

Service instructions for qualified personnel

Mechanical Ventilation Heat Recovery Unit FOCUS (F) 200

(for units from serial no. 3203-2)



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1 Type plate

The type plate clearly identifies the product. The information on the type plate is necessary for the safe use of the product and in case of service-related questions. The type plate is located on the side of the air connections of the HRU. The type plate must be permanently attached to the product.

 PAUL Warmerruckgewinnung GmbH August-Horch-Strae 7 08141 Reinsdorf		U Z-51.3-272			
Warmerruckgewinnungsgerat			Made in Germany		
FOCUS 200	Version RECHTS	230 V			
	Version LINKS	50 Hz			
Serien-Nummer:	- 02	IP 30			
Baujahr:		25 kg	0,6 A		

Type plate FOCUS 200

 PAUL Warmerruckgewinnung GmbH August-Horch-Strae 7 08141 Reinsdorf		EAC CE			
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Baujahr:		25 kg	0,6 A		

Type plate FOCUS F 200

2 Principal configuration of the system



The basic configuration of the system is universally valid and does not represent the system outline of the project-related ventilation plant! It is designed for representation of the plant-specific system structure for sensors and ventilation equipment.

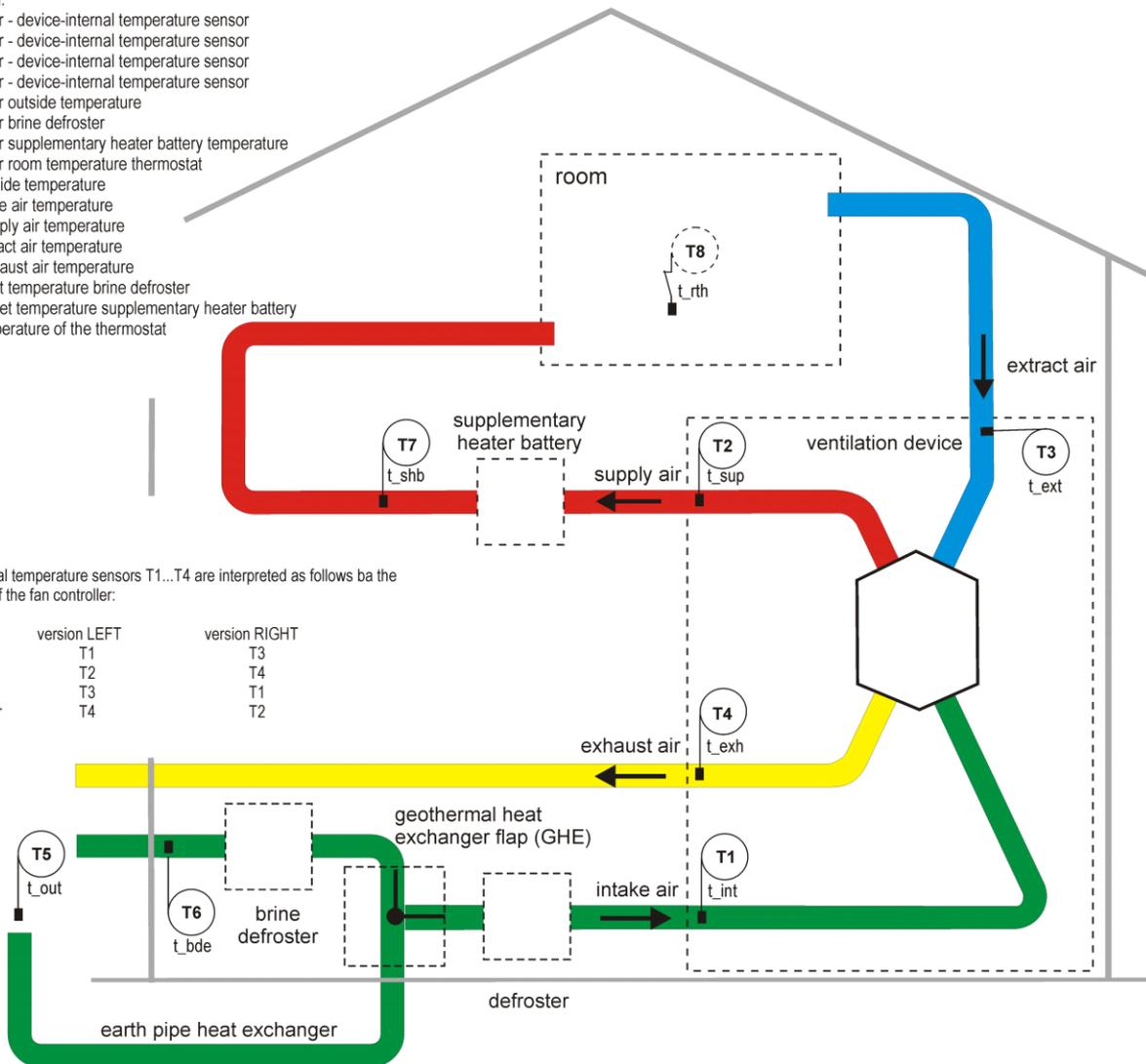
CAPTION:

- T1 Sensor - device-internal temperature sensor
- T2 Sensor - device-internal temperature sensor
- T3 Sensor - device-internal temperature sensor
- T4 Sensor - device-internal temperature sensor
- T5 Sensor outside temperature
- T6 Sensor brine defroster
- T7 Sensor supplementary heater battery temperature
- T8 Sensor room temperature thermostat
- t_{out} outside temperature
- t_{int} intake air temperature
- t_{sup} supply air temperature
- t_{ext} extract air temperature
- t_{exh} exhaust air temperature
- t_{bde} inlet temperature brine defroster
- t_{shb} outlet temperature supplementary heater battery
- t_{rth} temperature of the thermostat

Note:

The internal temperature sensors T1...T4 are interpreted as follows by the software of the fan controller:

	version LEFT	version RIGHT
intake air	T1	T3
supply air	T2	T4
extract air	T3	T1
exhaust air	T4	T2



General system outline with FOCUS, version LEFT

3 Replacement of the filters

3.1 Replacement of the filters of the device

1. Disconnect the device from the power supply.



2. Remove the front plate from the device. Press both spring locks and unlock with it the front plate. Open the front plate in a corner from maximally 15 ° and hang them from the tin fold of the housing.



3. Pull by means of pull band the foam material cover of the filters and the heat exchanger from the foam material housing. Beside, take the pull band at one of the ends and go, besides, counter hold the device with the other hand.



4. Pull the filters out of the filter slide-in compartments by means of the filter strap.



5. Package the filters in a sealed bag and put this in the residual waste.



6. Push the new filters in the filter slide-in compartments with regard to the flow direction. The filters are marked with an arrow according to the required flow direction.



Pollen filters are to be inserted in the filter slide-in compartment of the intake air connection!
The intake air connection is marked with the symbol:



7. Close the filter insertion fields and the heat exchanger with the foam cover.

8. Hang the front plate in the tin fold of the housing, and press the front plate in the area of the spring locks to the housing to this in the spring locks engages.
9. Re-establish the mains connection.

3.2 Resetting the filter run-time

Once the filter has been changed, the counter for the filter run-time must be reset. Resetting the filter run-time can be performed using the respectively connected control unit or the digital input signal (programmable with PC software as special solution).

1. Resetting the filter run-time by means of the LED control panel

Symbol	Designation	Explanation / actions
	LED 10 Signalling Filter run-time	When the LED 10 lights up, the filter run-time has expired and a filter check shall be performed.
	Key Reset Filter run-time	By pressing this key for at least 3 s, the filter run-time is reset. The LED 10 goes off. The timer starts the set filter run-time.

Tab. 1: Resetting the filter run-time by means of the LED control panel

2. Resetting the filter run-time by means of the TFT touch panel

Symbol	Designation	Explanation / actions
	Signalling Filter run-time expired	In case the filter run-time has expired, the message "Replace filter" is generated, signalling that the filter must be checked.
	Button Menu mode	By touching the button Menu mode, you reach the main menus
	Buttons Navigation	Select the main menu Settings by touching the Navigation buttons and confirm by pressing the Enter button.
	Buttons Navigation	Select the submenu Filter by touching the Navigation buttons and confirm by pressing the Enter button.
	Button Checkmark	By touching the Checkmark button, resetting of the filter run-time is selected.
	Button Enter	Confirm by pressing the Enter button.
	Button Cancel / back	By touching the Cancel / back button, exit the menu levels until the start menu appears.

Tab. 2: Step sequence resetting the filter run-time by means of the TFT touch panel

4 Replacement of the heat exchanger

1. Disconnect the device from the power supply.



2. Remove the front plate from the device. Press both spring locks and unlock with it the front plate. Open the front plate in a corner from maximally 15 ° and hang them from the tin fold of the housing.



3. Pull by means of pull band the foam material cover of the filters and the heat exchanger from the foam material housing. Beside, take the pull band at one of the ends and go, besides, counter hold the device with the other hand.



4. Pull the filters out of the filter slide-in compartments by means of the filter strap.



5. Now pull the heat exchanger by means of the strap from the EPP housing.



6. Spray silicone spray on the seals of the heat exchanger.



5 Replacement of the master and slave board

1. Read the program with a PC or write down the settings of the TFT.
2. Disconnect the device from the power supply.



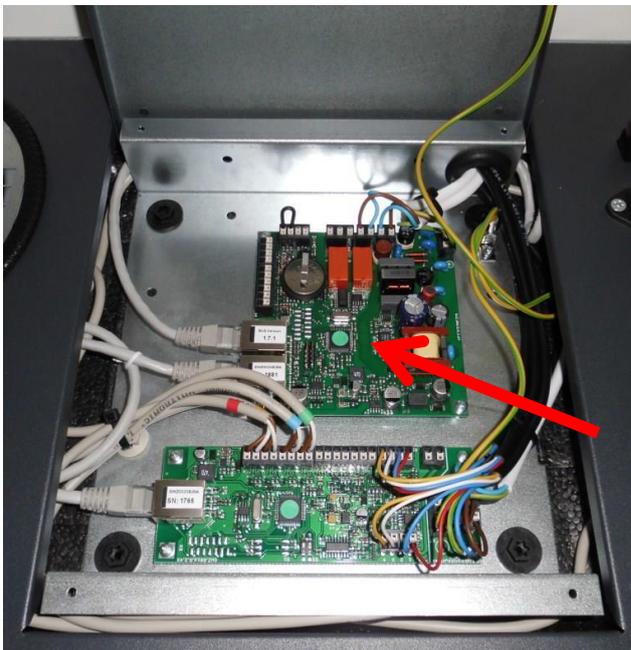
3. Apply for work on the electronics an ESD wrist strap.



4. Remove the electronics cover, open the 4 screws.



5. Remove the cables from the master board and remove it from the device.

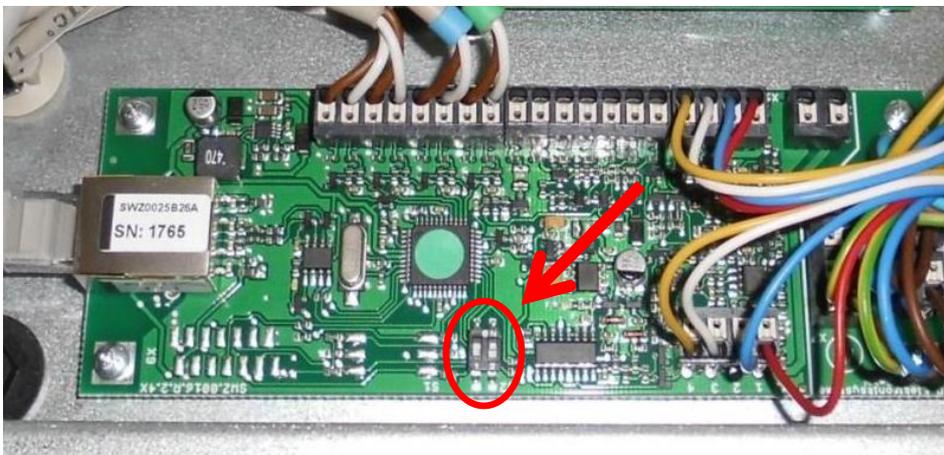


6. Install the new master board in the device. Be sure to install the cables according the circuit diagram (see appendix).

7. Remove the cables from the fan slave board and remove it from the device.

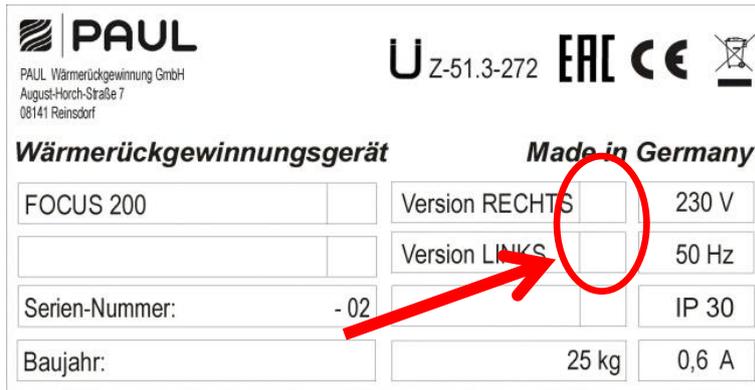


8. Install the new fan slave board in the device. Be sure to install the cables according the circuit diagram (see appendix).
9. Set the correct device version using the DIP switches on the fan slave board.



DIP 1 = left device version „off“/ right device version „on“
DIP 2 = „on“

The device version can be found on the type plate of the unit.



10. Mount all parts in reverse order.
11. Re-establish the mains connection.
12. Program the device.

Important note!



Make sure that you install the correct board in the respective device.

Art.-Nr. 524002300 Master board RD FOCUS 200 (black bar on type plate)

Art.-Nr. 521014120 Fan slave board RD (black bar on type plate)

6 Replacement of the fan

1. Disconnect the device from the power supply.



2. Apply for work on the electronics an ESD wrist strap.



3. Remove the front plate from the device. Press both spring locks and unlock with it the front plate. Open the front plate in a corner from maximally 15 ° and hang them from the tin fold of the housing.



4. Lever the EPP fan cover from the housing by means of a spatula.



5. Pull the fan with a pliers out of the device.



6. Open the 3 torx screws and unplug the fan connector from.



7. Insert the fan into the housing of the ventilation device. Please make sure that when you insert a new fan, the touch guard grille is installed or, if necessary, is remounted from the previous fan.
8. The grille is screwed directly onto the fan housing with 4 slotted screws.
9. From the following device serial numbers FOCUS, this change is valid or implemented. Only fans including contact protection grilles are supplied from this following production date or device numbers:

SAP Nummer	ENG Nummer	Bemerkung	Start Änderung
10004068		FOCUS 200 L 0008810945	12.11.19
10004069		FOCUS 200 R 0008804649	08.11.19
10004066		FOCUS F 200 L 0008841618	3.12.19
10004067		FOCUS F 200 R 0008839394	2.12.19
10008378		FOCUS 200 BASE L 0008824535	29.11.19
10008490		FOCUS 200 BASE R 0008824537	29.11.19
10015926		FOCUS 250 BASE ERV L 0008790175	29.10.2019
10015927		FOCUS 250 BASE ERV R 0008790173	29.10.2019

10. You do not have to retrofit old fans with a grille.

11. Only fans including a touch guard grille can be ordered as spare parts, no grille individually.



12. Plug the connector on the fan and attach him with the torx screws.



13. Slide the fan completely into the device.
14. Apply the sealant (NeoFermit) on the cut-out for the EPP fan cover.



15. Insert the EPP fan cover into the ventilation device and remove the excess sealant
16. Mount all parts in reverse order.
17. Re-establish the mains connection.

7 Installation of a condensate drain

1. Disconnect the device from the power supply.



2. Remove the pre-cut hole with a screwdriver.



3. Drill with a 40 mm drill bit a hole in the EPP housing.



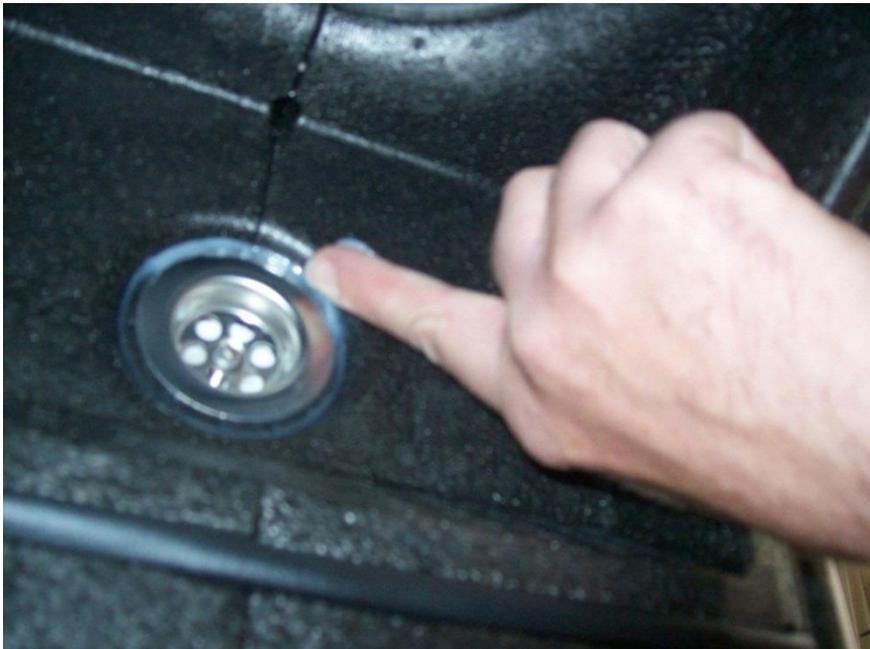
4. Apply the sealant to the inlet.



5. Insert the outlet into the device and fix it with the corresponding screw.



6. Remove the excess sealant.



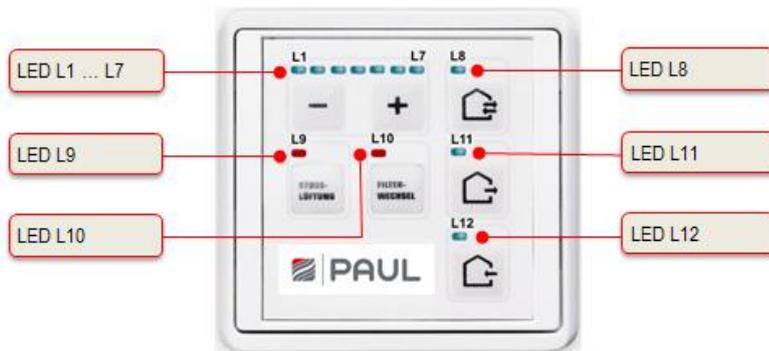
7. Close the other opening.
8. Re-establish the mains connection.

8 Messages, errors and error handling

The device control is equipped with an internal system for error detection.. The visualisation of the error messages and the error forecast is made according to the display possibilities of the connected control panel.

In response to an error condition, the fans are switched off.

8.1 Error signalling by means of the LED control panel



The visualisation of errors with the LED-control panel:

LED signalling	Function / meaning
L1 + L7 are lit	No external release: fan off
L8 blinks	Error sensor: Fans are switched off
L8 + L11 + L12 blinken	General error, the error number is displayed in a binary form by means of the LEDs L1 to L7 (see Tab. 4)
L11 blinks	Error fan 1 Hall: Fans are switched off
L12 blinks	Error fan 2 Hall: Fans are switched off

Tab. 3: Error signalling by means of the LED control panel

In addition to the signalling of the error conditions, an LED coding, which does binary present the meaning of the error, is generated by means of the LEDs L1...L7. Information on checking / measures for a possible elimination of the error condition are given in Tab. 5.

The following LED-combinations for the display of the error coding marked with “x” apply:

LED combinations							Error message	Possible cause
L1	L2	L3	L4	L5	L6	L7		
x		x					Supply air temperature too low	Supply air temperature < setpoint
x	x		x	x		x	BUS version incompatible	Software versions of the components not compatible
		x	x	x		x	Too many devices connected	Too many components connected to the BUS
x		x	x	x		x	Fan slave not connected	Lack of BUS-communication
	x	x	x	x		x	Communication error of the fan slave	Lack of BUS-communication
x	x	x	x	x		x	Communication error of the defroster	Lack of BUS-communication
					x	x	Communication error of the heater battery	Lack of BUS-communication
x					x	x	Comm. error flap of the geothermal heat exchanger	Lack of BUS-communication
	x				x	x	Comm. error general	Lack of BUS-communication
x	x				x	x	Heating does not switch off	Error BUS-thermostat
	x		x	x			General control unit error	Lack of BUS-communication with control unit

Tab. 4: Overview binary error coding with LED control panel

8.2 Visualisation of errors with the TFT touch panel

The visualisation of errors with the TFT touch panel is done in the plain text display of the error message. In the main menu Information / Last message, the last three errors that occurred are registered in compliance with the event with date and time. In addition to this display, a yellow warning triangle flashes in the upper right edge of the screen.

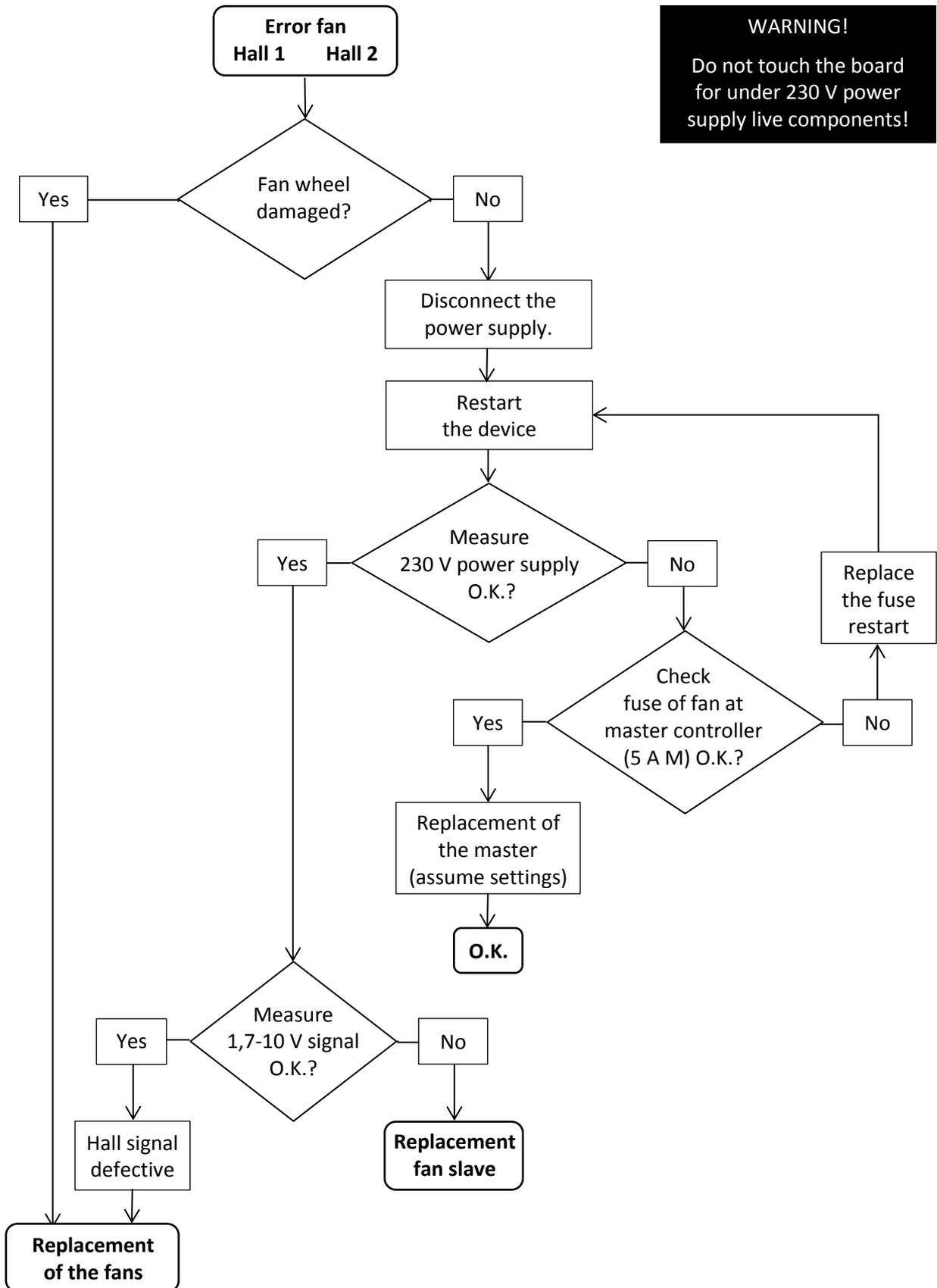
The following plain text displays of the error message are visualised:

Message on display	Possible cause	Control / Action
Error sensor 1	Sensor break or short circuit temperature sensor Version LEFT T1 Version RIGHT T3	Check or replace sensor
Error sensor 2	Sensor break or short circuit temperature sensor Version LEFT T2 Version RIGHT T4	Check or replace sensor
Error sensor 3	Sensor break or short circuit temperature sensor Version LEFT T3 Version RIGHT T1	Check or replace sensor
Error sensor 4	Sensor break or short circuit temperature sensor Version LEFT T4 Version RIGHT T2	Check or replace sensor
Supply air temperature too low	Minimum supply air temperature < setpoint;	Supply air temperature > setpoint + 1 K
Intake air temperature too low	Current intake air temperature < setpoint; longer than 30 minutes	Intake air temp > setpoint; control after 1 h
Error fan 1 Hall	Version LEFT; supply fan speed does not report Version RIGHT, exhaust fan speed does not report	manual adjustment of fan speed
Error fan 2 Hall	Version LEFT; exhaust fan speed does not report Version RIGHT, supply fan speed does not report	manual adjustment of fan speed
BUS version incompatible	Software versions of the components not compatible	Replace software versions
Too many devices connected	Too many components connected to the BUS	Remove surplus components
Fan slave not connected	Lack of BUS-communication	Fan slave connected
Communication error fan slave	Lack of BUS-communication	Check BUS-communication
Communication error defroster	Lack of BUS-communication	Check BUS-communication
Communication error heater battery	Lack of BUS-communication	Check BUS-communication
Communication error flap of the geothermal heat exchanger	Lack of BUS-communication	Check BUS-communication
Communication error general	Lack of BUS-communication	Disconnection from power supply, then restart
Heating does not switch off	Error BUS-Thermostat	Replace BUS-Thermostat
General control unit error	Lack of BUS-communication with control unit	Check BUS-communication

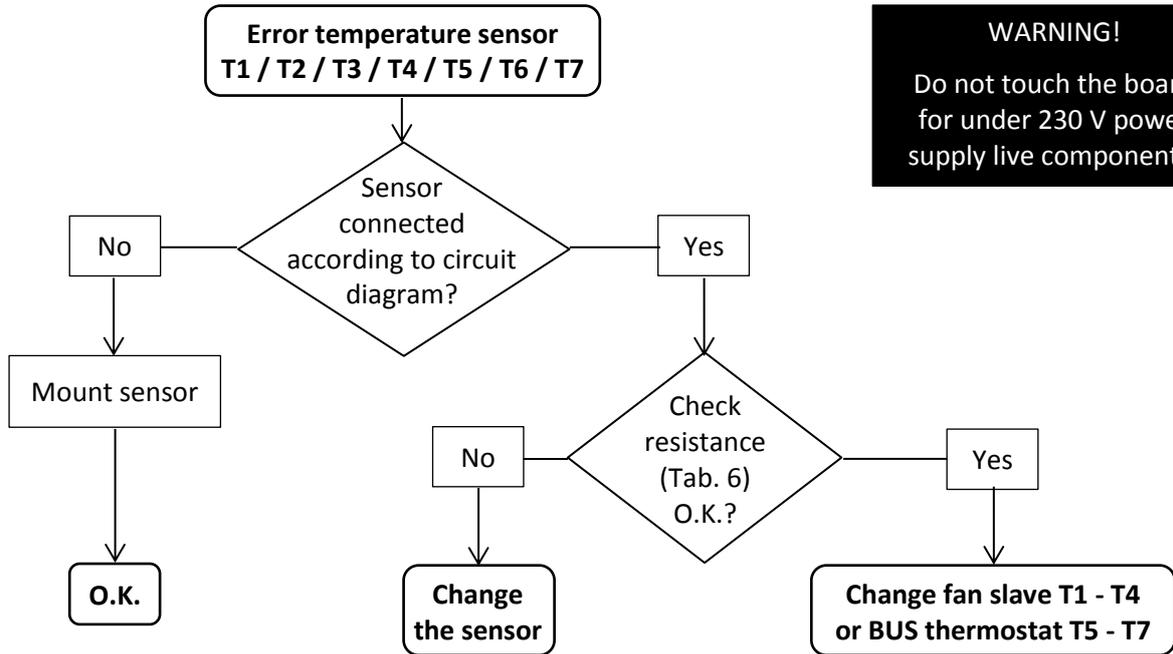
Tab. 5: Overview of messages, error visualisation and error treatment by means of the TFT touch panel

9 Error handling

9.1 Error fan



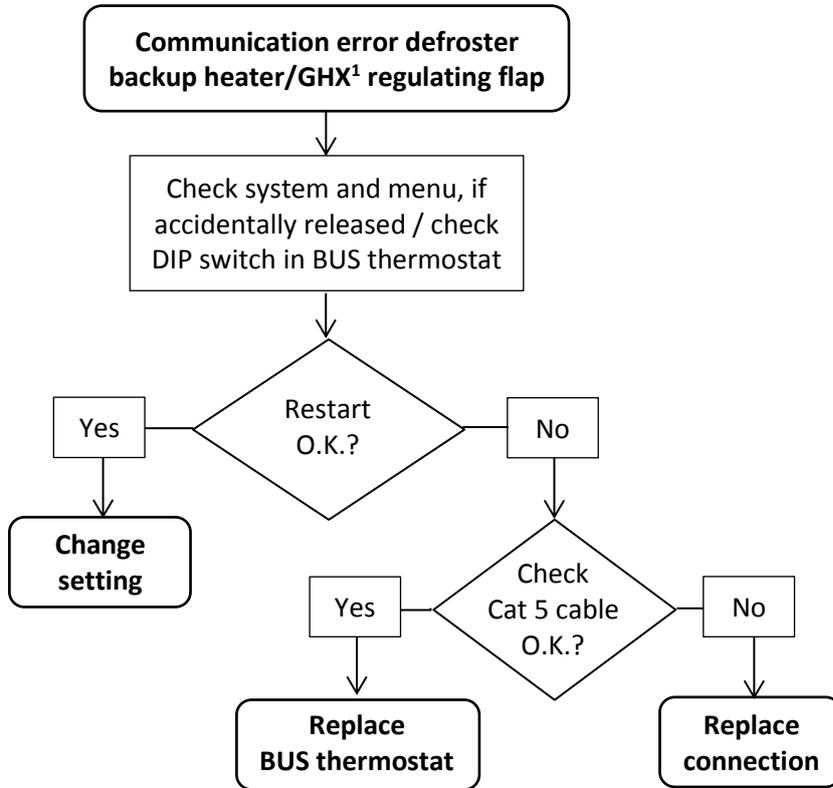
9.2 Error temperature sensor



Operating temp. T_{oper} (°C)	Resistance R_{25} (kΩ)
-25	129,30
-20	96,36
-15	72,50
-10	55,05
-5	42,16
0	32,56
5	25,34
10	19,87
15	15,70
20	12,49
25	10,00
30	8,059
35	6,535

Tab. 6: Resistance value

9.3 Communication error defroster, backup heater, geothermal heat exchanger



WARNING!
Do not touch the board
for under 230 V power
supply live components!



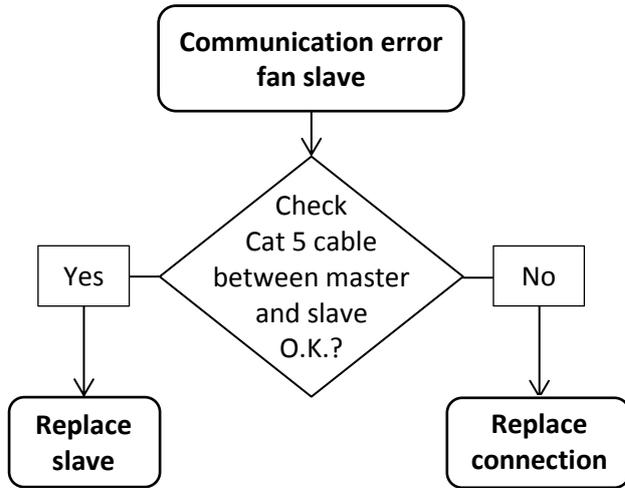
BUS thermostat



DIP switch

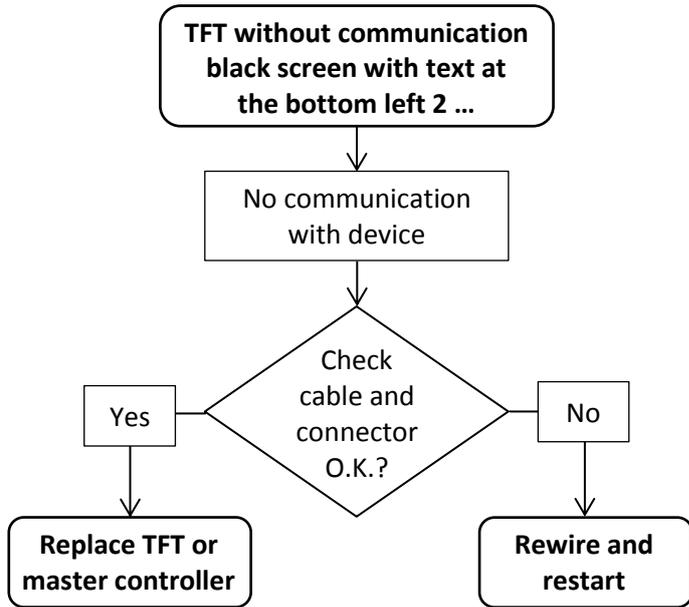
¹ GHX – geothermal heat exchanger

9.4 Communication error fan slave



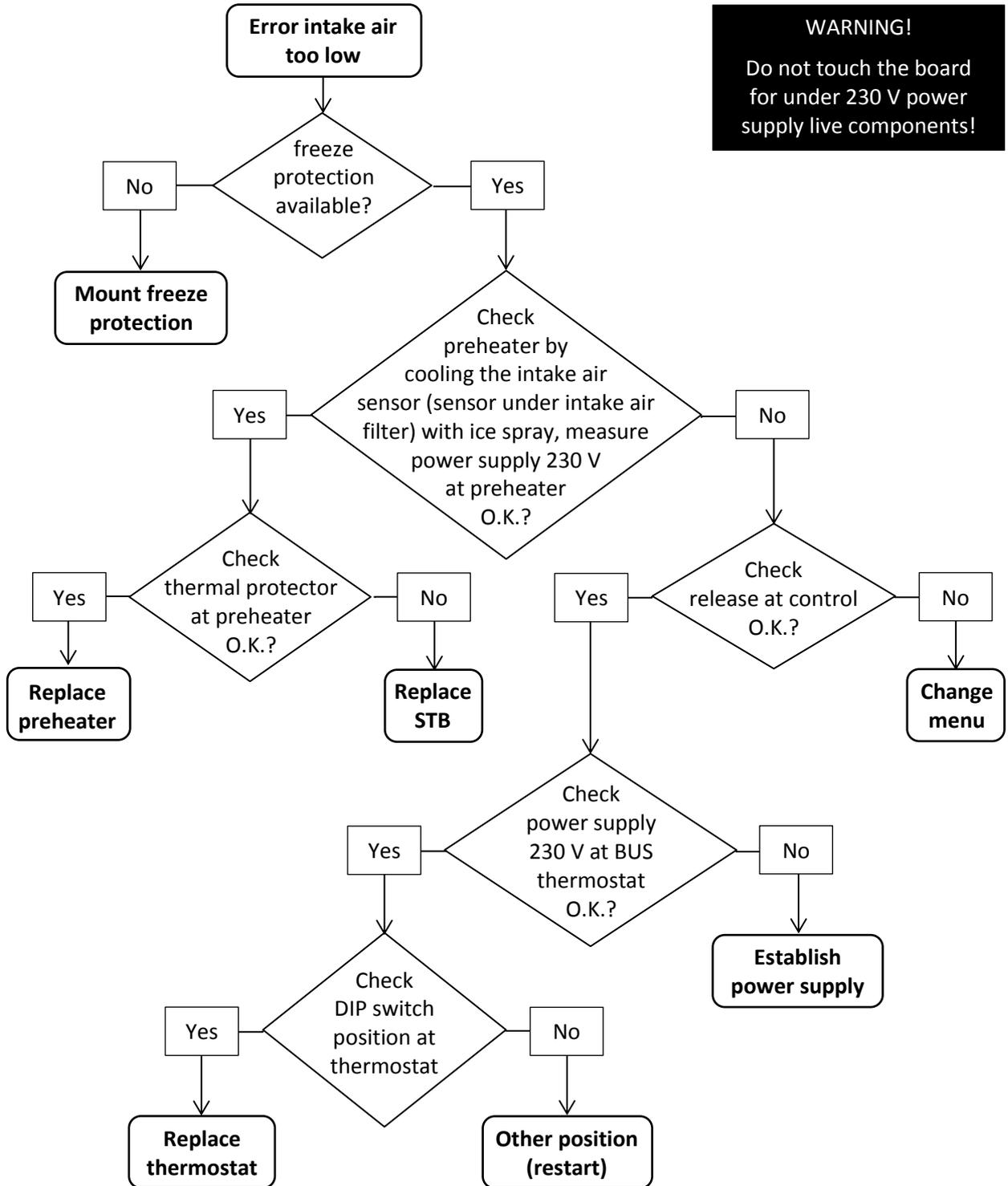
WARNING!
Do not touch the board for under 230 V power supply live components!

9.5 TFT without communication

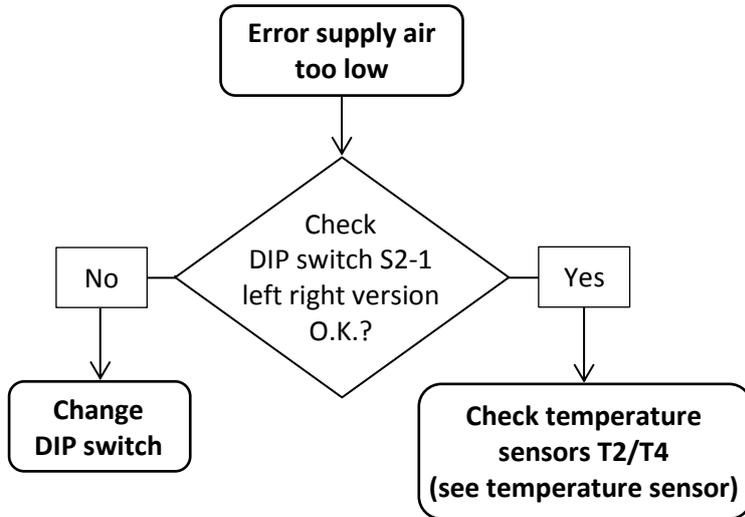


WARNING!
Do not touch the board
for under 230 V power
supply live components!

9.6 Error intake air too low

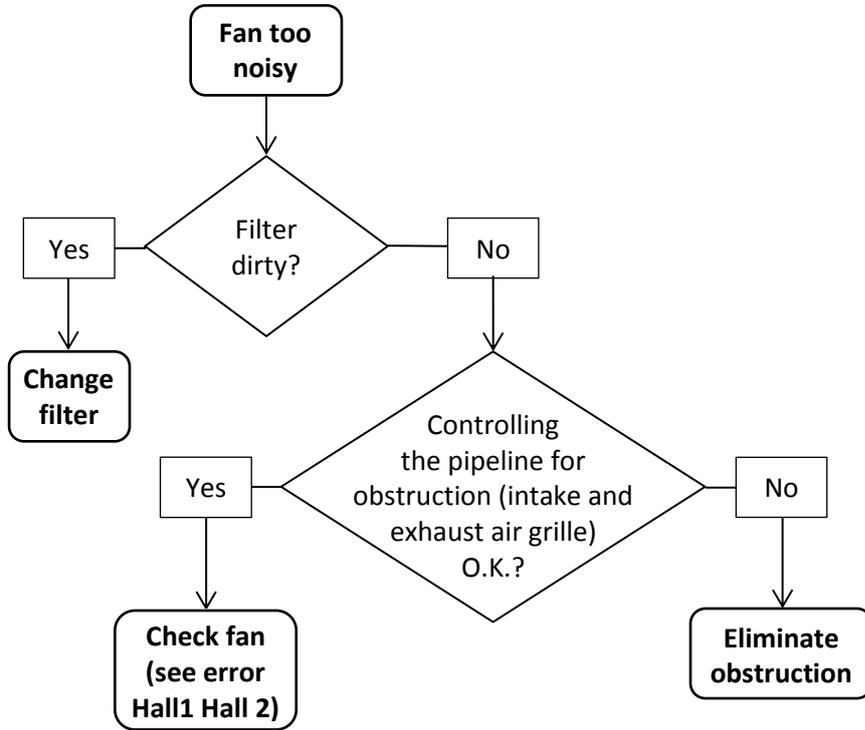


9.7 Error supply air too low



WARNING!
Do not touch the board for under 230 V power supply live components!

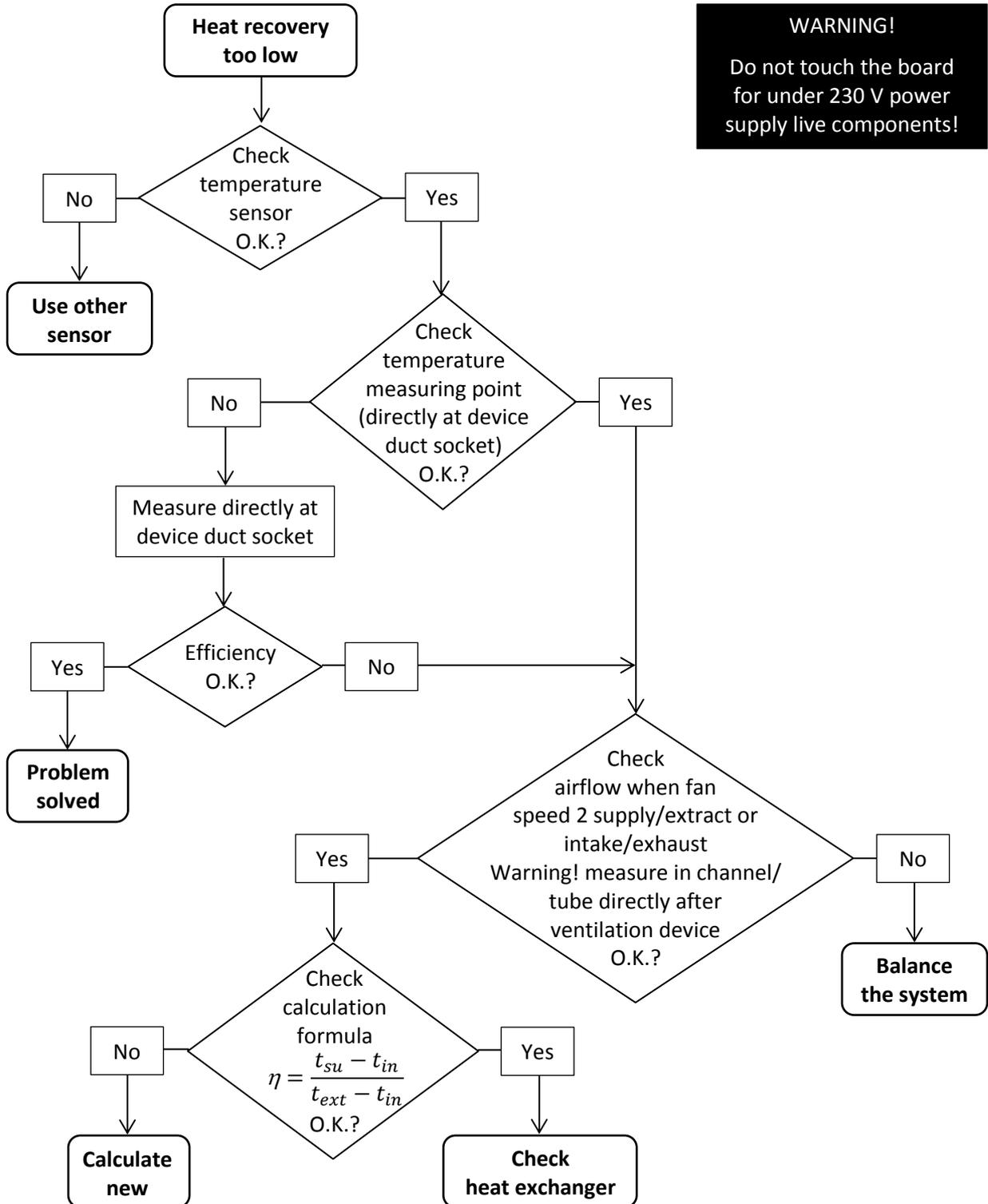
9.8 Fan too noisy



WARNING!
Do not touch the board for under 230 V power supply live components!

9.9 Heat recovery too low

WARNING!
Do not touch the board for under 230 V power supply live components!



9.10 Failure or problems without a message

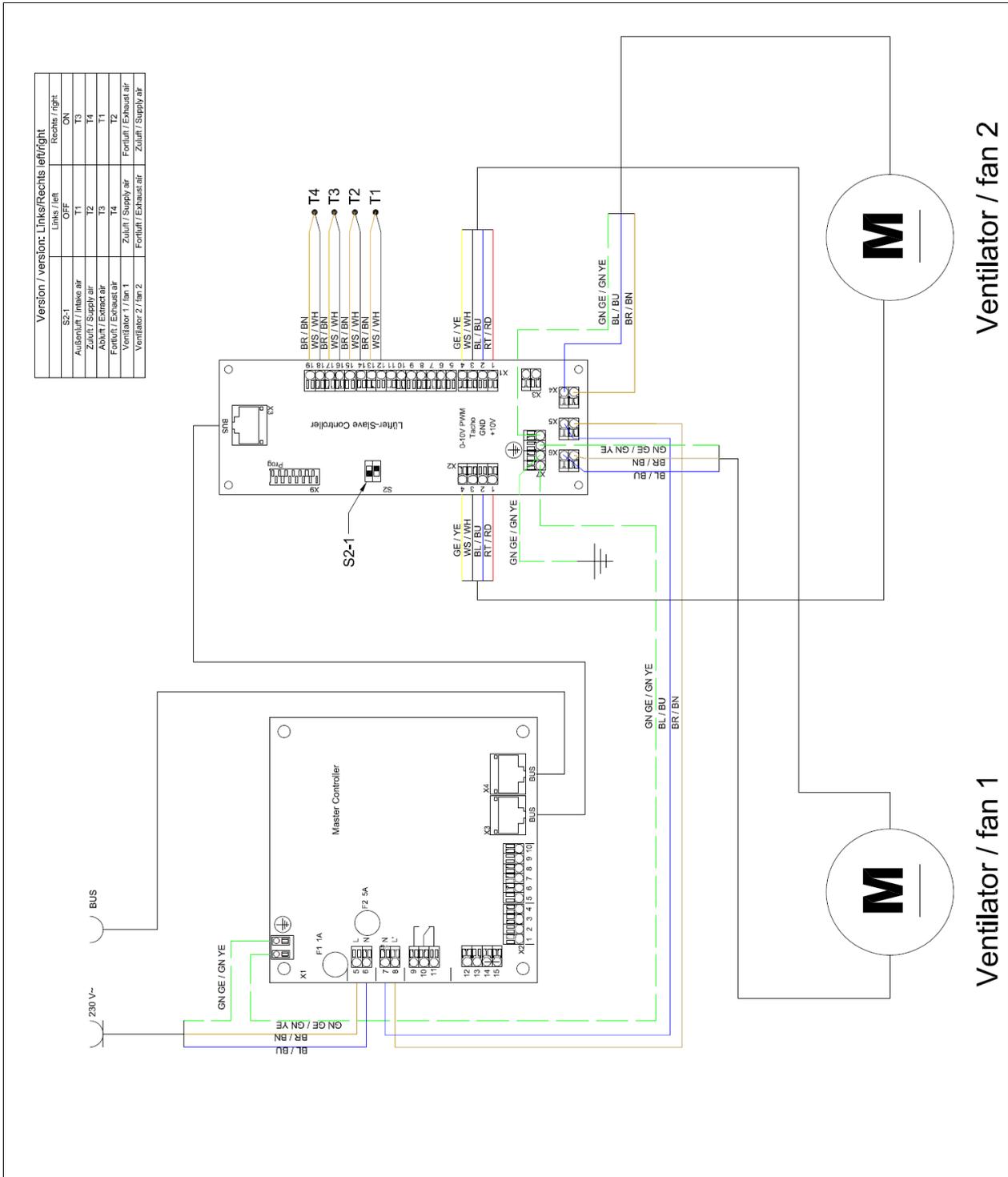
Below is an overview of failure or problems are shown without a message.

Problem / failure	Reason	Control / Action
Everything out	Power supply	Check the fuse at the control board. Is the fuse O.K., than the board is faulty.
	No power supply	Power supply has failed.
Unusual noises	Bearing of the fan is faulty	Replace the fan.
	Slurping noise – Siphon is empty – Siphon does not close	Fill the siphon. Mount the siphon new.
	Whistling noise – somewhere is an air gap	Caulk the air gap.
Condensate leaking	condensate drain is blocked	Clean the condensate drain.
	Condensate from intake air and exhaust air flows back into the device	Mount a siphon before the device in the pipeline.
	Condensate pan under the heat exchanger damaged or missing	Replace the condensate pan.

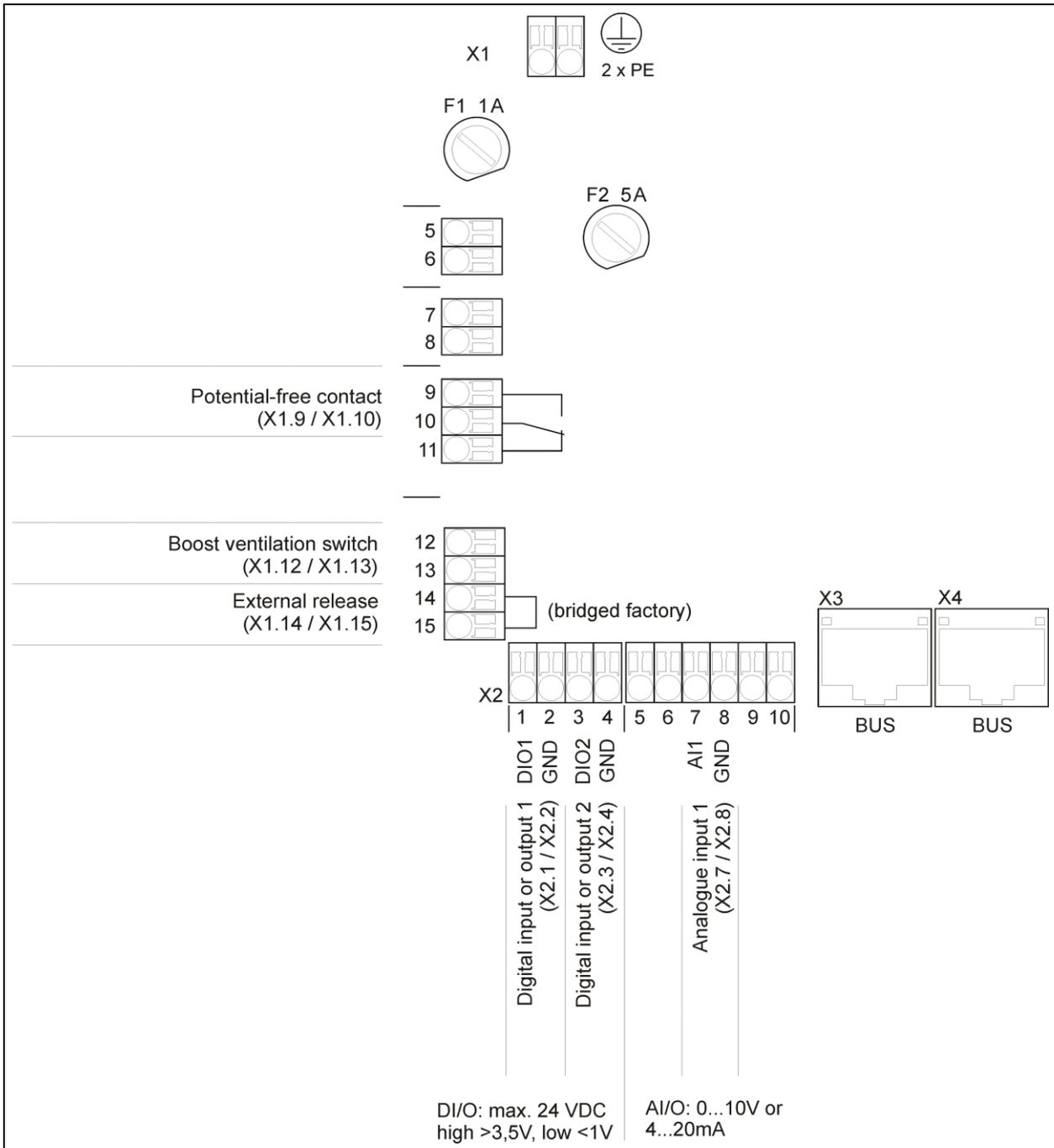
Tab. 7: Overview of failure or problems are shown without a message

Appendix

Appendix 1 Circuit diagram FOCUS (F) 200



Appendix 2 Terminal scheme master controller



Notes



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