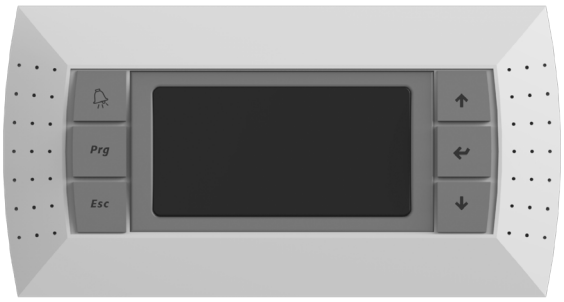





BLAUAIR AUTOMATIC CONTROL SYSTEM

S29 (KVENT, Touch Screen pGDX 4,3)
S30 (KVENT, TH-TUNE)
S31 (KVENT)
S32 (KVENT, PGDE)

EN **USER'S MANUAL**

BLAUBERG

CONTENTS

Safety requirements 3
Purpose 4
Technical data 4
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Installation and set-up 7
Control 9

This user's manual is a main operating document intended for technical, maintenance, and operating staff.
The manual contains information about purpose, technical details, operating principle, design, and installation of the S29, S30, S31, S32 unit and all its modifications.
Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country.

SAFETY REQUIREMENTS

All operations described in this manual must be performed by qualified personnel only, properly trained and qualified to install, make electrical connections and maintain ventilation units.
Do not attempt to install the product, connect it to the mains, or perform maintenance yourself. This is unsafe and impossible without special knowledge.
Disconnect the power supply prior to any operations with the unit.
All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.
Disconnect the unit from the power supply prior to any connection, servicing, maintenance, and repair operations.
While mounting the unit, avoid compression of the casing!
Misuse of the unit and any unauthorised modifications are not allowed.
Do not expose the unit to adverse atmospheric agents (rain, sun, etc.).
Do not use the unit in a hazardous or explosive environment containing spirits, gasoline, insecticides, etc.
Do not sit on the unit and do not put objects on it.
The information in this user's manual was correct at the time of the document's preparation. The Company reserves the right to modify the technical characteristics, design, or configuration of its products at any time in order to incorporate the latest technological developments.
Never touch the unit with wet or damp hands.
Never touch the unit when barefoot.
BEFORE INSTALLING ADDITIONAL EXTERNAL DEVICES, READ THE APPROPRIATE USER MANUALS.



THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.
DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.

PURPOSE

The automatic control system is designed for controlling ventilation systems of various configurations.
The control system controls basic ventilation system components, such as supply and extract fans, heat exchanger, air heater, air cooler, air humidifier, air mixing chamber, air dampers. The automation unit has a configurable controller with installed software. The controller can be individually configured for each ventilation system. The control panels are rated for non-stop operation.

For detailed description of the automatic control system functions please refer to the controller's manual. Please ask the ventilation unit seller to provide the manual.

THE UNIT SHOULD NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL, OR SENSORY CAPACITIES, OR THOSE WITHOUT THE APPROPRIATE TRAINING.

THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING.

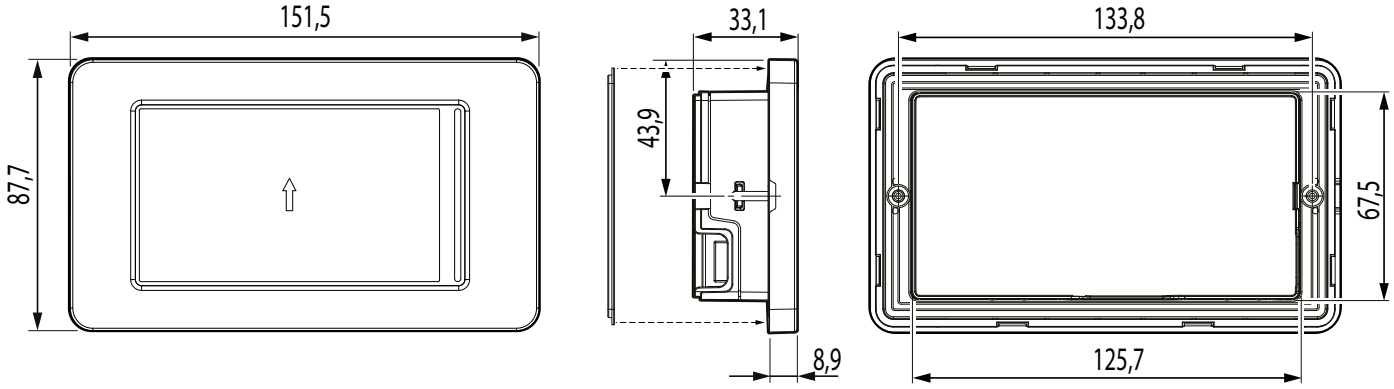
THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORISED ACCESS BY UNATTENDED CHILDREN.

TECHNICAL DATA

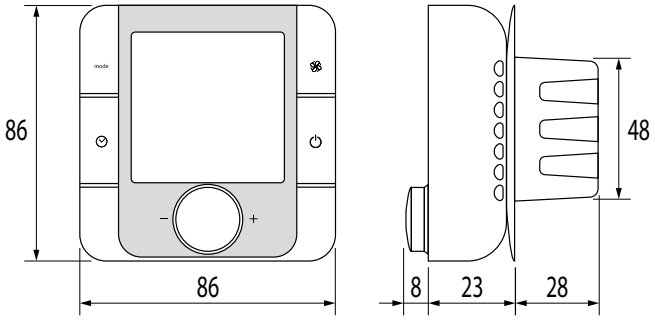
Parameter	Value		
	pGDx Touch 4.3"	th-Tune	pGDE
Storage temperature [°C]	-30...+70	-20...+70	-20...+70
Storage humidity [%]	10...85 (no condensation)	10...90 (no condensation)	10...90 (no condensation)
Operation temperature [°C]	0...+50	-10...+60	-20...+60
Operation humidity [%]	10...85 (no condensation)	10...90 (no condensation)	10...90 (no condensation)
Cable*	Connection to controller with 6-core telephone cable up to 10 m (33 ft); Consumed power: no more than 3 W.	Connection to external connection terminal with 5-core cable 20...22 AWG up to 500 m (1640 ft)	Connection to controller with 6-core telephone cable up to 50 m or twisted pair 22 AWG up to 500 m (1640 ft)
Ingress Protection	IP20	IP20	IP40

* Included in the delivery set.

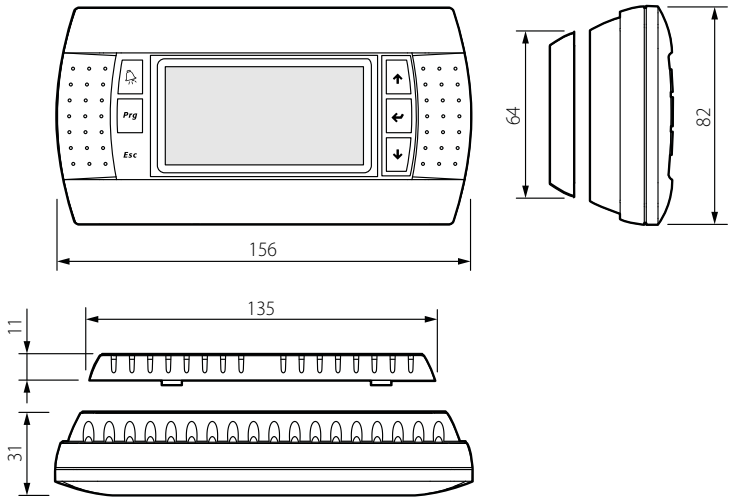
Overall dimensions of the pGDx control panel



Overall dimensions of the th-Tune control panel



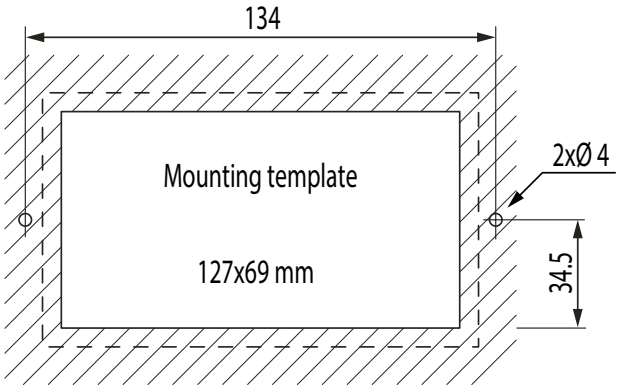
Overall dimensions of the pGDE control panel



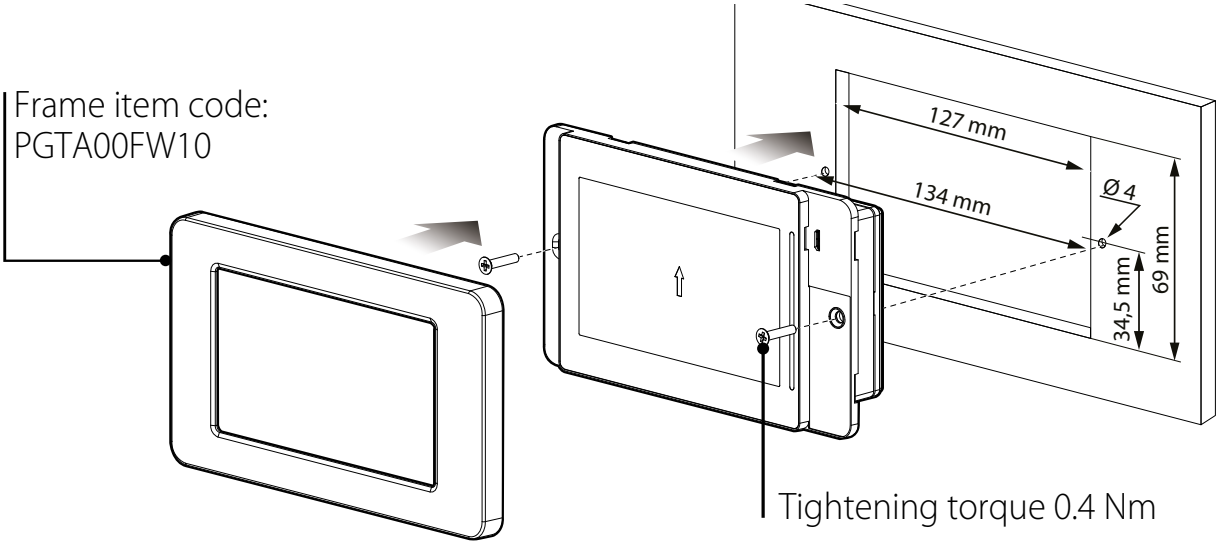
MOUNTING AND SET-UP

INSTALLATION OF THE PGDX CONTROL PANEL

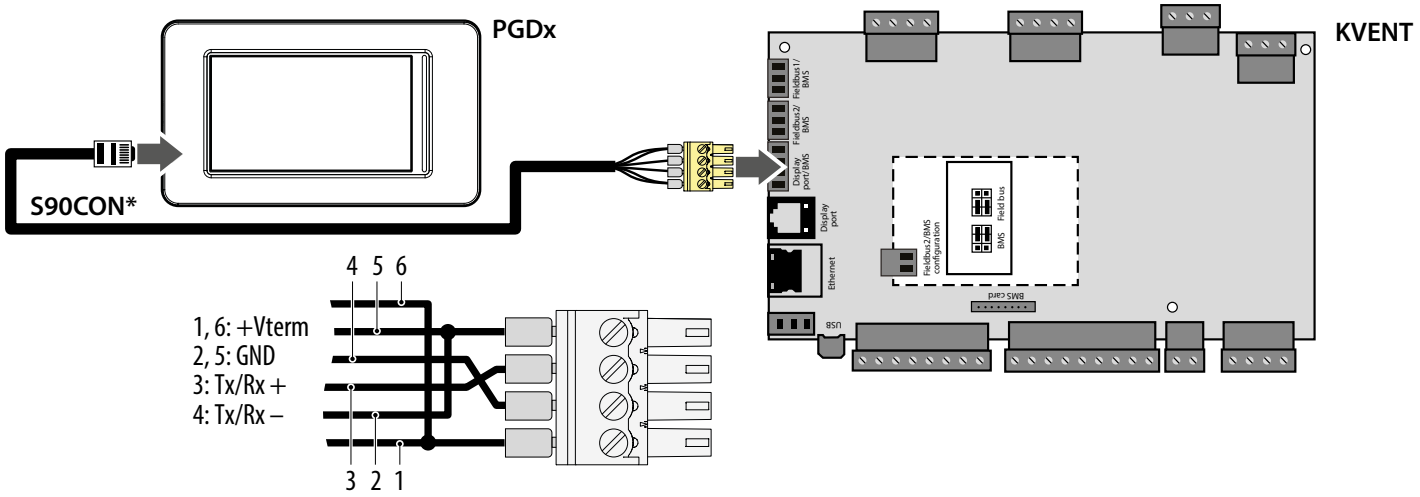
Cut out an opening and holes according to the mounting template in the figure below to install the control panel in a partition



Secure the control panel in the partition with screws and install the frame.
The frame should click into place when closed.



Connection to the controller

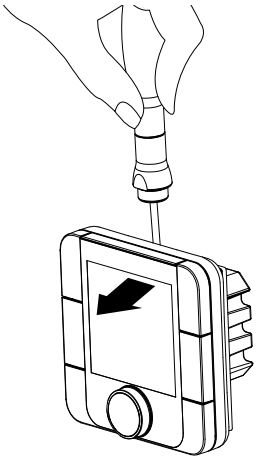


INSTALLATION AND SET-UP

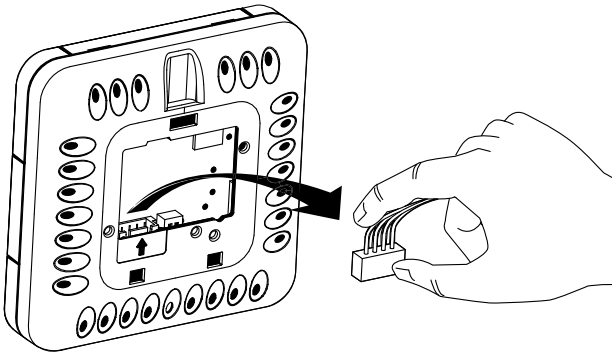
INSTALLATION OF THE TH-TUNE CONTROL PANEL

For installation of the back side of the control panel use a mounting box with a minimum diameter of 65 mm and installation depth of 31 mm.

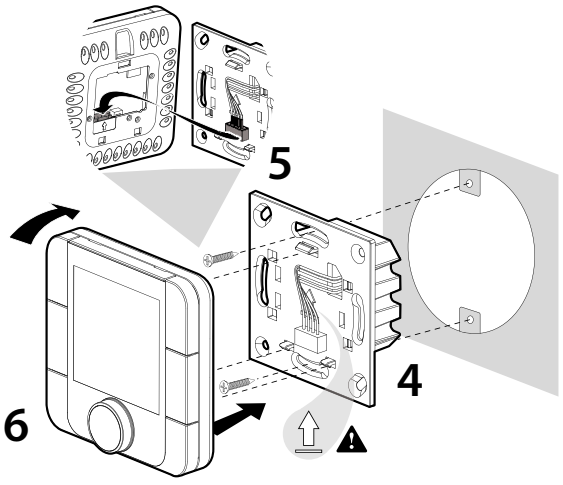
1. Detach the front side of the control panel from the back side using a screwdriver.

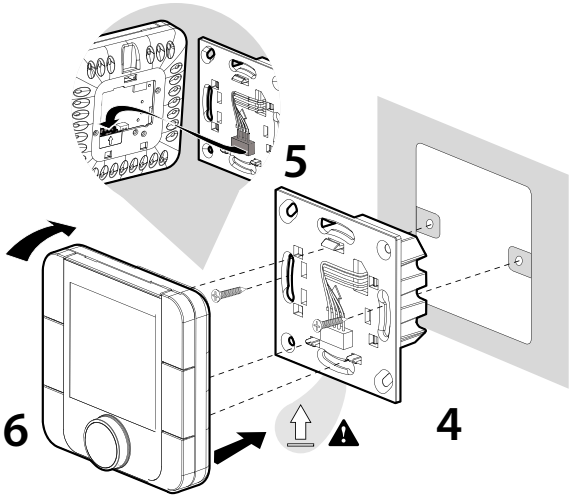


2. Disconnect the 4-pin connector from the front side of the control panel.

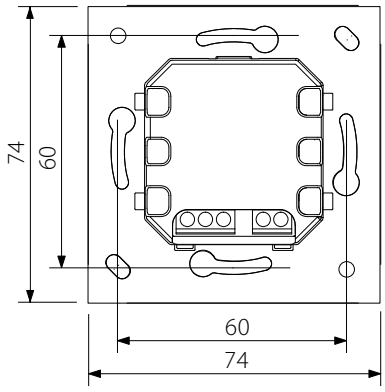


3. Complete the electric connection in compliance with wiring diagram.
4. Fix the back side of the control panel in the mounting box using the supplied screws.
5. Re-connect the 4-pin connector.
6. Lay all the wires inside of the control panel and install the control panel from the bottom. Press the control panel front side to click to complete installation.





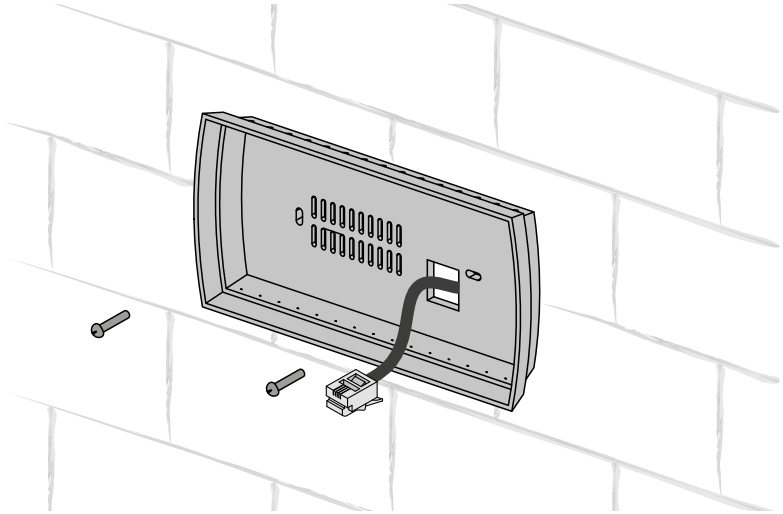
Overall dimensions of the back side of the control panel [mm] Outline drawing of the control panel back side is shown on the left.



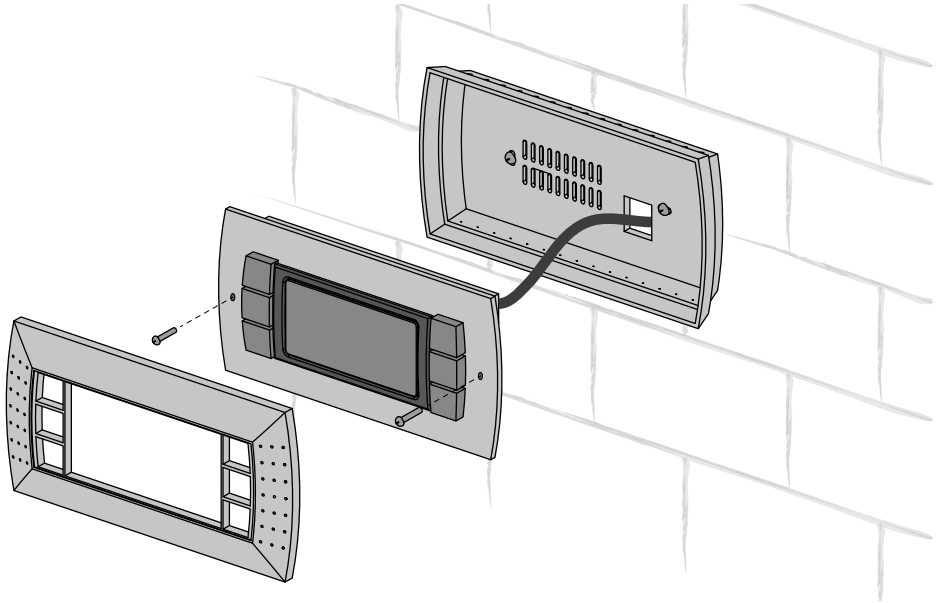
INSTALLATION OF THE PGDE CONTROL PANEL

Connect the pGDE control panel to the connector on the controller using the 6P6C phone connector (PLUG-6P6C-P-C2).
The maximum telephone cable length is 50 m.

Lay the telephone cable to the installation place of the control panel.
1. Fix the back side of the control panel inside of the mounting box using the supplied round-head screws.

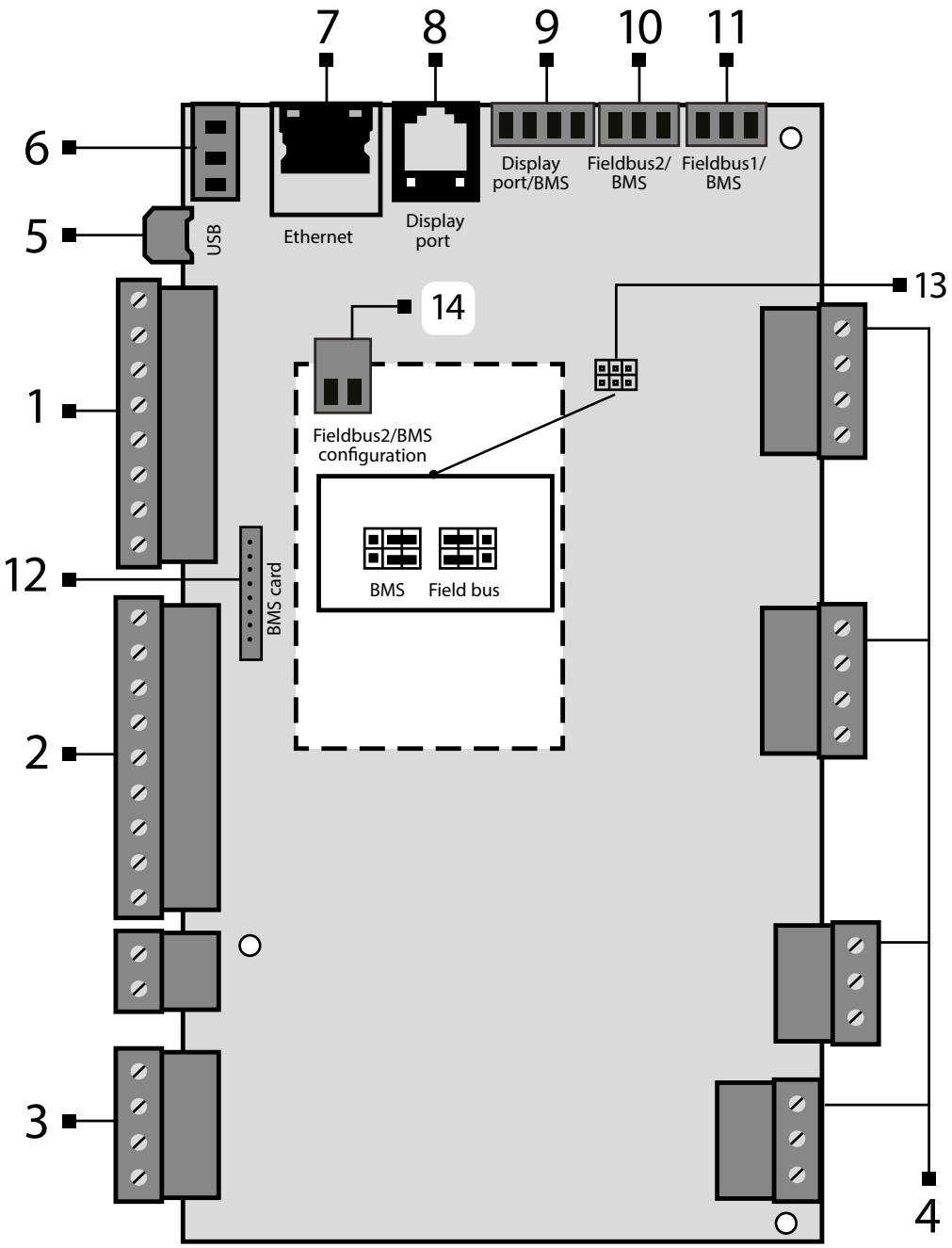


2. Connect the telephone cable to the front side of the control panel. Attach the front side of the control panel to its back side using the supplied countersunk head screws as shown below. Press the control panel front side to click to complete installation.



CONTROL

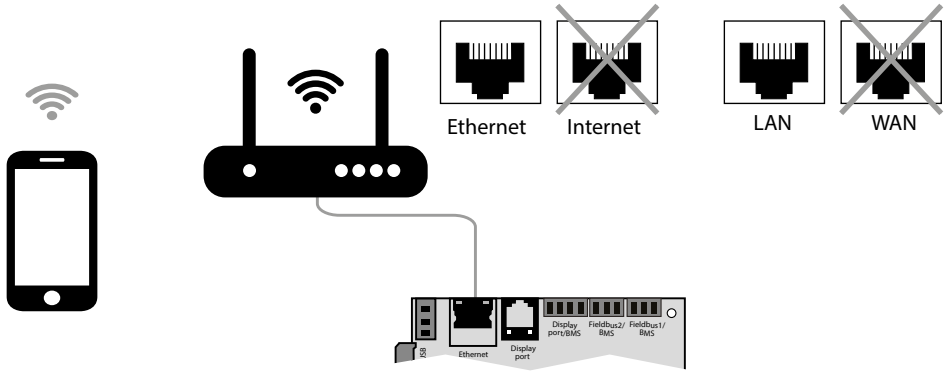
A31 controller (KVENT) inputs/outputs



Position	Description
1	Digital inputs
2	Analogue inputs
3	Analogue outputs
4	Digital outputs
5	Micro USB for updating applications, import and export of settings, alarm log
6	Power source for external sensors
7	Ethernet port
8	Connection port for PGDe control panel

Position	Description
9	Display port. It is also used to connect pGDx
10	BMS/Fieldbus2 port
11	BMS/Fieldbus1 port. Used for connection of th-Tune as well
12	Slot for connection of BMS card (not included in the delivery set, available as a specially ordered accessory)
13	Jumpers for configuration of BMS/Fieldbus2 port
14	Power input

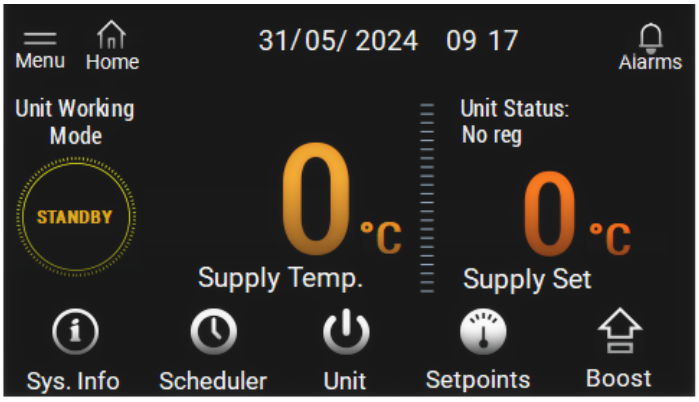
Ventilation unit control with a mobile device



The ventilation unit is controllable via a mobile device or tablet. Connect the router through the Ethernet (LAN) connector using the twisted pair (4 x 2 x 0.51) not below Cat5 with 8P8C connectors. Go to router menu and find IP address of the ventilation unit. Enter IP address in the URL bar in a mobile device.
After that the unit is ready for operation via mobile device. The control interface is identical to the PGDe control panel interface.

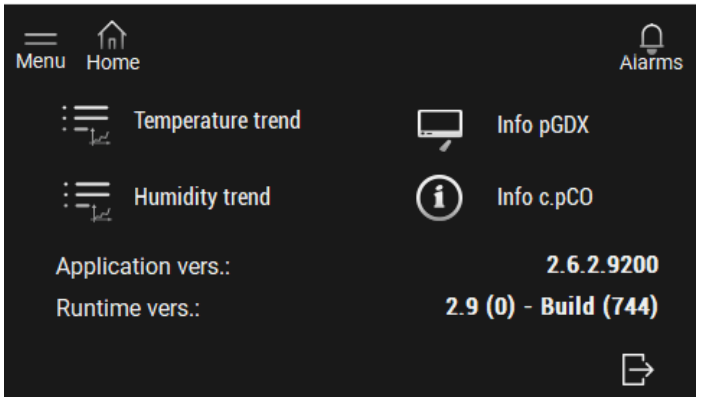
pGDx CONTROL PANEL

Initial ventilation system control screen.

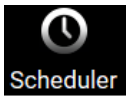


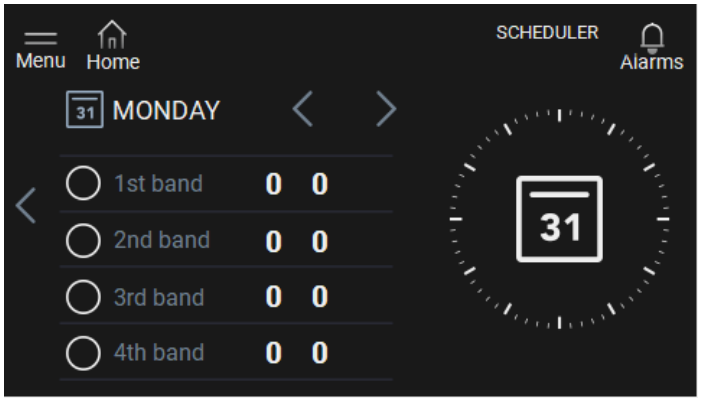
Proceeding to the ventilation system and temperature information menu





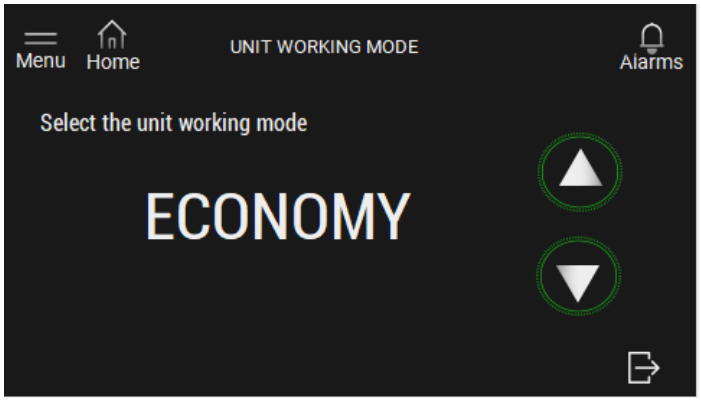
Proceeding to the operation schedule settings menu

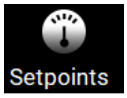




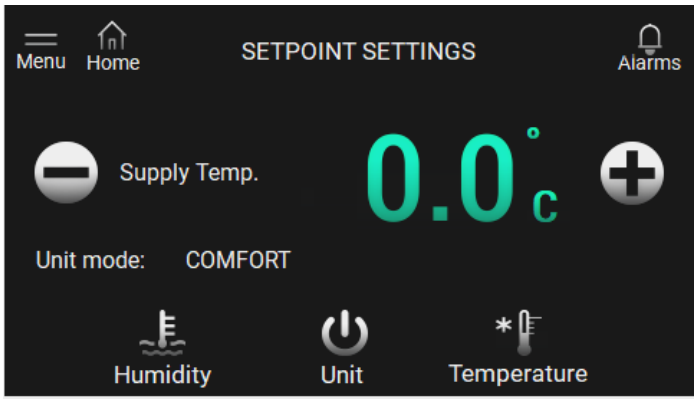
Proceeding to the selection menu for the ventilation system's operation mode
The following operation modes are available: Off / Standby / Economy / PreComfort / Comfort







Proceeding to the temperature/humidity setpoint settings menu



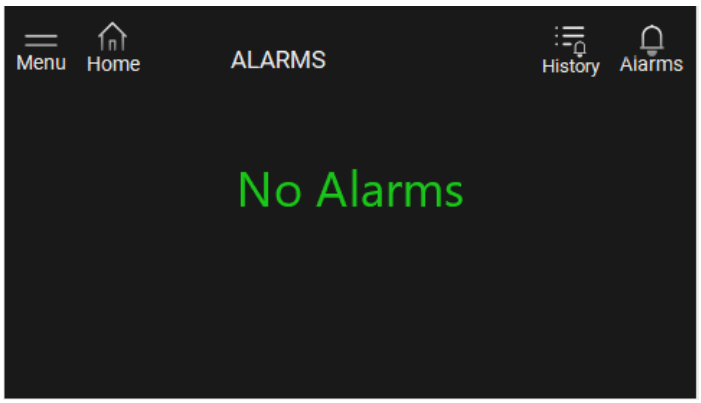


Proceeding to the "Boost" function enable menu



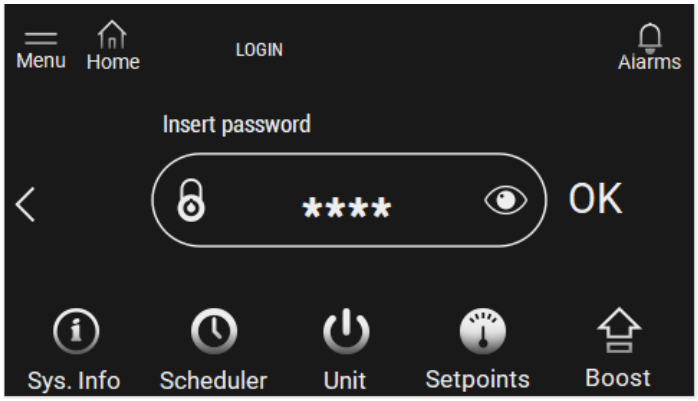


Proceeding to the active alarms menu





Proceeding to the information and PGDe control emulator settings menu
Default password: 0000.



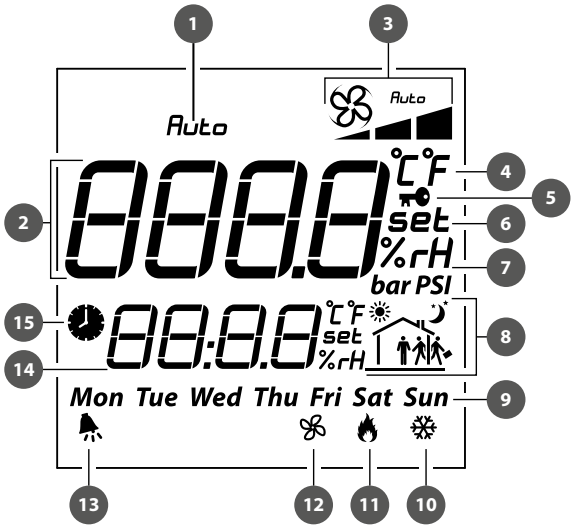


Displays the current status of the ventilation system.

TH-TUNE CONTROL PANEL



BUTTON	FUNCTIONS
mode (MODE)	Standby/auto mode. Boost function deactivation.
(FAN)	Editing operation settings: ECO, PRECOMFORT, COMFORT, STOP.
(CLOCK)	Schedule mode on/off: press once shortly. To get access to the schedule menu, press and hold for 2 seconds. Use the rotation knob to select variants.
MODE+CLOCK	To turn off the Boost function, press and hold for 3 seconds.
(ON-OFF)	On/Off switch and Exit settings. Attention! The On/Off switch turns the remote control display on or off and does not operate the unit.
(ENCODER)	Setting of the required value using the rotation knob. Setup menu of the set indoor temperature - press once. Supply air temperature - press twice. External temperature - press thrice.



	DISPLAY SYMBOLS
1.	System on/off indication
2.	Main field (current indoor temperature, field for temperature setup, schedule setup, etc.)
3.	Operation modes: **ECO** **PRECOMFORT** **COMFORT** **AUTO**
4.	Temperature measurement unit
5.	Schedule blocking function (the pictogram appears in case of attempt to activate schedule on unconfigured unit)
6.	Set value
7.	Humidity measurement unit
8.	Current time band
9.	Day of the week
10.	Cooling on
11.	Heating on
12.	Ventilation mode
13.	Alarm signal. The error code is displayed in the line 14
14.	Time
15.	Activated scheduled mode

Description of the operation modes:
STOP: the fans are off, the protection functions are on (no indication in the field 3).
ECO: low fan speed, low temperature and power consumption.
PRECOMFORT: medium fan speed, medium temperature and power consumption.
COMFORT: maximum fan speed, increased temperature and power consumption.
AUTO: scheduled operation mode.

To reset the alarms synchronously, press and hold the FAN and ON/OFF buttons for 3 seconds.

Schedule setup

The th-Tune panel enables setup of scheduled operation and temperature settings. To enter the menu, turn off the schedule mode and press the CLOCK button for 2 seconds.

After entering the setup menu of schedule mode the following points are displayed:

Sel days: enables schedule and temperature setting. Press the ENCODER buttons to get access to the settings. Then rotate ENCODER to select several days or one day to set an operation mode as follows:

7 days (mon, tue, wed, thu, fri, sat, sun). For Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday the time band settings are common.

5 days (mon, tue, wed, thu, fri). For Monday, Tuesday, Wednesday, Thursday and Friday the time band settings are common.

2 days (sat, sun). For Saturday and Sunday the time band settings are common.

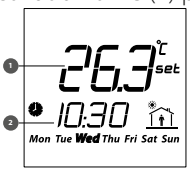
Day by day. The time band settings for each day are individually settable.

Each time period can have up to 6 time bands. The time bands are marked with following pictures:

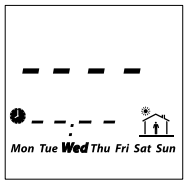


Rotate the ENCODER button to switch between the time band settings.

Each selected time band has the set temperature (1) and activation time (2) parameters.



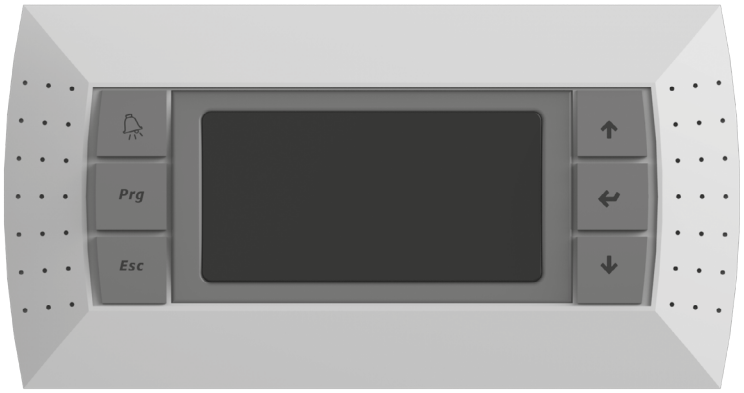
The time band «-:-» can be deactivated on the display:



To set the OFF band on the th-Tune, rotate the minimum setting down to OFF point as shown in the figure below.



PGDE CONTROL PANEL



The control panel has 6 buttons:

(ALARM): manual reset of alarm signals.

Prg (PRG): operation mode editing.

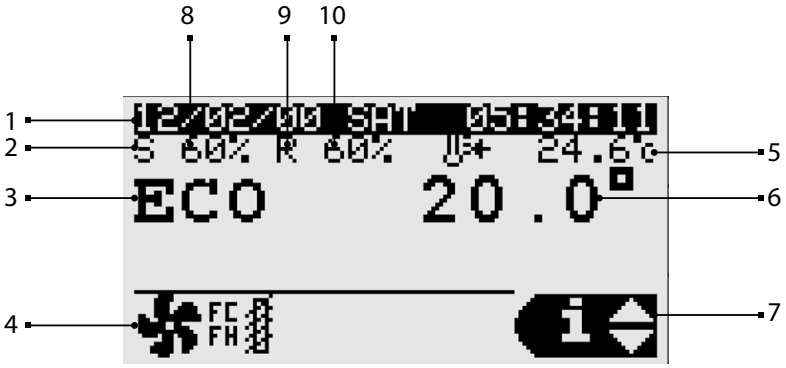
Esc (ESC): return to previous display.

(UP, DOWN): moving between displays screens or increasing/decreasing values

(ENTER): data validation and reset to parameter list

UNIT START

After connection of the unit to power mains the controller is loaded and the home page opens.

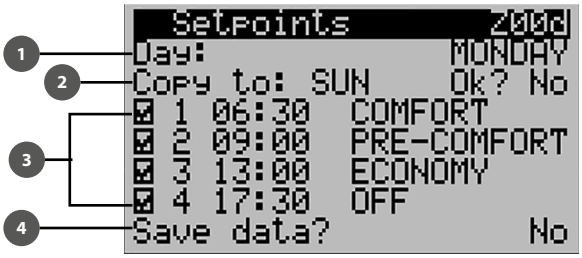


1. Day and time.
2. Supply fan is on.
3. Operation mode.
   - STOP
   - ECONOMY
   - PRECOMFORT
   - COMFORT
   - AUTO
4. Current unit condition.
   - — damper opening/closing
   - — fan run
   - — heating
   - — cooling
   - — free heating/cooling
   - — humidification
   - — dehumidification
   - — active heat recovery
   - — standard shutdown
   - — alarm shutdown
   - — scheduler is active
   - — heat exchanger freeze protection
   - — active Boost function

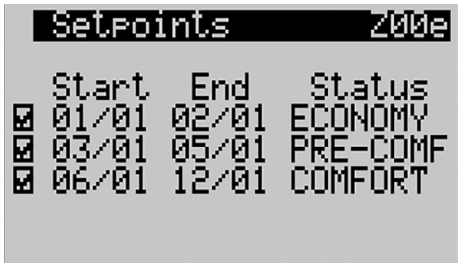
5. Current temperature in the supply air duct.
6. Set indoor air or supply duct temperature point (depending on settings).
7. Indicates access to the user menu with UP, DOWN and ENTER buttons.
   - INFO: indicates general condition of devices, operation status of outputs and inputs of devices and sensors.
   - SET: indicates current set point and operation mode according to schedule. It is possible to set the set points for devices and schedule.
   - MODE: indicates changing of operation mode (stop, economy, precomfort, comfort, auto).
8. Supply fan speed.
9. Extract fan is on.
10. Extract fan speed.

Set-up of scheduled mode

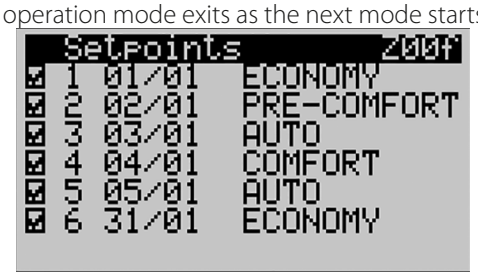
Press ENTER to switch to menu in the SET mode.
The menu has three set points:
1) Setup of operation mode for each week day. It is possible to set maximum four time bands for one day (from Monday till Sunday) and start time for set mode.



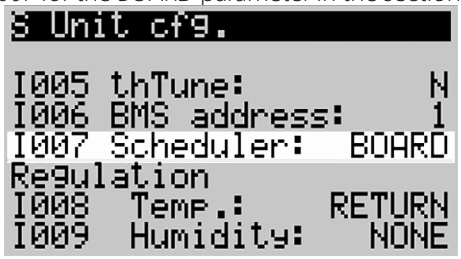
1: Selection of week day for setup.
2: Copying of set parameters to enter for the other week day. Select Yes to copy parameters on the next day (parameter Copy to).
3: Setting number of time bands for the day. Current mode exits as the next mode starts.
4: Saving set parameters.
2) Setting operation mode for 3 time bands (from one day till one year).
Current operation mode exits as the next mode starts.



3) It is possible to set a day for switching to set mode.
It is possible to set maximum 6 days. Current operation mode exits as the next mode starts.

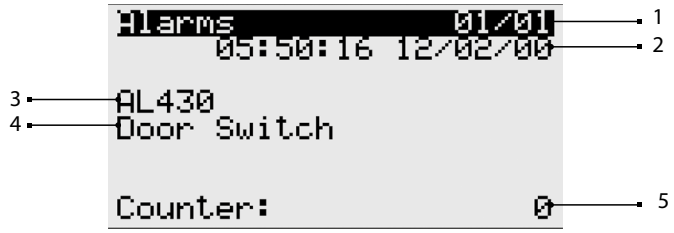


To activate the schedule mode, set the value I007 for the BOARD parameter in the section Unit cfg.



ALARMS

In case of alarms, the alarms are displayed on the display.



Position	Description
1	Alarm number / total alarms
2	Alarm date and time
3	Alarm code
4	Alarm description
5	Alarmed sensor value

The alarms can be reset manually, automatically or repeated automatically.

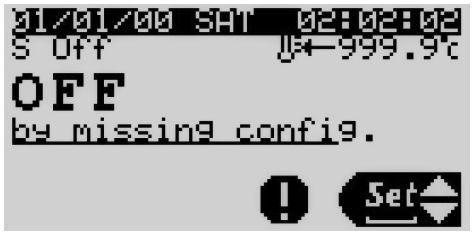
- Manual reset: after troubleshooting an alarm reset the audio signal using the ALARM button, then press and hold the button for 3 seconds for final reset.
- Automatic reset: after automatic troubleshooting of the alarm the audio signal turns off and the signal is reset.
- Automatically repeated reset: the system checks number of repeated interventions per hour. If this number is below the set maximum value, the alarm is automatically reset. As soon as the limit is crossed, the alarm must be reset manually.

WARNING!

By default, the unit is controlled by the TH-Tune remote control.

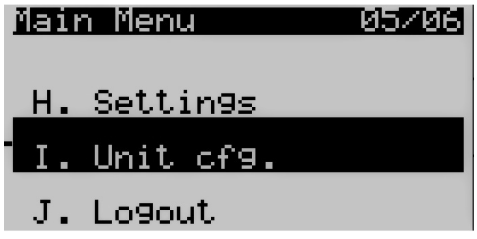
In case of using **PGDE** and/or **BMS** control, TH-Tune must be disabled to prevent error **A010** (th-tune offline).

The figure below shows the screen when the unit is turned on with the **PGDE** control panel.

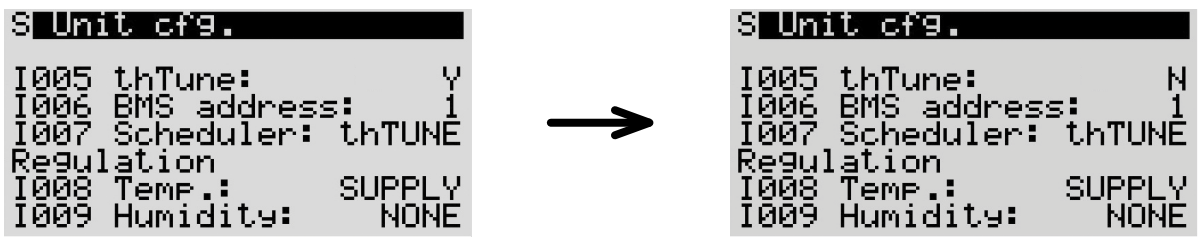


The button will light up. Pressing it displays the alarm code.
To continue the operation, perform the following steps:

1. Press the **Prg** button to go to the main menu, use the ↑ and ↓ arrows to select the **Unit cfg.** section and press the ↵ button to enter it.



2. In the **Unit cfg.** section, select the **I005 thTune** parameter and change its value from **Y** to **N**.



If the control is via **BMS**, the parameter **I005 Enable thTune management** must be set to 0.

Alarm list

Alarm code	Alarm description	Reset	Action
A000	Supply temperature sensor not working	Automatic reset	Unit shutdown
A001	Cooling device alarm	Reset by user	Cooler shutdown
A002	Antifreeze alarm by DIN	Up to two times per hour (3600s), automatic reset of error, from the third time on, manual reset required	Unit shutdown and forced 100% power heating
A003	Prototype software	Automatic reset	Unit shutdown
A004	High number of retain memory writings	Reset by user	No
A005	Error in retain memory writings	Reset by user	No
A006	Return temperature sensor broken not working	Automatic reset	Changeover in the supply control mode
A007	External temperature sensor broken not working	Automatic reset	Deactivation of outdoor air temperature compensation mode
A008	CO_2 air quality sensor not working	Automatic reset	Deactivation of CO_2 control mode
A009	Exhaust temperature sensor not working	Automatic reset	Unit shutdown
A010	th-Tune offline	Automatic reset	Deactivation of indoor air temperature compensation mode
A011	Supply temperature out of range	Automatic reset	No
A012	Supply air flow alarm	Reset by user	Unit shutdown
A013	Return air flow alarm	Reset by user	Unit shutdown
A014	Humidifier alarm	Automatic reset	Humidifier shutdown
A015	Humidifier maintenance required	Automatic reset	No
A016	Return fan maintenance required	Automatic reset	No
A017	Supply fan maintenance required	Automatic reset	No
A018	Reheating coil maintenance required	Automatic reset	No
A019	Heat recovery maintenance required	Automatic reset	No
A020	Supply filters alarm	Automatic reset	No
A021	th-Tune clock not working	Automatic reset	No
A022	th-Tune temperature sensor not working	Automatic reset	Deactivation of indoor air temperature regulation mode
A023	th-Tune humidity sensor not working	Automatic reset	Deactivation of indoor air humidity regulation mode
A024	BMS offline	Automatic reset	No
A025	Supply differential pressure sensor not working	Automatic reset	No
A026	Return differential pressure sensor not working	Automatic reset	No
A027	Fire alarm by digital input	Reset by user	Unit shutdown, forced switching of fans to fire speed
A028	Heating coil water temperature sensor not working	Automatic reset	Unit shutdown, forced switching to 100% bypass damper opening
A029	Preheating coil water temperature sensor not working	Automatic reset	Unit shutdown, forced switching to 100% bypass damper opening
A030	After preheating coil temp.sensor not working	Automatic reset	Preheater shutdown
A031	Heating device alarm	Automatic reset to counter (filter timer) value (3 times 3600 s)	Heater shutdown
A032	Fire alarm by temperature	Reset by user	Unit shutdown, forced switching of fans to fire speed
A033	Antifreeze alarm by heat back water temperature	Automatic reset to counter (filter timer) value (3 times 3600 s)	Unit shutdown, forced switching to 100% bypass damper opening
A034	Antifreeze alarm by preheat back water temperature	Automatic reset to counter (filter timer) value (3 times 3600 s)	Unit shutdown, forced switching to 100% bypass damper opening
A035	Fans overload alarm	Automatic reset	Unit shutdown
A036	Supply humidity sensor not working	Automatic reset	Humidifier shutdown

A037	Unit configuration not allowed	Automatic reset	Unit shutdown
A038	Supply fan - Offline	Automatic reset	Unit shutdown
A039	Supply fan - Line Fault	Automatic reset	Unit shutdown
A040	Supply fan - Motor blocked	Automatic reset	Unit shutdown
A041	Supply fan - Fire alarm	Automatic reset	Unit shutdown
A042	Supply fan - Uin Low (FW 10)	Automatic reset	Unit shutdown
A043	Supply fan - Uin High (FW 10)	Automatic reset	Unit shutdown
A044	Supply fan - UZK low	Automatic reset	Unit shutdown
A045	Supply fan - UZK high	Automatic reset	Unit shutdown
A046	Supply fan - IGBT fault	Automatic reset	Unit shutdown
A047	Supply fan - Earth-GND fault	Automatic reset	Unit shutdown
A048	Supply fan - Peak current error	Automatic reset	Unit shutdown
A049	Supply fan - Hall sensor error	Automatic reset	Unit shutdown
A050	Supply fan - Offline	Automatic reset	Unit shutdown
A051	Supply fan - Phase Failure	Reset by user	Unit shutdown
A052	Supply fan - Motor blocked	Reset by user	Unit shutdown
A053	Supply fan - Mains undervoltage	Reset by user	Unit shutdown
A054	Supply fan - Mains overvoltage	Reset by user	Unit shutdown
A055	Supply fan - DC-link overvoltage	Reset by user	Unit shutdown
A056	Supply fan - DC-link undervoltage	Reset by user	Unit shutdown
A057	Supply fan - Motor overheating	Reset by user	Unit shutdown
A058	Supply fan - Internal circuit overheating	Reset by user	Unit shutdown
A059	Supply fan - Outer stage overheating	Reset by user	Unit shutdown
A060	Supply fan - Hall sensor error	Reset by user	Unit shutdown
A061	Supply fan - Communication error	Reset by user	Unit shutdown
A062	Supply fan - Generic error	Reset by user	Unit shutdown
A063	Supply fan - Outer stage high temperature	Automatic reset	Unit shutdown
A064	Supply fan - Internal circuit high temperature	Automatic reset	Unit shutdown
A065	Supply fan - Motor high temperature	Automatic reset	Unit shutdown
A066	Supply fan - Low DC-link voltage	Automatic reset	Unit shutdown
A067	Supply fan - Limited mains power	Automatic reset	Unit shutdown
A068	Supply fan - Limited mains current	Automatic reset	Unit shutdown
A069	Supply fan - Brake mode	Automatic reset	Unit shutdown
A070	Supply fan - Cable break	Automatic reset	Unit shutdown
A071	Supply fan - Freeze protection	Automatic reset	Unit shutdown
A072	Supply fan - Heating: motor stop	Automatic reset	Unit shutdown
A073	Supply fan - Speed under limit	Automatic reset	Unit shutdown
A074	Supply fan - High DC-link voltage	Automatic reset	Unit shutdown
A075	Supply fan - High supply voltage	Automatic reset	Unit shutdown
A076	Supply fan - High line Impedance	Automatic reset	Unit shutdown
A077	Return fan - Offline	Automatic reset	Unit shutdown
A078	Return fan - Line fault	Automatic reset	Unit shutdown
A079	Return fan - Motor blocking	Automatic reset	Unit shutdown
A080	Return fan - Fire alarm	Automatic reset	Unit shutdown
A081	Return fan - Uin Low (FW 10)	Reset by user	Unit shutdown
A082	Return fan - Uin High (FW 10)	Reset by user	Unit shutdown
A083	Return fan - UZK low	Reset by user	Unit shutdown
A084	Return fan - UZK high	Reset by user	Unit shutdown
A085	Return fan - IGBT fault	Reset by user	Unit shutdown
A086	Return fan - Earth-GND fault	Reset by user	Unit shutdown
A087	Return fan - Peak current error	Reset by user	Unit shutdown

A088	Return fan - Hall sensor error	Reset by user	Unit shutdown
A089	Return fan - Offline	Reset by user	Unit shutdown
A090	Return fan - Phase failure	Reset by user	Unit shutdown
A091	Return fan - Motor blocked	Reset by user	Unit shutdown
A092	Return fan - Mains undervoltage	Reset by user	Unit shutdown
A093	Return fan - Mains overvoltage	Reset by user	Unit shutdown
A094	Return fan - DC-link overvoltage	Reset by user	Unit shutdown
A095	Return fan - DC-link undervoltage	Reset by user	Unit shutdown
A096	Return fan - Motor overheating	Reset by user	Unit shutdown
A097	Return fan - Internal circuit overheating	Reset by user	Unit shutdown
A098	Return fan - Outer stage overheating	Reset by user	Unit shutdown
A099	Return fan - Hall sensor error	Reset by user	Unit shutdown
A100	Return fan - Communication error	Automatic reset	Unit shutdown
A101	Return fan - Generic error	Automatic reset	Unit shutdown
A102	Return fan - Outer stage high temperature	Automatic reset	Unit shutdown
A103	Return fan - Internal circuit high temperature	Automatic reset	Unit shutdown
A104	Return fan - Motor high temperature	Automatic reset	Unit shutdown
A105	Return fan - DC-link low voltage	Automatic reset	Unit shutdown
A106	Return fan - Limited mains power	Automatic reset	Unit shutdown
A107	Return fan - Limited mains current	Automatic reset	Unit shutdown
A108	Return fan - Brake mode	Automatic reset	Unit shutdown
A109	Return fan - Cable break	Automatic reset	Unit shutdown
A110	Return fan - Freeze protection	Automatic reset	Unit shutdown
A111	Return fan - Heating: motor stop	Automatic reset	Unit shutdown
A112	Return fan - Speed under limit	Automatic reset	Unit shutdown
A113	Return fan - DC-link high voltage	Automatic reset	Unit shutdown
A114	Return fan - High supply voltage	Automatic reset	Shutdown of VOC regulation
A115	Return fan - High line impedance	Automatic reset	No
A404	VOC air quality sensor malfunction	Automatic reset	No
A405	Supply filter 2 alarm	Automatic reset	Shutdown. Check-up of air humidity for natural cooling
A406	Return filter alarm	Automatic reset	No
A407	Fresh air humidity sensor not working	Automatic reset	No
A408	Preheating coil maintenance required	Automatic reset	No
A412	IEC humidifier maintenance required	Automatic reset	No
A413	Cooling device maintenance required	Automatic reset	No
A414	Cooling device 2 maintenance required	Automatic reset	No
A415	Heating device maintenance required	Automatic reset	No
A416	Heating device 2 maintenance required	Automatic reset	No
A417	Reverse device maintenance required	Automatic reset	No
A418	Reverse device 2 maintenance required	Automatic reset	No
A422	Out of design temperature limits alarm	Automatic reset	Opening air mixing unit or ventilation shutdown if mixing unit is not available
A429	Heat exchanger clogged	Automatic reset	Shutdown of heat recovery
A430	Door switch	Automatic reset	Unit shutdown

THE ENGINEERING SETTINGS ARE PASSWORD PROTECTED.

FOR DETAILED DESCRIPTION OF ENGINEERING SETTINGS PLEASE REFER TO THE MANUAL FOR THE CONTROLLER SOFTWARE.

PLEASE ASK THE UNIT SUPPLIER FOR THE MANUAL TO THE CONTROLLER SOFTWARE.

The engineering menu enables to set operation of the automation unit with the control panels S30 and S32 both individually and jointly.
The automation system is operable also without control panel.
The system can be operated also with an external on/off switch.
The automation unit has a built-in WEB interface and supports the Modbus and Bacnet protocols according to RS485 and Ethernet interfaces.
Please refer to the controller operation manual for information about the protocol setup.



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