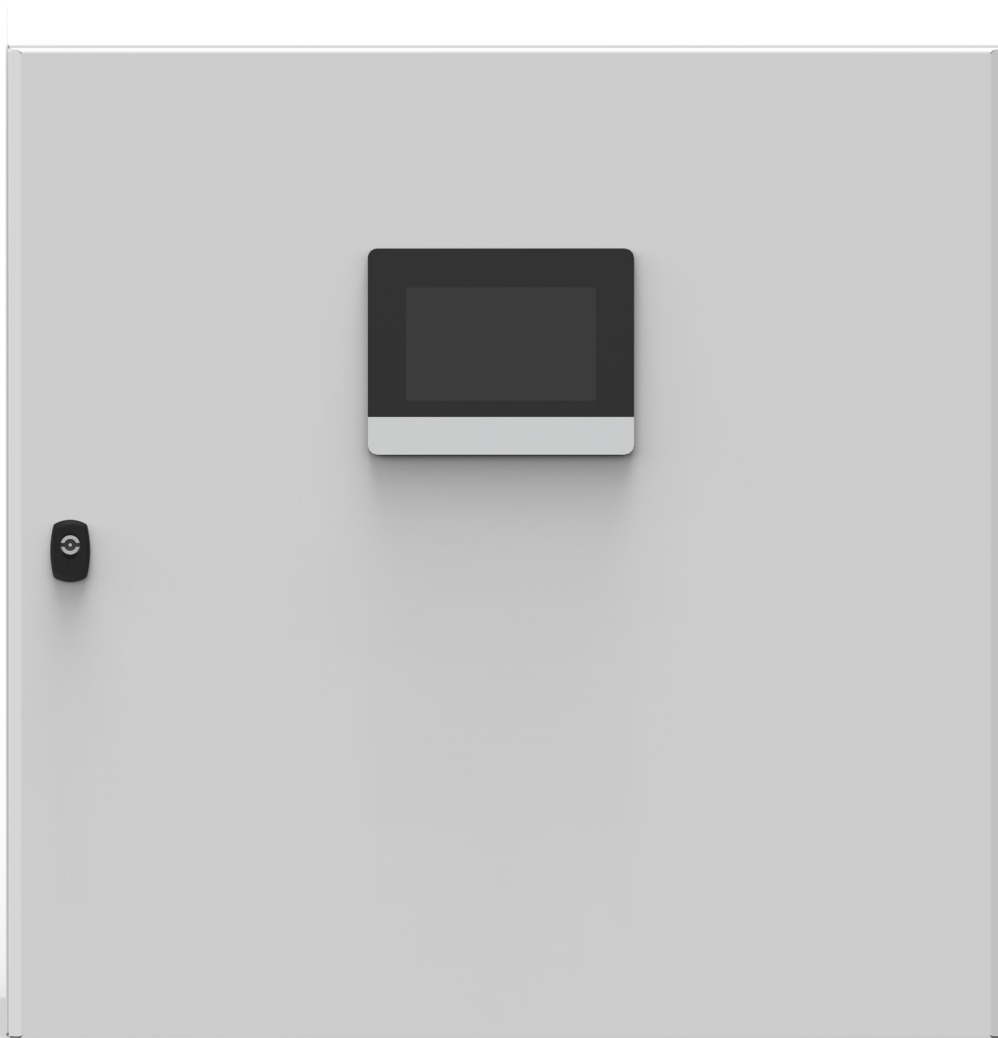


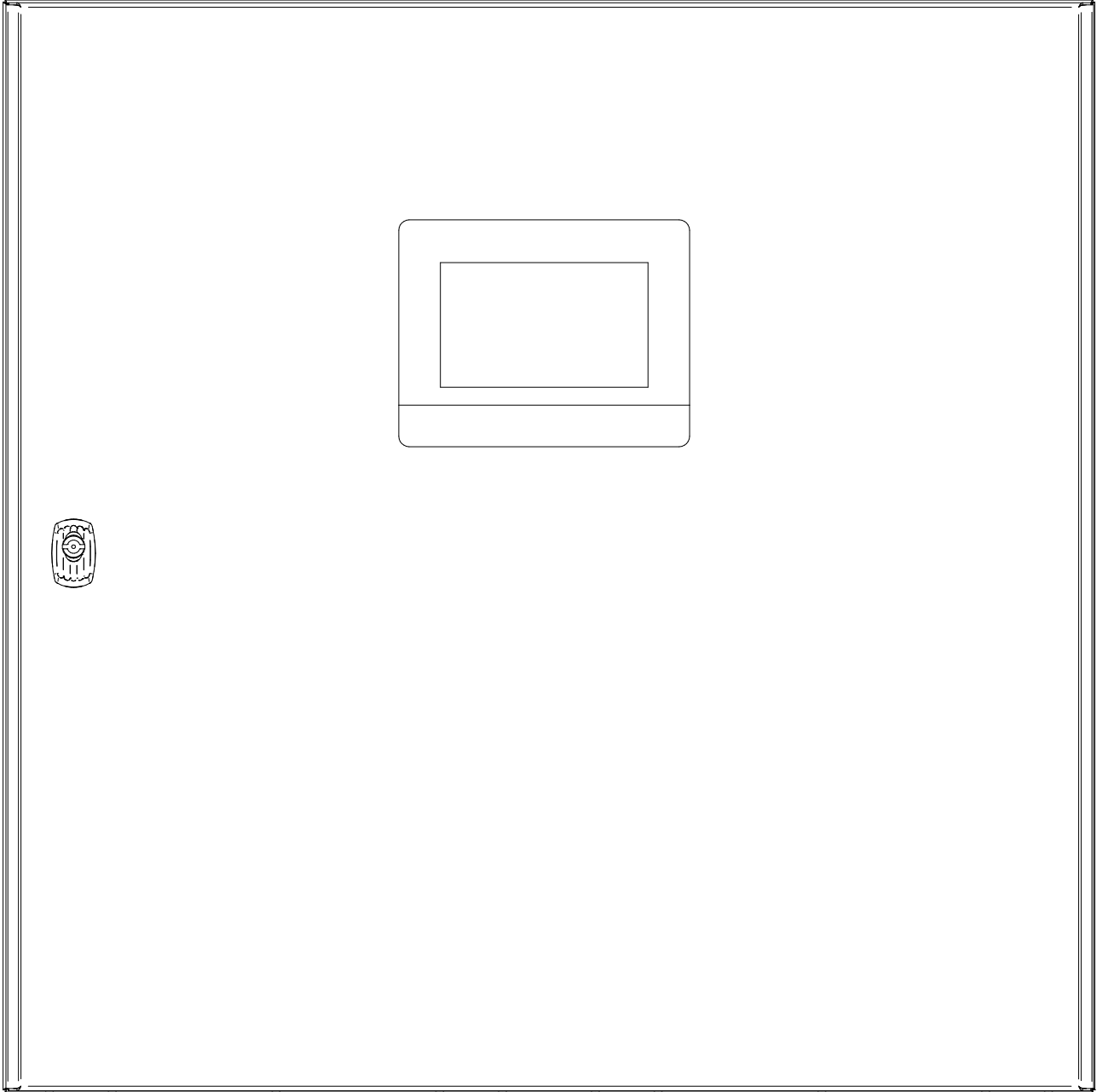
Control

EAHC21



UK | Read and save these instructions!

exodraft
Your energy. Optimized.



Control | EAHC21

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How to use this manual

This manual has been prepared based on the specific product and contains relevant technical information and installations guides.

Accessories and spare parts are not covered by this manual. Please refer to the individual manuals of these components.

This installation manual does not contain any system design documentation.

Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the product.

Errors and omissions excepted.



Disposal

Electrical and electronic equipment (EEE) often contain materials, components and substances that may harm the environment or be hazardous to your health. Products (WEEE) marked with the 'crossed-out wheeled bin' symbol should be disposed of separately from other waste at the end of its life. Though legislation may differ from country to country we strongly advise that electrical and electronic waste is separated from other waste and disposed of according to national legislation to protect the environment and personnel that may come into contact with waste.

Symbols

The following symbols may be used in the manual to draw attention to danger or risk of personal injury or damage to the product.



General prohibition

Failure to observe instructions marked with the prohibited symbol may result in extreme danger or serious personal injury.



General attention

Marks a dangerous situation that, in the worst-case scenario, can cause serious personal injury or significant damage to the product.



General warning

Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the product.



Electricity hazard/High Voltage

Marks a situation in which caution is advised due to the risk of high voltage electric shock which can cause serious personal injury or significant damage to the product.



Connect an earth terminal to the ground

Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the product.



Permitted and approved

Permitted and approved method of installation.



Prohibited and not approved

Prohibited and not approved method of installation.



Warning

To minimise the risk of fire, electric shock, personal injury and/or damage to the product please observe the following:

- Please always read the manual and only use the product in accordance with the manufacturer's instructions. If in doubt, contact one of the Exodraft specialized dealers.
- All installations must be carried out by properly qualified personnel in accordance with national legislation and regulations.
- This product must be earthed. Get assistance from an qualified electrician when in doubt.
- This product must always be disconnected under the installation.
- Prior to servicing the product, disconnect the power and ensure that it cannot accidentally be reconnected.
- Exodraft always recommends the use of a smoke alarm when a solid fuel open fire is installed.
- If the Exodraft fan system has been designed for solid fuel/multi fuel installations, please ensure that the design meets the requirements of BS EN15287-1. If this cannot be achieved, a smoke alarm must be installed in the same room as the heat appliance.

Product information

The EAHC temperature difference and constant pressure controller enables you to efficiently use and check the function of your heat exchanger system. Above all, the device gives you confidence through its functionality and simple, almost self-explanatory, operation. The individual entry keys are assigned to each different useful function and explained step-by-step.

The EAHC controller can be used with different systems.

Incorrect use may result in problems with soot, chimney fires, etc. which might damage the product. Please check out this site for advice about the product:

www.exodraft.com

Scope of supply

- Exodraft EAHC21 temperature difference controller
- Installation manual and user instructions



Please use thermal compound with the temperature sensors to ensure better heat transfer.

Accessories and spare parts

The table below shows the accessories and spare parts available for the EAHC21

Accessories*
Flowsensor for energy measurement (optionally included, depending on design/order)

*This manual does not describe the specific use of accessories. We refer to the separate manuals for such components. For more details contact your Exodraft dealer.

Warranty

All Exodraft products are covered by a 2-year guarantee as per European consumer rights legislation. For some countries an extended period of guarantee may apply depending on either national legislation or other clearly stipulated conditions. Customer complaints must be handled by a specialised dealer or wholesaler (preferably where the Exodraft product has been bought originally). An updated list of Exodraft specialised dealers can be found on our website for the country in question.

Exodraft products must always be installed by properly qualified personnel. Exodraft reserves the right to change these guidelines without prior notice.

The warranty and liability does not cover instances regarding personal injury or damage to property or the product that can be ascribed to one or more of the following causes:

- Failure to follow this installation and operation manual
- Incorrect installation, start-up, maintenance or servicing
- Improper repairs
- Unauthorised structural modifications made to the product
- Installation of additional components that have not been tested/approved with the product
- Any damage resulting from continued use of the product despite an evident defect
- Failure to use original spareparts and accessories
- Failure to use the product as intended
- Exceeding or failure to meet the limit values in the technical data
- Force majeure

Installation

Wall mounting

1. Open the cabinet
2. Mark the three mounting holes (see "Cabinet base" below). Make sure that the wall surface is as even as possible so that the housing is not warped when attached.
3. Drill three holes in the wall at the marked places using a drill and #6 bit and insert the rawl-plugs.
4. Set the automatic controller on the upper screw.
5. Insert and screw in the two lower screws.

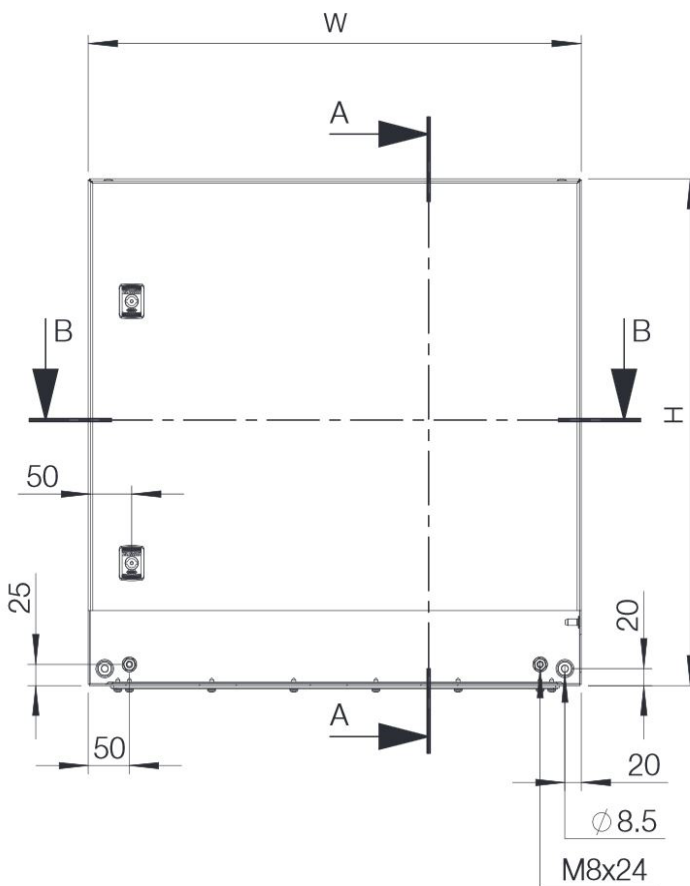


Only install the EAHC21 in dry rooms and under the environmental conditions as described above.



The automatic controller must not be accessible from the back!

Cabinet base



Electrical connection



Disconnect the power supply before working on the device and make sure that it cannot be reconnected! Check that the power is off!

The electrical connection must only be carried out by qualified personnel in compliance with the applicable laws. The automatic controller must not be put into operation if any damage is visible on the housing, such as cracks.



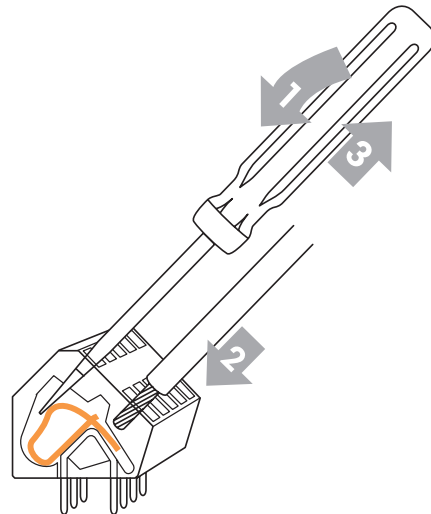
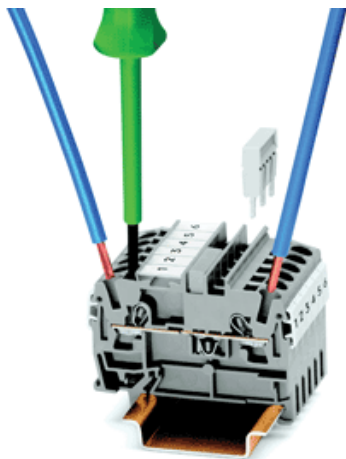
Low-voltage cables such as temperature sensor cables must be routed separately from mains voltage cables. Only put temperature sensor cables into the left side, and the mains voltage cable into the right side of the device.



Safe isolation of the voltage supply to the automatic controller has been provided, such as provision for an overheating emergency stop switch.



The cables to be connected to the device may be stripped up to maximum of 55 mm and the sheath should reach into the housing to exactly behind the strain relief.



Terminal instructions

1. Insert a suitable screwdriver into the upper opening and press the lock handle down. Leave the screwdriver in the opening.
2. Insert the cable into the lower opening.
3. Remove the screwdriver.

Temperature sensor installation

The automatic controller works with Pt100 and Pt1000 temperature sensors to ensure that the temperature is precisely recorded, so that the unit functions under technically optimal conditions.



The temperature sensor cables must be placed separately from the mains cables to avoid interference in the temperature readings and must not, for example, be placed in the same cables duct!



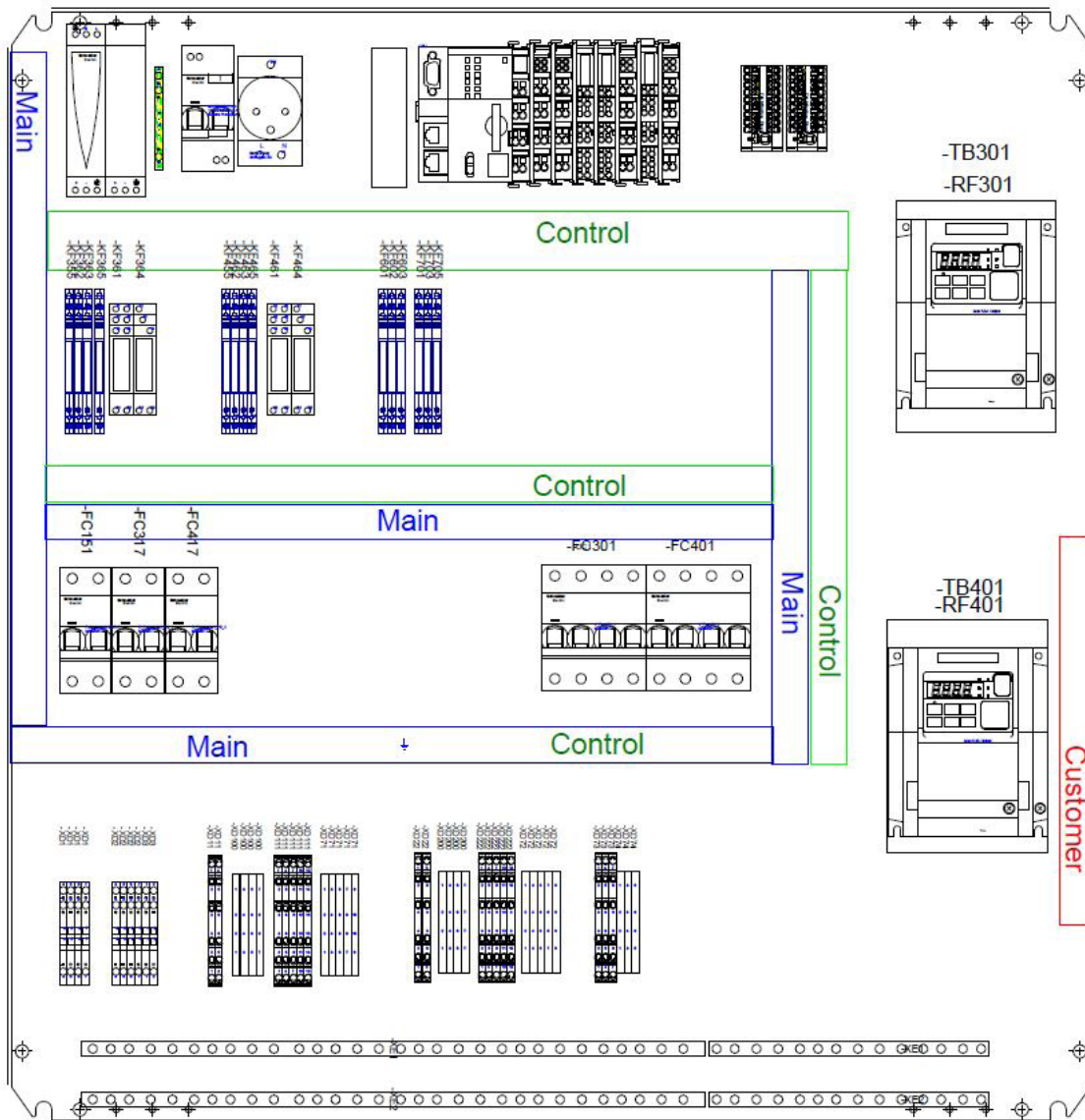
Place the sensors precisely in the area to be measured! Only use the feeder, tube or flush sensor for the applicable area of use with the allowed temperature range that corresponds to each. The thermal conductor must be used during assembly!



The sensor cables to S1/S2/S3/S8 may be extended to a maximum total length of 30 metres with a cable that has a diameter of at least 0.75 mm².

Pay attention that no contact resistance occurs while joining the cables!

Layout of the PLC cabinet

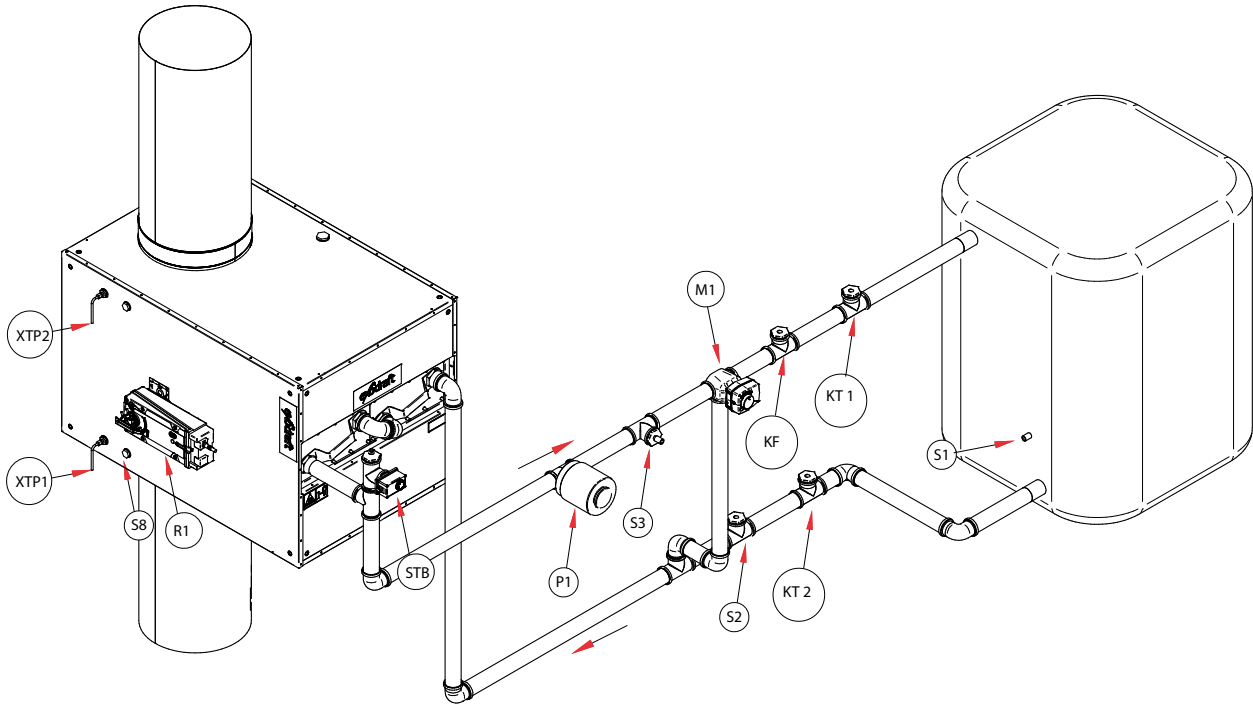


System setup

Example 1 SP heat exchanger

This diagram shows the following system:

Heat exchanger SP with built-in bypass damper, a buffer tank, a mixing valve and a circulating pump.



- Place the S8 (2400278/ 2400278) flue gas temperature sensor before the inlet of the Bypass Damper.
- Connect the XTP1 (XTP150) sensor (-) stud to the probe (3200814) mounted on the entry of the heat exchanger. See drawing on page 14.
- Connect the XTP2 (0501005) sensor to the outlet of the heat exchanger (The (-) stud must be connected to the outlet of the exchanger and the (+) stud must be connected to the inlet using the silicone hose (2000335). Both use the 2400266 studs (This sensor measures pressure loss over the heat exchanger).
- Mount the S3 (7500050/7500050) forward flow temperature sensor on the supply pipe immediately behind the circulating pump.
- Mount the S2 (7500050/7500050) return flow temperature sensor before the bypass tee.
- Mount the S1 (3200736) buffer tank temperature sensor in the lower part of the buffer tank.
- KF is the Kamstrup Ultraflow sensor for heat quantity measurement (Beware of the flow direction).
- KT1 is the Kamstrup Forward Flow temperature sensor (Red color on label).
- KT2 is the Kamstrup Return Flow temperature sensor (Black color on label).
- P1 is the circulating pump (Not exodraft supply).
- STB is the STB safety temperature limiter (2400353). Warning: only use with external sensors!
- R1 is the actuator for the bypass damper. This can be 24V DC or 230V AC.
- M1 is the actuator for the mixer valve (2400347). The output signal from the PLC is 0-10V DC.

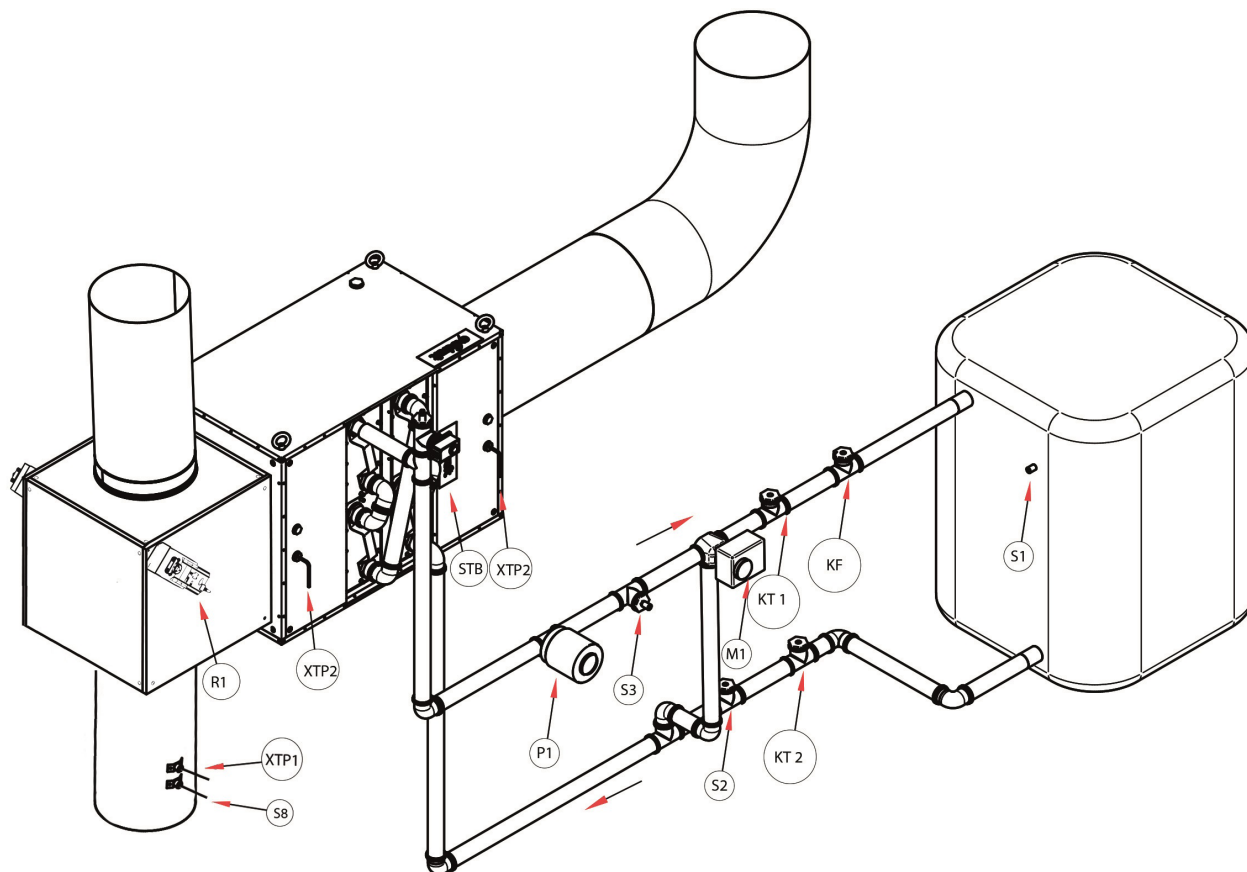


An STB safety temperature limiter must be mounted in the forward flow pipe and must close the bypass damper at a temperature of max 100°C!

Example 2 BP heat exchanger

This diagram shows the following system:

Heat exchanger SP with built-in bypass damper, a buffer tank, a mixing valve and a circulating pump.

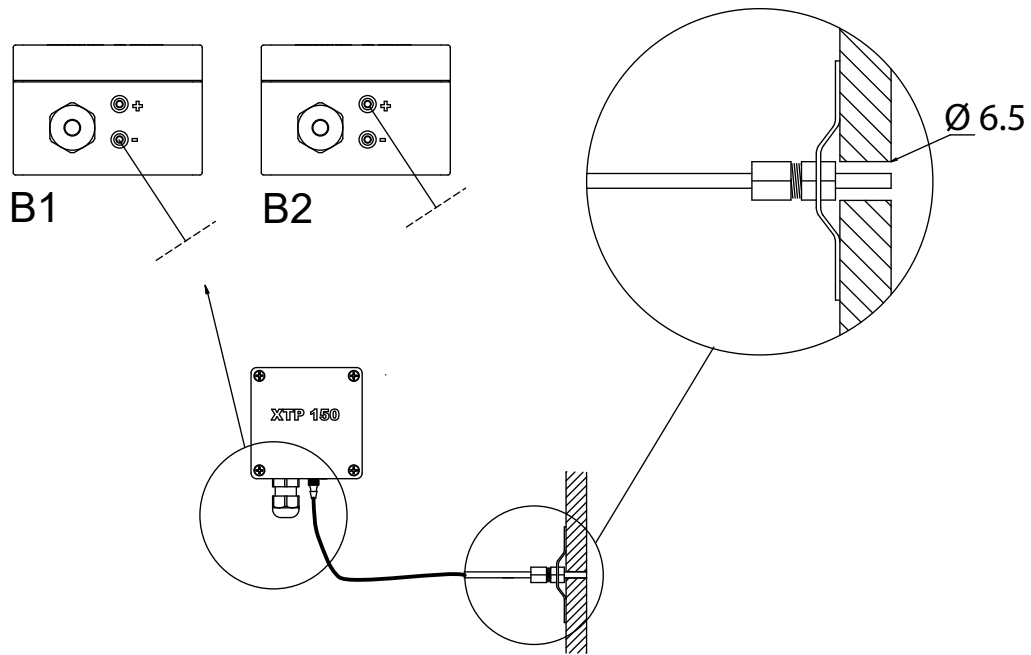


- Place the S8 (1100755) flue gas temperature sensor before the inlet of the Bypass Damper.
- Connect the XTP1 (XTP150) sensor (-) stud to the probe (3200814) mounted on the chimney. See drawing on 14.
- Connect the XTP2 (0501005) sensor to the outlet of the heat exchanger (The (-) stud must be connected to the outlet of the exchanger and the (+) stud must be connected to the inlet using the silicone hose (2000335). Both use the 2400266 studs (This sensor measures pressure loss over the heat exchanger).
- Mount the S3 (7500050/7500051) forward flow temperature sensor on the supply pipe immediately behind the circulating pump.
- Mount the S2 (7500050/ 7500051) return flow temperature sensor before the bypass tee.
- Mount the S1 (3200736) buffer tank temperature sensor in the lower part of the buffer tank.
- KF is the Kamstrup Ultraflow sensor for heat quantity measurement (Beware of the flow direction).
- KT1 is the Kamstrup Forward Flow temperature sensor (Red color on label).
- KT2 is the Kamstrup Return Flow temperature sensor (Black color on label).
- P1 is the circulating pump.
- STB is the STB safety temperature limiter (2400353). Warning: only use with external sensors!
- R1 is the actuator for the bypass damper. This can be 24V DC or 230V AC.
- M1 is the actuator for the mixer valve (2400347). The output signal from the PLC is 0-10V DC.



An STB safety temperature limiter must be mounted in the forward flow pipe and must close the bypass damper at a temperature of max 100°C!

How to mount the probe (3200814) and the XTP sensor

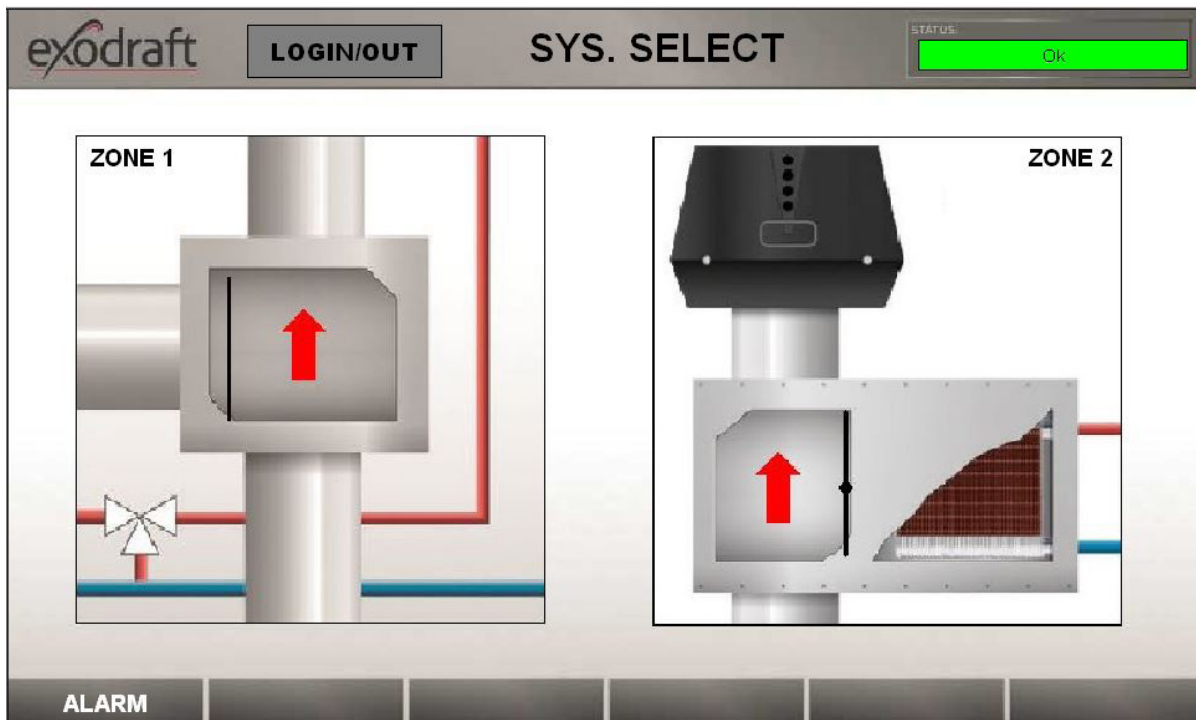


Service and start-up

Description of the user interface of different solutions

Below are just examples of some of the solutions available. Each solution is customized specifically to the individual customer.

The start screen on the HMI panel shows the status of both heat exchanger systems. Pressing one of the systems leads to the sub pages of each one.

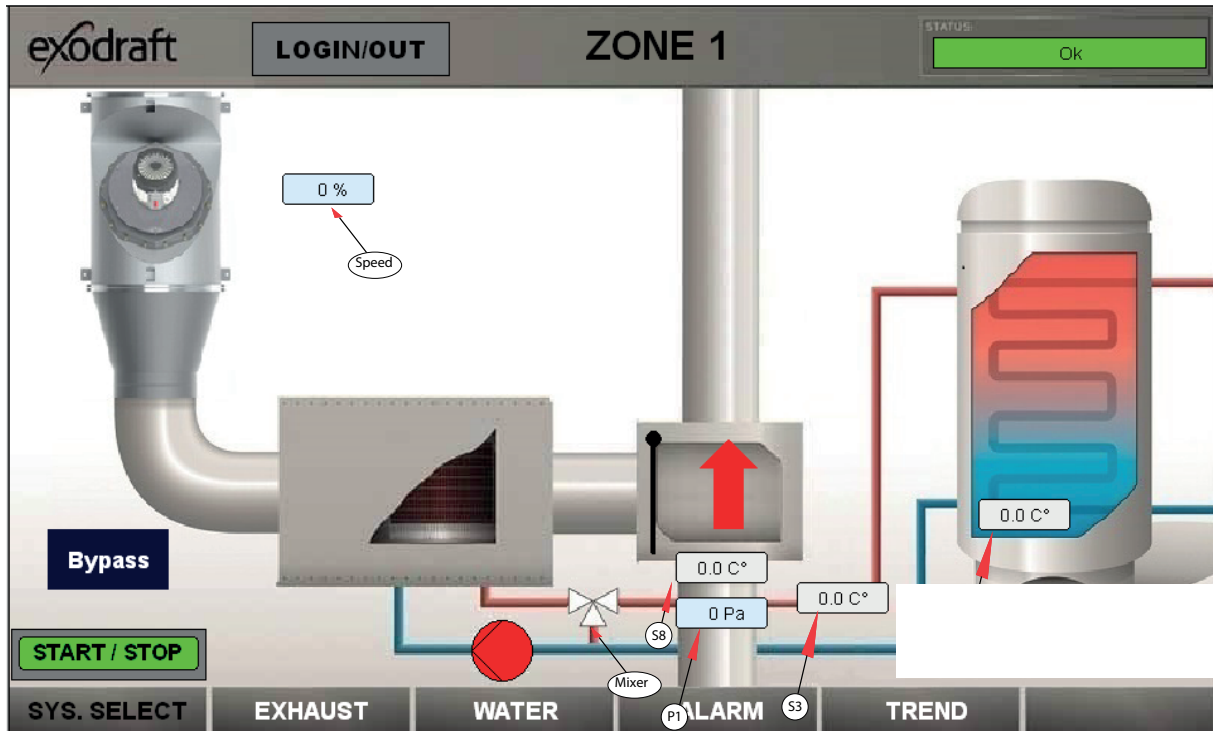


CFIR with Basic Plate

On the first screen of the EACH21 user interface the status of the two systems can be seen. If no alarms are present, the bar on the top left side will be green with an "Ok". If an alarm is present, the bar will switch to red. If the bar is red, pressing the bar will lead the user to the alarm page for the affected system.

The graphics inside the heat exchanger will show if the bypass damper is closed or not, and thus producing heat to the heating system. Pressing inside the box for each system, will lead the user to the overview page for the selected system.

Overview page



On the overview page the most important values and settings can be seen. The black color of the text in the bottom of the screen indicates the name of the selected page.

White boxes indicates set points, and light blue actual values.

In order to change settings a login has to be done. Press "Login/Out", choose "Level 1" and enter the password 5220 to do that. When finished, logout using "Level 0" with a blank password.

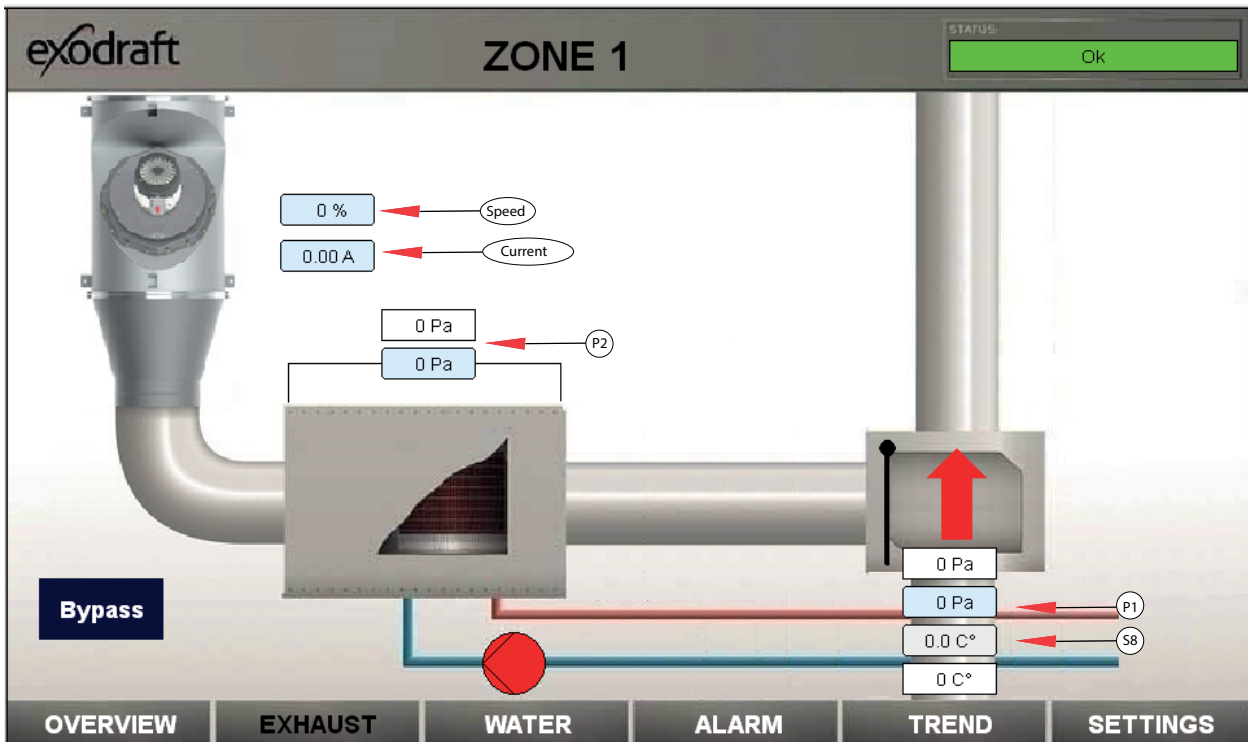
1. The P1 draft in the chimney and the set point.
2. The S8 temperature of the flue gas.
3. The actual speed from 0-100 % of the chimney fan.
4. The temperature of the S3 forward flow.
5. The temperature of the S1 return water.

If the pump is running, the color will be green. Otherwise the color is red.

If the system is working normally the operation of the bypass damper is done automatically, but the user has the option to press bypass, which will force the bypass damper to close.

Pressing "SYS. SELECT", will return the user to the front page of the user interface.

Exhaust page

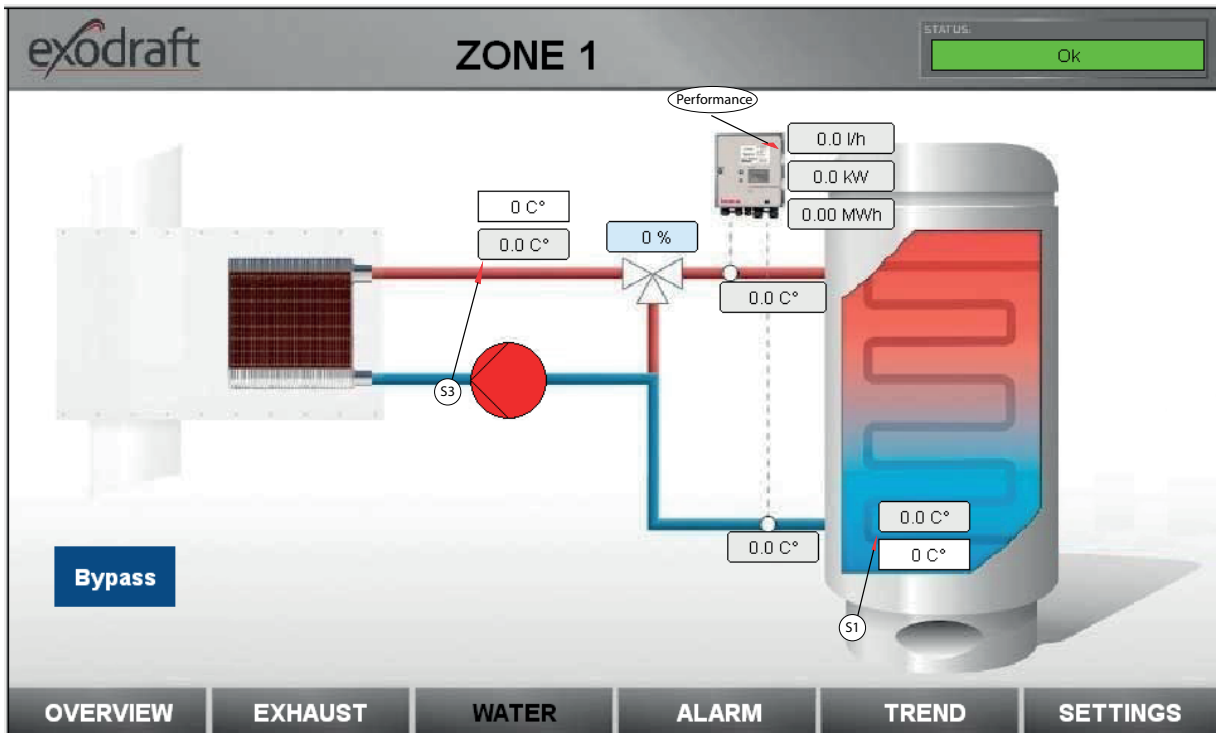


Pressing on the "EXHAUST" button leads the user to the page, where the settings and values related to the flue are located.

1. The draft in the flue and the set point (P1).
2. The start temperature set point of the heat exchanger system and the actual temperature (S8).
3. The set point of the maximum pressure loss of the heat exchanger and the actual pressure loss (P2).
4. The actual speed from 0-100 % of the chimney fan and the set point if the system is in manual mode (The manual mode is set on the settings page).
5. Bypass button used to force the system in bypass mode.

If the system is working normally the operation of the bypass damper is done automatically, but the user has the option to press bypass, which will force the bypass damper to close.

Water page



Pressing the "WATER" button leads the user to the page where the settings and values related to the hydraulic water system are located.

1. The flue gas temperature (S8) set point and the actual temperature.
2. The (S3) forward flow temperature set point and the actual temperature.
3. The setting of the mixer valve, where 0 % indicates a position of the valve where all the water is circulated back to the heat exchanger. 100 % indicates a fully open mixer valve, where all the heat is transferred to the heat system.
4. The performance of the heat exchanger.
5. The water flow through the heat exchanger.

If the system is working normally the operation of the bypass damper is done automatically, but the user has the option to press bypass, which will force the bypass damper to close.

Alarm page

exodraft **ZONE 1+2** STATUS: Ok

	Date	Time	Message	Value
0	06-12-2018	14:57:35	Pressureloss Alarm Heat Exchanger Zone 2	1
1	06-12-2018	14:56:56	Sensor Error XTP-Chimney Draft Zone 1	1
2	06-12-2018	14:56:54	Chimney Draft Error Zone 1	1
3	06-12-2018	14:56:14	STB Thermostat Alarm Zone 2	0
4	06-12-2018	14:56:14	STB Thermostat Alarm Zone 1	0

RESET ALARM 1

RESET ALARM 2

SYS. SELECT **OVERVIEW 1** **OVERVIEW 2** **ALARM**

Pressing on the "ALARM" button leads the user to the page where the actual alarms can be seen.

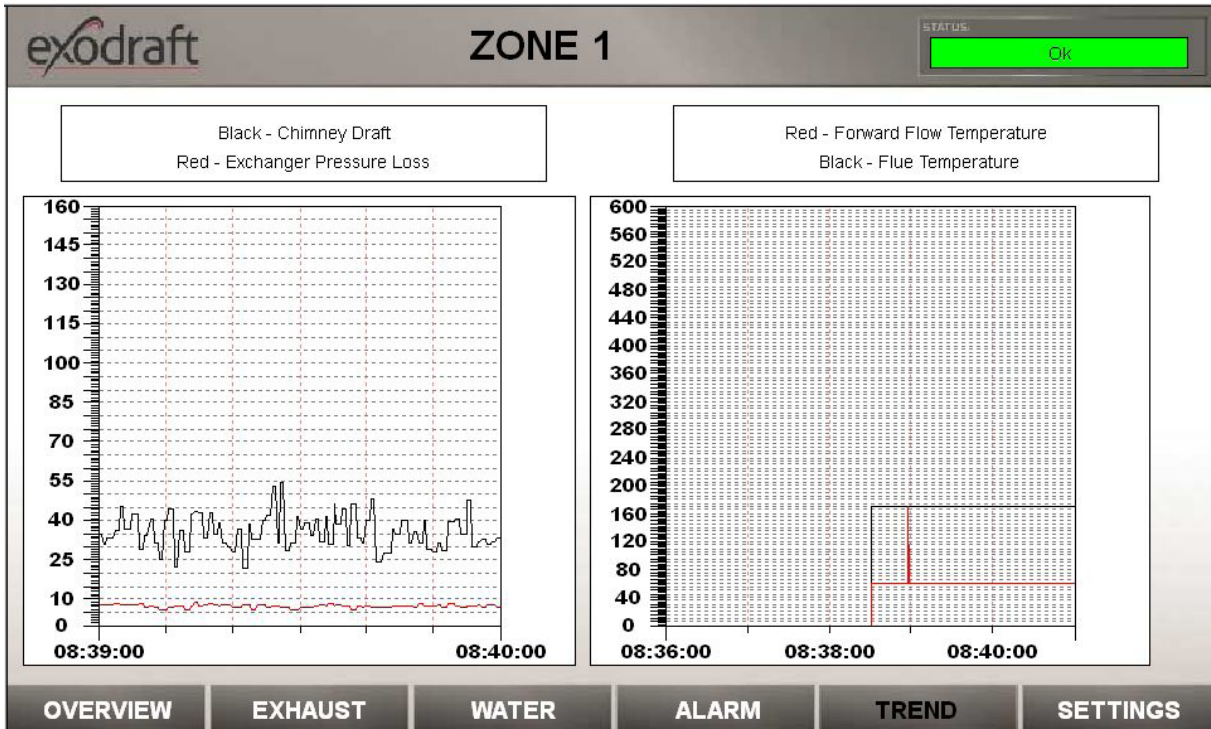
These alarms can occur:

- S1 Buffer Tank temperature sensor error
- S2 Return temperature sensor error
- S3 Forward Flow temperature sensor error
- S8 Flue temperature sensor error
- S1 Buffer Tank overtemperature alarm
- STB thermostat activation error
- Heat exchanger maximum pressure loss error
- Chimney draft alarm

Pressing "SYS. SELECT", will return the user to the front page of the user interface.

Pressing "OVERVIEW 1" or "OVERVIEW 2", will return the user to the overview page for either Zone 1 or 2.

Trend curve page



Pressing on the "TREND" button leads the user to the page where a total of four trend curves can be seen.

1. Chimney Draft
2. Heat exchanger pressure loss
3. Flue temperature
4. S3 Forward flow temperature

Settings page

exodraft		ZONE 1		STATUS: Ok	
Chimney Sensor Min.	<input type="text" value="0"/>	Setpoint Chimney Draft [Pa]	<input type="text" value="30"/>	PID Fan Xp	<input type="text" value="300.0"/>
Chimney Sensor Max.	<input type="text" value="150"/>	Draftalarm Limit [%]	<input type="text" value="64"/>	PID Fan Ti	<input type="text" value="30.0"/>
Chimney Fan V Min.	<input type="text" value="0"/>	Draftalarm Delay [s]	<input type="text" value="15"/>	PID Fan Td	<input type="text" value="0.0"/>
Chimney Fan V Max.	<input type="text" value="10"/>	Max. Pressure Drop Exchanger [Pa]	<input type="text" value="100"/>	PID Mixer Xp	<input type="text" value="650.0"/>
Max. Temp. Buffer [°C]	<input type="text" value="80"/>	Fluegas Start Temperatur [°C]	<input type="text" value="60"/>	PID Mixer Ti	<input type="text" value="200.0"/>
Setpoint Forward Flow [°C]	<input type="text" value="60"/>	Fluegas Hysteresis [°C]	<input type="text" value="5"/>	PID Air Mixer Td	<input type="text" value="0.0"/>
Config File Name	<input type="text" value="config.csv"/>	Config File Name	<input type="text" value="config.csv"/>		
Load Settings	Save Settings	Status:	<input type="text"/>		
			<input type="text"/>		
			<input type="text" value="SD Card"/>	<input type="text" value="Internal"/>	
Dansk	English	Deutsch	Factory Settings		
OVERVIEW	EXHAUST	WATER	ALARM	TREND	SETTINGS 2

The values seen above are all the factory settings of the EAHC21. They can be loaded using the "Factory Defaults" button.

Pressing on the "SETTINGS" button leads the user to the page where all settings of the system can be modified.

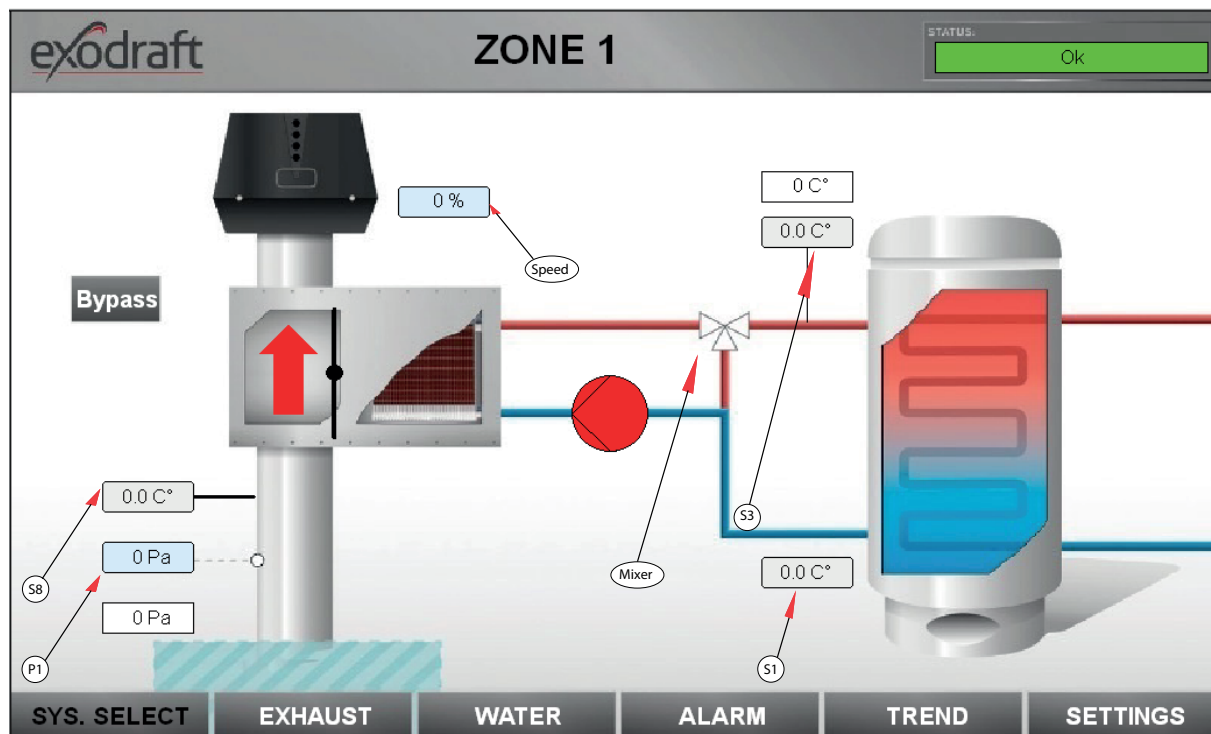
Setting	Comment	Factory Setting
Chimney Sensor Min.	The minimum pressure of the chimney flue XTP sensor	0 Pa
Chimney Sensor Max.	The maximum pressure of the chimney flue XTP sensor	150 Pa
U Min. Fan	The minimum output in Volt	0
U Max. Fan	The maximum output in Volt	10
Exchanger Sensor Min.	The minimum pressure of the exchanger loss XTP sensor	0 Pa
Exchanger Sensor Max.	The maximum pressure of the exchanger loss XTP sensor	150 Pa
Flowmeter Heat Min.	The minimum pressure of the Flow Sensor	0 m ³ /h
Flowmeter Heat Max.	The maximum pressure of the Flow Sensor	6 m ³ /h
Flow Sensor Pos. Forw. [0] / Return [1]	The position of the Flow Sensor. "0" = Forward flow and "1" = return flow	0
Chimney Draft	The set point of the underpressure in the chimney flue	30 Pa
Flow Alarm Limit	The alarm limit of the flow alarm. Range 50-80 %	64 %
Flow Alarm Delay	The delay before an alarm occurs. Range 0-60 s	15 s
Max. Pres. drop Exchanger	The maximum pressure loss in the exchanger before an alarm	120 Pa
Smoke Gas Start Temp.	The start temperature of the S8 temperature	60 C°
Smoke Gas Hysteresis.	The hysteresis of the start/stop temperature of the system	5 C°
Max. Temp. Buffer	The maximum S1 temperature of the Buffer Tank	85 C°
Max. Temp. forward Flow	The maximum temperature of the S3 Forward Flow temperature	60 C°
PID Fan Xp	The P part of the PID controller for the Chimney Fan	0.2
PID Fan Ti	The I part of the PID controller for the Chimney Fan	15
PID Fan Td	The D part of the PID controller for the Chimney Fan	10
Fan Sample Time	The PID Fan loop sample time	0.2 s
PID Mixer Xp	The P part of the PID controller for the Mixer	0.2
PID Mixer Ti	The I part of the PID controller for the Mixer	15
PID Mixer Td	The D part of the PID controller for the Mixer	10
Mixer Sample Time	The PID Fan loop sample time	0.2 s

RSV with Safe Plate

On the first screen of the EACH21 user interface the status of the two systems can be seen. If no alarms are present, the bar on the top left side will be green with an “Ok”. If an alarm is present, the bar will switch to red. If the bar is red, pressing the bar will lead the user to the alarm page for the affected system.

The graphics inside the heat exchanger will show if the bypass damper is closed or not, and thus producing heat to the heating system. Pressing inside the box for each system, will lead the user to the overview page for the selected system.

Overview page



On the overview page the most important values and settings can be seen. The black color of the text in the bottom of the screen indicates the name of the selected page.

White boxes indicates set points, and light blue actual values.

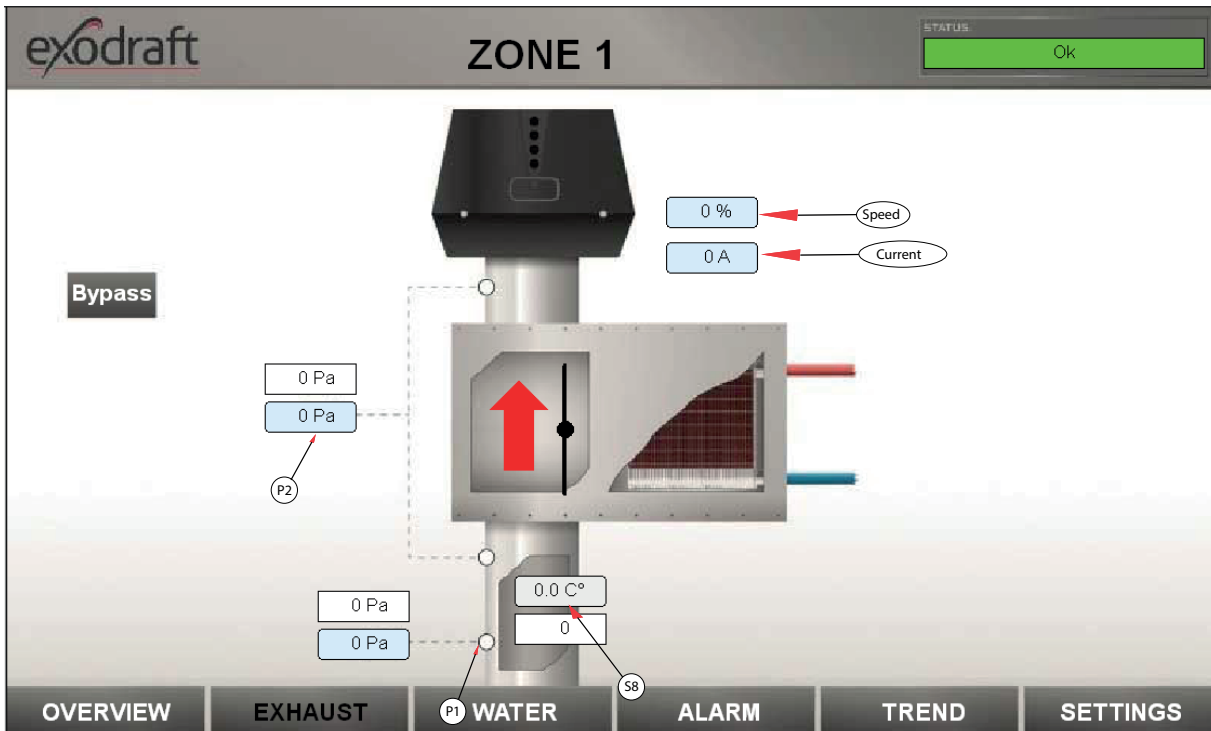
1. The P1 draft in the chimney and the set point.
2. The S8 temperature of the flue gas.
3. The actual speed from 0-100 % of the chimney fan.
4. The setting of the mixer valve, where 0 % indicates a position of the valve where all the water is circulated back to the heat exchanger. 100 % indicates a fully open mixer valve, where all the heat is transferred to the heat system.
5. The temperature of the S3 forward flow.
6. The temperature of the S1 return water.

If the pump is running, the color will be green. Otherwise the color is red.

If the system is working normally the operation of the bypass damper is done automatically, but the user has the option to press bypass, which will force the bypass damper to close.

Pressing “SYS. SELECT”, will return the user to the front page of the user interface.

Exhaust page

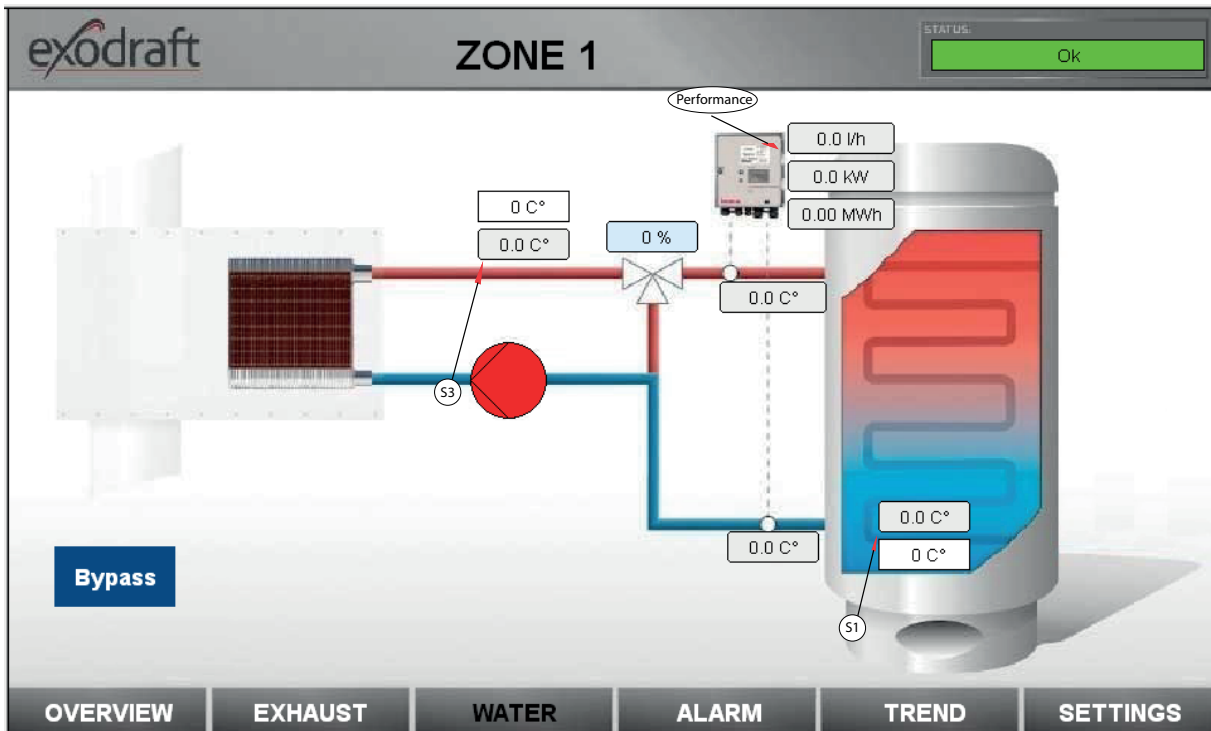


Pressing on the "EXHAUST" button leads the user to the page, where the settings and values related to the flue are located.

1. The draft in the flue and the set point (P1).
2. The start temperature set point of the heat exchanger system and the actual temperature (P8).
3. The set point of the maximum pressure loss of the heat exchanger and the actual pressure loss (P2).
4. The actual speed from 0-100 % of the chimney fan and the set point if the system is in manual mode (The manual mode is set on the settings page).
5. Bypass button used to force the system in bypass mode.

If the system is working normally the operation of the bypass damper is done automatically, but the user has the option to press bypass, which will force the bypass damper to close.

Water page



Pressing the "WATER" button leads the user to the page where the settings and values related to the hydraulic water system are located.

1. The flue gas temperature (S8) set point and the actual temperature.
2. The (S3) forward flow temperature set point and the actual temperature.
3. The performance of the heat exchanger.
4. The water flow through the heat exchanger.

If the system is working normally the operation of the bypass damper is done automatically, but the user has the option to press bypass, which will force the bypass damper to close.

Alarm page

exodraft **ZONE 1+2** STATUS: Ok

	Date	Time	Message	Value
0	06-12-2018	14:57:35	Pressureloss Alarm Heat Exchanger Zone 2	1
1	06-12-2018	14:56:56	Sensor Error XTP-Chimney Draft Zone 1	1
2	06-12-2018	14:56:54	Chimney Draft Error Zone 1	1
3	06-12-2018	14:56:14	STB Thermostat Alarm Zone 2	0
4	06-12-2018	14:56:14	STB Thermostat Alarm Zone 1	0

RESET ALARM 1

RESET ALARM 2

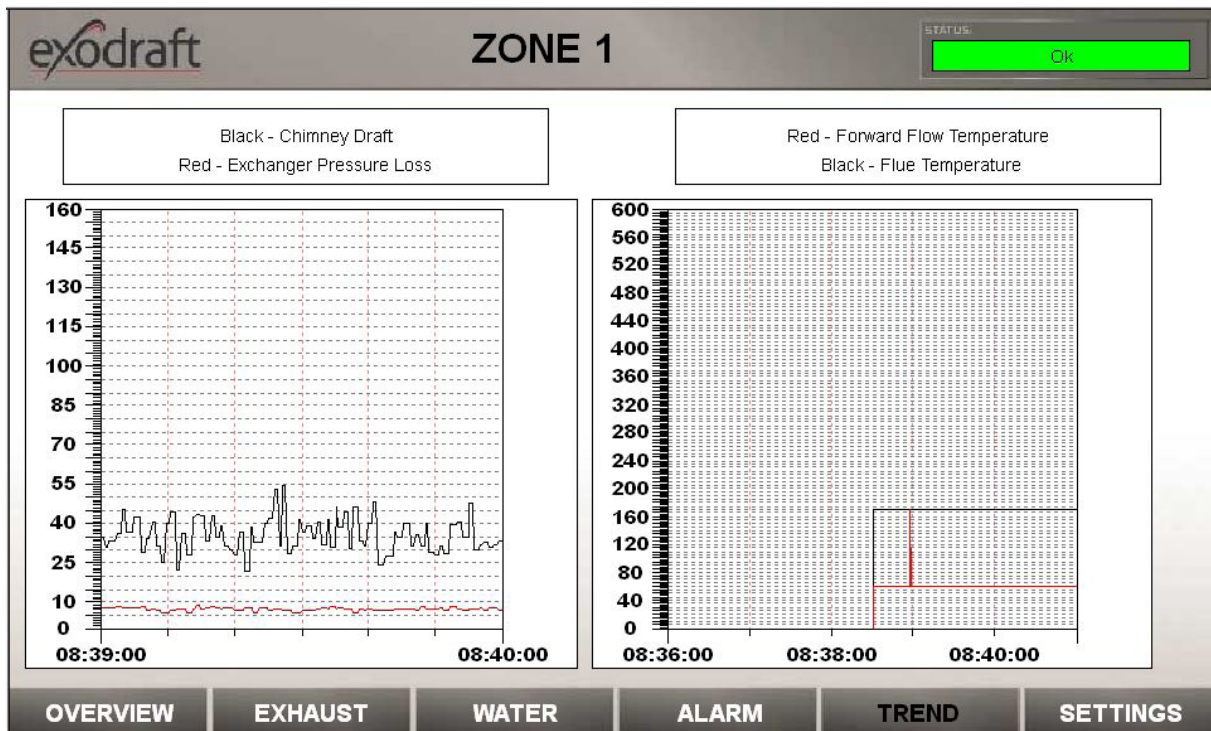
SYS. SELECT **OVERVIEW 1** **OVERVIEW 2** **ALARM**

Pressing on the "ALARM" button leads the user to the page where the actual alarms can be seen.

These alarms can occur:

- S1 Buffer Tank temperature sensor error
- S2 Return temperature sensor error
- S3 Forward Flow temperature sensor error
- S8 Flue temperature sensor error
- S1 Buffer Tank overtemperature alarm
- STB thermostat activation error
- Heat exchanger maximum pressure loss error
- Chimney draft alarm

Trend curve page



Pressing on the "TREND" button leads the user to the page where a total of four trend curves can be seen.

1. Chimney Draft
2. Heat exchanger pressure loss
3. Flue temperature
4. S3 Forward flow temperature

Settings page

exodraft
ZONE 1

STATUS
Ok

Chimney Sensor Min. <input style="width: 50px;" type="text" value="0"/>	Setpoint Chimney Draft [Pa] <input style="width: 50px;" type="text" value="30"/>	PID Fan Xp <input style="width: 50px;" type="text" value="300.0"/>
Chimney Sensor Max. <input style="width: 50px;" type="text" value="150"/>	Draftalarm Limit [%] <input style="width: 50px;" type="text" value="64"/>	PID Fan Ti <input style="width: 50px;" type="text" value="30.0"/>
Chimney Fan V Min. <input style="width: 50px;" type="text" value="0"/>	Draftalarm Delay [s] <input style="width: 50px;" type="text" value="15"/>	PID Fan Td <input style="width: 50px;" type="text" value="0.0"/>
Chimney Fan V Max. <input style="width: 50px;" type="text" value="10"/>	Max. Pressure Drop Exchanger [Pa] <input style="width: 50px;" type="text" value="100"/>	PID Mixer Xp <input style="width: 50px;" type="text" value="650.0"/>
Max. Temp. Buffer [°C] <input style="width: 50px;" type="text" value="80"/>	Fluegas Start Temperatur [°C] <input style="width: 50px;" type="text" value="60"/>	PID Mixer Ti <input style="width: 50px;" type="text" value="200.0"/>
Setpoint Forward Flow [°C] <input style="width: 50px;" type="text" value="60"/>	Fluegas Hysteresis [°C] <input style="width: 50px;" type="text" value="5"/>	PID Air Mixer Td <input style="width: 50px;" type="text" value="0.0"/>

Config File Name	config.csv	Config File Name	config.csv
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SD Card
Internal

Load Settings	Save Settings	Status:	
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Dansk	English	Deutsch	Factory Settings
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OVERVIEW	EXHAUST	WATER	ALARM	TREND	SETTINGS 2
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The values seen above are all the factory settings of the EAHC21. They can be loaded using the “Factory Defaults” button.

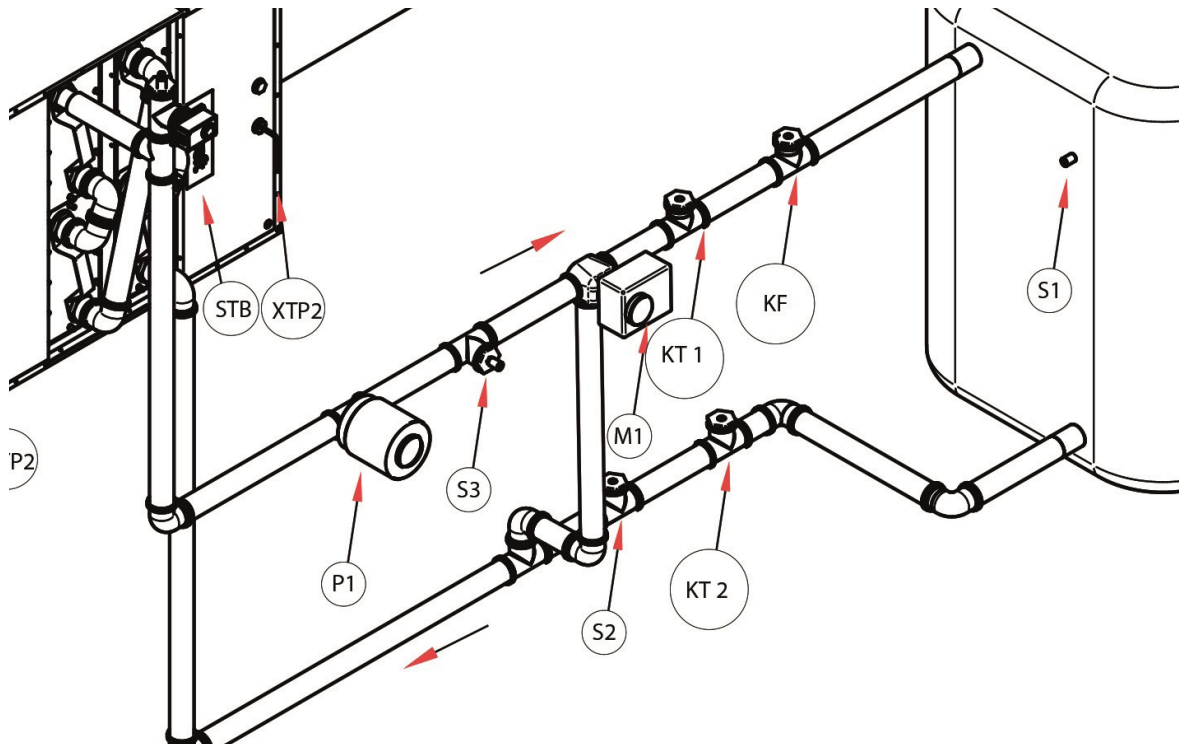
After finishing commissioning, the settings can all be saved on the SD-Card of the PLC Controller using the “Save settings” button. A settings.csv file will be present on the SD-Card after that. Should the saved system settings be needed in the future, the values can be set by pressing the “Load settings”.

Pressing on the “SETTINGS” button leads the user to the page where all settings of the system can be modified.

Setting	Comment	Factory Setting
Chimney Sensor Min.	The minimum pressure of the chimney flue XTP sensor	0 Pa
Chimney Sensor Max.	The maximum pressure of the chimney flue XTP sensor	150 Pa
U Min. Fan	The minimum output in Volt	0
U Max. Fan	The maximum output in Volt	10
Exchanger Sensor Min.	The minimum pressure of the exchanger loss XTP sensor	0 Pa
Exchanger Sensor Max.	The maximum pressure of the exchanger loss XTP sensor	150 Pa
Flowmeter Heat Min.	The minimum pressure of the Flow Sensor	0 m ³ /h
Flowmeter Heat Max.	The maximum pressure of the Flow Sensor	6 m ³ /h
Flow Sensor Pos. Forw. [0] / Return [1]	The position of the Flow Sensor. "0" = Forward flow and "1" = return flow	0
Chimney Draft	The set point of the underpressure in the chimney flue	30 Pa
Flow Alarm Limit	The alarm limit of the flow alarm. Range 50-80 %	64 %
Flow Alarm Delay	The delay before an alarm occurs. Range 0-60 s	15 s
Max. Pres. drop Exchanger	The maximum pressure loss in the exchanger before an alarm	120 Pa
Smoke Gas Start Temp.	The start temperature of the S8 temperature	60 C°
Smoke Gas Hysteresis.	The hysteresis of the start/stop temperature of the system	5 C°
Max. Temp. Buffer	The maximum S1 temperature of the Buffer Tank	85 C°
Max. Temp. forward Flow	The maximum temperature of the S3 Forward Flow temperature	60 C°
PID Fan Xp	The P part of the PID controller for the Chimney Fan	0.2
PID Fan Ti	The I part of the PID controller for the Chimney Fan	15
PID Fan Td	The D part of the PID controller for the Chimney Fan	10
Fan Sample Time	The PID Fan loop sample time	0.2 s
PID Mixer Xp	The P part of the PID controller for the Mixer	0.2
PID Mixer Ti	The I part of the PID controller for the Mixer	15
PID Mixer Td	The D part of the PID controller for the Mixer	10
Mixer Sample Time	The PID Fan loop sample time	0.2 s

Assembly and connection

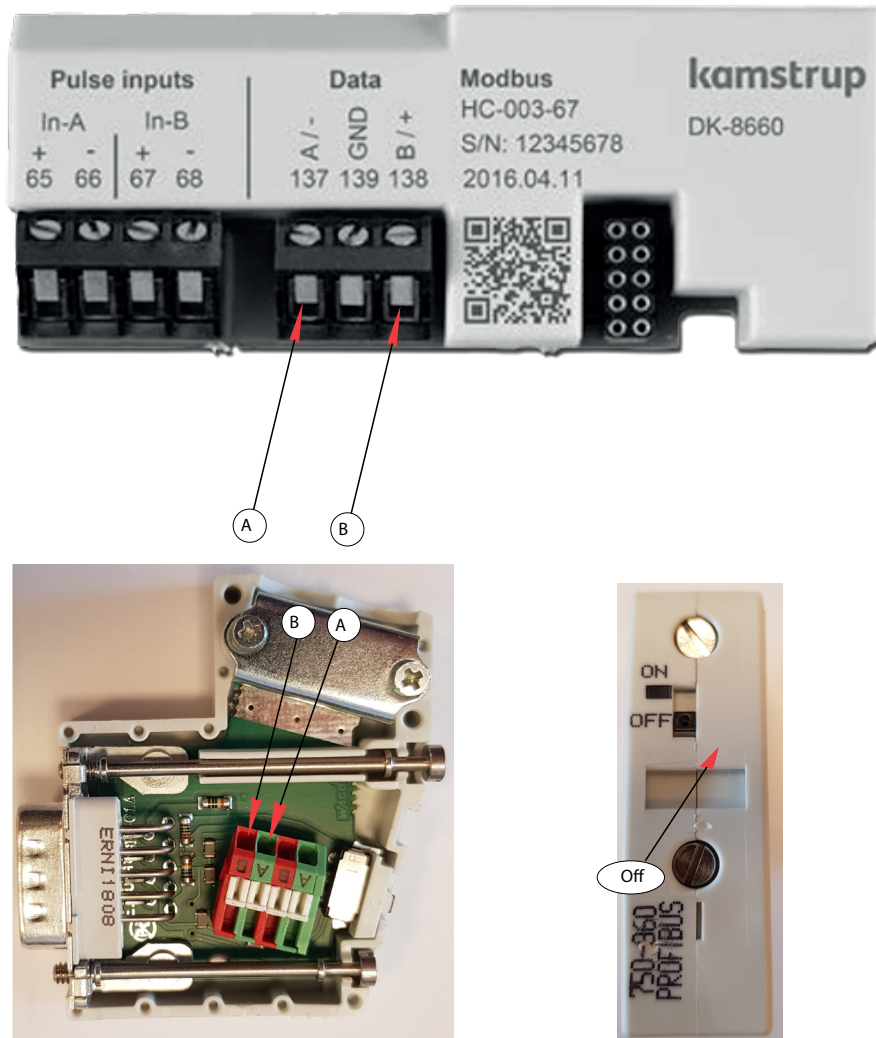
When installing the Kamstrup heat meter, it is vital to pay attention to the flow direction on the sensor (KF), because otherwise correct functioning cannot be ensured.



The KT 1 sensor is the temperature sensor with red color (forward flow) and the KT 2 the sensor with black (return flow).

Assembly and connection of the Kamstrup Heat Meter

To ensure a working MODBUS RTU connection between the PLC and the Kamstrup Multicalc device please connect a cable with a characteristic impedance of 120 Ohm. The terminal "137" (A) and the "138" (B) of the Kamstrup device must be connected to the "A" and "B" terminal of the Wago 750-960 connector. Please connect a 120 Ohm resistor between the "137" and "139" terminals to terminate the bus correctly. The on/off of the 750-960 connector must be set to "off".



EAHC21 Controller description

Technical data

Electrical data:

Description Exodraft order N°	EAHC21 TRIAC 3201067	EAHC21 VFD+TRIAC 3201071	EAHC21 VFD 3201068
Height x width x depth	700 x 500 x 250 mm		
Weight	30 kg		
IP-rating / material	IP54 / Steel		
Voltage (1-phase)	230 V AC ±10 %, 50 Hz ±1 %		
Rated Current	14A	20A	25A
Temperature	0 to 55 °C		
HMI	7" Resistiv Touch Display 800x480		
Inputs			
Digital potential free	2		
Digital 24-230 V AC/DC	2		
XTP-sensor 0-10V Analog	4		
Flow Sensor 0-20 mA	2		
PT100/PT1000 Temperature	8		
Outputs			
Digital potential free	6 - 250V / 8A		
Digital 230V output	4 - 230V / 6A total		
General purpose potential free	2 - 250V / 8A		
0-10V Analog	4		
Chimney Fan output	2 x 70-230V / 4A	1 x 70-230V / 4A + 1 x 3x230V / 1.5kW	2 x 3x400V / 1.5kW
Pressure sensor data			XTP 150
Dimension (W x H x D)	75 x 92 x 49 mm		
Operating temperature	0 to 70 °C		
Monitoring range	0 to +150 Pa (0 to 250 Pa)		
Max. distance between controller and XTP sensor	100 m		
IP-rating	IP54		
mA	30		
Measuring range Pt1000/Pt100	-200°C to 850°C		
Grundfos VFI Sensor Range	0.3 to 6 m³/h, 0.6 to 12 m³/h, 1.3 to 25 m³/h, 2.0 to 40 m³/h, 3.2 to 64 m³/h,		
VFI temperature range	0°C - 100°C (-25°C / 120°C briefly)		
Options	BACnet, MODBUS/IP, KNX, MODBUS, PROFIBUS		
Approval	CE mark		

Permitted total cable lengths:

Temperature sensor S8 Pt100	<30 m
Temperature sensors S1, S2, S3 Pt1000	<30 m
VFI sensors	<3 m
Ethernet	<100 m



UK Conformity Assessed

exodraft

**Exodraft a/s
Industrivej 10
DK-5550 Langeskov**

Hereby declares that the following products:

EAHC21

Were manufactured in conformity with the provisions of the following regulations:

The Supply of Machinery (Safety) Regulations 2008

Electrical Equipment (Safety) Regulations 2016

Electromagnetic Compatibility Regulations 2016

Langeskov, 01-11-2022
Managing Director
Anders Haugaard

A handwritten signature in black ink, appearing to read 'Anders Haugaard', written over a horizontal line.



Declaration of Conformity

DK: EU-Overensstemmelseserklæring
GB: Declaration of Conformity
DE: EU-Konformitätserklärung
FR: Déclaration de conformité de l'Union Européenne
NO: EU-Samsvarserklæring
PL: EU Deklaracja zgodności

NL: EU-Conformiteits verklaring
SE: EU-Överensstämmedeklaration
FI: EU-Vaatimustenmukaisuusvakuutus
IS: ESS-Samræmisstaðfesting
IT: Dichiarazione di Conformità Unione Europea

exodraft

**Exodraft a/s
Industrivej 10
DK-5550 Langeskov**

Erklærer på eget ansvar, at følgende produkter:
Hereby declares that the following products:
Erklært hierdurch auf eigene Verantwortung, daß folgende Produkte:
Déclare, sous sa propre responsabilité, que les produits suivants:
Erklærer på eget ansvar at følgende produkter:
Niniejszym oświadczam, że następujące produkty:

Veklaart dat onderstaande producten:
Deklarerar på eget ansvar, att följande produkter:
Vastaa siltä, että seuraava tuote:
Staðfesti à eigin àbyrgð, að eftirfarandi vörur:
Dichiara con la presente che i seguenti prodotti:

EAHC21

Som er omfattet af denne erklæring, er i overensstemmelse med følgende standarder:
Were manufactured in conformity with the provisions of the following standards:
Die von dieser Erklärung umfaßt sind, den folgenden Normen:
Auxquels s'applique cette déclaration sont en conformité avec les normes ci-contre:
Som er omfattet av denne erklæring, er i samsvar med følgende standarder:
Zostały wyprodukowane zgodnie z warunkami określonymi w następujących normach:

Zijn vervaardigd in overeenstemming met de voorschriften uit de hieronder genoemde normen en standaards:
Som omfattas av denna deklaration, överensstämmer med följande standarder:
Jota tämä selvitys koskee, on seuraavien standardien mukainen:
Sem eru meðtalin í staðfestingu Pessari, eru í fullu samræmi við eftirtalda staðla:
Sono stati fabbricati in conformità con le norme degli standard seguenti:

EN 60335-1, EN 60335-2-80, DS/EN ISO 12100: 2011

I.h.t bestemmelser i direktiv:
In accordance with
Entsprechen gemäß den Bestimmungen der folgenden Richtlinien:
Suivant les dispositions prévues aux directives:
I.h.t bestemmelser i direktiv:
Zgodnie z:

En voldoen aan de volgende richtlijnen:
Enligt bestämmelserna i följande direktiv:
Seuraavien direktiivien määräysten mukaan:
Med tilvisun til ákvarðana eftirlits:
In conformità con le direttive:

Maskindirektivet:
The Machinery Directive:
Richtlinie Maschinen:
Directive Machines:
Maskindirektivet:
Dyrektywę maszynową:

De machinerichtlijn:
Maskindirektivet
Konedirektiivi:
Vèlaeftirlitið:
Direttiva Macchinari:

2006/42/EF-EEC/-EWG/-CEE

Lavspændingsdirektiv:
The Low Voltage Directive:
Niederspannungsrichtlinie:
Directive Basse Tension:
Lavspændingsdirektivet:
Dyrektywę Niskonapięciową

De laagspanningsrichtlijn:
Lågspänningsdirektivet:
Pienjännitedirektiivi:
Smáspennueftirlitið:
Direttiva Basso Voltaggio:

2014/35/EC

EMC-direktivet:
And the EMC Directive:
EMV-Richtlinie:
Directive Compatibilité Electromagnétique:
EMC-direktivet:
Dyrektywę EMC – kompatybilności elektromagnetycznej

En de EMC richtlijn:
EMC-direktivet:
EMC-direktiivi:
EMC-efirlitið:
Direttiva Compatibilità Elettromagnetica:

2014/30/EC

Langeskov, 01-11-2022
Adm. direktør
Managing Director
Anders Haugaard

Algemeen directeur
Geschäftsführender Direktor
Président Directeur Général
Verkställande direktör
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The logo for Exodraft, featuring the word "exodraft" in a bold, lowercase sans-serif font. The letter "x" is stylized with a curved line that loops around the top and right sides of the letter.