FLOWAIR
intelligent air flow

T-box

instrukcja obsługi / user manual / руководство пользователя / Gebruikershandleiding

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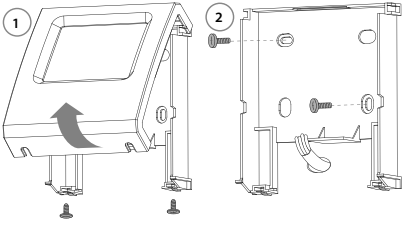
INSTALLATION

T-box controller has a built-in sensor for measuring air temperature in the room. To ensure proper measurements, the controller should be installed at a height of approx. 1.5 m above the ground in a place with good air circulation. Do not place it near heat sources, lighting, air inlets, windows and door openings, etc.

If temperature sensor was chosen in a T-Box menu as „installed in unit", T-box controller can be mounted out of area i.e. technical room.



NAVIGATION

OK return to previous screen with save of changes

return to previous screen without save of changes

menu navigation

change of parameter value

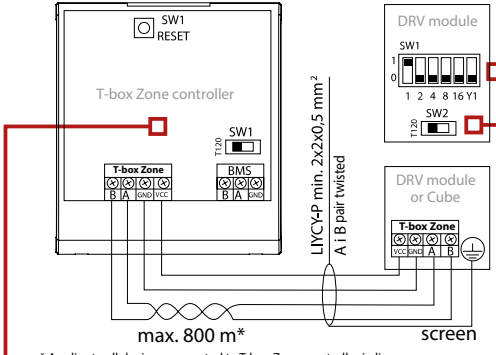
change of unit group

TECHNICAL DATA

Name	Description
Power supply	24 VDC
Way of control	touch screen
Temperature adjustment range	+5 ÷ +45°C
Operating temperature range	0 ÷ +60°C
Temperature sensor	built-in
Protection degree	IP20
Installation	on the wall
Casing	ABS plastic, RAL 9003
Max. number of connected units	31
Dimensions (HxWxD)	130 x 115 x 35 mm

T-box Zone controller connection to DRV module or Cube

DRV module addressing**

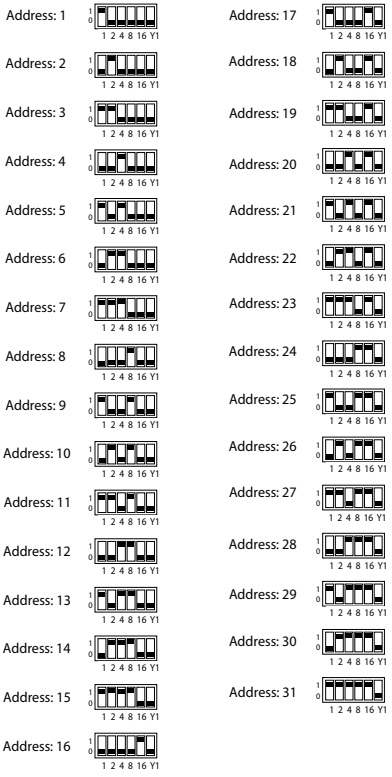


* Applies to all devices connected to T-box Zone controller in line

** In case of Cube devices addressing is beeing done by service during first startup

In the case, when T-box in BMS network is the last device, SW1 switch should be set in T120 position.

DRV - SW1 ADDRESS SETTING

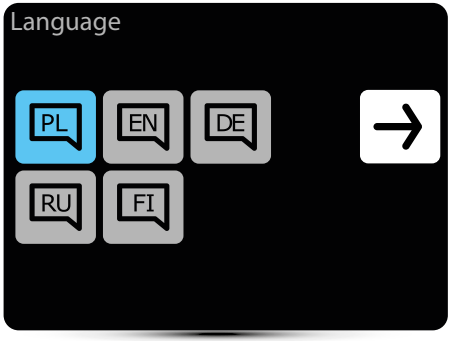


DRV - SW2 ADDRESS SETTING

Last DRV in line

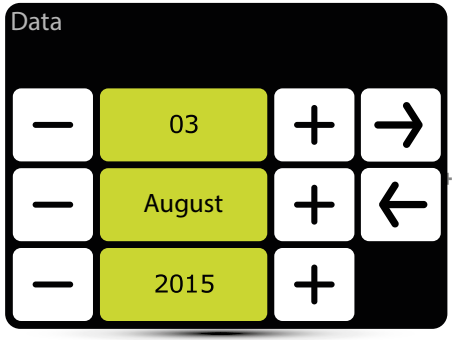
Others DRV in line

FIRST RUN

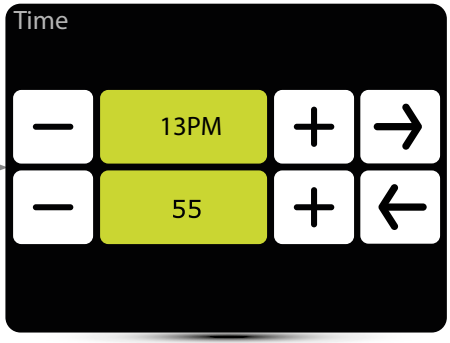


Selection of language

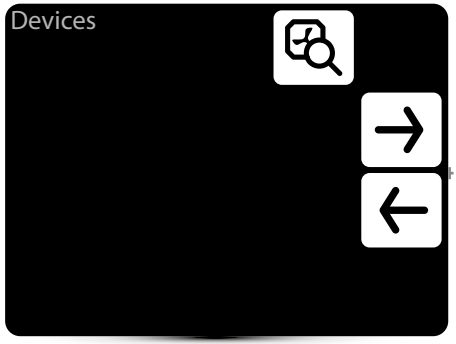
active language



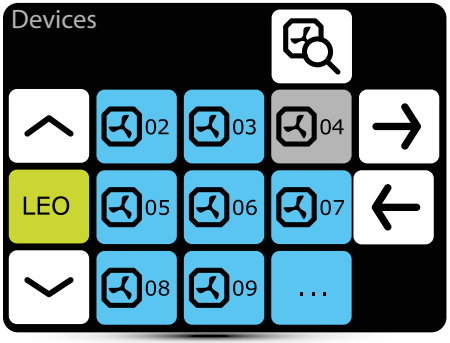
Setting of date

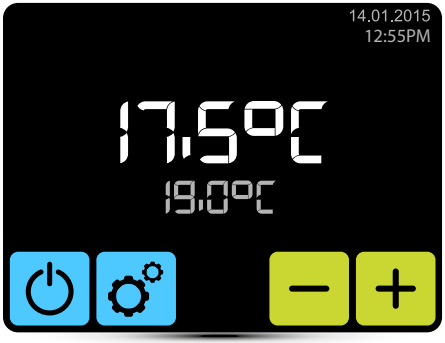


Setting of time



Searching of connected units.



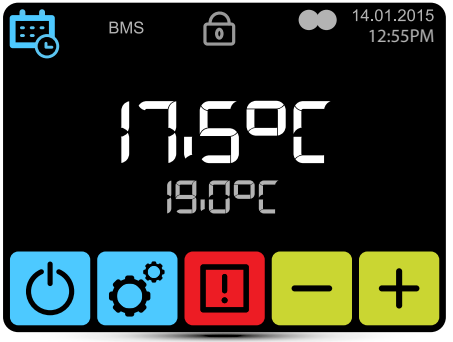


LEO	group of devices	08	device no 8 in LEO group
LEO	water heater	KM	water heater with mixing chamber
ROBUR	gas heater	ROBUR KM	gas heater with mixing chamber
LEO EL	electric heater	DUO	air curtain-fan heater combo unit
LEO D	destratificator	ELiS	air curtain
OXeN	ventilation unit	LEO COOL	fan cooler / heater
Cube	rooftop units	Slim	air curtain

Setting of desired temperature.

Check that all devices have been found. If not, check:
- correctness of connection of the A-A, B-B communication signal,
- power connection of the device,
- if address have been set correctly; each device must have a different address set, (in Cube devices the address is set by the service during the first start-up)
- if the SW2 dipswitch on the last device in line is set to T120 position. (in Cube devices, the dipswitch is set by the service during the first start-up)

MAIN SCREEN



long press turn on/off of the controller

long press main menu
short press units menu

alarms

setting of desired temperature

19,0°C set temperature

17,5°C measured temperature

14.01.2015
14:50 date, time

settings lock active

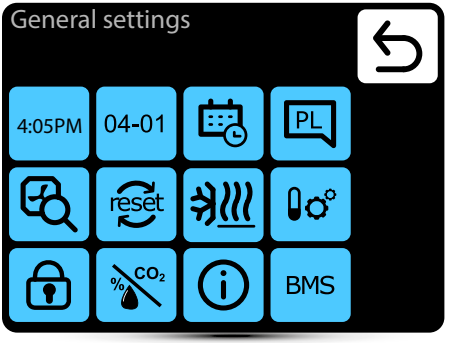
BMS BMS mode active

calendar active

calendar active - settings forced

the icon informs about changed position of OXeN dampers, or about Cube device start-up, the fans are suspended during this time.

long press Main menu



Enter to the menu after entering the password: 2014

4:05PM time setting

04-01 date setting

calendar

PL language selection

integrated units

reset restore factory settings

antifreeze

selection of leading sensor

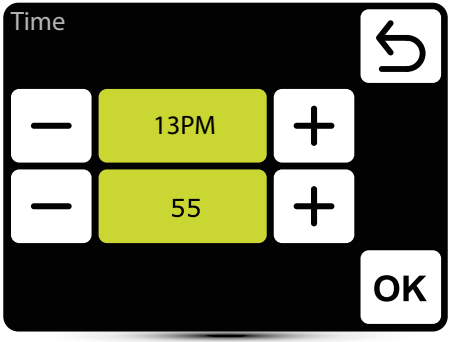
controller lock

%CO2 external gas detector settings

hardware version

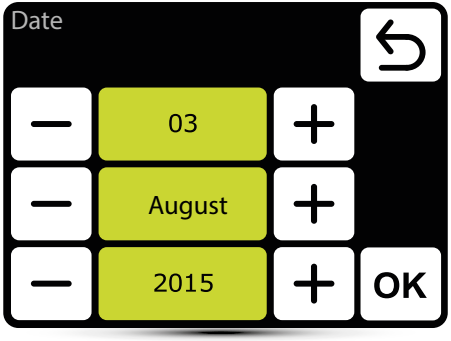
BMS BMS settings

Time



Setting of time

Date



Setting of date

Calendar

- For each day you can set up to 20 on/off events,
- Start time of new event is also the end time of previous event,
- For each event you can set any temperature for units, in the range of 5 – 45°C, For each event you can set for KM an air flow and dampers
- opening degree, for OXeN an air flow,
- Events for each day can be set individually or they can be copied from day, which was already set.

Activation of calendar is signalized on main screen via following icons:

calendar active – SYSTEM ON

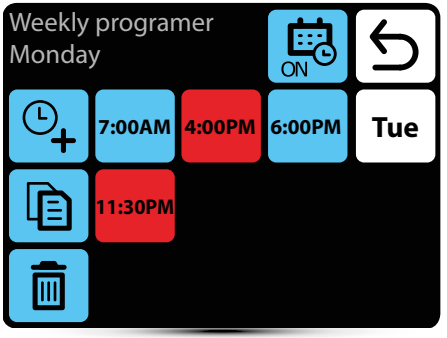
calendar active – SYSTEM OFF

calendar active – settings forced.
There were ad hoc set other parameters than the settings programmed in the calendar:

- desired temperature,
- air flow for OXeN,
- the capacity or degree of opening of the KM and Cube dampers
- system were OFF and was turned on (to turn on the system press and hold for 2 s the calendar icon on main screen),
- system were ON and was turned off (to turn off the system press and hold for 2 s the calendar icon on main screen).

Ad hoc settings stays as long as time of current event in calendar. With start of next event, units will operate according to programmed settings.

Calendar



activation/deactivation of calendar

adding the event

copying events on the following days

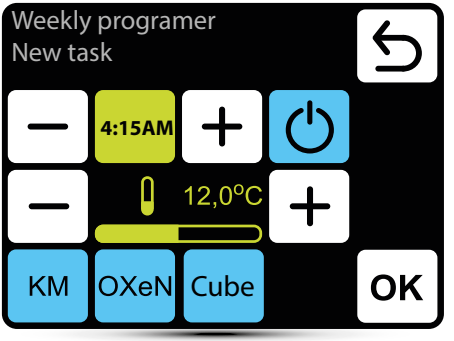
removing the events

Tue moving to the next day

7:00AM event – system ON

9:00AM event – system OFF

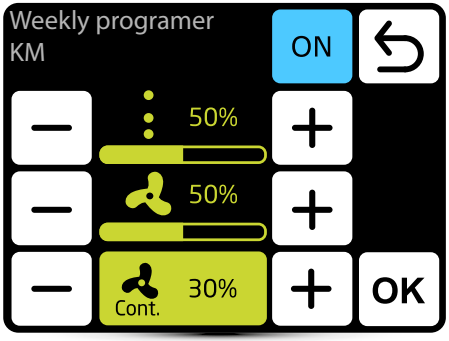
Calendar – Adding the ON event



In given example SYSTEM will be turned on at 6:15 and the units will maintain temp. 12°C.

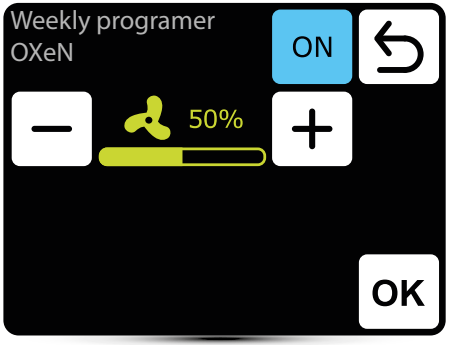
SYSTEM WILL OPERATE USING CURRENT SETTINGS UNTIL NEW EVENT WILL BE SET.

KM – additional settings for KM group
OXeN – additional settings for OXeN group
Cube – additional setting of Cube group.

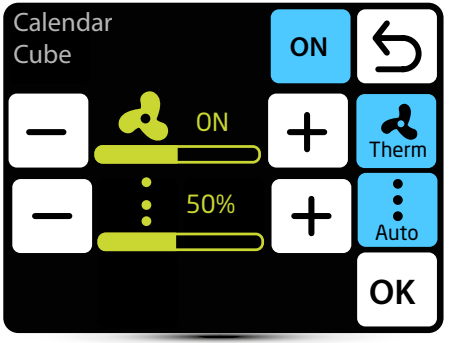


For KM it is possible to set an air flow and dampers opening degree in current event.

Cont. When the dampers are closed (no ventilation), it is possible to select the operating mode of the fan after reaching desired temperature. Fan can operate continuously or be turned off.



For OXeN it is possible to set an air flow in current event.

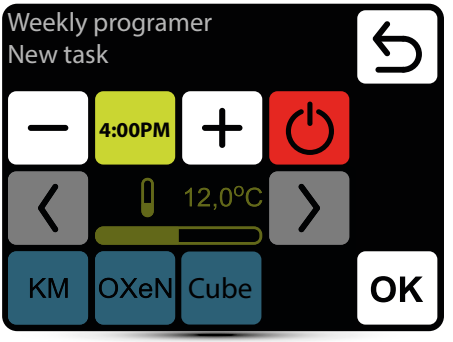


It is possible to set airflow and damper's degree of opening for a given zone.

Therm — When the therm mode is activated, the fans of the Cube will work in thermostatic mode - they will turn off after reaching the preset temperature in the room.

Auto — When Auto mode is activated, the Cube's throttle will be adjusted automatically until the set temperature is economically reached.

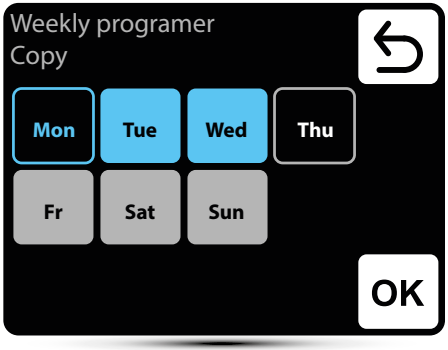
Calendar – Adding the OFF event



In given example units will be turned off at 16:00.

SYSTEM WILL BE TURNED OFF UNTIL THE NEXT EVENT, ACCORDING TO CALENDAR SETTINGS.

Calendar – Copying events



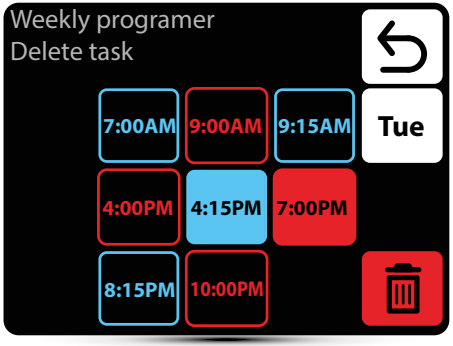
Mon — day from which events will be copied

Tue — day selected for copying events from PN day

Thu — day with already programmed operation schedule – you can also copy here the events from PN day

Fr — day without programmed operation schedule

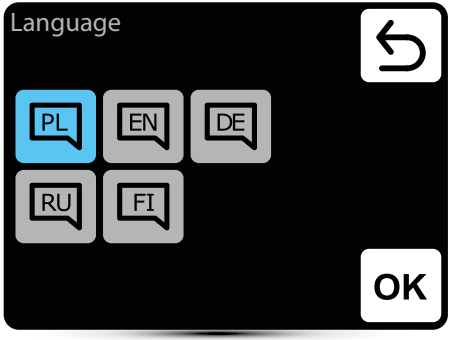
Calendar – Removing events



4:15PM 7:00PM — events selected to remove

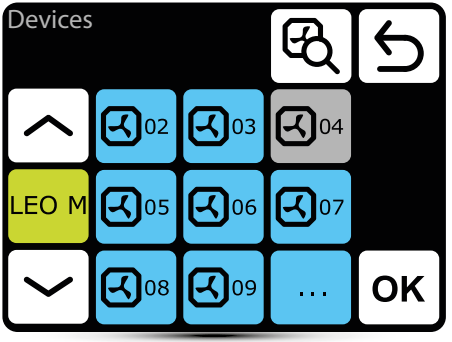
confirmation of events removal

Language



active language

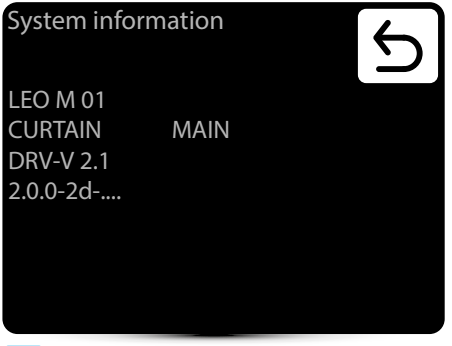
Integrated units



searching for units integrated with system

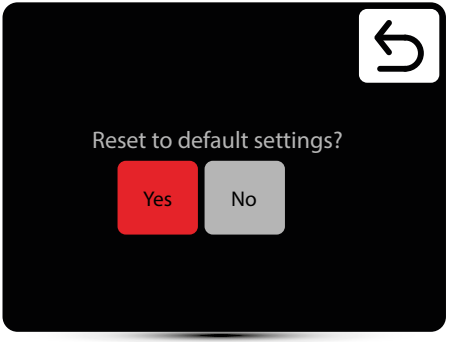
02 active unit

04 deactivated unit – not operating



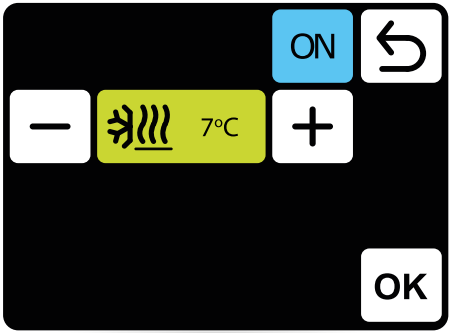
02 long press displays the DRV software

Reset



Restore default settings.

Antifreeze

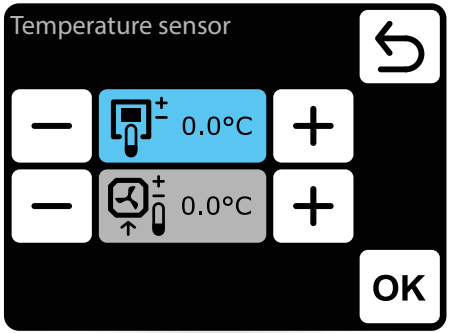


Automatic protection against too low temperature in the room. When temperature in the room drops below desired temperature, LEO and KM units are turned on:

- valves (if installed) opens,
- fan is turned on at 100% of efficiency,
- KM dampers are closed, unit operates using recirculating air.

Units operate until the temperature in the roomis higher of 1°C than antifreeze temperature, protecting the hall against too low temperature inside and freeze of heating medium in the exchanger.

Leading sensor



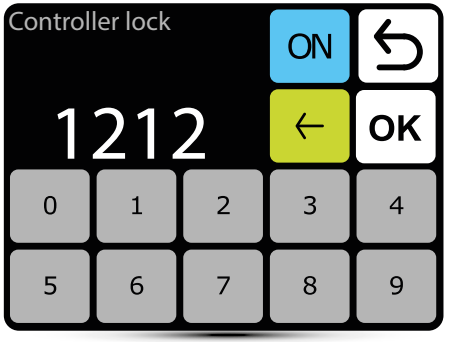
active temperature sensor

leading sensor is the sensor built in T-box controller

leading sensor is the local sensor. When it is selected, operation of each unit is regulated locally

The correction of sensor measurements is also possible.

Controller lock



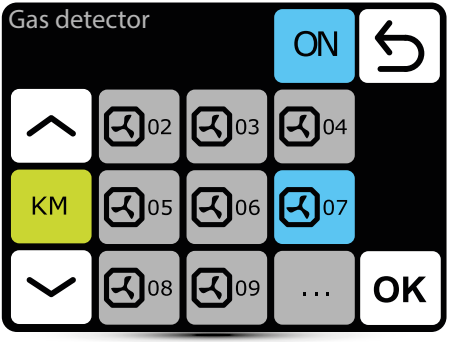
To activate the lock:

1. Set password
2. Confirm OK

Free 4-digit password can be set.

After returning to main screen and 30 s of inactivity, controller will be locked automatically.

External gas detector



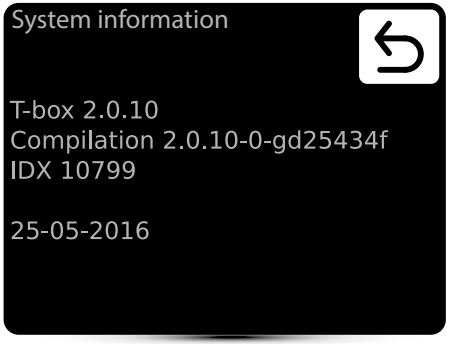
The SYSTEM enables cooperation with an external CO_2 sensor, humidity sensor, etc. - two-stage alarm signal. The OXeN, KM and Cube capacity setpoint and the KM and Cube damper opening will be changed automatically depending on the alarm signal.

The central unit must be connected to one DRV OXeN, DRV KM control module or a controller in the Cube device.

In the menu, indicate to which device the central unit is connected.

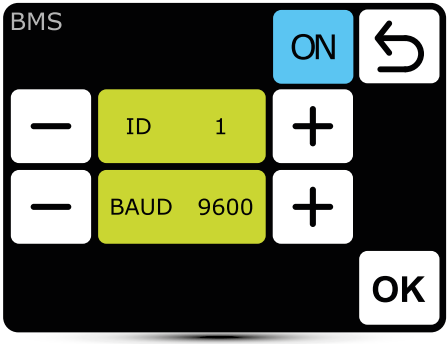
In the example given, the control unit has been connected to DRV KM No. 7.

System information



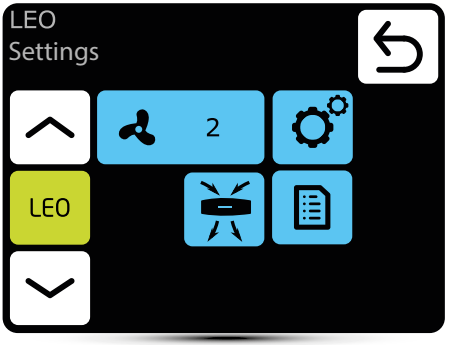
Basic information about software and hardware version.

BMS – settings



ID – setting unit adress: from 1 to 247
BAUD – setting data transmission speed: from 9600 to 230400 bit/s
Physical layer: Modbus RTU
Protocol: RS485

short press LEO-type fan heaters



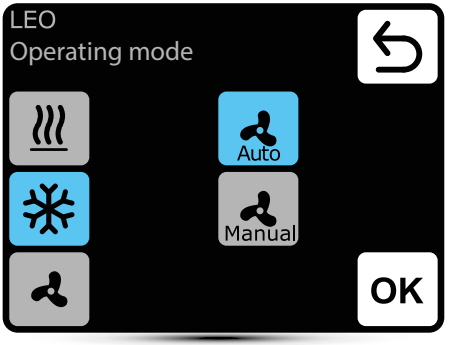
2 air flow setting – 3-steps

selection of operating mode

destratification

readings

Operating modes



active operating mode

heating – heating medium valve is opened when measured temperature is lower than desired temperature

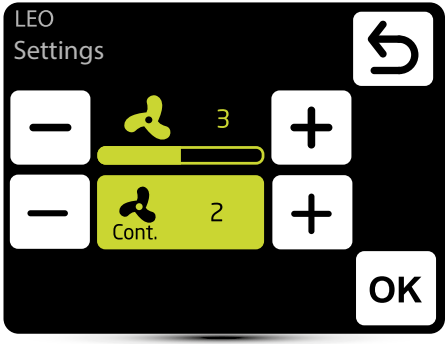
cooling – heating medium valve is opened when measured temperature is higher than desired temperature

ventilation – valve is constantly closed, fan operates continuously at selected speed

Auto – automatic fan regulation depending on desired and measured temperature

Manual – fan operates with constant, selected speed

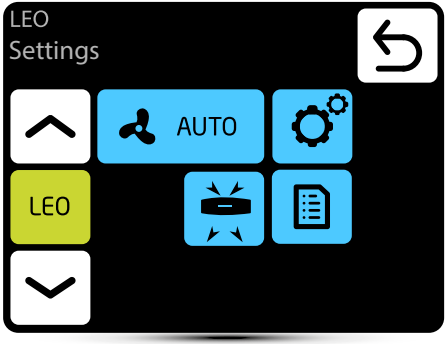
Air flow setting



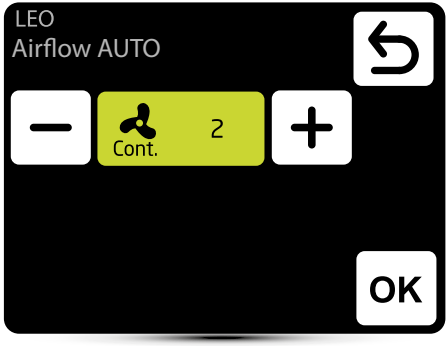
air flow setting during operation in manual mode

Cont.

In MANUAL mode after reaching desired temperature fan can operate continously on selected step: 1, 2, 3 or be turned off - select OFF.



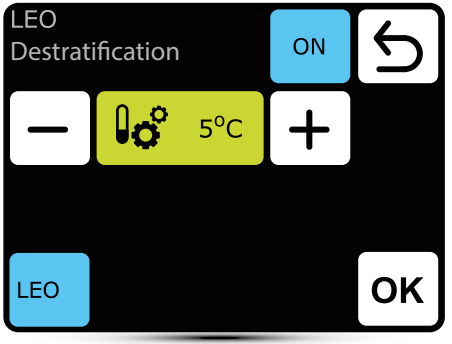
Automatic air flow regulation according to desired and measured temperature, manual air flow regulation is not possible - inactive menu.



Cont.

In AUTO mode after reaching desired temperature fan can operate continously on selected step: 1, 2, 3 or be turned off - select OFF.

Destratification



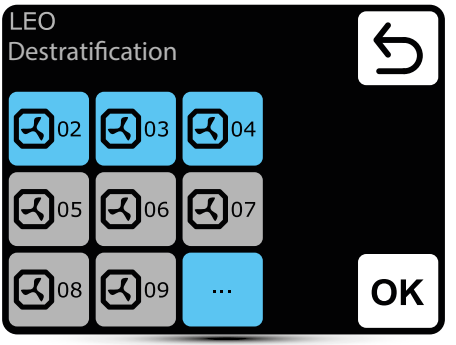
LEO heaters can optionally operate in destratification mode (only heaters installed under the ceiling). When the measured temperature drops to the set temperature only fan starts. When the heat under the ceiling is not enough, and the temperature continues to decline (-1°C from the setpoint) valve will open.

The heater must be equipped with T3 sensor (optional equipment).

ON — activation of destratification mode

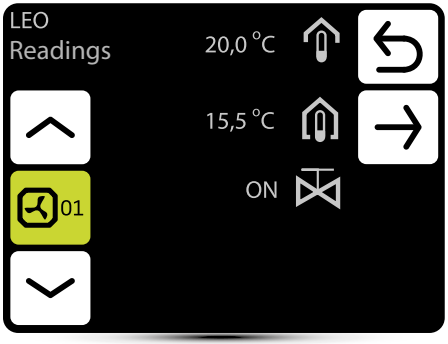
5°C — setting of temperature difference (difference between temperature under the ceiling and temperature in the occupied zone), at which LEO heaters will be turned on

LEO — selection of heaters, which should operate in destratification mode



02 — heater activated for operation in destratification mode

Readings



Temperature under the ceiling

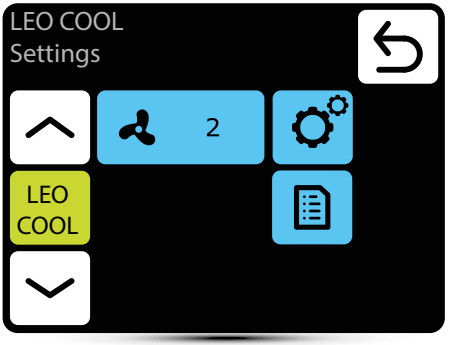
Temperature in the room

ON/OFF valve

To read temperatures near the unit, external temperature sensors PT-1000 must be connected to DRV control module.

short press

LEO COOL -type fan cooler / heater

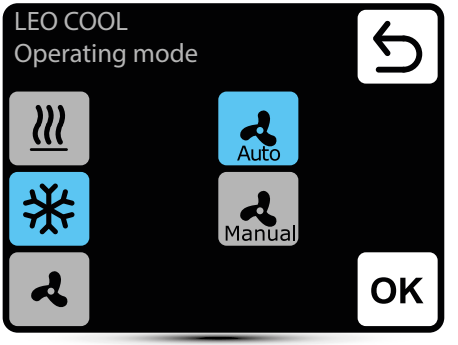


2 air flow setting – 3-steps

selection of operating mode

readings

Operating modes



active operating mode

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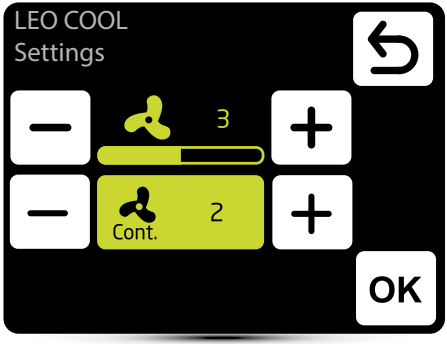
cooling – heating medium valve is opened when measured temperature is higher than desired temperature

ventilation – valve is constantly closed, fan operates continuously at selected speed

Auto – automatic fan regulation depending on desired and measured temperature

Manual – fan operates with constant, selected speed

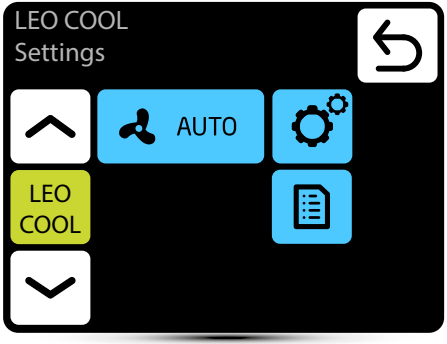
Air flow setting



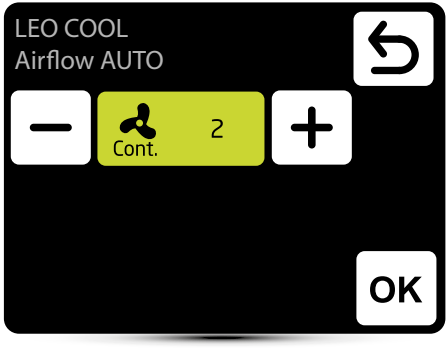
air flow setting during operation in manual mode

Cont.

In MANUAL mode after reaching desired temperature fan can operate continously on selected step: 1, 2, 3 or be turned off - select OFF.



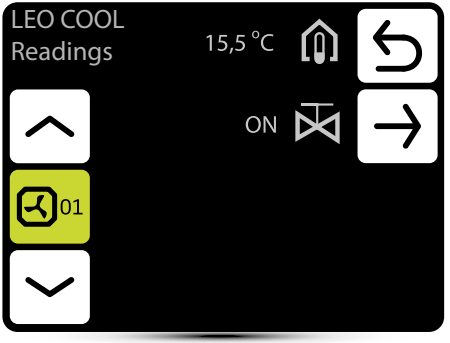
Automatic air flow regulation according to desired and measured temperature, manual air flow regulation is not possible - inactive menu.



Cont.

In AUTO mode after reaching desired temperature fan can operate continously on selected step: 1, 2, 3 or be turned off - select OFF.

Readings



Temperature in the room

ON/OFF valve

To read temperatures near the unit, external temperature sensors PT-1000 must be connected to DRV control module.

short press Electric heaters LEO EL

2 air flow setting – 3-steps

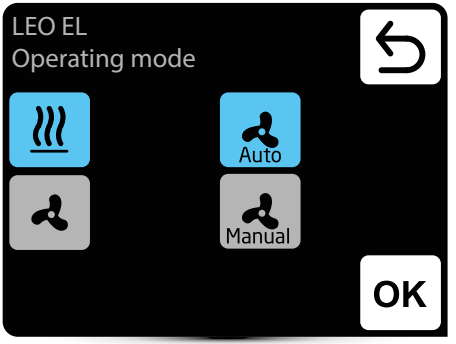
2 heating power setting

selection of operating mode

destratification

readings

Operating mode



active operating mode

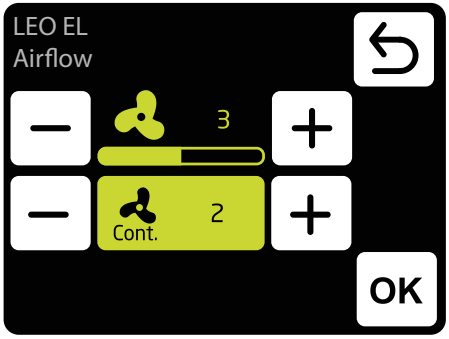
heating

Auto automatic fan and heaters power regulation depending ondesired and measured temperature

Manual manual regulation of airflow and heaters power

ventilation – heaters are OFF, fan operates at selected speed continuously

Airflow

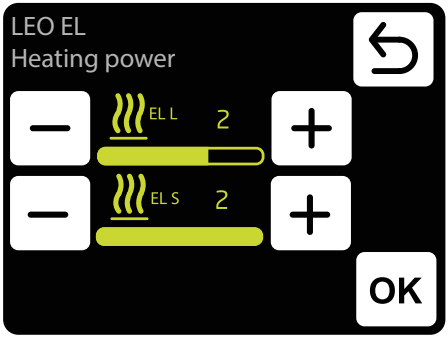


air flow setting during operation in manual mode

Cont.

In MANUAL mode after reaching desired temperature fan can operate continously on selected step: 1, 2, 3 or be turned off - select OFF.

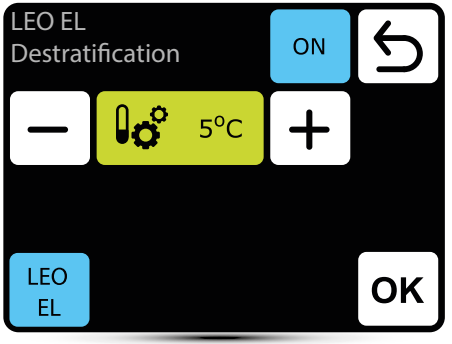
Heating power



EL L heating power setting - 3 steps

EL S heating power setting - 2 steps

Destratification



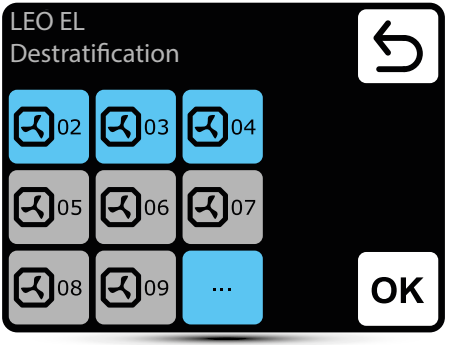
LEO heaters can optionally operate in destratification mode (only heaters installed under the ceiling). Whenthe measured temperature drops to the set temperature only fan starts. When the heat under the ceiling is note nough, and the temperature continues to decline (-1°C from the setpoint) heaters are ON.

The heater must be equipped with T3 sensor (optiona-lequipment).

ON — activation of destratification mode

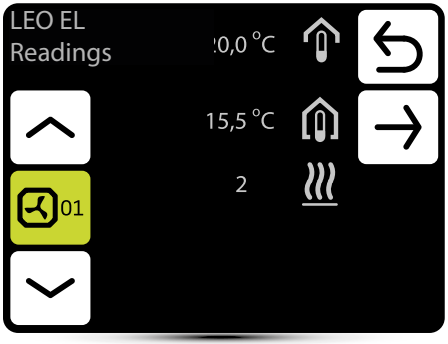
5°C — setting of temperature difference (difference between temperature under the ceiling and temperature in the occupied zone), at which LEO heaters will be turned on

LEO EL — selection of heaters, which should operate in destratification mode



02 — heater activated for operation in destratification mode

Readings



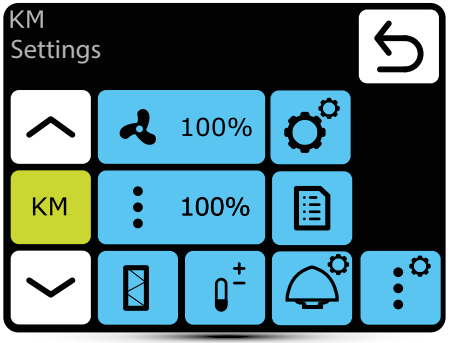
Temperature under the ceiling

Temperature in the room

Chosen heat power

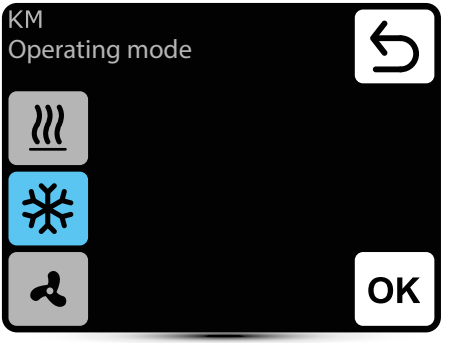
To read temperatures near the unit, external temperature sensors PT-1000 must be connected to DRV control module.

short press KM mixing chambers



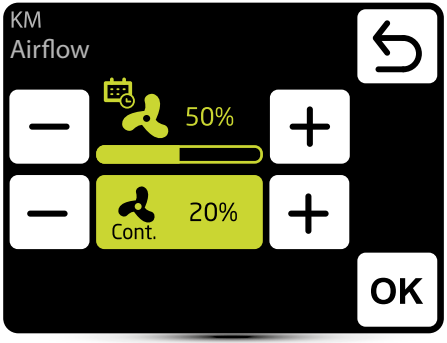
- 100% air flow setting – depending on LEO model stepless or 3-steps
- operating modes
- 100% dampers setting - stepless
- readings
- filters operating status
- selection of leading sensor
- roof fan setting
- dampers setting according to external temperature

Operating modes



- active operating mode
- **heating** – valve is opened when measured temperature is lower than desired temperature
- **cooling** – valve is opened when measured temperature is higher than desired temperature
- **ventilation** – valve is constantly closed, fan operates continuously at selected step

Air flow setting



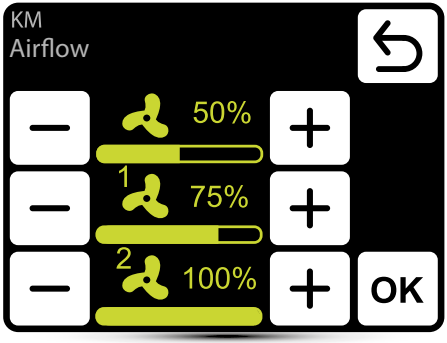
air flow setting – 3-steps

Appearance of this icon informs that the air flow setting has been defined in the calendar. It is possible to change it ad hoc only. Change will only be active in given calendar zone.

Cont.

When the dampers are closed (no ventilation), it is possible to select the operating mode of the fan after reaching desired temperature. Fan can operate continuously or be turned off.

Air flow setting – gas detector

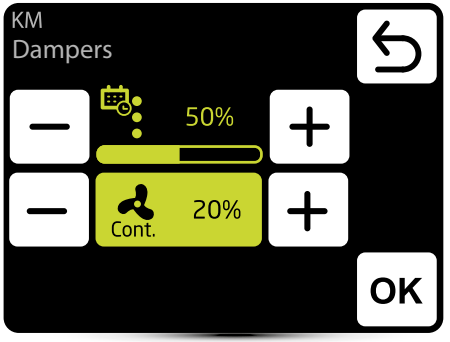


Operation with gas detector should be activated – see point „External gas detector" on page 66.

Three values of air flow should be defined:

- normal operation status
- 1 – first step of alarm from gas detector
- 2 – second step of alarm from gas detector

Dampers setting

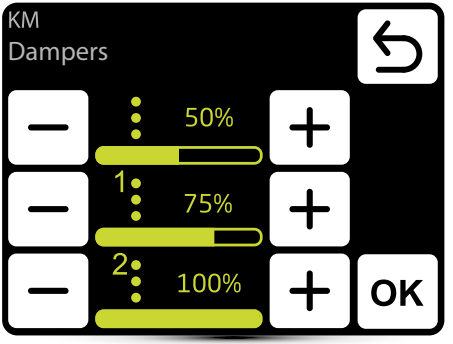


Appearance of this icon informs that the air flow setting has been defined in the calendar. It is possible to change it ad hoc only. Change will only be active in given calendar event.

Cont.

When the dampers are closed (no ventilation), it is possible to select the operating mode of the fan after reaching desired temperature. Fan can operate continuously or be turned off.

Dampers setting – gas detector

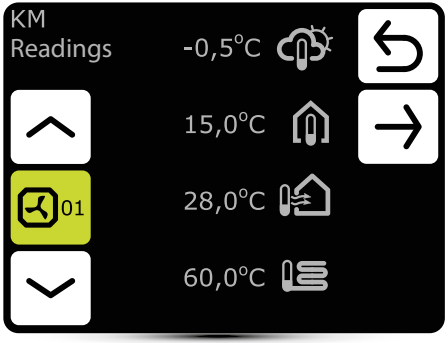


Operation with gas detector should be activated – see point „External gas detector" on page 66.

Three values of air flow should be defined:

- normal operation status
- 1 – first step of alarm from gas detector
- 2 – second step of alarm from gas detector

Readings

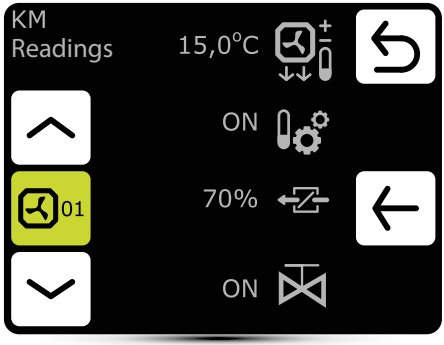


External temperature

Temperature in the room

Temperature of air supplied into the room

Temperature of heating medium on return pipe



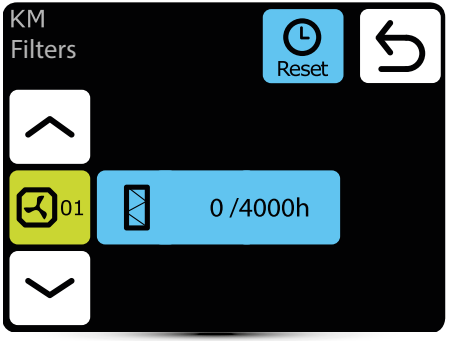
Desired temperature of supply air

ON – automatic setting of dampers according to external temperature is active – see p. 37

dampers opening degree

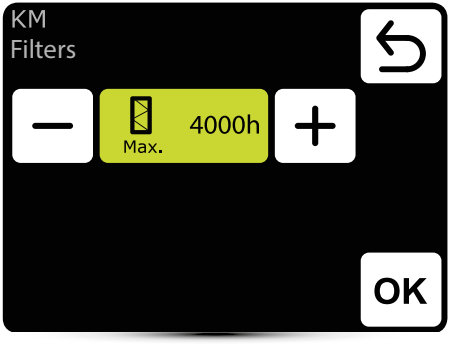
ON/OFF valve

Filters operating time counter



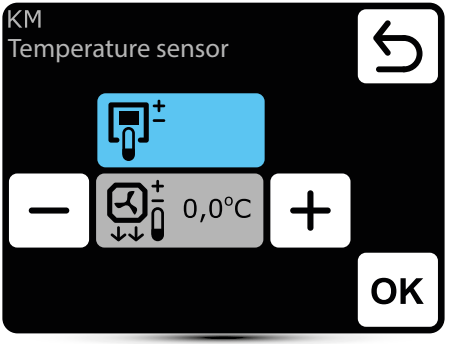
After reaching the limit of working hours, there will be displayed an indication in alarm menu. Value must be reset. Alarm does not affect the operation of the unit.

Filters operating time limit



Value should be set according to building contamination level.

Temperature sensor



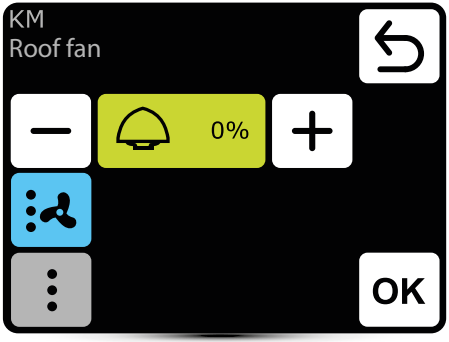
active temperature sensor

Leading sensor is the ambient air temperature sensor (built in T-box or local, near the unit). When temperature in the room is not reached, SRX3d valve is open in 100%. When temperature in the room is reached, flow of heating medium is regulated in such way, that the supply air temperature is equal to set temperature.

Leading sensor is the supply air temperature sensor. Controller will maintain supply air temperature set on the main screen, thanks to regulation of the flow of heating medium by SRX3d valve opening degree.

correction of air temperature set on main screen

Roof fan setting



active setting

roof fan change air volume according to present dampers opening level and air flow of LEO heater

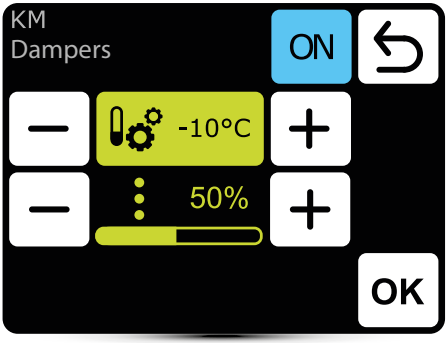
roof fan change air volume according to present dampers opening level

Setting „0%" means balance between air removed by roof fan and supplied by KM heater.

Positive value means that the roof fan removes more air than the KM supplies (under-pressure). Setting „+100%" means continuous operation of the roof fan.

Negative value means that the roof fan removes less air than the KM supplies (overpressure). Setting „-100%" means operation of the KM only.

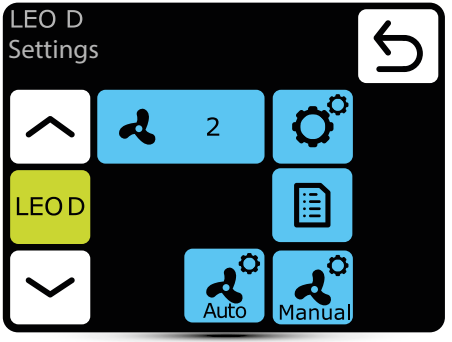
Dampers setting according to external temperature



Automatic setting of dampers opening level according to external air temperature.

Value set here is overriding normal damper setting and setting in calendar.

short press LEO D destratificators



2 air flow setting – 3-steps

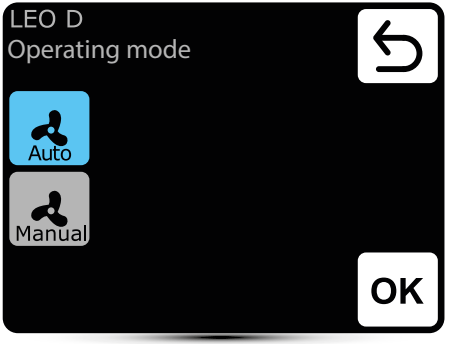
selection of operating mode

readings

Manual settings of manual operating mode

Auto settings of auto operating mode

Operating modes



active operating mode

Auto **Auto** – integration of operation of destratificators with LEO heaters and effective use of heat from upper zones of the room. Destratificators are turned on automatically, when there is suitable amount of heat accumulated in the upper zones of the room. Units press of warm air down to occupied zone. When amount of heat is insufficient, LEO heaters are turned on automatically.

Manual **Manual** – destratificator operates in ON/OFF mode. It is turned on when temperature under the ceiling is higher than set temperature.

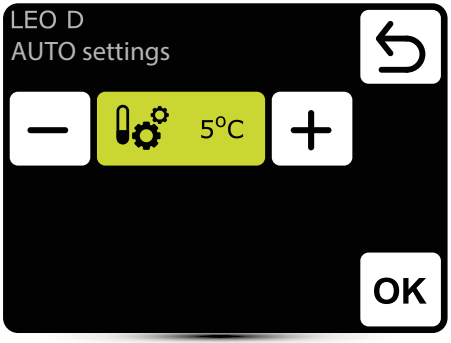
Readings

Temperature under the ceiling

Temperature in the room

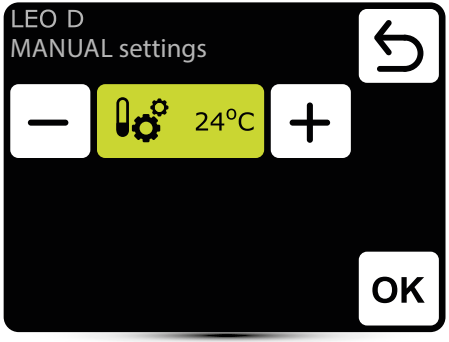
To read temperatures near the unit, external temperature sensors PT-1000 must be connected to DRV control module.

Settings of auto operating mode



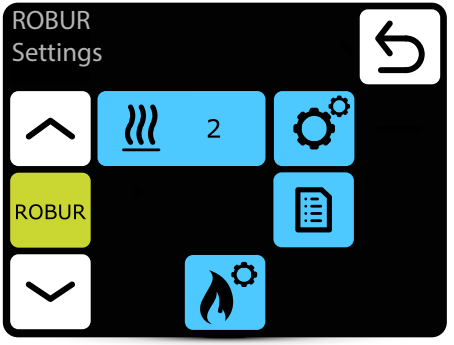
Setting of temperature difference (difference between temperature under the ceiling and temperature in the occupied zone), at which LEO D units will be turned on.

Settings of manual operating mode



Destratificator operates in ON/OFF mode. It is turned on when temperature under the ceiling is higher than set temperature.

short press ROBUR gas heaters



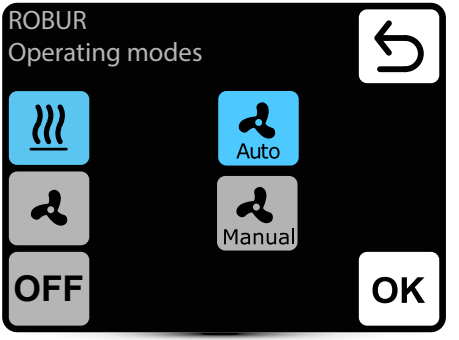
2 burner power settings

operating modes

readings

thermal protection settings

Operating modes



active operating mode

heating mode – burner and fan is working according to temperature

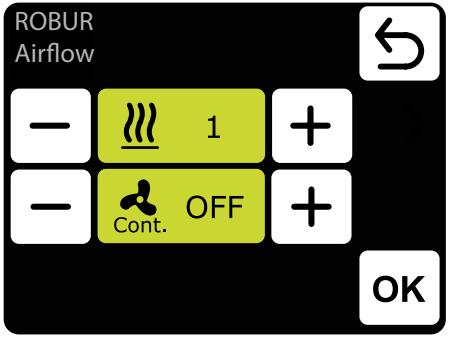
Auto heating-auto – automatic selection of the burner power depending on the measured temperature

Manual heating-manual – manual selection of the burner power

ventilation mode - fan is working continuously, burner is OFF

OFF unit is OFF

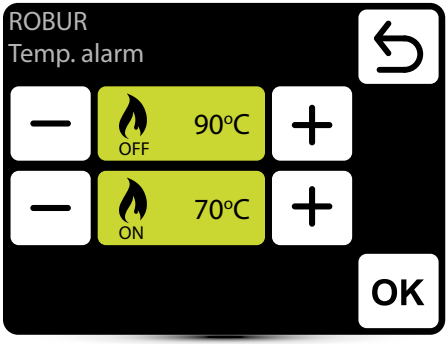
Airflow



burner power setting in heating-manual mode

Cont. in heating operation mode after reaching the set temp. the fan may work continuously - ON or be turned off - OFF

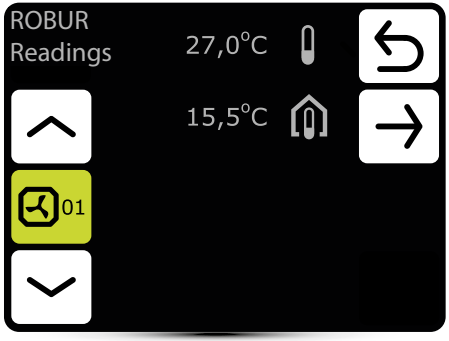
Thermal protection



OFF max. operating temperature

ON temperature ready for restart

Readings

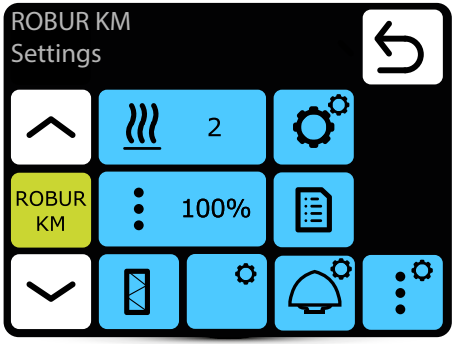


outlet air temp., STB protection.

temperature in the room

short press

ROBUR KM mixing chambers



100% dampers setting - stepless

2 burner power settings

operating modes

dampers setting according to external temperature

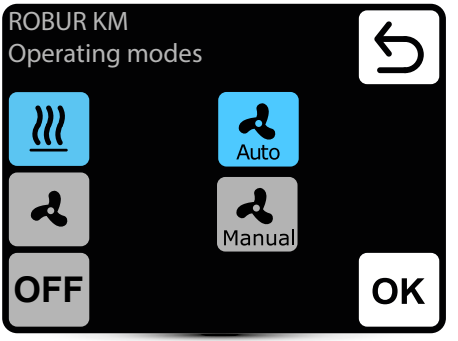
readings

thermal protection settings

filters operating status

roof fan setting

Operating modes



active operating mode

heating mode – burner and fan is working according to temperature

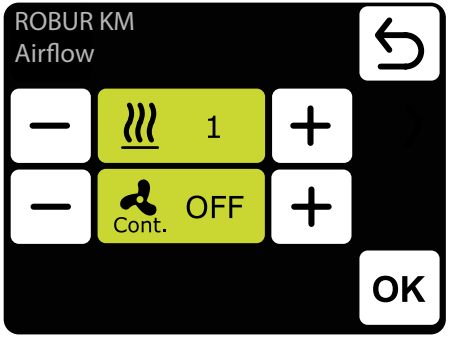
Auto heating-auto – automatic selection of the burner power depending on the measured temperature

Manual heating-manual – manual selection of the burner power

ventilation mode – fan is working continuously, burner is OFF

OFF unit is OFF

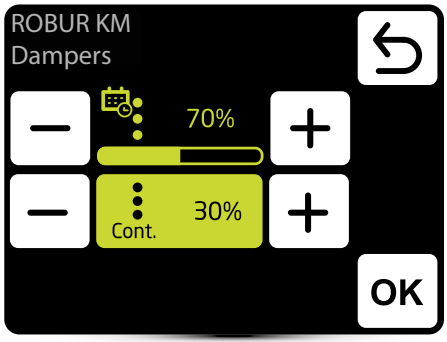
Air flow



burner power setting in heating-manual mode

Cont. in heating operation mode after reaching the set temp. the fan may work continuously - ON or be turned off - OFF

Dampers setting

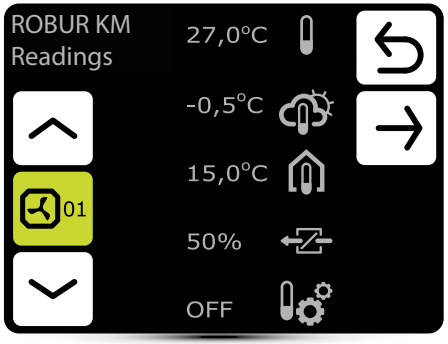


Appearance of this icon informs that the air flowsetting has been defined in the calendar. It is possibleto change it ad hoc only. Change will only be active ingiven calendar zone.

70% damper setting in heating mode

Cont. 30% damper setting in heating-continues mode

Readings



outlet air temp., STB protection.

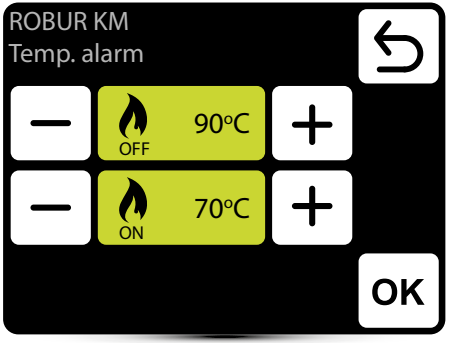
external temperature

temperature in the room

dampers opening degree

ON – automatic setting of dampers according to external temperature is active.

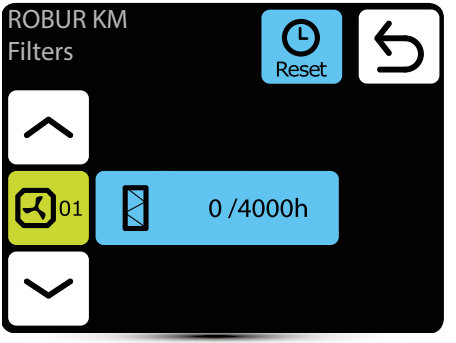
Thermal protection



OFF max. operating temperature

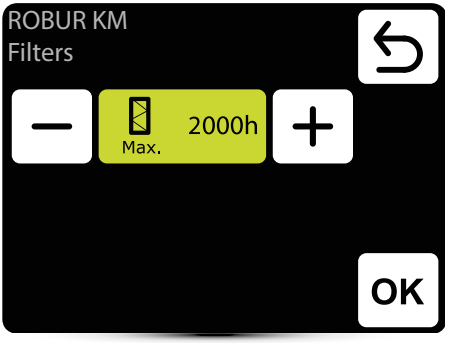
ON temperature ready for restart

Filters operating time counter



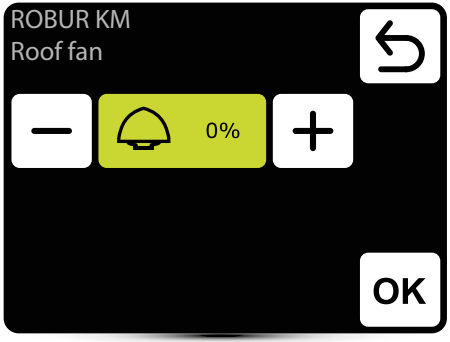
After reaching the limit of working hours, there will be-displayed an indication in alarm menu. Value must be reset. Alarm does not affect the operation of the unit.

Filters operating time limit



Value should be set according to building contamination level.

Roof fan setting

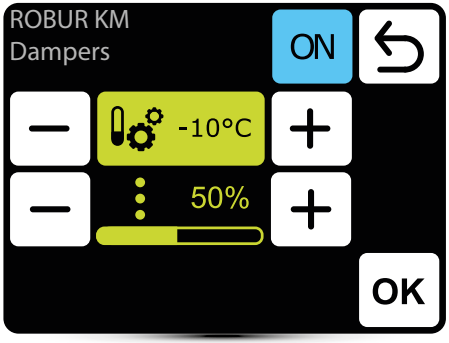


Setting „0%" means balance between air removed by roof fan and supplied by ROBUR KM heater.

Positive value means that the roof fan removes more air than the ROBUR KM supplies (under-pressure). Setting „+100%" means continuous operation of the roof fan.

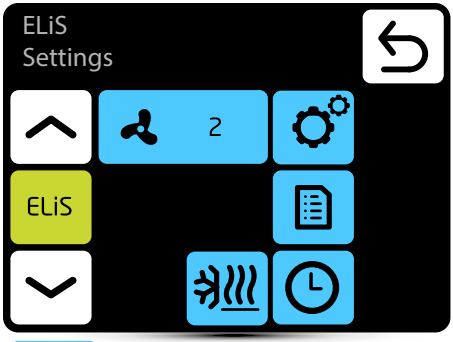
Negative value means that the roof fan removes less air than the ROBUR KM supplies (overpressure). Setting „-100%" means operation of the ROBUR KM only.

Dampers setting according to external temperature



Automatic setting of dampers opening level according to external air temperature. Value set here is overriding normal damper setting andsetting in calendar.

short press ELiS air curtains



2 air flow setting – 3-steps

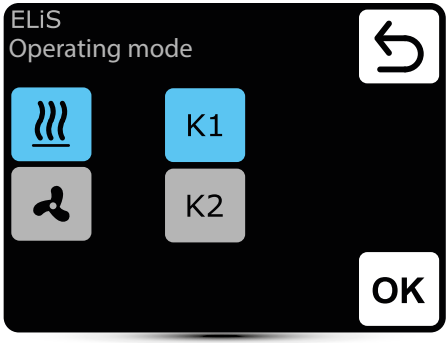
selection of operating mode

setting of delay times

readings

antifreeze

Operating modes



active operating mode

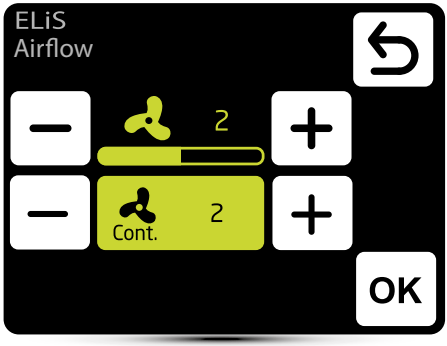
K1 air curtain operates according to door sensor and thermostat, whose priority is equivalent

K2 air curtain operates according to door sensor and thermostat. Door sensor has a priority. Without it's signal unit will not run

heating – valve is opened when measured temperature is lower than desired temperature

ventilation – valve is constantly closed, fan operates continuously at selected step

Air flow setting

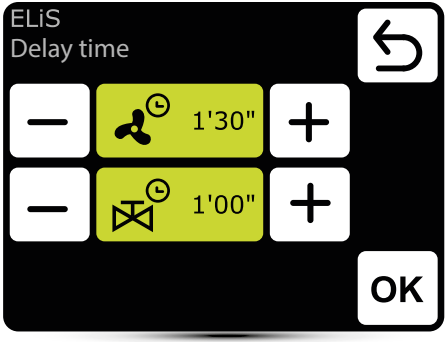


air flow setting

Cont.

After the disappearance of signal from the door sensor (or thermostat if K1 mode is activated), fan of air curtain can operate on selected step for a specified period of time or be turned off - select OFF.

Setting of delay time

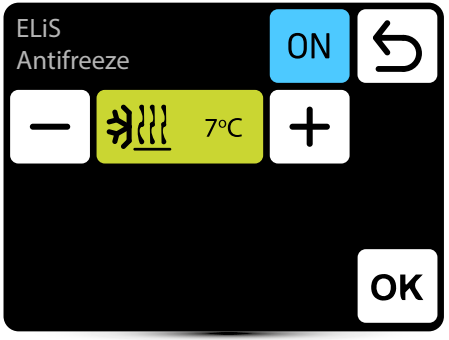


Fan switch off delay time – it can be set in the range 0:00 - 10:00 minutes, every 0:30 s. It is possible to set ∞ value, then fan operates continuously.

Valve switch off delay time - it can be set in the range 0:00 - 10:00 minutes, every 0:30 s. It is possible to set ∞ value, then valve is constantly open.

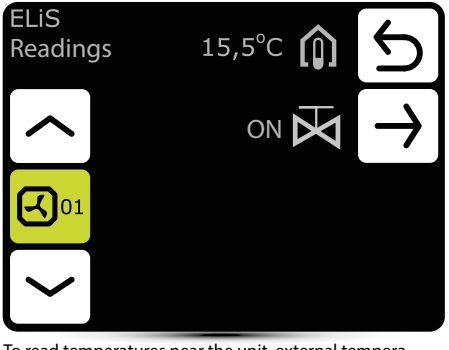
Valve delay time must be shorter than fan delay time.

Antifreeze



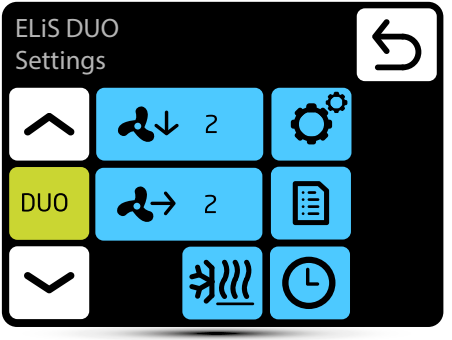
Antifreeze protection of the heat exchanger. When temperature in the room drops below desired temperature fans stops and valve is open to 100%. The unit must be equipped with T3 sensor (optional equipment).

Readings



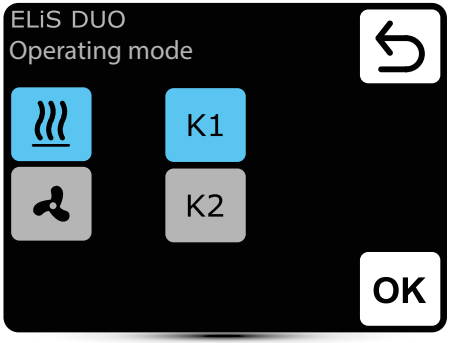
To read temperatures near the unit, external temperature sensors PT-1000 must be connected to DRV control module.

short press ELiS DUO air curtain-fan heater combo units



- 2 — air flow setting for air curtain part – 3-steps
- 2 — air flow setting for fan heater part – 3-steps
- selection of operating mode
- setting of delay times
- readings
- antifreeze

Operating modes



active operating mode

K1 air curtain operates according to door sensor and thermostat, whose priority is equivalent

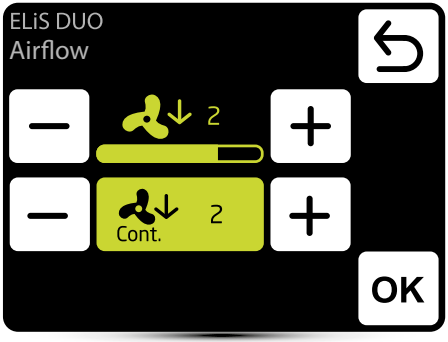
K2 air curtain operates according to door sensor and thermostat. Door sensor has a priority. Without it's signal unit will not run

heating – valve is opened when measured temperature is lower than desired temperature

ventilation – valve is constantly closed, fan operates continuously at selected step

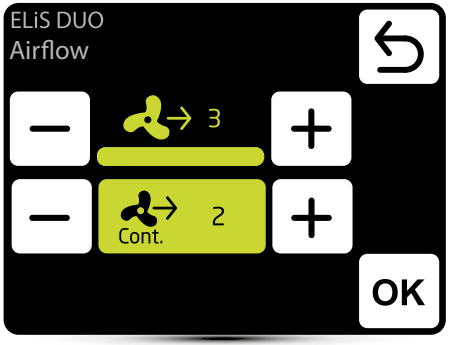
Fan heater operates always according to temperature set on the controller, regardless K1/K2 mode.

Air flow setting



air flow setting

Cont. After the disappearance of signal from the door sensor (or thermostat if K1 mode is activated), fan of air curtain can operate on selected step for a specified period of time or be turned off - select OFF.

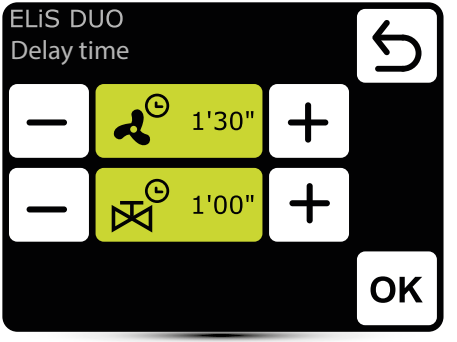


air flow setting

Cont.

After reaching desired temperature fan of the heater can operate continously on selected step: 1, 2, 3 or be turned off - select OFF.

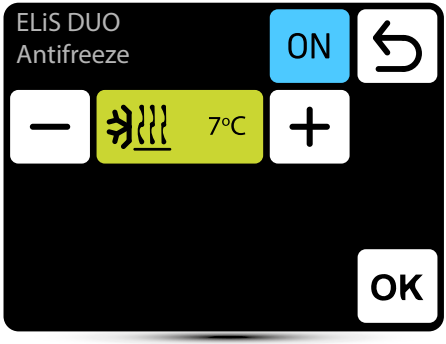
Setting of delay time



fan switch off delay time can be set in the range 0:00 - 10:00 minutes, every 0:30 s. Value ∞ - fan operates continuously.

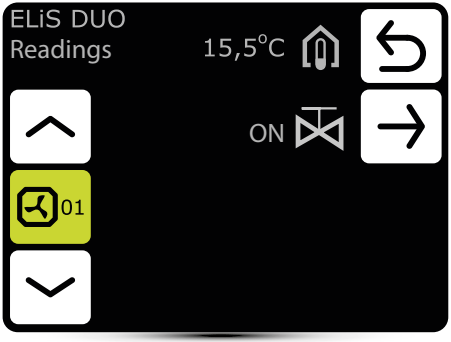
valve switch off delay time can be set in the range 0:00 - 10:00 minutes, every 0:30 s. Value ∞ - valve is constantly open.

Antifreeze



Antifreeze protection of the heat exchanger. When temperature in the room drops below desired temperature fans stops and valve is open to 100%. The unit must be equipped with T3 sensor (optional equipment).

Readings

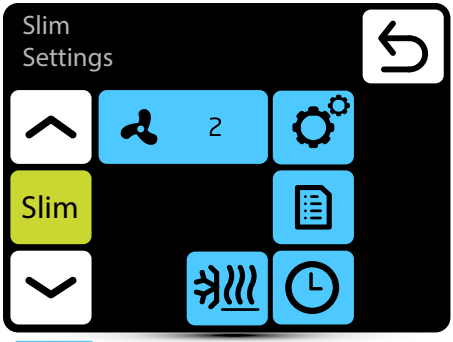


Temperature in the room

ON/OFF valve

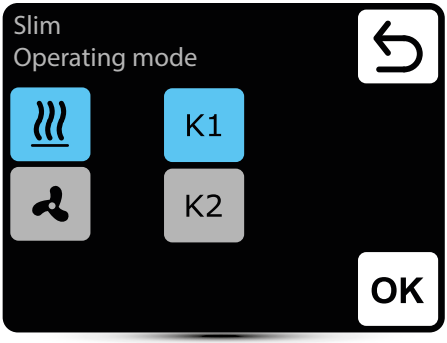
To read temperatures near the unit, external temperature sensors PT-1000 must be connected to DRV control module.

short press Slim air curtains



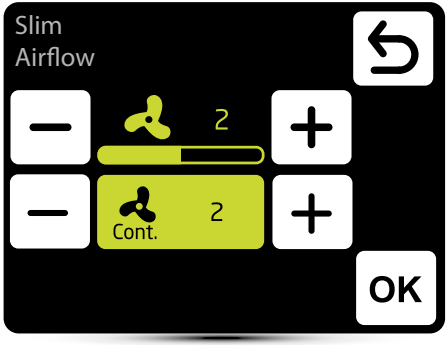
- 2 – air flow setting – 3-steps
- selection of operating mode
- setting of delay times
- readings
- antifreeze

Operating modes



- active operating mode
- K1 – air curtain operates according to door sensor and thermostat, whose priority is equivalent
- K2 – air curtain operates according to door sensor and thermostat. Door sensor has a priority. Without it's signal unit will not run
- **heating** – valve is opened when measured temperature is lower than desired temperature
- **ventilation** – valve is constantly closed, fan operates continuously at selected step

Air flow setting

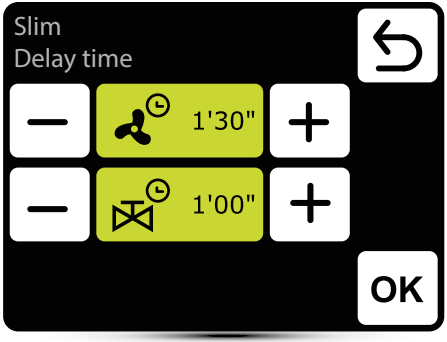


air flow setting

Cont.

After the disappearance of signal from the door sensor (or thermostat if K1 mode is activated), fan of air curtain can operate on selected step for a specified period of time or be turned off - select OFF.

Setting of delay time

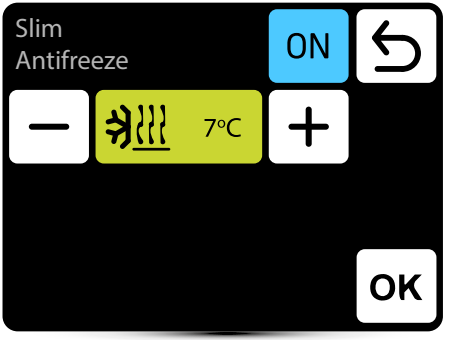


Fan switch off delay time – it can be set in the range 0:00 - 10:00 minutes, every 0:30 s. It is possible to set ∞ value, then fan operates continuously.

Valve switch off delay time - it can be set in the range 0:00 - 10:00 minutes, every 0:30 s. It is possible to set ∞ value, then valve is constantly open.

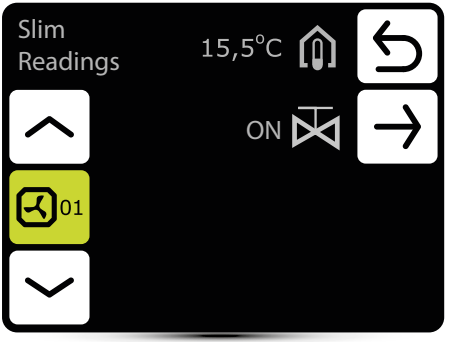
Valve delay time must be shorter than fan delay time.

Antifreeze



Antifreeze protection of the heat exchanger. When temperature in the room drops below desired temperature fans stops and valve is open to 100%. The unit must be equipped with T3 sensor (optional equipment).

Readings

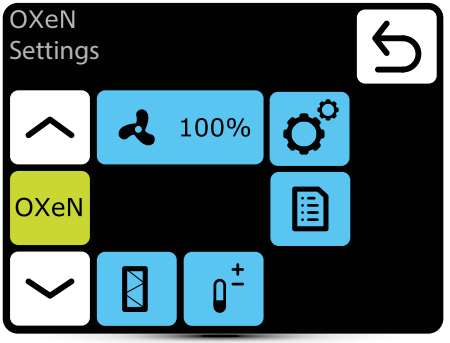


To read temperatures near the unit, external temperature sensors PT-1000 must be connected to DRV control module.

Temperature in the room

ON/OFF valve

short press OXeN heat recovery units



100% air flow setting – stepless

operating modes

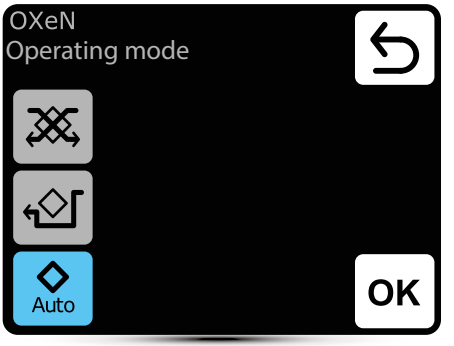
readings

filters operating status

selection of leading sensor

this icon inform that dampers are during change of position, fan are stopped

Operating modes



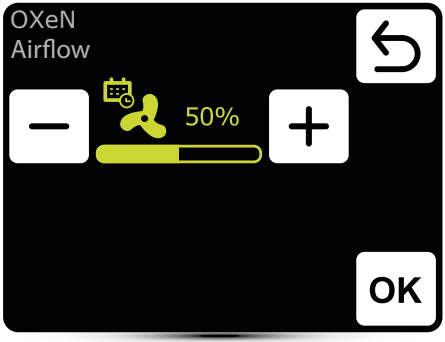
active operating mode

Operation with heat recovery – operation in this mode ensures heat or cool recovery from removed air

Operation without heat recovery – supply air is directed via by-pass without heat recovery („freecooling"/„free-heating").

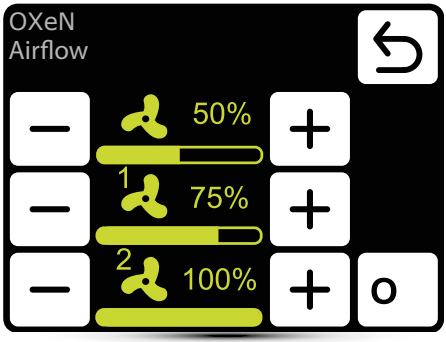
Auto Automatic change of operating mode with or without heat recovery, depending on temperature

Air flow setting



Appearance of this icon informs that the air flow setting has been defined in the calendar. It is possible to change it ad hoc only. Change will only be active in given calendar event.

Air flow setting – gas detector

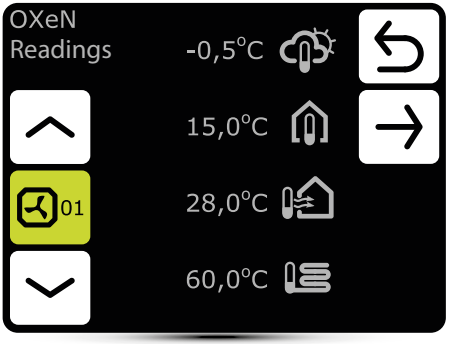


Operation with gas detector should be activated – see point „External gas detector" on page 66.

Three values of air flow should be defined:

- normal operation status
- 1 – first step of alarm from gas detector
- 2 – second step of alarm from gas detector

Readings

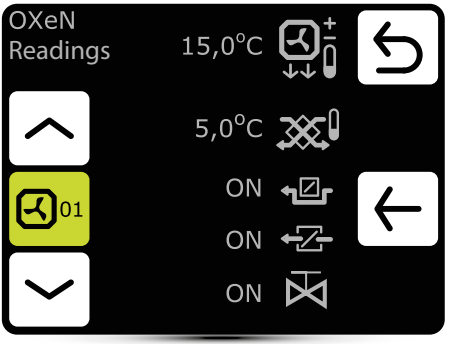


External temperature

Temperature in the room

Temperature of air supplied into the room

Temperature of heating medium
on return pipe



Desired temperature of supply air

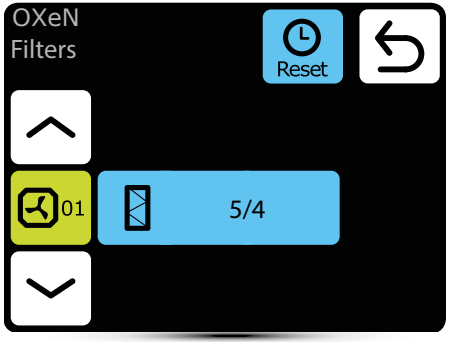
Temperature of removed air

ON – status of by-pass dampers

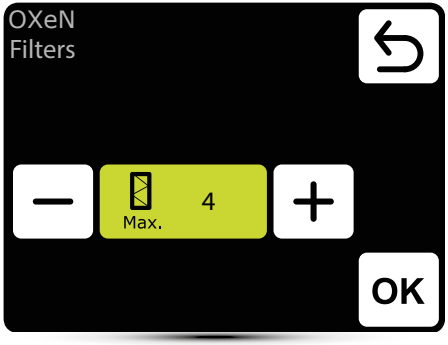
ON – status of external dampers

ON/OFF valve

Control of the filters pollution

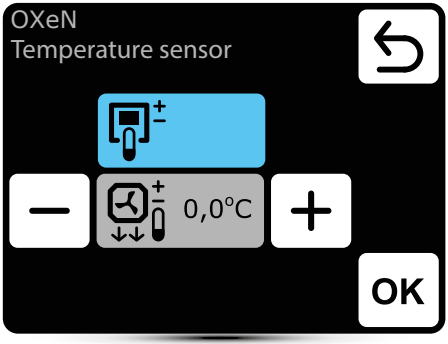


Control of the filters pollution



Set the required alarm value, where 1 means an alarm a small filter pollution, 5 means an alarm a very pollution filter.

Temperature sensor



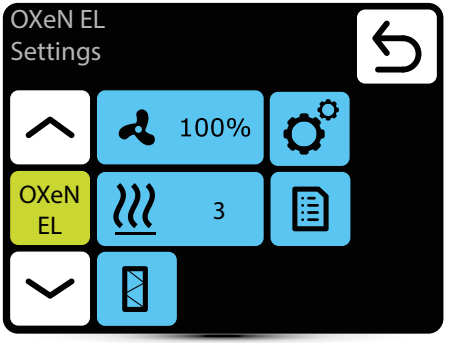
active temperature sensor

Leading sensor is the ambient air temperature sensor (built in T-box or local, near the unit). When temperature in the room is not reached, SRX3d valve is open in 100%. When temperature in the room is reached, flow of heating medium is regulated in such way, that the supply air temperature is equal to set temperature.

Leading sensor is the supply air temperature sensor. Controller will maintain supply air temperature set on the main screen, thanks to regulation of the flow of heating medium by SRX3d valve opening degree.

– + correction of air temperature set on main screen

short press OXeN EL heat recovery units



100% airflow setting - only 100%

3 heating power setting

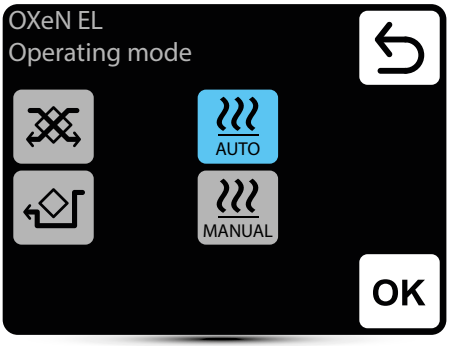
operaing modes

readings

filters operating status

this icon inform that dampers are duringchange of position, fan are stopped this icon inform also that fans cooling the heater

Operating modes



Activ operating mode

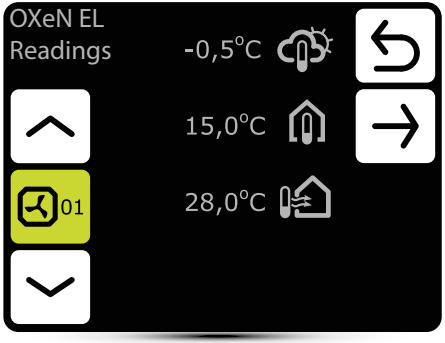
Operation with heat recovery – operation inthis mode ensures heat or cool recovery fromremoved air

Operation without heat recovery – supply airis directed via by-pass without heat recovery(„freecooling"/„free-heating").

AUTO automatic setting of heating power

MANUAL manual setting of heating power

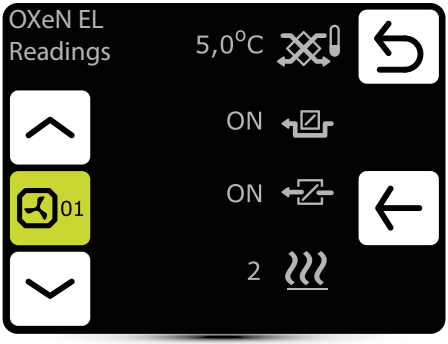
Readings



External temperature

Temperature in the room

Temperature of air supplied into the room



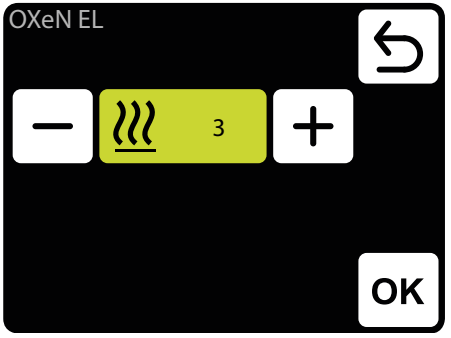
Temperature of removed air

ON – status of by-pass damper

ON – status of external dampers

chosed of heating power

Heating power



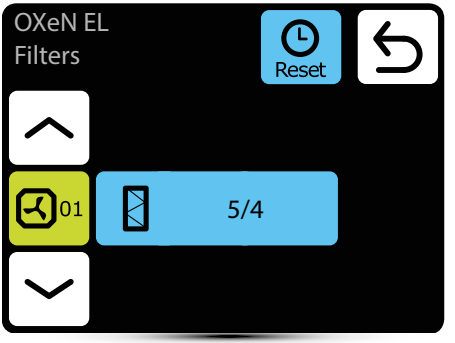
Heating power setting:

3 – 8,5 kW

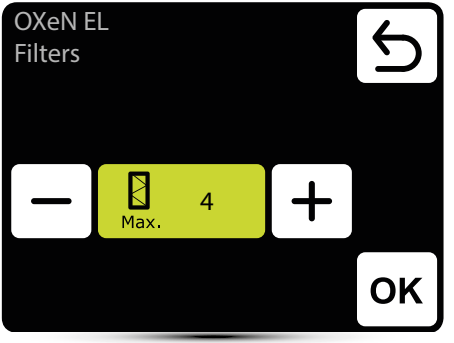
2 – 5,5 kW

1 – 3,5 kW

Control of the filters pollution

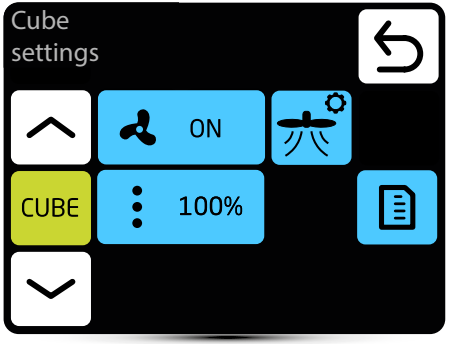


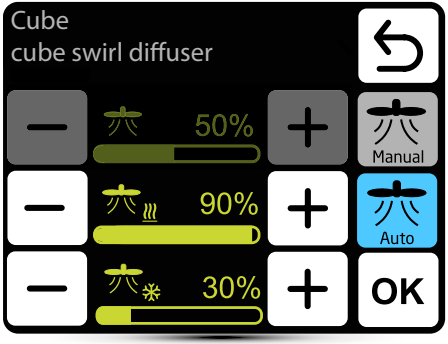
Control of the filters pollution



Set the required alarm value, where 1 means an alarm a small filter pollution, 5 means an alarm a very pollution filter.

Rooftop units





ON capacity setting

100% damper setting

operation modes

readings

Damper 0% – recirculation damper closed.

Damper 100% – the device operates only on recirculated air.

active operating mode

swirl diffuser setting for manual mode

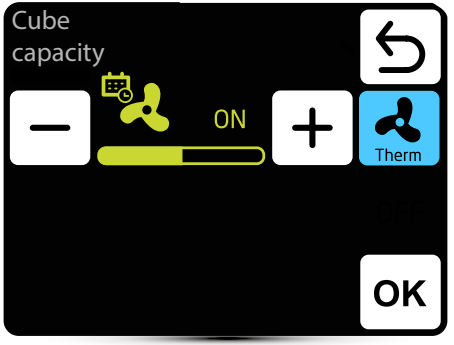
swirl diffuser setting for heating in automatic mode

swirl diffuser setting for cooling in automatic mode

Auto automatic mode - the swirl diffuser setting changes automatically between the setpoint for cooling or heating depending on the active operating mode of the Cube. For cooling, optimal airflow is horizontal and for heating it is vertical

Manual manual mode - fixed swirl diffuser setting

Capacity setting



active operating mode

airflow setting

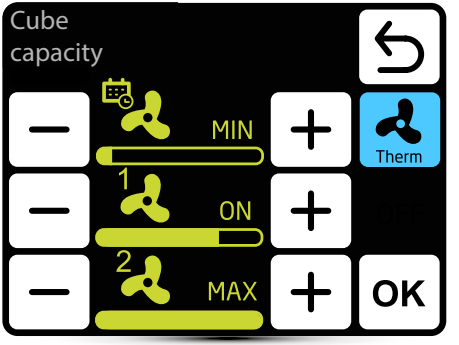
The icon informs that the parameter has been defined in the calendar. It is possible to change the parameter temporarily. The change will only be active in a given calendar zone

Therm

Thermostatic mode - Fans turn OFF after reaching the set temperature. The option is not available when the device is operating in according to the supply air temperature sensor as a leading sensor.

The selection of the leading/master sensor from: supply air, exhaust air and wall temperature sensors is made during first startup. It is also possible to define built in sensor in T-box sensor he leading sensor

Capacity setting - gas detector



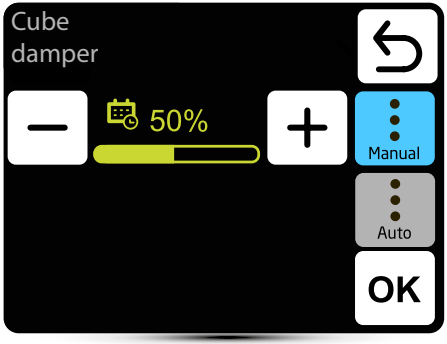
active operating mode

Activate the functions of working with a gas detector - see section „External gas detector" on page 14.

You need to define 3 parameter values:

- normal working condition
- 1 - first level of alarm from gas detector
- 2 - second level of alarm from gas detector

Dampers setting



active operating mode

airflow setting

The icon informs you that
the parameter has been defined in the calendar. It is possible to change the parameter temporarily. The change will only be active in that calendar zone

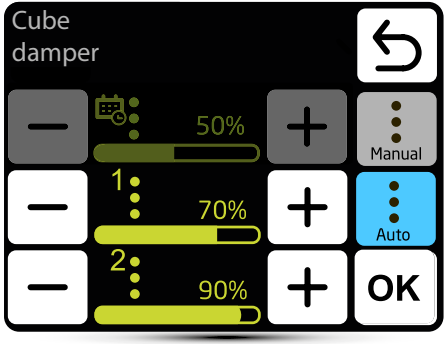
Manual

Manual setting of the recirculation damper position

Auto

The position of the recirculation damper is changed automatically
depending on air temperatures.

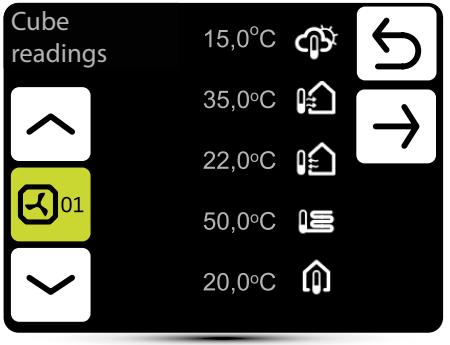
Damper setting - gas detector



active operating mode

Activate the functions of working with a gas detector - see section „External gas detector" on page 78.
You need to define 3 parameter values:
- normal working condition
- 1 - first level of alarm from gas detector - 2 - second level of alarm from gas detector

Readings



outside temperature

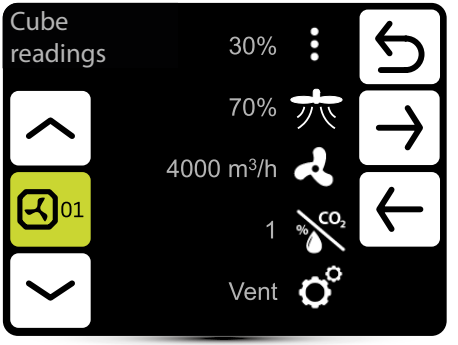
temperature of the air supplied to the room

temperature of the air exhausted from the room

temperature at the return of the medium

room temperature

Room temperature reading from the T-box controller's built-in sensor or from the optional NTC wall-mounted sensor, connected to the Cube control box/enclosure



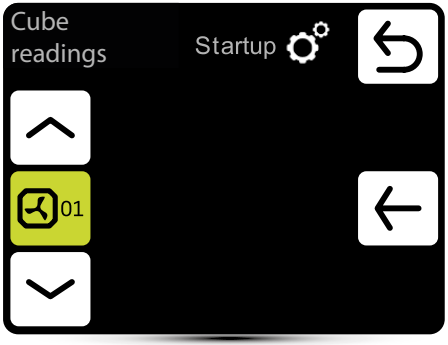
current setting of the recirculation damper

current swirl diffuser setting

air flow

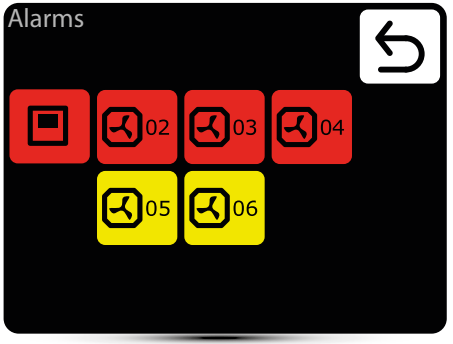
the current state of the gas detector

current general operating mode:
Vent - ventilation
Heat - heating HeatRec - heat recovery
Cool - cooling
CoolRec - cool recovery

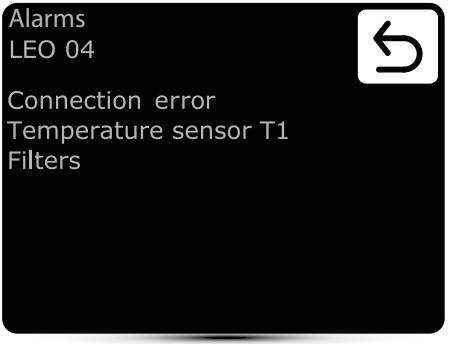


current operating mode:
Stop - device stopped
Freeze - frost alarm
Off - device turned off.
Startup - starting
ECO mode - economic mode (applies to Climatix regulation)
COMF mode - comfort mode
Forcing - active signal from an external detector (option)
Thermostat - the device works in thermostatic mode
NightCool - the device works in the night cooling mode (applies to Climatix regulation)
Overrun - cooling down process
Defrosting - defrosting the heat pump (optional)

ALARMS



List of alarms



05 warnings

- **Gas sensor: level 1**
  signal from gas detector, level I
- **Gas sensor: level** 2
  signal from gas detector, level II
- **Antifreeze heat recover exchanger ON**
  antifreeze mode of heat recovery exchanger is on
- **Filter work time**
  check filters contamination level
- **Filter presure**
  dirty filter of KM, change the filter, if pressure switch is not applied make a bridge (jumper) between PRDN IN and GND
- **Forcing damper ON**
  forcing damper settings depending on the outside temperature
- **Rooftop maintenance alarm**
  Maintenance works necessary

02 alarms

- **Real time clock error**
  reset the T-box clockn
- **Temperature sensor T1/T2/T3/T4/T5**
  check the temperature sensor
- **Roof fan fuse**
  check the fuse of the roof fan on the DRV board
- **Roof fan TK**
  roof fan thermal protection alarm
- **Fan 3V fuse**
  check the LEO heater fan fuse on the DRV
- **Fan EC fuse**
  check EC fan fuse on DRV board
- **Fan EC not connected**
  check the connection of the EC fan
- **Antifreeze water exchanger ON**
  water exchanger antifreeze mode is activated
- **DRV group error**
  Addressing failure. Check binary address set in DRV and use search button again
- **Connection error**
  no communication between DRV and T-box, check connection and DRV power supply
- **DUO heater not connected**
  no communication between DRV of fan heater part of ELiS DUO, check connection between DRV of air curtain part and DRV of fan heater part
- **Rooftop warning alarm**
  alarm with device operation support
- **Rooftop fault alarm**
  alarm that prevents further operation of the device
- **Rooftop danger alarm**
  alarm that immediately disconnects all device functions

FLOWAIR
intelligent air flow

CE

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Declaration Of Conformity UE

FLOWAIR hereby declare that the T-box controller were produced in accordance to the following Europeans Directives:

2014/30/UE – Electromagnetic Compatibility (EMC)

2014/35/UE – Low Voltage Electrical Equipment (LVD)

and harmonized norms ,with above directives:

PN-EN IEC 61000-3-2:2019-04 – Electromagnetic compatibility (EMC) — Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

PN-EN 61000-3-3:2013-10 – Electromagnetic compatibility (EMC) — Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection

PN-EN IEC 61000-6-2:2019-04 – Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments

PN-EN 61000-6-3:2008/A1:2012 – Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments

PN-EN 60065:2015-08 – Audio, video and similar electronic apparatus — Safety requirements

PN-EN 55022:2010 – Information technology equipment — Radio disturbance characteristics — Limits and methods of measurement

PN-EN 60068-2-1:2009 – Environmental testing

PN-EN 60068-2- 2:2009 – Environmental testing

Gdynia, 01.04.2020
Product Manager
Wojciech Bednarczyk

Bednarczyk Wojciech