Modbus® RTU
for SupraBox COMFORT 800 to 2000

Interface   **Interface**   **Interface**

SupraBox   **SupraBox**   **SupraBox**

BA408BB11/12/A/ Auflage 1

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2 General Information

Read thoroughly and attentively the manual. Make sure that every user of the Suprabox Comfort Control with the extension of the Modbus® has read the manual attentively before the initiation.

The manual must be laid down at a place accessible for everybody.

Please consult our sales department if after reading the manual further questions arise regarding installation, operation or maintenance.

3 Safety

The following icons indicate certain hazards or give instruction for the safe use.

Caution! Danger! Safety Instruction!

Hazard by electricity or high voltage!

Important Advice, Information

The Suprabox Comfort Control is live and controls rotating mechanical elements. Death, grave physical harm or substantial damage at objects could occur if the instructions of this manual are not observed.

Only qualified staff should work at the devices. This staff must be familiar with all warnings and the steps to be taken, which are described here for the assembly and operation of the unit. The successful and safe use of the unit is dependant on the appropriate and professional transport, assembly, operation and maintenance of the unit.

The installation may not be made in rooms with current ducting dust, corrosive or flammable gases, humidity, rain or excessive heat or dirt.

Suprabox Comfort Control and the corresponding extension of Modbus® are not protected against explosion!

It is strictly forbidden to work at devices which are live.

Repairs may only be made by a specialist authorized by Rosenberg Ventilatoren GmbH. Fuses may only be replaced, do not repair or bridge them. Only use fuses which are indicated in the wiring diagram. Check the zero-potential by a bipolar voltmeter.

The protective circuit must correspond to the connection diagram. Wrong connections lead to the destruction of the unit.
Defects at electrical installations/assemblies/equipment must be repaired without delay. In case of imminent danger, do not operate the device/unit in faulty condition.

4 Definition Qualified Staff:

Qualified persons as defined in the manual or in the warnings attached to the unit are persons who are familiar with installation, assembly, initiation and operation of the unit and dispose of the following qualifications such as:

- Training, briefing or authorization to switch on/off, to earth or identify current circuits and devices according to the standards of the safety systems.
- Training or briefing according to the standards of the safety system regarding maintenance and use of appropriate safety equipment.
- First Aid Training

5 Conventional Operation /Extent of Validity

5.1 Conventional Operation

The device is determined exclusively for the functions indicated in the order confirmation. Another or extended use is not conventional if not agreed in the contract. The manufacturer is not liable for damages which might occur from this. The customer bears the full risk.

The conventional use also includes the observation of the regulations described in the manual regarding assembly, operation and maintenance.

Be aware that this manual is only valid for the device and not for the complete unit!

5.2 Extent of Validity

The extent of validity of the present manual includes the following control element:

- Extension module for the communication with Modbus®[1] RTU for control of Suprabox Comfort series as of installation size 800 m³/h.

6 Description

With help of the Modbus® connection the Suprabox control can be integrated in the central building services. All available signals are described in the present document. The master can access the various status information with help of Modbus® RTU protocol and modify basic control settings.

Based on the configuration of the ventilation appliance not all of the described Modbus® variables are important.

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[1] Modbus® is a registered trademark of the Modbus Organization, Inc.

6.1 Technical Data

Ambient temperature	-10°C…55°C
Bus conduct Modbus®	Use a shielded and "twisted" cable with two conductors, section 0,5mm² plus meshwork

6.2 Terminal Configuration

See chapter 7.3 Electric Installation.

6.3 Scope of Delivery

Plug-in card Modbus®

Operational Manual Extension Modbus® for Suprabox Comfort 800-2000

7 Installation

- Unpack the components and check for damages. The supplier must immediately be informed about damages.
- Read carefully the operational manual and safety instructions. Please make sure that every user of the Suprabox Comfort Control and the connected Modbus® extension has carefully read the manual. The manual must accessible for everybody.
- It is forbidden to install the device in rooms with current conducting dust, corrosive or flammable gases. The control and the operating element must be protected against humidity, rain or excessive heat.
- The electric connection may only be made by an authorized electrician according to the VDE-regulations and the guidelines of the local EVU. The connection must exactly be made according to the circuit diagram and the configuration scheme. All screw joints must be checked before operation and retightened if necessary.
- The operation manual of the extension Modbus® is an extension of the manual for the ventilation control of Suprabox Comfort 800-2000.

    Therefore it is important to read the manual of the ventilation control thoroughly and attentively before the initiation of the extension Modbus® .
- During the mechanical assembly and the electric installation the power supply of Suprabox Comfort must be switched off (main breaker OFF).

7.1 Assembly / Initiation

Preparing the Suprabox and extension for the communication with Modbus® RTU for the initiation:

- **Proper mechanic assembly**
- **Electric installation according to the regulations**
- **Remove foreign bodies from the suction and blowing area and from the complete Suprabox Comfort.**

The user is bound to operate the devices only in perfect condition. Danger points which occur between devices of Rosenberg Ventilatoren GmbH and customer installations have to be secured by the user!

7.2 Mechanical Assembly

1. Remove the flap at the left side of the Suprabox Comfort control board with a screw driver or the fingers.

2. Plug in the bus insert-extension at the side of the determined connection point of the control (see picture), and observe carefully the correct attachment to the DIN-rail.

3. The fixing clamps must be permanently connected to the control.
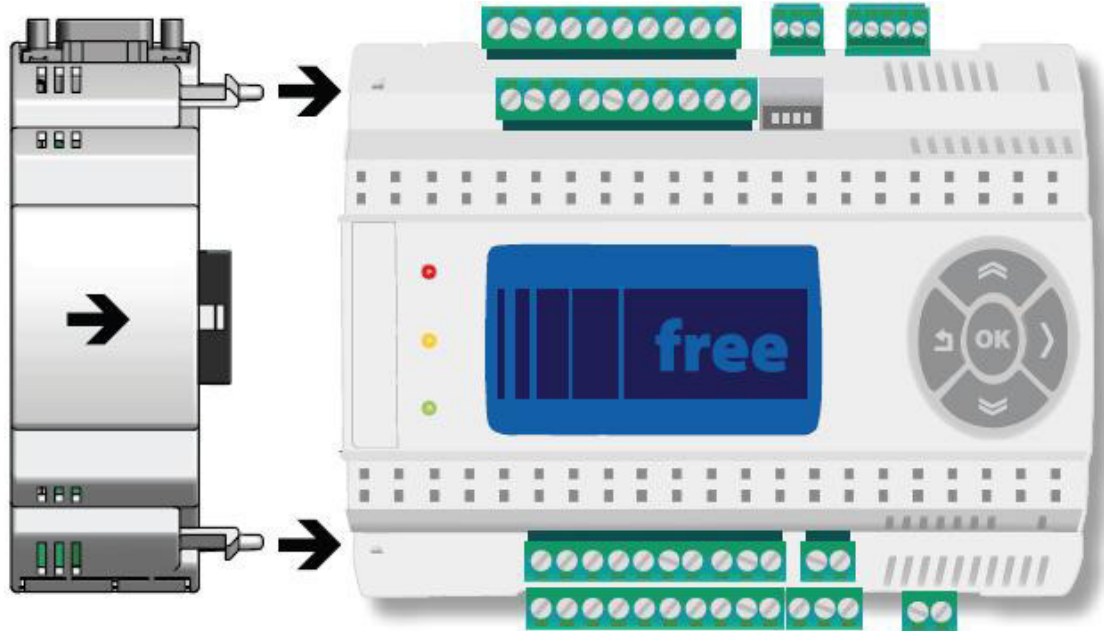
7.3 Electric Installation

The terminal configuration must be made according to the i instruction imprinted on the extension card. Make sure that the clamping GS is used for the connection to the shield.

Use a shielded and "twisted" cable with two conductors, section 0,5mm² plus meshwork.

The direct connection length between RS-485 network and device is 1200m with maximum 32 (256) devices.

Put the 120 (Ohm) 1/4W resistors between the clamping "+" and "-" of the interface and the last device in each section of the network.
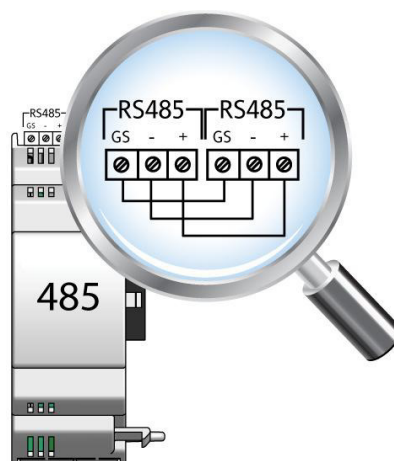
8 Setting of the Modbus® parameters

Suprabox Comfort

In order to set the Modbus® parameter the operational element must switch to the technician level at the Suprabox Comfort.

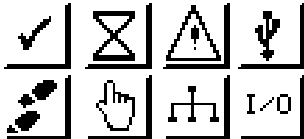Press the key [OK] while ⌐o is marked, in order to call up the display for the password entry.

Passwort eingeben:

The password to enter the service level is:

abcde

Supra

Bestätigen

Freigaben

Press the key [OK] while ⌐⌐ is marked in order to call up the bus settings, provided that the extension card has correctly been connected.

Modbus

Adresse	0
Baudrate	9600
Parität	Keine
Storbit	0
Datenbit	0

The address of the control in the network can be set, along with the baud rate, the parity, the number of data bits and the number of stop bits.

The modifications will only become effective after the control has been restarted (switch off the main breaker of Suprabox Comfort for a short moment).

8.1 Report Settings

The Modbus®-standard used in the Suprabox Comfort 350 by Rosenberg Ventilatoren GmbH applies the binary RTU-code with adjustable byte sequence.

The following bus settings are possible:

Address: 1…255

Baud rate: 9600,19200, 38400, 57600 Baud

Parity: Even, Odd, None

Stop bit: 1,2

Data bit 7,8

In the delivery condition the control has the address 1, the baud rate is 38400 and the parity EVEN. 8 Data bits and 1 stop bit are applied.

8.2 Feature Codes

The following Modbus® feature codes are supported:

Modbus® command	Description
3	Multiple memory reading for the client's side
16	Multiple memory writing for the client's side

Maximum 124 bytes can be read within a message or 123 bytes saved within a message.

9 List of Parameters

The analogical parameters in the size REAL are basically transferred with a scale of 10, so for example the analogue value 1.0 is shown as 10.

The parameters described below are readable (L) or recordable (S) with help of a Modbus® Master. For the record of parameters the defined limits have to be strictly observed.

9.1 Status Variables

Description	Address	Type	L/S	Meas. Unit
Alarm messages				
Collective alarm	9000	BOOL	L	
Alarm internal Modbus	9001	BOOL	L	
Alarm fresh air fan	9002	BOOL	L	
Alarm exhaust air fan	9003	BOOL	L	
Alarm filter exhaust air	9004	BOOL	L	
Alarm filter outside air	9005	BOOL	L	
Alarm frost protection	9006	BOOL	L	
Alarm internal temperature sensor	9007	BOOL	L	
Alarm electrical preheating	9008	BOOL	L	
Alarm electrical heating	9009	BOOL	L	
Alarm fresh air duct sensor	9010	BOOL	L	
Alarm freezing WRG	9011	BOOL	L	
Alarm fire damper / BMZ	9012	BOOL	L	
Defined nominal values				
Nominal value fan (superimposed by the weekly program)	9030	INT	L	%
Nominal value (superimposed by the weekly program)	9031	REAL	L	°C
Controller output				
Release heating	8532	BOOL	L	
Set point heating	8448	REAL	L	%
Release cooling	8533	BOOL	L	
Set point cooling	8449	REAL	L	%
Release pre-heating	8529	BOOL	L	
Set point heat recovery	8450	REAL	L	%
Control outside air damper	8530	BOOL	L	
Control exhaust air flap	8531	BOOL	L	
Fan set point fresh air	8451	REAL	L	%
Fan set point exhaust air	8452	REAL	L	%
Release gas solenoid valve	8534	BOOL	L	

Analogical sensors

Temperature exhaust air union	9070	INT	L	°C·10
Temperature outside air uni-on	9071	INT	L	°C·10
Temperature fresh air union	9072	INT	L	°C·10
Analogue sensor measured value	9073	INT	L	V·100
Temperature fresh air duct sensor	9074	REAL	L	°C
Temperature room sensor	9076	REAL	L	°C
Temperature external air sensor	9078	REAL	L	°C
Temperature return flow sen-sor	9080	REAL	L	°C

Working hour meter

Working hours exhaust air fan	9050	UINT	L	h
Working hours fresh air fan	9051	UINT	L	h
Working hours pump cold water	9052	UINT	L	h
Working hours hot water	9053	UINT	L	h
Working hours electrical hea-ting	9054	UINT	L	h
Working hours electrical pre-heating	9055	UINT	L	h

Convenient features

Pre-ventilation active	9090	BOOL	L
Overrun active	9091	BOOL	L
Back-up mode heating active	9092	BOOL	L
Back-up mode cooling active	9093	BOOL	L
Night ventilation active	9094	BOOL	L
Weekly program active (Nominal values are overwritten)	9095	BOOL	L
Overmodulation active	9096	BOOL	L

Pressure and air volume measurement

Air volume fresh air fan	10010	INT	L	m³/h
Air volume exhaust air fan	10011	INT	L	m³/h
Differential pressure fresh air fan	10014	INT	L	Pa
Differential pressure exhaust air fan	10015	INT	L	Pa

9.2 Settings

Description	Address	Type	L/S	Pre-setting	Min.	Max.	Meas. unit
Operating the Suprabox							
Unit ON/OFF	16384	BOOL	S	0			
Acknowledge alarms	16385	BOOL	S	0			
Nominal temperature value	16387	REAL	S	21.0	Minimum nominal value temperature[2]	Maximum nominal value temperature[2]	°C
Nominal value fan	16389	INT	S	50	Minimum nominal value fan[2]	Maximum nominal value fan[2]	%
Automatic Operation	16390	BOOL	S	0			
Annual program release	16396	BOOL	S	0			
Weekly program release	16397	BOOL	S	0			
Release convenient features							
Release minimum setting heating valve	16662	BOOL	S	0			
Release pre-ventilation	16670	BOOL	S	0			
Release back-up mode heating	16726	BOOL	S	0			
Release back-up mode cooling	16734	BOOL	S	0			
Release night ventilation	16746	BOOL	S	0			

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[2] Setting according to the initiation instruction of Suprabox Comfort. See also BA407AA

10   Copyright

It is forbidden to copy the manual or parts of it by photomechanical means (copy, microcopy) or to publish it in newspapers and magazines or other media without our expressive permission

If after reading this manual further questions arise regarding installation, operation or maintenance please consult our sales manager or :

11   Customer Service, Manufacturer's address

The products of Rosenberg Ventilatoren GmbH are steadily checked by the quality control and correspond to the valid regulations.

For all questions concerning our products, please consult the actuator of your ventilation system, to one of our subsidiaries or directly to:

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