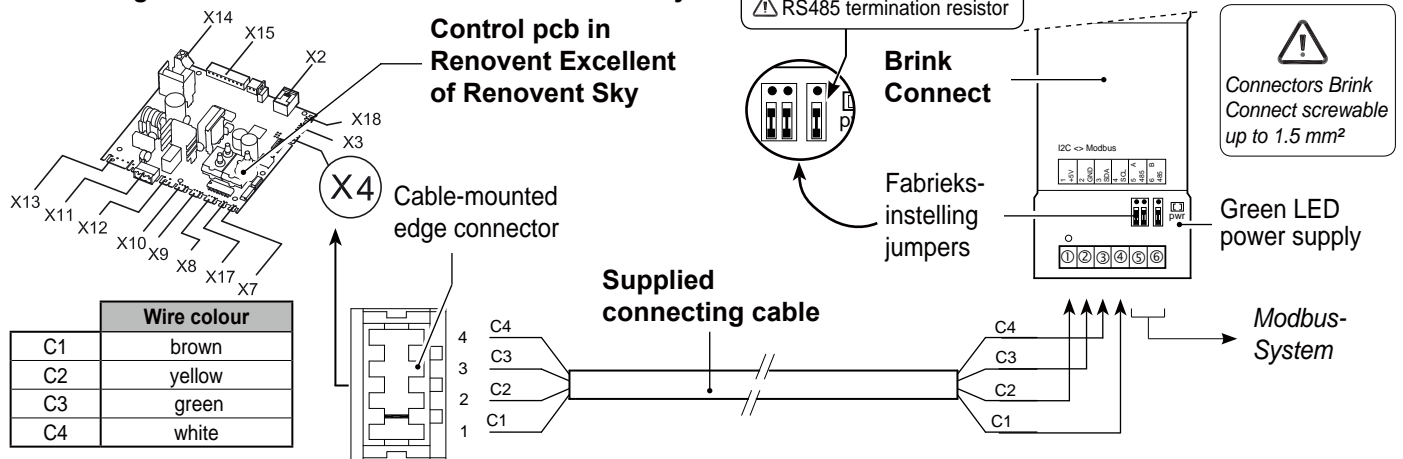
Configuration Brink Connect

The Brink Connect come with a default Modbus Slave address 11 (0x0B).

Communication parameters Modbus:

- Baudrate:9600
- Parity: even
- Stop bits: 1

Connecting Brink Connect to Renovent Excellent / Sky



Procedure connecting HRV appliance to building automation system

- Connect the HRV appliance to the Brink Connect module and the building automation system as shown in the above diagram.
- Remove the Modbus RS485 termination resistor if not necessary! If several Brink Connects are used in one line, no more than 2 resistors (RS485) may be installed in the line.
- Connect the HRV appliance/building automation system to the mains.
- If required, set values at the HRV appliance through the display or a - for a Sky appliance temporary connected - control unit or Brink service tool
- Observe the following steps when connecting several Brink Connect modules:
 - Connect the first Brink Connect module to the building automation system.
 - Change the Modbus slave address via Modbus address 1000 into a unique address.
 - Repeat the above steps for each Brink Connect module to be connected.

Reading values

	Modbus address	Description	correction factor	signed	Values/ remarks
	4002	Appliance type	1	no	
	4004	Applianc version (basic/ Plus)	1	no	
	4009	Current Temperature from outdoors sensor [°C]	0.1	no	
	4010	Current Temperature from dwelling [°C]	0.1	yes	
	4011	Current Pressure supply duct [Pa]	1	no	<i>Note: Only at constant volume fan</i>
	4012	Current Pressure exhaust duct [Pa]	1	no	
	4013	Preset air flowrate [m³/h]	1	no	
	4016	Imbalance permissible	1	no	0 = Flow rate supply equals extract / 1 = Imbalance permissible
	4022	Preset imbalance [m³/h]	1	yes	
	4028	Current supply flowrate [m³/h]	1	no	<i>Note: Only at constant volume fan</i>
	4029	Current exhaust flowrate [m³/h]	1	no	
Functie code 0x03	4030	Bypass valve position	1	no	0 = Initialising / 1 = Opening / 2 = Closing / 3 = Open / 4 = Closed / 255 = Status unknown
	4031	Operation bypass valve	1	no	0 = Automatic / 1 = Bypass valve closed / 2 = Bypass valve open
	4037	Preheater status	1	no	0= initialising/ 1= not active/ 2= active/ 3= test mode/ 255= status unknown
	4038	Preheater power [%]	1	no	
	4039	Current fault code	1	no	HRV appliance error code (0 = no error)
	4040	Error message	1	no	0 = Filter clean / 1 = Filter fouled
	4041	Geo heat exchanger mode	1	no	0= Off, 1 = On
	4047	Geo heat exchanger min. temp. [°C]	0.1	yes	
	4053	Geo heat exchanger max. temp. [°C]	0.1	yes	
	4059	Nr. selected CO ₂ sensor (max. 4 pieces)	1	no	<i>Note: Only a mounted eBUS CO₂ sensor will be supported.</i>
4060	Value selected CO ₂ sensor [PPM]	1	no		

Setting/controlling HRV appliance through building automation system

If, in addition to reading out the HRV appliance, you also want to control it using the building automation system, the Modbus address 6013 must be set to 4.

Then the required air flowrate can be set (Modbus address 6001 for HRV with constant flow fans).

Note:



If the HRV appliance has been disconnected from the mains, Modbus address 6013 and the desired air flowrate must be set again.

Settings for HRV appliance with constant volume fans [m ³ /h]					
	Modbus address	Description	correction factor	signed	Values/ remarks
Function code 0x06	1000	Modbus slave address	1	no	1- 247 / Defaults to 11 Set only during installation process!
	6001	Value flowrate [m ³ /h]	1	no	Adjustable in steps of 5 m ³ /h
	6004	Imbalance permissible	1	no	0 = Flow rate supply equals extract / 1 = Imbalance permissible
	6005	Preset imbalance [m ³ /h]	1	yes	HRV-appliance depending
	6006	Operation bypass valve	1	no	0 = Automatic /1 = Bypass valve closed/ 2 = Bypass valve open
	6007	Filter reset (commando)	1	no	1 = filter reset
	6008	Geo heat exchanger min. temperature	1	no	0= Off, 1 = On
	6009	Geo heat exchanger min. temperature [°C]	0.1	yes	0,0 °C - 10,0 °C (step 0,5 °C)
	6010	Geo heat exchanger max. temperature [°C]	0.1	yes	15,0 °C - 40,0 °C (step 0,5 °C)
	6011	CO ₂ sensor be read out	1	no	CO ₂ sensor nr.1 - CO ₂ sensor nr.4
	6012	Reset Brink appliance (commando)	1	no	1 = Reset HRV appliance
	6013	Set control mode (commando)	1	no	0 = Ventilation flowrate as per Brink appliance/ 4 = Ventilation flowrate as per Modbus