

SCHNEID

Ventilation Controller

Modern Life - Modern Solutions



Technical Documentation

SCHNEID GesmbH

www.schneid.at

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1 Safty notes

Danger of scalding:

Make sure the settings allow temperatures exceeding 55°C (for thresholds of burning, see EN 563). Be sure to point out all possibly existing dangers (such as touchable surfaces, high temperatures of used water) to all persons operating this system.



Permissible temperatures:

Based on the setting, make sure, that the permissible temperatures of the hydraulic plant will not be exceeded (e.g. floor heating, plastic pipes, etc. may be damaged due to excessive temperatures) even when the external temperatures are very low (e.g. -20°C).

Danger of freezing:

Make sure that the FUNCTION-switch does not remain for longer periods of time in the MAINTENANCE-position during winter. The heating supply lines, respectively, may freeze up.



CAUTION:

To disconnect the unit from the mains, use the all-polar-switch on the part of the builder.
Only a qualified expert must open the unit.
The unit is completely maintenance-free.

Care must be taken, that a proper ground and a circuit protector for feeding according to the national and local regulations have been provided!

2 Specifications

SCHNEID MR-07 is an electronic regulator device for build-in assembly.

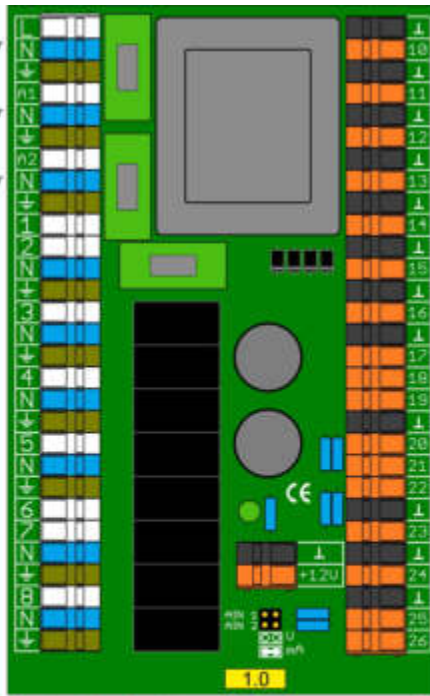
Product:	SCHNEID
Type:	MR-07
Operating voltage:	230V~
Power consumption:	9VA
Max. nominal current "A1":	2A
Max. nominal current "A2":	2A
Max. nominal current in total: (sum of all outputs)	3.15A
Max. continuous current per output :	1A
Life span of relay output:	500,000 switching operations
Max. Inrush current per output:	20A t<3mSec
Connection type:	Cage, operation without special tool Stripping from 5mm to 6mm
Connection method:	CAGE TERMINALR, grummetts of core lead ends not required
Cross-section of pipe:	Min. 0.5mm ² ; Max. 2.5mm ²
Protection class of casing:	IP20
Assembly method:	Modular type of construction as per DIN-Rail casing
Environment temperature:	0°C - 40°C
Time of operation:	100% continuous operation
Coefficient of contamination:	2
Measurable impact potential:	1500V
Sensor-type temperature sensor:	PT 1000

3 Terminal assignment / electrical connection

Wiring of main power / line entry:

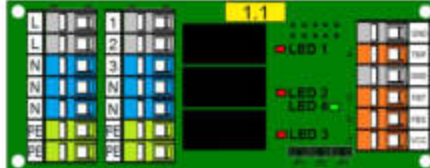
power feed 230VAC	L Phase N neutral conductor PE protective conductor
PLC-modules 1/2/3 230VAC	L Phase N neutral conductor PE protective conductor
PLC-modules 4/5/6 230VAC	L Phase N neutral conductor PE protective conductor

- 1 Lu1 - enable supply air fan
N N
PE PE
- 3 K1/2/3 - OPEN bypass (CLOSE supply flap)
N N
PE PE
- 4 K1/2/3 - CLOSE bypass (OPEN supply flap)
N N
PE PE
- 5 K4 - OPEN recuperation air flap
N N
PE PE
- 6 K4 - CLOSE recuperation air flap
7 request heating supply
N N
PE PE
- 8 request cooling supply
N N
PE PE



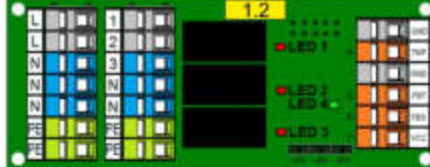
- GND Masse
- 10 T0 - ambient temperature
- GND Masse
- 11 T1 - supply air temperature
- GND Masse
- 12 T2 - supply air temp. after heat recovery, before heat register
- GND Masse
- 13 T3 - supply air temp. after heat register
- GND Masse
- 14 T4 - room temperature
- GND Masse
- 15 T5 - exhaust air temperature before heat recovery
- GND Masse
- 16 T6 - exhaust air temperature after heat recovery
- GND ground
- 17 FS1 - frost protective switch
- 18 LU1 - revision switch supply air
- 19 VCC SVDC
- GND ground
- 20 manual operation
- 21 LU2 - revision switch supply air
- 22 VCC SVDC
- GND ground
- 23 external request/enable signal
- GND ground
- 24 DIN Reserve 1
- GND ground
- 25 P2 - diff.pressure switch/sensor supply air fan
- 26 P4 - diff.pressure switch/sensor exhaust air fan

- Relay outputs 230VAC 3A**
Terminal Designation
- 1 P1.1 - enable heating coil pump
 - 2 V1.1 - OPEN heating coil 3P-valve
 - 3 V1.1 - CLOSE heating coil 3P-valve



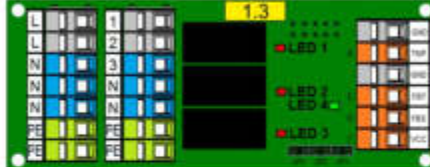
- Modul1 0-10V/0-20mA**
- GND
 - TMP T1.1 - supply temp. heating coil
 - GND
 - FBT T1.2 - return temp. heating coil
 - FBS S1 - CO² Sensor
 - VCC SVDC

- Relay outputs 230VAC 3A**
Terminal Designation
- 1 P2.1 - enable cooling coil pump
 - 2 V2.1 - OPEN cooling coil 3P-valve
 - 3 V2.1 - CLOSE cooling coil 3P-valve



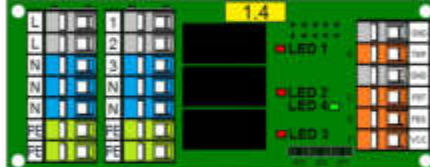
- Modul2 0-10V/0-20mA**
- GND
 - TMP T2.1 - supply temp. cooling coil
 - GND
 - FBT T2.2 - return temp. cooling coil
 - FBS S1 - humidity sensor
 - VCC SVDC

- Relay outputs 230VAC 3A**
Terminal Designation
- 1
 - 2
 - 3



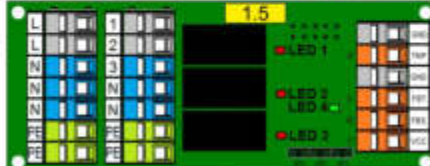
- Modul3 DIN/0-10V/0-20mA**
- GND
 - TMP LU1 - operation feedback supply air fan
 - GND
 - FBT LU1 - fault supply air fan
 - FBS P1 - diff. press. switch/sensor supply air filter
 - VCC SVDC

- Relay outputs 230VAC 3A**
Terminal Designation
- 1
 - 2
 - 3



- Modul4 DIN/0-10V/0-20mA**
- GND
 - TMP LU2 - operation feedback exhaust air fan
 - GND
 - FBT LU2 - fault exhaust air fan
 - FBS P3 - diff. press. switch/sensor exhaust air filter
 - VCC SVDC

- Relay outputs 230VAC 3A**
Terminal Designation
- 1 (automatic) remote acknowledgment
 - 2 lighting acknowledgment
 - 3 Reset MREM



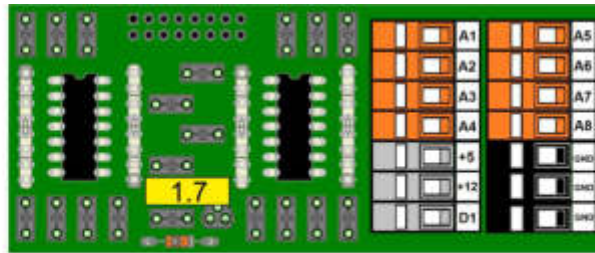
- Modul5 DIN/0-10V/0-20mA**
- GND
 - TMP P1.1 - operation feedback heating coil pump
 - GND
 - FBT P1.1 - fault heating coil pump
 - FBS AIN Reserve 1
 - VCC SVDC

- Relay outputs 230VAC 3A**
Terminal designation
- 1 Common fault 1
 - 2 Common fault 2
 - 3 Common fault 3



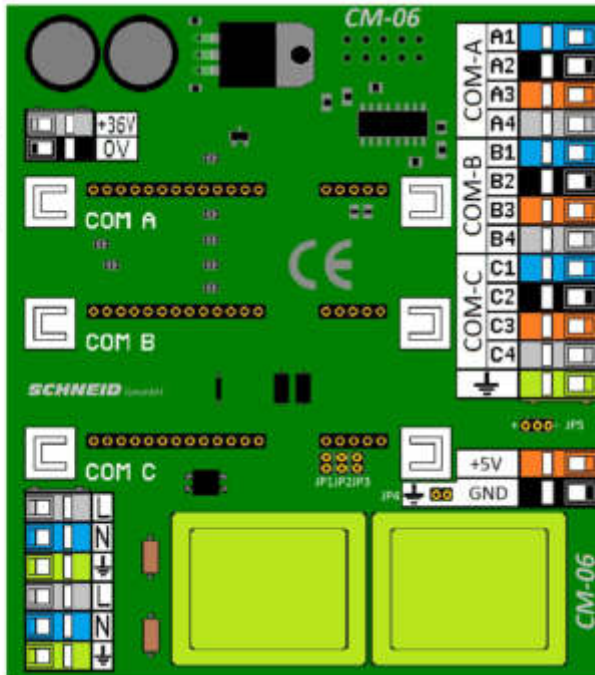
- Modul6 DIN**
- GND
 - TMP P2.1 - operation feedback cooling coil pump
 - GND
 - FBT P2.1 - fault cooling coil pump
 - FBS acknowledgment
 - VCC SVDC

3 Terminal assignment / electrical connection



AOUT Modul

- A1 LU1 - speed setpoint supply air fan
- A2 LU2 - speed setpoint exhaust air fan
- A3 K1/2/3 - position setpoint supply/bypass air flap
- A4 K4 - position setpoint recuperation air flap
- A5 LU1 - position setpoint heating coil static valve
- A6 LU2 - position setpoint cooling coil static valve
- A7 K1/2/3 - setpoint heating load
- A8 K4 - setpoint cooling load



Data network visualization

Consumption data collection (heat meter, electricity meter, ...)

Sub-Communication (internal controller communication)

Protective conductor / cable shield

VCC - 5VDC

GND - Masse/Ground external feed-in for a second TCP/IP-module

JP1-3 - subCOM

remove when card is set
 JP4 - connection GND-PE for special applications
 JP5 - for Rs485 BUS-termination

VCC - 36VDC
 GND - Masse/Ground external feed-in
 MBUS supply voltage
 (in case of Master100 application)

4 Short-description of features

The Schneid Ventilation Controller is a bilingual, free configurable control which covers a wide variety of selectable ventilation-applications. The control-display, monitoring-system and documentation are available in English and German.

Enabling of the system can be configured to be dependent from external request signals, time tables, and/or by certain room-temperature deviation.

Supply- and exhaust-air-ventilator can be configured as existing or not (for example for supply-air systems). Further the type ventilator- speeds can be controlled to fixed speed, fixed differential pressure, and differential pressure in dependence of air-quality measurements, such as CO² or relative humidity.

Heating – and/or cooling-registers can be configured, which will control the supply-air-temperature. The setpoints therefore are calculated by internal algorithms to ensure a stable and pleasant indoor climate.

Recovering energy can be used by controlled recuperation heat exchangers and/or bypass air flaps

The number of sensors is flexible as the control gives the possibility to use just the most important sensors that are necessary for the configured system or by setting sensors on several different positions, to achieve the most accurate control as possible.

The control will recognize which sensors are connected and internally configure itself to them. Sensors which are necessary for the configured system, but might be not connected, are indicated by respective alarm messages, informing the user of this condition.

Filter- and/or belt-protection can be chosen to be monitored and alerted by digital or analogue signals.

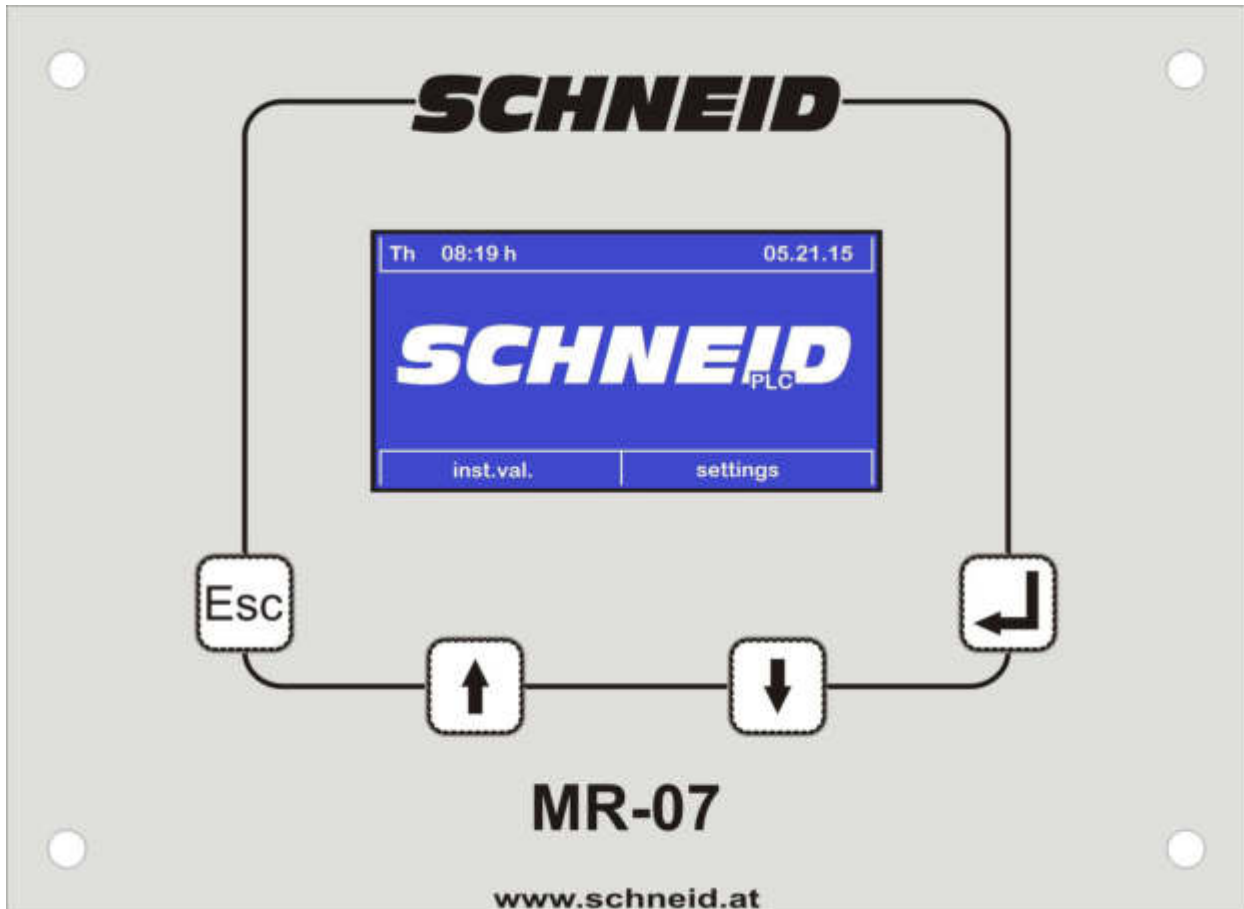
A clear menu prompt leads the user through parameters for end-users such as a protected menu level for expert and/or initial configuration.

Fault messages can be divided into 3 different common fault priorities. This gives the possibility to determine if messages are just displayed and/or alerted, locked software-internally or locked by external hardware and might need acknowledgement by (also configurable) automatic and/or manual acknowledge functions.

Standardized visualisation software will automatically adapt to the system-configuration and thereby allow a fast and easy connection to monitoring software with –if required- worldwide remote access to the system.

The SCHNEID ventilation controller also provides a platform, which allows a variety of extensions, possibilities and technical solutions.

5 Assignment of keys



Show informational values by holding in the main display (shown above) (Escape)

Navigate by pressing or (Up) or (Down)

Enter menus by pressing (Enter)

Leave menus by pressing (Enter)

Changing parameters within setting menus:

Navigate to the parameter that should be changed and press . The value is flashing now.

Press or to change the value.

Press to accept the changes or to abort.

Manual acknowledgement of faults:

Press + to manually acknowledge a fault.

6 Instantaneous values menu

Enter the menu from the main display, by marking “inst.val.” and press the  (Enter) Button.


The instantaneous value menu shows values of the actual operation of the system. The menu separates into 4 sub-menus, which are explained below.

6.1 Operation values

Shows the most important system values, such as speed and differential pressure of the ventilators, room- and supply-temperatures and their setpoints, as well as heat- and cooling-register temperatures and setpoints.

6.2 In-/Outputs

Shows the actual condition of all digital and analogue in- and outputs.

Press  (Enter) to switch the displaying of digital inputs between act./n.act. (Software interpreted NO/NC) and open/close (effective condition of input).

6.3 Fault messages

Shows the condition and assignment of fault messages.


A highlighted text indicates an active fault.




The “x” on the right side of the display indicates if a fault is assigned to the chosen common fault group.


6.4 Fault journal

Shows a historical journal of faults with date and time.

7 Settings menu

Press  several times to leave any eventually opened sub-menu.

Press  or  to change to “settings” and press  (Enter) to enter.

The display will show a list of the available internal menus. Enter the desired sub-menu by pressing  (Enter).

7.1 General settings

P1 – Language/Sprache

Switches the display language between English and German.

P2 – room temperature during enhancement

Defines the room-temperature setpoint during enhancement times.

The enhancement times are defined separately in the same named sub-menu of general settings (see 7.9 Enhancement times).

P3 - room temperature outside enhancement

Defines the room-temperature setpoint during non-enhancement times.

The enhancement times are defined separately in the same named sub-menu of general settings (see 7.9 Enhancement times).

P4 – minimum supply air temperature

The setpoint for supply air is calculated internally. This parameter defines the lower limit of this calculation or in other word, the lowest possible supply air temperature.

P5 – maximum supply air temperature

The setpoint for supply air is calculated internally. This parameter defines the upper limit of this calculation or in other word, the highest possible supply air temperature.

7.2 Supply air fan

P11 – minimum speed supply air

Sets the lower speed limit of the fan (if speed controlled).

P12 – maximum speed supply air

Sets the upper speed limit of the fan (if speed controlled).

P13 – fixed speed supply air

Sets speed of the fan (if not speed controlled).

P15 – differential pressure 1 - 2point curve

If the differential pressure control is set to be dependent from an air quality sensor, this parameter sets the speed at the beginning of the curve.

P16 – differential pressure 2 - 2point curve

If the differential pressure control is set to be dependent from an air quality sensor, this parameter sets the speed at the end of the curve.

7.3 Exhaust air fan

P21 – minimum speed exhaust air

Sets the lower speed limit of the fan (if speed controlled).

P22 – maximum speed exhaust air

Sets the upper speed limit of the fan (if speed controlled).

P23 – fixed speed exhaust air

Sets speed of the fan (if not speed controlled).

P25 – differential pressure 1 - 2point curve

If the differential pressure control is set to be dependent from an air quality sensor, this parameter sets the speed at the beginning of the curve.

P26 – differential pressure 2 - 2point curve

If the differential pressure control is set to be dependent from an air quality sensor, this parameter sets the speed at the end of the curve.

7.4 Heating coil

P31 – minimum return heatregister

Sets the lower limit of the return temperature (if a return-temperature sensor is installed).

P32 – cut off timer heatregister

The register will continue running for this time, after a deactivation condition (for example after the desired supply air temperature is reached).

P33 – hysteresis temperature-request heatregister

If the heatregister is activated by room-temperature difference, this parameter determines the height of the difference between room temperature setpoint and actual temperature, to activate the register.

P35 – heatregister controls supply air temp.

If activated, the heatregister will control the supply air temperature instead of the water supply temperature in the register circuit.

Activation could be necessary if no water sensors are installed or if their measurement is not accurate enough.

7.5 Cooling coil

P41 – maximum return cooling register

Sets the upper limit of the return temperature (if a return-temperature sensor is installed).

P42 – cut off timer cooling register

The register will continue running for this time, after a deactivation condition (for example after the desired supply air temperature is reached).

P43 – hysteresis temperature-request cooling register

If the coolregister is activated by room-temperature difference, this parameter determines the height of the difference between room temperature setpoint and actual temperature, to activate the register.

P45 – coolregister controls supply air temp.

If activated, the coolregister will control the supply air temperature instead of the water supply temperature in the register circuit.

Activation could be necessary if no water sensors are installed or if their measurement is not accurate enough.

7.6 Recuperation heat exchanger

P51 – minimum recuperation ratio

Sets the minimum position of the recuperation air flap.

P52 – frost protective temp recuperator

Bypasses the recuperator if the referenced temperature falls below the limit or controls the exhaust air temperature to the setpoint, if referenced to be steady controlled (next parameter). An exception is the setting with respect to the exhaust air temperature, which can be controlled continuously to the frost protection temperature, so as not to fall below, but still achieve the maximum possible heat recovery.

P53 – frost protective temp reference

- 0 .. frost protective temperature measured at supply air sensor
- 1 .. frost protective temperature measured at exhaust air sensor
- 2 .. frost protective temperature measured at exhaust air sensor and steady controlled*

*steady control of this temperature enables the maximum possible recuperation ratio while frost protection of the recuperator.

7.7 Bypass air flap

P56 – minimum outside air ratio

Sets the minimum position of the bypass air flap.

P57 – bypass air flap controlled to air quality

This setting will only have effect to steady controlled (0-10V) actors.

The position of the air flap will be controlled in dependence of a 2-point-curve referenced to the CO² value in the room.

The function allows higher outside air ratio with higher CO² value.

7.8 Ventilating times

Ventilating times

If the ventilating system is activated by a time schedule, this menu gives possibility to set the activation times.

The times can either be set for every day individually or for an overall block from Monday to Sunday.

If only one day needs to be set different from all other weekdays, set the block mon-sun at first and set the individual day afterwards.

7.9 Enhancement times

Enhancement times

This schedule determines, when the room temperature is controlled to the enhanced value "room temperature during enhancement " (see P2 – room temperature during enhancement).

Outside those times, the room temperature will be controlled to the value "room temperature outside enhancement " (see P3 - room temperature outside enhancement).

8 Software update (manually)

Prepare:

- MMC card
- UG07.bin
- computer with MMC slot

The MMC card can be taken from the control, where it is find on the upper back of the display.

Never remove the MMC card completely from the control, as an automatic update (by databus-interface) will not be possible anymore.


The software version is always contained in the file UG07.bin which can be obtained from your supplier.

Copy the UG07.file onto the MMC card.

Place the MMC card in the back of the display again.

Restart the control by executing a cold boot (see 10.1 Test-Display) or by disconnecting the control from its power supply for a moment.

The control display shows, if the MMC was found and, (if the software on the MMC is a later version) if the control is updating.

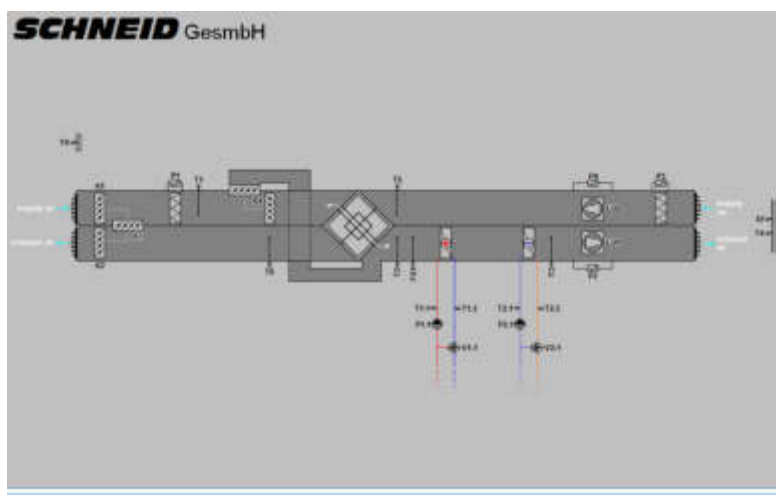
Check the new software version by holding  after update, or restart with a new formatted MMC card, if the update didn't work.

9 Start-up settings

This chapter lists the most important configurations, which should be done within the first start-up of the system. This includes enabling the existing system parts, as well as (if a monitoring system is in use) configuration of the databus-interface.

If a databus interface exists, it is possible just to do the configuration of the interface and set the rest of the parameters remotely on the monitoring system.

Capacity of the control with all system components, which can be configured and connected:



Before doing the initial configuration of the control, go to 10.4 System settings and execute P80 – Default set once.

Go to 10.5 Expert settings and configure the existing components by parameter P10-P55:

P10 - supply air fan existing?	P10	page 28
P20 - exhaust air fan existing?	P20	
P30 - heating register existing?	P30	page 29
P40 - cooling register existing?	P40	
P50 - recuperation existing?	P50	
P55 - bypass flap existing?	P55	

Additional expert-parameters for each component are found in the same menu at the control (same page and following in the documentation) and may be checked at the same time.

Go to system settings (see 10.4 System settings) and configure the following FSS-databus-interface by parameter:

P75 – FSS address	page 24
P76 – FSS baudrate	page 24

If subcommunication is used:


P78 – SubCom address	page 25
P79 – SubCom baudrate	page 25



If MBus-communication is used:


P73 - heat meter type	page 24
P74 - number of MBus devices	page 24
P77 – MBus baudrate	page 25

10 Internal Menu – all parameters

Enter the internal menu the following way:

Press  several times to leave any eventually opened sub-menu.

Hold  +  for approximately 5 seconds to enter the internal menu.

The display will show a list of available internal menus. Navigate to the desired menu and press  to enter.

Proceed with the following chapters, which are describing the internal sub menus.

10.1 Test-Display

The test display shows instantaneous system values of communication, such as:

- MBus
- SubCom
- FSS



The test-display also gives the possibility to execute a cold-boot and restart the control. This is for example necessary, when doing a software update by changing the MMC (see 8 Software update (manually)).

10.2 Output test

The output test allows to manually switch all digital and analogue outputs. This is for example helpful, when point-testing the system before startup.

10.3 Set date & time

Press  to make the first digit (day) start flashing.


Press  or  to change the week-day.



Press  to apply the change.


Proceed the same way with every other until none of them is flashing anymore.

Abort any changes by pressing .

10.4 System settings

Press  several times to leave any eventually opened sub-menu.

Hold  +  for approximately 5 seconds to enter the internal menu.

The display will show a list of available internal menus. Navigate to “system settings” and press .

P68 - SIP number

This parameter is used similar as an address, if internet or VMware is used as a data interface, instead of a direct network- or cable-connection to a monitoring PC.

This function requires special settings at the network router of the control, as well as of the PC. As configurations vary from system to system, please ask your supplier for further information.

P72 - send data to SinVis?

This parameter is used if the monitoring system uses SinVis as a web-based kind of monitoring system.

SinVis has to be ordered, activated and licensed. Please ask your supplier for further information.

P73 - heat meter type

This parameter can usually stay set to “1”, as this is provided for standard MBus devices, whose protocol can be detected automatically by the software.

If special types of meters are used, which may not be in the protocol yet, this parameter may be changed to another value on advice of the supplier.

P74 - number of MBus devices

Set to the number of connected meters (e.g. heat-meters or electricity-meter). Find information on interface-connection of meters on page 9.

P75 – FSS address

Address of the control for communication with the monitoring system.

P76 – FSS baudrate

Baudrate (speed of communication) of the control for communication with the monitoring system.

P77 – MBus baudrate

Baudrate (speed of communication) of the control for communication with meters.

P78 – SubCom address

Address of the control for internal communication with other controls or control-extensions.

P79 – SubCom baudrate

Baudrate (speed of communication) of the control for internal communication with other controls or control-extensions.

P80 – Default set

Resets all parameter to factory setting.

P81 – common fault 1 byte 1

P82 – common fault 1 byte 2

P83 – common fault 1 byte 3

P84 – common fault 1 byte 4

P85 – common fault 2 byte 1

P86 – common fault 2 byte 2

P87 – common fault 2 byte 3

P88 – common fault 2 byte 4

P89 – common fault 3 byte 1

P90 – common fault 3 byte 2

P91 – common fault 3 byte 3

P92 – common fault 4 byte 4

Assigns faults to the respective common fault.

common fault 1: critical faults which require acknowledgement
(either manual or automatic if assigned)

common fault 2: critical faults which don't require acknowledgement

common fault 3: less critical faults or warnings

10 Internal menu

For assignment, sum up the values of the desired error messages and set to the according parameter byte and fault-nr.:

byte	error message	value of error
1	1 – error supply fan	1
1	2 – error belt protection supply fan	2
1	3 – error filter protection supply fan	4
1	4 – error revision switch supply fan	8
1	5 – error exhaust fan	16
1	6 – error belt protection exhaust fan	32
1	7 – error filter protection exhaust fan	64
1	8 – error revision switch exhaust fan	128
2	9 – error heating register pump	1
2	10 – error cooling register pump	2
2	11 – error frost protective switch	4
2	12 - error fire alarm	8
2	13	16
2	14	32
2	15	64
2	16	128
3	17 – broken/missing sensor room temperature	1
3	18 – broken/missing sensor(s) heating register	2
3	19 – broken/missing sensor(s) cooling register	4
3	20 – broken/missing sensor(s) recuperation	8
3	21 – broken/missing sensor(s) bypass function	16
3	22	32
3	23	64
3	24	128
4	25	1
4	26	2
4	27	4
4	28	8
4	29	16
4	30	32
4	31 – manual operation on control cabinet	64
4	32 – fault subcommunication	128

Example:

The user wants to assign the errors 2, 3, 6, 7 and 11 to common fault 1, to enable automatic acknowledgement of these error.

Therefore add the values of those errors, which are in byte 1 first:

2 – error belt protection supply fan 2

3 – error filter protection supply fan 4

6 – error belt protection exhaust fan 32

7 – error filter protection exhaust fan 64

Value to set to P81 = 2 + 4 + 32 + 64 = 102

Now add the values of those errors, which are in byte 2:

11 – error frost protective switch 4

Value to set to P82 = 4

No more errors should be assigned from byte 3 and 4, therefore:

Value to set to P83 = 0

Value to set to P84 = 0

P97 – manual common fault

Gives the operator the possibility to switch the common fault outputs manually:

0 .. fault-outputs OFF

1 .. fault-outputs ON

9 .. fault-outputs AUTOMATIC

P98 – max impulse 3 point valves

Do not change this parameter unless otherwise instructed by manufacturer!

P247 – load settings from MMC

Loads all parameter settings from the MMC Card.

Requires a MMC, which has parameter information stored (see parameter 248)

P248 – save settings to MMC

Saves the parameter configuration of the control to the MMC, and allows sharing it with other controls, by executing parameter 247 at the other controls.

P249 – MBus configuration impulse-reading

Necessary, if battery-meters are in use, which block their interface after a certain amount of readings per day.

This parameter determines, which of the connected meters such are.

The selection is done by the meter-address and its binary value. Sum up the binary values of meters addresses to enable impulse reading of multiple meters (see page 25 for an explanation on how to sum up binary values).

P250 – MBus reading interval

Determines the interval between two readings of impulse-reading configured meters.


1440min .. once a day



720min .. twice a day


480min .. three times a day

360min .. four times a day

10.5 Expert settings

Press  several times to leave any eventually opened sub-menu.

Hold  +  for approximately 5 seconds to enter the internal menu.

The display will show a list of available internal menus. Navigate to “expert settings” and press .

P10 - supply air fan existing?

P20 - exhaust air fan existing?

Choose yes, if this system-part exists.

P13 - supply speed controls?

P23 - exhaust speed controls?

Only valid, if fan exists and, if fan is speed controlled:

0 .. fixed speed

1 .. speed controlling fixed delta-P value (delta-P sensor must be connected)

2 .. speed controlling air quality (CO²- or relative-humidity-sensor AND delta-P sensor must be connected)

P120 - supply fan I-factor

P121 - supply fan P-region

P130 - exhaust fan I-factor

P131 - exhaust fan P-region

Do not change this parameter unless otherwise instructed by manufacturer!

P122 - supply fan CO² point 1

P123 - supply fan CO² point 2

P132 - exhaust fan CO² point 1

P133 - exhaust fan CO² point 2

Only valid, if fan is speed controlled to air quality sensor.

The parameters determine where the delta-P-setpoint has its minimum and its maximum value, according to the actual air quality reading.

P126 – supply fan room-diff. pt.1

P127 - supply fan room-diff. pt.2

P136 - exhaust fan room-diff. pt.1

P137 - exhaust fan room-diff. pt.2

Only valid if the fan was set to be controlled in reference to a room temperature sensor. These parameters define the min and max values of the delta-P setpoint, dependend from the differential room temperature.

P104 - filter protection supply fan?

P107 - filter protection exhaust fan?

Choose yes, if this system-part exists.

P105 - analogue/digital filter protection supply fan

P108 - analogue/digital filter protection exhaust fan

Only valid, if filter protection exists.

This parameter gives the operator the possibility to invert the logic of the filer protection signal, or to set an analogue input signal (for pressure sensor):

0 .. closed contact = request (pressure-switch must be connected)

1 .. open contact = request (pressure-switch must be connected)

2 .. analogue input signal (pressure-sensor must be connected)

P106 - max. pressure supply air filter protection

P109 - max. pressure exhaust air filter protection

Only valid, if filter protection exists and, if signal is set to analogue input.

This parameter determines the maximum pressure loss of the filter in operation, after an error message will be executed.

The error message is software internally locked and must be acknowledged.

P124 – belt protection supply fan?

P134– belt protection exhaust fan?

Only valid, if fan and delta-P-sensor exists.

Choose yes, if the delta-P-sensor is used for a belt protective function.

P125 - min. pressure supply air filter protection

P135 - max. pressure exhaust air filter protection

Only valid, if belt protection exists.

This parameter determines the minimum pressure of the fan in operation, unless an error message will be executed.

The error message is software internally locked and must be acknowledged.

P30 - heating register existing?

P40 - cooling register existing?

P50 - recuperation existing?

P55 - bypass flap existing?

Choose yes, if this system-part exists.

P140 – incoming temp. hysteresis heatregister on

P160 – incoming temp. hysteresis coolregister on

Only valid, if register exists.

This parameter determines the difference between supply air setpoint and incoming temperature, which needs to be exceeded to enable the register.

P141 – supply hysteresis heatregister on

P161 – supply hysteresis coolregister on

Only valid, if register exists.

This parameter determines the difference between supply air setpoint and supply temperature, which needs to be exceeded to enable the register.

P148 – heatregister-setpoint min. value

P149 – heatregister-setpoint max. value

P168 – coolregister-setpoint min. value

P169 – coolregister-setpoint max. value

Only valid, if register exists.

This parameter determines the minimum/maximum value for the setpoint at the heating/cooling register.

P142 - heatregister-setpoint P-region 1

- P143 - heatregister-setpoint offset 2**
- P144 - heatregister-setpoint P-region 2**
- P145 - heatregister-setpoint P-region 3**
- P146 - heatregister-setpoint I-factor 4**
- P147 - heatregister-setpoint resettime 4**
- P162 - coolregister-setpoint P-region 1**
- P163 - coolregister-setpoint offset 2**
- P164 - coolregister-setpoint P-region 2**
- P165 - coolregister-setpoint P-region 3**
- P166 - coolregister-setpoint I-factor 4**
- P167 - coolregister-setpoint resettime 4**

Do not change this parameter unless otherwise instructed by manufacturer!

P150 - heatregister-valve timer

- P151 - heatregister-valve I-factor**
- P152 - heatregister-valve P-region**
- P170 - heatregister-valve timer**
- P171 - heatregister-valve I-factor**
- P172 - heatregister-valve P-region**

Do not change this parameter unless otherwise instructed by manufacturer!

P153 – sequence function heatregister

P173 – sequence function coolregister

Only valid if register and recuperation flap exists.

The sequence function allows the register to enable only if the recuperation flap has fully opened. Activation of the sequence function is recommended if there is no temperature sensor in between register and recuperator.

P154 – sequence disabling position heatregister

P174 – sequence disabling position coolregister

Only valid if sequence function is activated.

The parameter defines the valve position which need to be underrun that the heatregister can be disabled and control is moved to the recuperator.

P155 – pre-heating heatregister

If activated, the heating register will start a pre-heating sequence initially to any start of the air handling system, if the outside temperature lies below the setpoint (next parameter) or independent from the outside temperature, if no such sensor has been installed.

The pre-heating is completed if the return sensor reaches 20°C.

If no return sensor is installed, the pre-heating is completed if the supply sensor reaches 40°C.

If both return and supply sensor are not installed, the pre-heating will be completed after a fixed running time of 2 minutes.

P156 – pre-heating outside temperature

Only valid if pre-heating is activated.

See upper parameter for description.

P180 - recuperation-flap timer

P181 - recuperation-flap I-factor

P182 - recuperation-flap P-region

Do not change this parameter unless otherwise instructed by manufacturer!

P185 - bypass-flap timer

P186 - bypass-flap I-factor

P187 - bypass-flap P-region

Do not change this parameter unless otherwise instructed by manufacturer!

P188 – 2-point curve bypass-flap position pt. 1

P189 - 2-point curve bypass-flap position pt. 2

P291 - 2-point curve bypass-flap air quality pt. 1

P292 - 2-point curve bypass-flap air quality pt. 2

These parameters define the position of the bypass flap in dependence of the room air quality (CO²), if the respective bypass flap control has been activated (P57).

P110 - supply air controls room?

Only valid, if any component for heating/cooling exists (cooling/heating register, recuperation, bypass flap) and a room temperature sensor exists.

Usually the room temperature is controlled by the ventilating system (set this parameter to Yes then)

If the ventilating system is used only for air exchange, or if a room temperature sensor is missing or not significant enough, this parameter gives the possibility to control the supply temperature to a fixed value, which is independent from the room temperature.

P111 - supply air offset 1

P112 - supply air P-region 2

P113 - supply air exponent 2

P114 - supply air resettime 4

P115 - supply air I-factor 4

Do not change this parameter unless otherwise instructed by manufacturer!

P116 - supply air max. difference

This parameter determines the maximum difference between supply air setpoint and room temperature.

The parameter thereby prevents discomfort, caused by too cold or hot air, brought in by the ventilation system.

P101 - enable signal mask VT

Choose how to enable and disable the ventilating system, by setting the value according to the following (bit-) mask:

- 0 .. always off (no frost protective function by software!!!)
- 1 .. external request (external request signal must be connected)
- 2 .. time table
- 3 .. request + time table
- 4 .. room thermostat (room temperature sensor must be connected)
- 5 .. request + thermostat
- 6 .. time table + thermostat
- 7 .. request + time table + thermostat
- 8 .. outside temperature use
- 9 .. outside temperature use + external release

P102 - hysteresis room-thermostat enabling

Only valid, if the enable signal mask is configured to be activated by room-thermostat function.

This parameter determines, how high the difference between room temperature and setpoint must be to enable the ventilation system.

The deactivation will be performed, if the setpoint is under-/overrun (cooling/heating) for half the configured hysteresis.

P103 - boolean logic external request signal

Only valid, if enable signal mask is configured to be activated by external request.

This parameter gives the operator the possibility to invert the logic of the external request signal:

- 0 .. closed contact = request
- 1 .. open contact = request

P190 – Follow-up time external request signal

Valid only, when the enable signal mask is configured to be activated by an external request. The follow-up time increases the ventilation release after an external request.

P280 – timeout auto-acknowledge

Only valid, if auto-acknowledge is activated (set higher than 0).

Time between automatic acknowledge repeats.

P281 – # (number) of repeats auto-acknowledge

This parameter determines the number of automatic acknowledge signals, after an error message occurs.

The function can be deactivated (if only manual acknowledge is desired) by setting the value to 0.

P282 – auto-acknowledge restart?

Only valid, if auto-acknowledge is activated (set higher than 0).

If activated, the automatic acknowledge will restart with every new error message that occurs.

If deactivated, the automatic acknowledge will stay idle after the configured repeats, also, if a new error occurs.

10.6 Manual operation

The menu allows the operator to override the control functions, for example switching on and off pumps, or to manually force a valve into a certain position.

It is absolutely not recommended to stay with a manual operation for a longer period of time, as every safety function is overwritten by the manual mode.

Always make sure, that the normal operation of the system is AUTOMATIC for ALL ACTUATORS.

Default value for automatic operation:

9 .. AUTOMATIC mode for digital actuators (pumps, flaps, 2/3-point valves, etc.)

101% .. AUTOMATIC mode for static actuators (static valves, positioning signals etc.)

Manual mode for (most of the) pumps, ventilators:

0 .. OFF

1 .. ON (automatic speed if speed controlled)

2 .. ON (manual speed if speed controlled) (AUTOMATIC if not speed controlled)

9 .. AUTOMATIC

Manual mode for 2-point valves:

0 .. CLOSE

1 .. OPEN

9 .. AUTOMATIC

Manual mode for 3-point valves:

0 .. STOP

1 .. OPEN

2 .. CLOSE

9 .. AUTOMATIC

Manual mode for static valves:

0-100% .. manual position

101% .. AUTOMATIC

10.7 Sensor offset

The menu allows the operator to add a sensor offset (either negative or positive) to the temperature sensors.

10.8 Analogue offset

The menu allows the operator to add offsets (either negative or positive), as well as initial and final values to the analogue sensors (such as pressure-sensors).

11 Troubleshooting

11.1 Communication

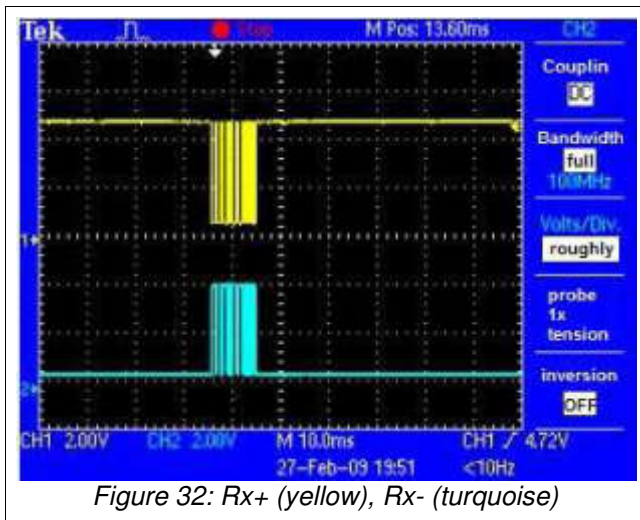


Figure 32: Rx+ (yellow), Rx- (turquoise)

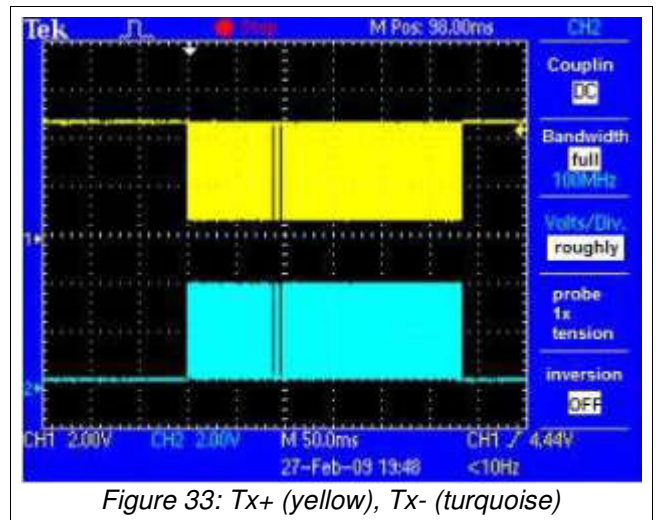


Figure 33: Tx+ (yellow), Tx- (turquoise)

Sorting the data

The following levels can be measured and tested by means of an oscilloscope:

The levels Rx+ and Rx- make up the inquiry of the regulators and must be on the relevant terminals.

The recessive level (idle level) for Rx+ is 5V, whereas the prevailing one is 0V. The inverted levels apply to Rx-.

The levels Tx+ and Tx- make up the response of a regulator and it must be possible to measure them on the relevant terminals.

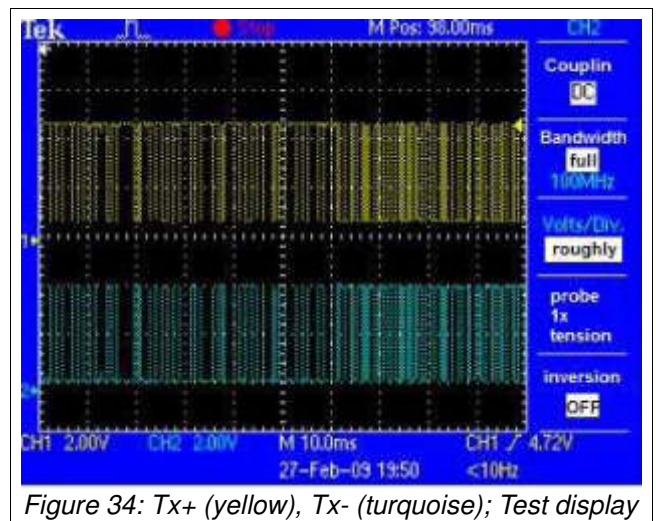


Figure 34: Tx+ (yellow), Tx- (turquoise); Test display

The recessive level (idle level) for Tx+ is 5V, whereas the prevailing one is 0V. The inverted levels apply to Tx-.

The low-level 0V must not exceed 0.5V for any of the signals.

The high level 5V must not fall below any of the 4V signals.

The signals must not be oscillating or contain any foreign harmonic vibrations, respectively (e.g. phase duration 20ms, when laying 230V-lines).

If one of these falsifications does occur, the wire shield must be checked or the wire must be shielded subsequently, respectively. A repeater module may also be used, if need be, in order to solve the problem.

11 Troubleshooting

Problem	Possible Remedy
x The Rx and Tx LED on the module light up, but the TxR LEDs do not light up.	<ul style="list-style-type: none"> ✓ Check the regulator address and baud rate Com A. ✓ Check whether the display system inquires for the regulator address (regler.dat, WinCOM). ✓ Check the correct connection of the data lines Rx and Tx. ✓ Check the signal level by means of an oscilloscope. ✓ (!) In a data network with a great number of receivers, it may take a longer time accordingly depending on the baud rate, until the respective regulator responds, which is indicated when the TxR LED flashes. ✓ Replace the RS422 module.
x (Almost) all LEDs on the RS422 module are constantly lit up.	<ul style="list-style-type: none"> ✓ Faulty wiring of the paths Rx and/or Tx. ✓ Check the data line on any defects. ✓ Check the correct connection of the data lines Rx+, Rx-, Tx+, Tx-. ✓ Check the signal level by means of an oscilloscope, if necessary. ✓ Replace the RS422 module.
x All LEDs on the module are flashing correctly, but the regulator is not shown in the display.	<ul style="list-style-type: none"> ✓ Check whether the respective regulator will really respond; this is indicated by a flashing of the TxR LED. ✓ Check the correct connection of the data lines Tx+, Tx-. ✓ Check the signal level by means of an oscilloscope. ✓ Replace the RS422 module.
x Correct responding of the regulator, which is indicated with the LEDs, but the regulator is not shown in the display.	<ul style="list-style-type: none"> ✓ Check whether the respective regulator address is listed in regler.dat and whether the WinCOM program has been opened. ✓ Check whether there are sufficient licenses under WinCOM for each one of the connected regulators. ✓ Check whether the data converter has been connected. ✓ Check the signal level by means of an oscilloscope.

Reading the MBus counter

Problem	Possible Remedy
<p>x The Mbus device is not being read.</p>	<ul style="list-style-type: none"> ✓ Check the power supply of the Mbus device to be read. ✓ Number of heating counters = 1 check (see page 35). ✓ Check the baud rate of Com C (see page 36). ✓ Check the heating counter types (see page 35). ✓ Check the Mbus module of the Mbus device to be read. ✓ Check the data line on any defect. ✓ Check the terminal voltage between MBus+ and Mbus- on 27VDC. ✓ Short-circuit the terminals MBus+ and Mbus- replace the lamps of Rx-LED. ✓ MBus module.
<p>x Several heating counters (on one interface) are not read.</p>	<ul style="list-style-type: none"> ✓ Check the power supply of the Mbus device to be read. ✓ Check the addressing (1-x) and the baud rate of the Mbus devices. ✓ Number of heating counters = 1 check. ✓ B Check the baud rate of Com C. ✓ Check the heating counter types. ✓ Check the data line on any defect. ✓ Check the terminal voltage between MBus+ and MBus- on 27VDC. ✓ Short-circuit the terminals MBus+ and Mbus- → replace the lamps of Rx-LED. ✓ MBus module.
<p>x The Mbus device is operated by batteries and should be read within shorter cycles (setting for energy saving).</p>	<ul style="list-style-type: none"> ✓ Allocate the address 2 to the heating counter and set the quantity of heating counters to 1. ✓ In this configuration, the heating counter will be read out once per day at 00:00. ✓ If there are several heating counters, the highest address will be allocated to the battery counter and the quantity of heating counters will be set to one number lower. (e.g.: 5 counters, battery WMZ: address5, quantity WMZ: 4)

11.2 Regulator inputs

Temperature sensors

Problem	Possible Remedy
x The sensor is connected, but is not indicated on the regulator/in the display.	<ul style="list-style-type: none"> ✓ Check whether a sensor is connected to the relevant terminals. ✓ Check the correct connection of the sensor. ✓ Replace the sensor with one that works.
x The sensor is connected, but the same value always appears in the display.	<ul style="list-style-type: none"> ✓ Check whether a sensor is connected to the relevant terminals. ✓ Check the correct connection of the sensor. ✓ Replace the sensor with one that works. ✓ Control the type of sensor! It must be a PT1000 sensor.

Remote control

Problem	Possible Remedy
x The positions of the switches of the remote control are not being accepted.	<ul style="list-style-type: none"> ✓ Check whether the remote control has been connected to the correct module. ✓ Check the correct connection of the remote control. ✓ Check whether a room temperature control has been adjusted for the heating circuit. ✓ Replace the remote control. ✓ Replace the heating circuit module.
x The room temperature measured by the remote control are not being accepted.	<ul style="list-style-type: none"> ✓ Check whether a sensor is connected to the relevant terminals. ✓ Check the correct connection of the sensor. (Disconnect and reconnect to the terminals, if need be, if the insulation has been pinched or the stranded wires have broken off). ✓ Replace the sensor with one that works.

11.3 Regulator outputs**Pump/fan control**

Problem	Possible Remedy
x The pump is not switched on.	<ul style="list-style-type: none"> ✓ Switch on the inputs on the parameter level and check whether the pump is being controlled, and measure the voltage on the output (when the pump is connected and disconnected). ✓ Check the settings which control the release of the pump. ✓ Check the sensors which control the release of the pump. ✓ Check the position of the priority select switch. ✓ Check the pump's ability to function, if this pump is directly connected to voltage.
x The pump rotates at a too slow speed.	<ul style="list-style-type: none"> ✓ Check the voltage on the output (when the pump is connected and disconnected). ✓ Change the rotational speed by means of a priority select switch (if available) on the pump.

Valve/flap control

Problem	Possible Remedy
<p>x The valve remains constantly open/closed.</p>	<ul style="list-style-type: none"> ✓ Switch on the outputs on the parameter level and check whether the valve opens and closes correctly. ✓ Measure the voltage on the outputs (when the valve is connected and disconnected). ✓ Check the settings which control the valve control. ✓ Check the sensors which control the valve control. ✓ Check the position of the priority select switch. ✓ Check the valve's ability to function when this valve is directly connected to voltage.
<p>x The valve does not change its position.</p>	<ul style="list-style-type: none"> ✓ On the data sheet of the valve, check whether this valve is suitable for the 230V-3-point control. ✓ Check whether the valve must possibly be provided with a necessary supply voltage (for valves provided with a function of emergency positioning!). ✓ Measure the voltage on the outputs (when the valve is connected and disconnected). ✓ Check the settings which control the valve control. ✓ Check the sensors which control the valve control. ✓ Check the position of the priority select switch. ✓ Check the valve's ability to function when this valve is directly connected to voltage.
<p>x The valve moves in one direction only, regardless of any command for OPEN or CLOSE.</p>	<ul style="list-style-type: none"> ✓ Check whether the N wire to the valve has been correctly connected (possibly mixed up with a pilot wire on OPEN or CLOSED).

Stichwortverzeichnis

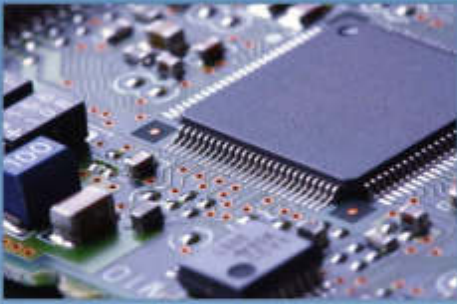
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Our services in summary



Hardware

Development at first hand



Project management

Supervise and achieve your goals



Software

Solve custom demands and requirements



Monitoring system

The entire system at a glance



Quality management

Safeguards a first-class quality



Support

Your concern is our request



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