



EASYLAB

CP-Touch 4.3 control panel

Touch panel for fume cupboard control and room control



TROX[®] TECHNIK

The art of handling air

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Installation and operating instructions (translation of the original)

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1	Control panel overview	4
2	General information	5
3	Safety	7
	Correct use.....	7
	Incorrect use.....	7
	Dangers and risks.....	7
4	Delivery and storage	8
	Carrying the control panel.....	8
	Storing the control panel.....	8
	Packaging.....	8
5	Installation and connection	9
	Mounting the control panel.....	9
	Connecting the control panel to the EASYLAB system.....	10
6	Commissioning	11
7	Functional description	13
8	Technical data	15
9	Operation	15
	Structure of the graphical interface.....	16
	Basic functions.....	23
	Operating states.....	25
10	Fume cupboard control trouble- shooting	27
11	Room control troubleshooting	29
12	Removal and disposal	32
13	Index	33

1 Control panel overview



Fig. 1: CP-Touch 4.3 control panel

- 1 4.3" touch panel
- 2 Service socket
- 3 Casing mounting base
- 4 Interface X1, for EASYLAB and TROX UNIVERSAL CONTROLLER
- 5 Interface X2, for X-Aircontrol
- 6 Interface X3, for FSL-Control III

2 General information

About this manual

This operating and installation manual enables operating or service personnel to correctly install the TROX product described below and to use it safely and efficiently.

This operating and installation manual is intended for use by fitting and installation companies, in-house technicians, technical staff, properly trained persons, and qualified electricians or air conditioning technicians.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

The local regulations for health and safety at work and general safety regulations also apply.

This manual must be given to the facilities manager when handing over the system. The facilities manager must include the manual with the system documentation. The manual must be kept in a place that is accessible at all times.

Illustrations in this manual are mainly for information and may differ from the actual design.

Other applicable documentation

In addition to these instructions, the following documents apply:

- Product data sheets for control systems
 - EASYLAB CP-Touch 4.3 control panel
 - EASYLAB controller TCU3
 - EASYLAB adapter module TAM
- Operating and installation manual for the EASYLAB controller TCU3
- EASYLAB configuration software operating manual (M375EV1)
- Project-specific wiring documents

TROX Technical Support

To ensure that your request is processed as quickly as possible, please keep the following information ready:

- Product name
- TROX order number
- Delivery date
- Brief description of defect or issue

Online	www.trox.de
Phone	+49 2845 202-0

Limitation of liability

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

The actual scope of delivery may differ from the information in this manual for bespoke constructions, additional order options or as a result of recent technical changes.

The obligations agreed in the order, the general terms and conditions, the manufacturer's terms of delivery, and the legal regulations in effect at the time the contract is signed shall apply.

Warranty claims

The provisions of the respective general delivery terms apply to warranty claims. For purchase orders placed with TROX GmbH, these are the regulations in section "VI. Warranty claims" of the Delivery Terms of TROX GmbH, see www.trox.de/en/.

Copyright

This document, including all illustrations, is protected by copyright and pertains only to the corresponding product.

Any use without our consent may be an infringement of copyright, and the violator will be held liable for any damage.

This applies in particular to:

- Publishing content
- Copying content
- Translating content
- Microcopying content
- Saving content to electronic systems and editing it

Safety notes

Symbols are used in this manual to alert readers to areas of potential hazard. Signal words express the degree of the hazard.

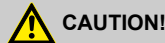
Comply with all safety instructions and proceed carefully to avoid accidents, injuries and damage to property.



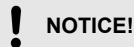
DANGER!
Imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING!
Potentially hazardous situation which, if not avoided, may result in death or serious injury.



CAUTION!
Potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



NOTICE!
Potentially hazardous situation which, if not avoided, may result in property damage.



ENVIRONMENT!
Environmental pollution hazard.

3 Safety

Correct use

The CP-Touch 4.3 control panel serves as a component of the EASYLAB system for the display of values and for activating various functions.

If the control panel is connected to a fume cupboard control, the status display complies with EN 14175; operating modes and special functions can be activated by the user.

If a room is fully equipped with EASYLAB controllers, the control panel is intended for monitoring and for operating mode default setting.

The control panel is allowed to be used for the following EASYLAB applications:

- EASYLAB controller TCU3
 - in the equipment function – fume cupboard control (FH-xxx)
 - in the equipment function – extract air control (RE), supply air control (RS) or differential pressure control (PC) with active room management function (RMF)
- EASYLAB adapter module TAM with active room management function (RMF)

The control panel is installed at a suitable location on the fume cupboard, e.g. on the side frame of the fume cupboard (observe ergonomics). In the function as a room control panel, it can be mounted on the wall with or without a junction box.

Use the unit only with the connection values given in the technical data.

Residual risks

A failure of the supply voltage is indicated on the control panel only if the EASYLAB controller is equipped with the EM-TRF-USV expansion module and the battery pack has been connected and fully charged.

Incorrect use

Do not use the control panel for areas of application that are not described in this manual.

The control panel must not be used in the following areas:

- outdoors
- in wet areas
- in areas with potentially explosive atmospheres

Dangers and risks

NOTICE!

Risk of damage to property due to large temperature differences

If any electronic components have been kept in an unheated area, condensation may form and damage the electronic components beyond repair.

- Before you start commissioning, make sure that all devices have warmed up to the ambient temperature. Only after about 2 hours will the system have reached ambient temperature.

NOTICE!

Risk of damage to property due to foreign matter and liquids!

Foreign matter and liquids that get into the unit may damage the electronic parts.

- Remove foreign matter, if any.
- If the device emits a smell or smoke, have it checked by the manufacturer.
- If liquid gets into the module, let the module completely dry before commissioning.

NOTICE!

Risk of damage to property!

Over tightening the fixing screws may damage the casing.

- Tighten the screws only finger-tight.

! NOTICE!

Risk of damage to property due to scouring or caustic cleaning agents!

Scouring or caustic cleaning agents may damage the surfaces of the control panel.

- Wipe the glass surface with a cloth slightly wetted with disinfectant or mild detergent.

Qualified staff

Only skilled qualified electricians are allowed to work on live components.

The monitoring system is typically commissioned with the fume cupboard, either by the laboratory furniture manufacturer or by the system owner.

Malfunctions, if any, must only be eliminated by trained in-house technicians employed by the system owner, or by the TROX Technical Service.

4 Delivery and storage

Supply package

Check delivered items immediately after arrival for transport damage and completeness.

Supply package

- CP-Touch 4.3 control panel
- Casing mounting base
- 4-pin spring-cage terminal
- Connecting cable, approx. 5 m, patch cable, blue
- Installation and operating manual

Carrying the control panel

- If possible, take the product in its transport packaging up to the installation location.
- Do not remove the protective wrapping until just before installation.

Storing the control panel

For temporary storage of a control panel please note:

- Leave the product in its packaging and do not expose it to the effects of weather.
- Store the product in a dry place and away from direct sunlight.
- Temperature -10 °C to +70 °C, humidity 90% max. (no condensation)

Packaging

Properly dispose of packaging material.

5 Installation and connection

Mounting the control panel

The control panel is suitable for surface mounting in horizontal or vertical orientation.

Types of installation include:

- Fume cupboard (observe ergonomics!)
 - Mounting on side frame
 - Mounting on other suitable surfaces
- Surface mounting on wall
 - Screwing onto junction box
 - Screwing onto wall

Remove display

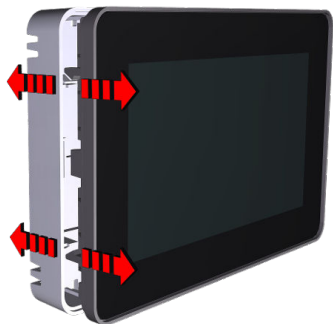


Fig. 2: Remove display from casing mounting base

1. ▶ First carefully pull on side of the display off the casing mounting base.
2. ▶ Then pull off the display on the opposite side as well.
3. ▶ Remove display carefully. If the control panels are already connected, disconnect the connecting cable before removing them.

Assembly

! NOTICE!

Danger of short circuit due to using unsuitable fixing screws!

If the circuit board of the front module (display) touches the fixing screws of the casing mounting base, there is a risk of a short circuit.

- Fixing screws with a countersunk head should be preferred.
- Fixing screws \varnothing 3-3.5 mm, screw head not higher than 3.5 mm
- Choose screws which are appropriate for the material of the surface to which they are fixed.

1. ▶ Remove the casing mounting base from the control panel.
2. ▶ Guide the enclosed connecting cables through the opening X1 on the casing mounting base.

Use the enclosed cable (type SF-UTP) for connection; alternatively, a connecting cable of equivalent or better quality can be used. The maximum cable length is 40 m.

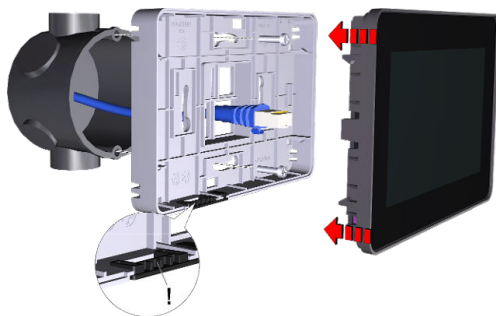


Fig. 3: Mounting example horizontal on concealed socket

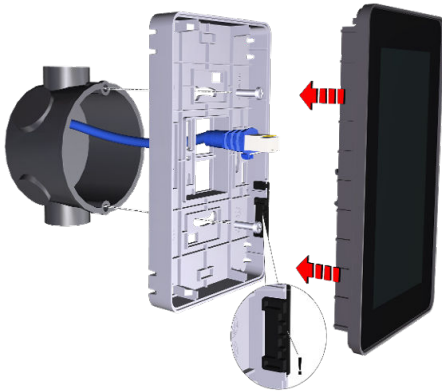


Fig. 4: Mounting example vertical on concealed socket

3. ▶ Fix the casing mounting base to the fume cupboard or the wall with 2-4 screws.

Attention: Pay attention to the orientation of the service cover!

horizontal - Rubber cap at bottom

vertical - Rubber cap on right

4. ▶ Plug the connecting cables into interface X1 on the control panel.
5. ▶ Press the control panel together with the connecting cable into the casing until it locks.

6. ▶ **Control panel remote from controller**

If there is some distance between the control panel and the TCU3 controller or the TROX adapter module, you may use a network patch cable type S-FTP with a maximum length of 40 m instead of the supplied connecting cable.

Lay the connecting cable for connecting the control panel to the TCU3 controller or to the TROX adapter module.

Connecting the control panel to the EASYLAB system



Fig. 5: Connection of TCU3 controller or TROX adapter module

- ▶ Connect the control panel to either terminal 1 (Fig. 5/①) or terminal 2 (Fig. 5/②) of the TCU3 controller or TROX adapter module.

The remaining connection is intended for a second control panel.

Complete documentation

i Installation and operating manual

Information describing commissioning and operation can be found in the installation and operating manual You can download the manual from our website at www.troxtechnik.com.

6 Commissioning

Prerequisite: The CP-Touch 4.3 control panel receives its supply voltage via the TCU3 controller. For commissioning, it is therefore necessary for the TCU3 controller to be connected to the supply voltage and for both to be connected to the connecting cable.

After the control panel starts up, the screen first shows the system selection

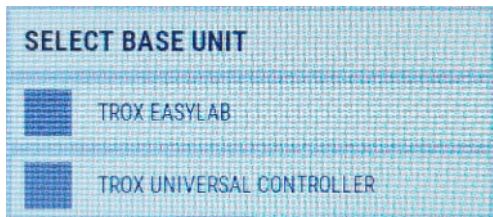


Fig. 6: Selected system

► Here, select the system that is used:

- | | | |
|-------------------------------------|---|-------------------------------------|
| TROX EASYLAB | - | with TCU3 controller |
| TROX UNI-
VERSAL CON-
TROLLER | - | with TROX UNI-
VERSAL controller |

In the Settings menu, further options can be adjusted, such as

- System time and date
- Display orientation (horizontal/vertical)
- Language
- Units, etc.

⚙️ – Settings submenu' on page 20

Further commissioning requires that the control panel is connected to a computer on which the EasyConnect configuration software is installed.

To connect the control panel to the computer, you need the configuration adapter and one of the following components:

- EASYLAB configuration cable

Order designation: EasyConnect-CAB

- BlueCON Bluetooth adapter

Order designation: EasyConnect-BC and computer with Bluetooth interface



Fig. 7: Connection with configuration adapter and EASYLAB configuration cable



Fig. 8: Connection with configuration adapter and BlueCON Bluetooth adapter

Configuration



Fig. 9: PC with EasyConnect software

The EasyConnect configuration software provides a commissioning wizard that guides you in making project-specific adjustments:

- Optical alarm, red, either blinking or permanent
- Duration of the acoustic alarm
- Type of acoustic alarm when the maximum operational sash opening is exceeded
- Enabling the function button for increased operation
- Enabling the function button for reduced operation
- Enabling the function button for shut-off
- Enabling the function button for fume cupboard lighting
- Enabling the function button for manual control
- and many other functions

7 Functional description

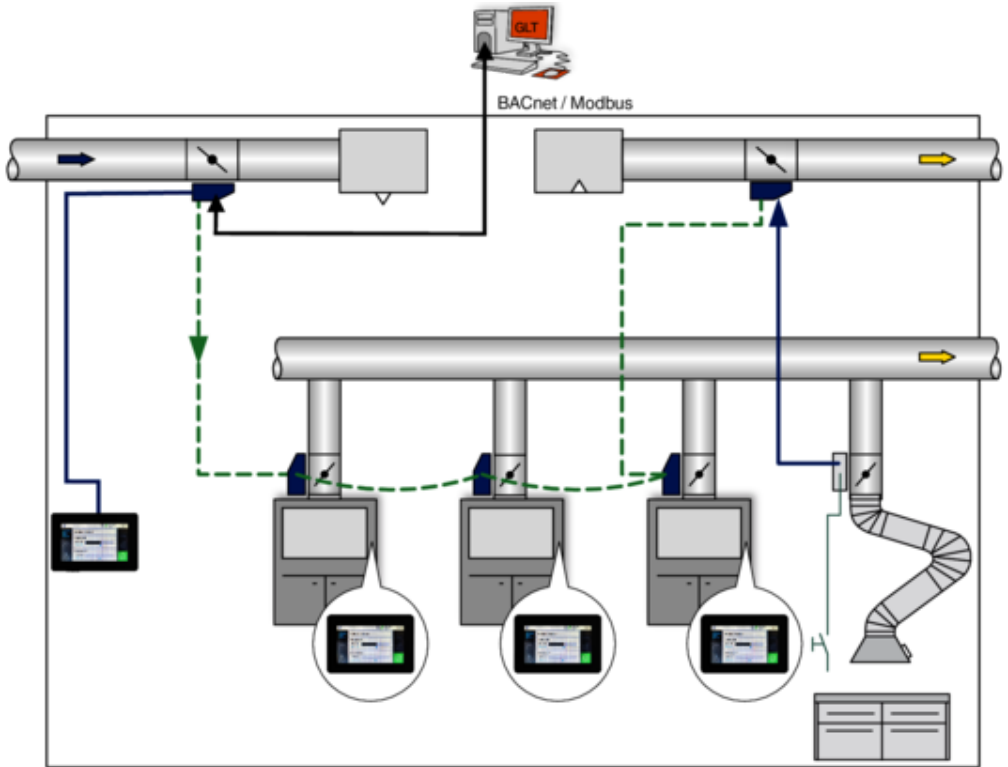


Fig. 10: EASYLAB system structure with laboratory and room control

The CP-Touch 4.3 control panel is used to display and control the ventilation and safety-related functions of a fume cupboard or a room control system. Users obtain information regarding the condition of the fume cupboard or room, depending on controller types, and can select among various operating modes and functions.

The display and operating elements in detail:

- Signalling of the operational reliability of fume cupboards according to EN 14175 or of the room
- Alarm sounder
- A three-colour status display showing the safe operation of the fume cupboard or the room
- A warning indicator and an area for messages
- A status area for displaying active functions
- 5 function groups with configurable functions contained therein
- Display of actual and setpoint values
- Integral service socket for configuration and diagnosis
- Casing optimised for wall/junction box mounting
- Settings such as time, date, display settings, language
- Timer

You can adapt the range of functions of the control panel to project-specific requirements using the 'EasyConnect' configuration software; in some cases, this is possible directly on the CP-Touch 4.3. The range of functions may vary for different fume cupboards or rooms.


The available functions are shown on the display surface by corresponding symbols. The user selects the required function on the touch display.

- Selection of the operating mode
- Activation of automatic sash device
- Activate the scrubber function
- Switching the fume cupboard lighting on or off

In the current values area, the user is shown actual and setpoint values for volume flow rate, face velocity, sash distance, internal fume cupboard temperature or, on the room controller, the room pressure or the total volume flow rate of the extract/supply air (provided the necessary sensor technology is available). The display also shows system messages and pending alarms and messages

For displaying the current time and running simple time programmes, the CP-Touch 4.3 has its own real-time clock. With the time programme, the operating modes can be controlled for 7 days with 5 switching points per day.

Alarm sounder

The alarm sounder warns you if the volume flow rate or the face velocity is too low, room pressure and, if diversity control is active, the room management function. For details see  *Chapter 9.3 'Operating states' on page 25.*

Service socket

The service socket is used to connect the control panel to a personal computer. This is required for configuring the control panel with the EasyConnect configuration software. For this, you can use the EASYLAB configuration cable or the BlueCON Bluetooth adapter.

8 Technical data

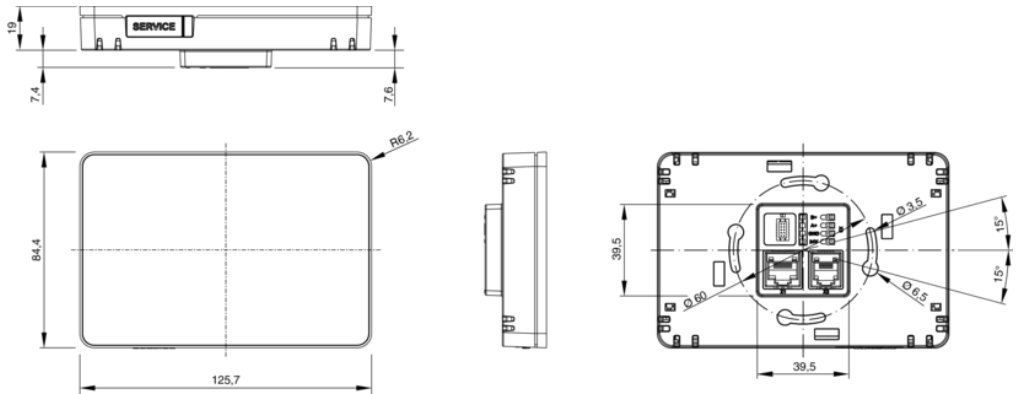


Fig. 11: Dimensions

Display	TFT 4.3-inch
Display resolution / colour depth	480 x 272 pixels / 65k
Supply voltage	24 V DC from the TCU3 controller or TROX adapter module
Interfaces	X1 = 1 x RJ45 for connection to TCU3 / TAM X2 = 1 x RJ12 for connection to X-Aircontrol X3 = Screw terminals for connection to FSL-Control III
Connecting cable	Approx. 5 m standard network patch cable, SF-UTP type, extendable to 40 m
IEC protection class	III (protective extra-low voltage)
Temperature range for operation	10 °C to 50 °C
Temperature range for storage	-10 to 70 °C
Humidity	90% rh, no condensation
Protection level	IP 20
CE conformity	EMC Directive 2014/30/EU, RoHS 2011/65/EU
Weight	300 g
Alarm sounder	Beeper
Casing	ABS UL/ V0
Colour	RAL9005 / RAL7035

9 Operation

Structure of the graphical interface



Depending on the project-specific configuration, display and setting options may be limited. This applies to all the following views of the user interface.

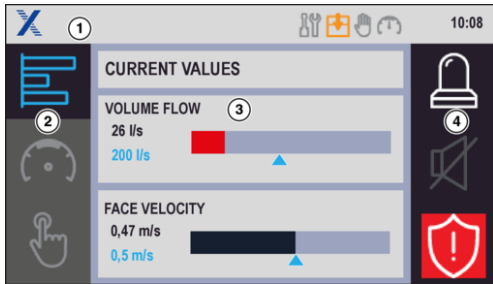


Fig. 12: CP-Touch 4.3 horizontal orientation

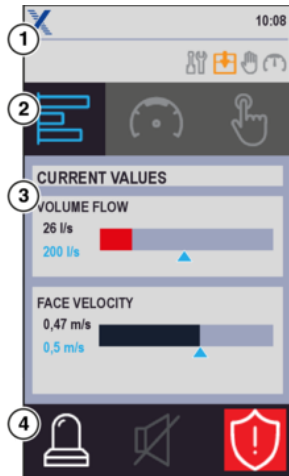


Fig. 13: CP-Touch 4.3 vertical orientation






- 1 Status area
- 2 Main menu
- 3 Submenu
- 4 Alarm area

Main menu

In the main menu, it is possible to select which sub-menu and thus which functions are to be displayed and operated. The area can be scrolled, and three icons are always visible.

Icon	Description
	Display of current values
	Display and specification of operating modes
	Additional functions
	Displaying and setting timer programmes
	Settings for CP-Touch 4.3

 – Operating modes submenu



Icon	Description
	<p>Standard mode</p> <p>Fume cupboard control: Activation of standard mode; the volume flow rate range stored in the controller for standard mode is activated (the system regulates the volume flow rate independently between V_{min} and V_{max} based on the sensor data).</p> <p>Room control: Activation of standard mode; the minimum volume flow stored in the room controller with room management function for standard mode is controlled and the operating mode is passed on to the connected EASYLAB. The latter handles these according to their settings.</p>
	<p>Increased operation</p> <p>Fume cupboard control: Activation of increased operation, the volume flow rate stored in the controller for increased operation is activated (e.g. emergency mode). A time-limited activation period can be defined for "increased operation" in the fume cupboard controller. This enables an automatic deactivation of the increased operation after the set delay.</p> <p>Room control: Activation of increased operation; the minimum volume flow stored in the room controller with room management function for increased operation is controlled and the operating mode is passed on to the connected EASYLAB. The latter handles these according to their settings.</p>
	<p>Reduced operation</p> <p>Fume cupboard control: Activation of reduced operation, the volume flow stored in the controller is activated for reduced operation (e.g. night-time setback).</p> <p>Room control: Activation of reduced operation; the minimum volume flow stored in the room controller with room management function for reduced operation is controlled and the operating mode is passed on to the connected EASYLAB. The latter handles these according to their settings.</p>
	<p>Shut-off operation</p> <p>Activation of shut-off.</p>
	<p>OPEN position</p> <p>Activation of the OPEN position.</p>

Overriding operating mode defaults set by the central BMS

Operating mode default settings from the central BMS or from the room control panel can be overridden on the control panel for the fume cupboard controller.




Temporary override

A centrally set operating mode can be temporarily overridden at any time using the operating mode button on the control panel. The operating mode selected on the control panel remains active until the central BMS sets another operating mode. If the central BMS sets a different default operating mode, that operating mode overrides the locally activated operating mode.

Icon	Description
	<p>Manual control: A centrally set operating mode can be permanently overridden on the control panel. To do so, activate manual control by pressing the corresponding button. This prevents further overrides by the central BMS. After that, any other operating mode is set on the control panel. This operating mode default setting can be terminated by pressing the manual control button again. The fume cupboard controller or the room control resumes the centrally set operating mode.</p> <p>Manual control with activation period: Manual control can be configured with a time-limited activation period. The manual mode will then automatically be deactivated after the set delay and the previous operating mode will be resumed.</p>
	<p>High priority: The central BMS can suppress overrides from the control panel temporarily or permanently. In this case, manual control cannot be used, and the control panel shows only the centrally set operating mode. If a user attempts to change the operating mode on the control panel, the active operating mode will blink briefly.</p>









– Additional functions submenu

Possible additional functions can be switched on and off here.

Icon	Description	Available for	
		Fume cupboard	Room controller with RMF
	Switching an optionally connected light source.	X	X
	Fume cupboard controller: Opening the sash Room controller: Opening the shading	X	X
	Fume cupboard controller: Closing the sash Room controller: Closing the shading	X	X

 – Settings submenu

This area allows you to make various settings.


Icon	Description
	Display of information on software versions of the control panel and the basic unit.
	The selection opens a window with settings for language, display orientation, display illumination and logo.
	Switching the interface language between German and English. Default setting, English
	Changing the display orientation. Default setting: Landscape format
	Settings for brightness and timer for dimming the display illumination (between 1 min and 15 min). Default setting: 5 min
	Showing or hiding the TROX logo.
	Date and time settings.
	Settings for displaying the current values. Values can be shown or hidden for overview and selection of different units.

Password-protected functions




Some functions of the control panel are password-protected to protect them from unauthorised access. The password cannot be changed or deselected.

The password must be entered for configuration:

Password: 4261


 – Timer submenu


In this area, a timer setting can be created using the built-in real-time clock

Icon	Description
	Display of the timer settings.
	Timer setting.
	Settings for the timer: <ul style="list-style-type: none"> ■ Switching timer on or off, ■ Selection of weekday groups






Function status



Only one function (icon) can be selected at a time






 blue - Function selected/active

 grey - Function not selected, can be selected




General displays status area


Operating mode	
Icon	Description
	Standard mode
	Reduced operation
	Increased operation
	Shut-off
	OPEN position

Operating mode	
Icon	Description
	Manual control
	Automatic mode – high priority



Alarm status	
Icon	Description
 (green)	<ul style="list-style-type: none"> ■ Fume cupboard is functionally reliable <ul style="list-style-type: none"> – Volume flow rate adjusted – no faults present ■ Room is functionally reliable <ul style="list-style-type: none"> – Room pressure OK (with active room pressure control)
 (yellow)	<ul style="list-style-type: none"> ■ Fume cupboard is functionally reliable, continued working possible <ul style="list-style-type: none"> – Volume flow rate too high – increased power consumption – have fume cupboard control checked ■ Room control is functionally reliable <ul style="list-style-type: none"> – Room pressure too high (with active room pressure control) – increased power consumption – Have room control checked
 (red)	<ul style="list-style-type: none"> ■ Fume cupboard is not functionally reliable, stop work on the fume cupboard! <ul style="list-style-type: none"> – Volume flow rate too low or there is a malfunction – Have fume cupboard control checked ■ Room is not functionally reliable <ul style="list-style-type: none"> – Room pressure too low (with active room pressure control)
	This function allows the user to turn off the acoustic alarm when it occurs.
	Alarm list with all present messages: <ul style="list-style-type: none"> 🟡 Error message 🔴 Alarm message

Fume cupboard control status displays

Prompt for closing the sash		
Icon	Illustration	Description
	ON	500 mm position exceeded (sash limitation)
	Flashing	Active (motion detector type 1 – Close)
	Flashing	Active (volume flow rate reduction diversity)

Service interval	
Icon	Description
	Service required

Status LEDs room control

Icon	Illustration	Description
	Flashing	Diversity factor < 100%
	ON	Door contact when differential pressure control active

Basic functions

Value display

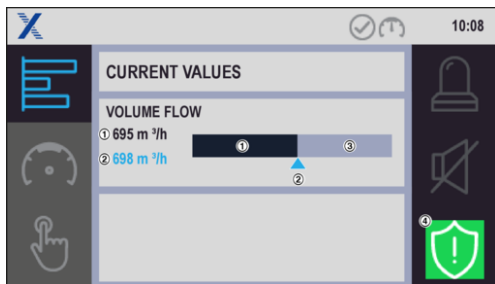


Fig. 14: Volume flow rate display, actual value OK

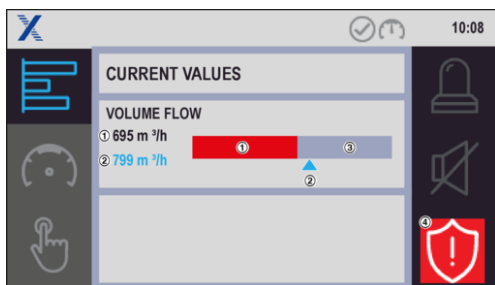


Fig. 15: Volume flow rate display, actual value too low

- 1 Actual value blue: OK, red: deviation from setpoint value
- 2 Setpoint value
- 3 Maximum value
- 4 Alarm status

Volume flow rate warning

You can select a volume flow rate setpoint for a warning using the EasyConnect configuration software.

If the volume flow rate exceeds the setpoint, the status is displayed in yellow.

- ▶ Inform a technician.

If the volume flow rate falls below the setpoint, the status is displayed in red. The fume cupboard is no longer functionally reliable.

- 1. ▶ Stop working at the fume cupboard.
- 2. ▶ Inform a technician.



Selection of operating modes

Activate reduced operation

- 1. ▶ Select  in the main menu.



Fig. 16: Operating mode submenu

- 2. ▶ Select icon for 'Reduced Operation' .
 - ⇒ Reduced operation is activated, icon changes to the blue display .

Deactivate operating modes

- ▶ Press the push button for the respective active function again.
 - ⇒ Operating mode changes to standard mode.

Direct selection of a different operating mode

To select a new operating mode directly (without first deactivating the previous function), just press the corresponding icon.

Setting timer

CP-Touch supports a timer, with 5 switching points per weekday. A switching point activates one of the five available operating modes on the connected controller with the following mode of action:

- Fume cupboard controller - Operating mode of the fume cupboard
- Room controller with active room management function (RMF) - Operating mode of the entire room.

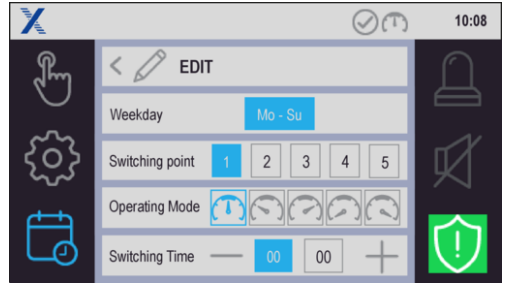


Fig. 19: Timer – Change

The switching points can be defined in the 'Change' menu

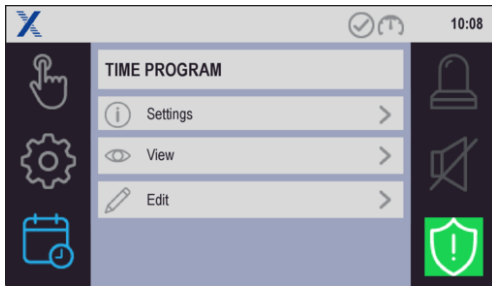


Fig. 17: Timer

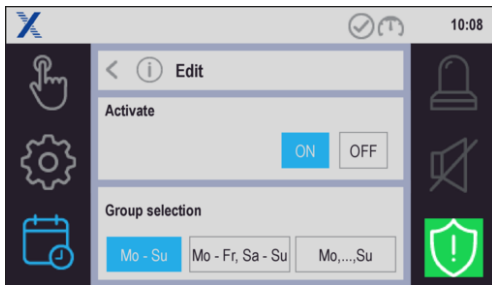


Fig. 18: Timer – Setting





In the 'Setting' menu, the timer can be activated and the grouping of the weekdays can be defined to make the input easier.

Notes:




- The date and time are set locally in the Setting menu of the CP-TOUCH.
- The system time/date is buffered for 24 h if there is a power outage.
- The settings for the timer are not synchronised between the EASYLAB controllers.

Operating states



Operating states fume cupboard control

No.	Status description	Cause	Remedy
1	 Sash opening > Max.	The maximum operational sash opening has been exceeded.	Close the sash.
2	 Close the fume cupboard	Motion detector – indicates that the sash has to be closed. The sash is open and the motion detector has not detected a person in front of the fume cupboard during the set delay.	Close the sash.
2	 Reduced face velocity	Motion detector – lower the face velocity to 0,3 m/s. The motion detector has not detected a person in front of the fume cupboard during the set delay. The face velocity has been reduced.	
3	 Simultaneity factor limitation	The diversity control in combination with the room management function is active. The volume flow rate of the fume cupboard is reduced based on the total room extract air.	Close the sash.

1) Warning indicator light is illuminated, 2) Acoustic signal, 3) Warning indicator light is flashing

No.	Status description	Cause	Remedy
PF	UPS, battery operation	The connected power supply has failed. Control is maintained by the emergency battery pack.	Provide power supply.
SE	 Service	The service interval for maintenance of the fume cupboard control has expired.	Initiate maintenance and have the maintenance interval reset.
oo	 (flashing) Extract air scrubber requested	A user has requested the extract air scrubber. The controller raises the volume flow. When the set volume flow rate has been reached, the extract air scrubber is automatically enabled.	
00	 Extract air scrubber active	The increased volume flow rate for the extract air scrubber has been achieved. The extract air scrubber is in operation.	
EF	Fire Open Fire Shut-off	The sensor system has activated the smoke extract function. Depending on the controller configuration, the damper blade will remain open or will be shut off.	
SC	Automatic sash device	Error message related to the automatic sash device.	
S1	Test function	Testing has been triggered by the configuration software and is active, e.g. actuator test.	

Room control operating states

No.	Status description	Cause	Remedy
PF	UPS, battery operation	The connected power supply has failed. Control is maintained by the emergency battery pack.	Provide power supply.
S1	Test function	The general test function for the local controller has been activated via the configuration software.	
	 (flashing) Simultaneity factor active	Current extract air exceeds the set total room extract air. (Diversity threshold has been exceeded.) The system throttles the volume flow rates of fume cupboards with a high extract air demand.	Reduce extract air consumer; e.g. close sash of the fume cupboards.
	 Door contact	The door contact of the internal pressure control loop is activated. The differential pressure control is influenced according to the configuration.	

10 Fume cupboard control troubleshooting

Fume cupboard control alarm messages

No.	Fault description	Cause	Remedy
A1	Volume flow rate too high	The volume flow rate exceeds the setpoint value.	Check the actuator and the controller.
A2	Volume flow rate too low	The volume flow rate has fallen below the setpoint value.	Check the pressure. Check the volume flow rate transducer.
A3	Face velocity too low	The face velocity has fallen below the threshold value. Check if the sash opening is too wide open.	Reduce sash opening. Check the volume flow rate. Check the pressure.

Configuration faults

No.	Fault description	Cause	Remedy
C1	Software version	Not all controllers have the same software version installed.	Have the correct software version installed by the Service department.
C2	No. of controllers > 24	More than 24 controllers have been connected to the communication cable.	Reduce the number of controllers.
C3	Termination of the communication cable	The communication cable has not been terminated properly.	<ul style="list-style-type: none"> ■ An active terminal resistor is required at each end of the communication cable. ■ Activate the terminal resistors using a switch on the EASYLAB TCU3 main PCB.
C4	RMF configuration	The room management function has not been activated on any of the controllers.	Activate the RMF on a controller.
C5	dP controller ≠ 1	Configuration of differential pressure control is incomplete. There is either no differential pressure controller on the communication cable, or the room management function is not active.	<ul style="list-style-type: none"> ■ Include a differential pressure controller. ■ Activate differential pressure control in the room management function.
C6	System conflict	Not all controllers are of the same system type.	Connect either supply air controllers or extract air controllers but not both.

Faults related to the EASYLAB controller TCU3

No.	Fault description	Cause	Remedy
H1	24 V under-voltage	The supply voltage is too low. The sensors and actuators are no longer supplied with sufficient power.	Check the power supply to the system.
H2	AI characteristic	Analogue input signal is outside the characteristic.	<ul style="list-style-type: none"> ■ Check the voltage signal or sensor. ■ Check the characteristic parameters stored in the controller.
H3	Supportive flow fault	The feedback signal from the supportive flow fan is missing. The fan has been switched off, or the cable is no longer connected. The controller automatically raises the volume flow rate to the value that has been set for this case.	Check the feedback signal and the supportive flow fan.

Control panel faults

No.	Fault description	Cause	Remedy
E1	Connection lost	Communication between the control panel and the fume cupboard controller has been interrupted. This text always appears in English.	Check the cable connection, the control panel, and the controller.
E2	CP-CRC failure	Communication between the control panel and the fume cupboard controller is faulty. This text always appears in English.	Check the cable connection, the control panel, and the controller.
E3	CP not possible	The control panel cannot be used with the controller to which it is connected. The control panel must be connected to a configured fume cupboard controller or to a controller with active room management function.	Check the wiring, assignment, and configuration.
E4	CP memory	A hardware error occurred while the internal memory was being accessed.	If the error occurs again, replace the control panel.

11 Room control troubleshooting
Room control alarm messages

No.	Fault description	Cause	Remedy
A1	Volume flow rate too high	The setpoint volume flow rate of the local controller is exceeded.	Check the actuator and the controller.
A2	Volume flow rate too low	The setpoint volume flow rate of the local controller is undershot.	Check the pressure. Check the volume flow rate transducer.
A4	Σ extract air is too high	Current extract air total exceeds the set total room extract air, diversity threshold is exceeded.	Reduce extract air consumer; e.g. close sash of the fume cupboards.
A5	Differential pressure alarm	Pressure deviation $\Delta P_{\text{act}} / \Delta p_{\text{set}}$ (yellow alarm)	If negative pressure is maintained: current negative pressure is too high If positive pressure is maintained: current positive pressure is too high
A6	Differential pressure alarm	Pressure deviation $\Delta P_{\text{act}} / \Delta p_{\text{set}}$ (red alarm)	If negative pressure is maintained: current negative pressure is too low If positive pressure is maintained: current positive pressure is too low
A7	Σ extract air is too low	Current extract air total is less than the set total room extract air.	

Configuration faults

No.	Fault description	Cause	Remedy
C1	Software version	Not all controllers have the same software version installed.	Have the correct software version installed by the Service department.
C2	No. of controllers > 24	More than 24 controllers have been connected to the communication cable.	Reduce the number of controllers.
C3	Termination of the communication cable	The communication cable has not been terminated properly.	<ul style="list-style-type: none"> ■ An active terminal resistor is required at each end of the communication cable. ■ Activate the terminal resistors using a switch on the EASYLAB TCU3 main PCB.

No.	Fault description	Cause	Remedy
C4	RMF configuration	The room management function has not been activated on any of the controllers.	Activate the RMF on a controller.
C5	dP controller ≠ 1	Configuration of differential pressure control is incomplete. There is either no differential pressure controller on the communication cable, or the room management function is not active.	<ul style="list-style-type: none"> ■ Include a differential pressure controller. ■ Activate differential pressure control in the room management function.
C6	System conflict	Not all controllers are of the same system type.	Connect either supply air controllers or extract air controllers but not both.

Consolidated room alarm faults

No.	Fault description	Cause	Remedy
F1	Category 1 alarm	Consolidated alarm from the room – category 1: Failure of power supply or smoke extraction function on one of the devices on the communication cable.	Check devices.
F2	Category 2 alarm	Consolidated alarm from the room – category 2: Control error leads to deviation of the volumetric flow or the face velocity at one of the devices on the communication cable.	Check devices.
F3	Category 3 alarm	Consolidated alarm from the room – category 3: Hardware error on one of the devices on the communication cable.	Check devices.

Faults related to the EASYLAB controller TCU3

No.	Fault description	Cause	Remedy
H1	24 V undervoltage	The supply voltage is too low. The sensors and actuators are no longer supplied with sufficient power.	Check the power supply to the system.
H2	AI characteristic	Analogue input signal is outside the characteristic.	<ul style="list-style-type: none"> ■ Check the voltage signal or sensor. ■ Check the characteristic parameters stored in the controller.

Room control panel error

No.	Fault description	Cause	Remedy
E1	Connection lost	Communication between the control panel and the fume cupboard controller has been interrupted. This text always appears in English.	Check the cable connection, the control panel, and the controller.
E2	CP-CRC failure	Communication between the control panel and the fume cupboard controller is faulty. This text always appears in English.	Check the cable connection, the control panel, and the controller.
E3	CP not possible	The control panel cannot be used with the controller to which it is connected. The control panel must be connected to a configured fume cupboard controller or to a controller with active room management function.	Check the wiring, assignment, and configuration.
E4	CP memory	A hardware error occurred while the internal memory was being accessed.	If the error occurs again, replace the control panel.

12 Removal and disposal

Remove

After the end of use, disassemble the device and dispose of it in an environmentally friendly manner.

1. ▶ Remove display from casing mounting base.
2. ▶ Pull out connecting cables.

Disposal

If no return or disposal agreement is in place, any disassembled components should be recycled:

- ▶ Have electronic waste and electronic components disposed of by an approved specialist disposal company.

13 Index

A		L	
Alarm sounder.....	14	Limitation of liability.....	5
Assembly		O	
horizontal.....	9	Operating states.....	25
vertical.....	9	Operation	
B		Special operating modes.....	23
Bearing.....	8	Other applicable documentation.....	5
C		Q	
Commissioning.....	11	Qualified staff.....	8
Configuration.....	12	R	
with Bluetooth.....	11	Room control faults	
with configuration cable.....	11	Alarm messages.....	29
Connect the controller.....	10	Configuration faults.....	29
Copyright.....	6	Control panel faults.....	30
Correct use.....	7	Faults of the controller.....	30
D		Room control panel error.....	31
Defects liability.....	5	S	
Disassembly.....	32	Service.....	5
Disposal.....	32	Service socket.....	14
E		Spare & Claim Department.....	5
EASYLAB system structure.....	13	Supply package.....	8
F		Symbols.....	6
Fume cupboard control faults		T	
Alarm messages.....	27	Technical data.....	15
Configuration faults.....	27	Transport.....	8
Control panel faults.....	28	V	
Faults of the controller.....	28	Volume flow rate warning.....	23
Functional description.....	13	W	
I		Warranty claims.....	5
Incorrect use.....	7		