



Electronic controller  
**IB – Tron 3 100AC**  
for support of 3-speed fans.

# Contents

Products is  marked

and has been produced in accordance with ISO 9001 standard

„INSBUD”  
ul. Niepodległości 16a  
32-300 Olkusz  
Poland  
sales department: +48 (32) 626 18 00  
sales department: +48 (32) 626 18 18  
technical department: +48 (32) 626 18 07  
technical department: +48 (32) 626 18 08  
fax: +48 (32) 626 18 19  
e-mail: insbud@insbud.net



[WWW.INSBUD.NET](http://WWW.INSBUD.NET)

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## IB-TRON 3100 AC

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## BASIC INFORMATION

**IB - Tron 3100AC** controller is independent microprocessor controller with large LCD display. Controller is designed to work control of valves, air dampers, electric air heaters, pumps, fans and other two-point controlled appliances (on/off) and some three-point controlled appliances.

**IB - Tron 3100AC** controller also allows to work control of 3-speed fan. Fan speed is determined based on current demand of heat. Speed can be also manually determined. This controller is ideal to control fan coils.

**IB - Tron 3100AC** controller allows to save energy costs. Controller contributes to protect environment. **IB-Tron 3100AC** controllers can be commonly used in: hotels, offices, supermarkets, factories, hospitals, houses and other buildings.

## FEATURES

- ☞ Large, blue backlit LCD display which shows current temperature, speed of the fan, a day of the week and other information.
- ☞ Esthetic and modern design
- ☞ Easy, intuitive operating and programming.
- ☞ Power supply from network 230V with battery memory backup.
- ☞ Comprehensive programming process in a weekly cycle with an accuracy of 1 minute and with possibility of programming four time periods each day.
- ☞ Manual and automatic control.
- ☞ Semi-automatic mode
- ☞ Work in a heating or cooling mode.
- ☞ Displayed temperature with 0,1 °C accuracy
- ☞ The possibility of calibrate temperature

## WŁAŚCIWOŚCI

- ☞ sensor.
- ☞ Control of fan or other 3-speed device.
- ☞ Adjustable switching threshold of fan speed.
- ☞ Independently adjustable hysteresis for all of switching threshold of fan speed.
- ☞ **GUARD** function - protection devices from damage.
- ☞ **TEST** function - Forced turning on and turning off device.
- ☞ **FROST PROTECTION** function - protection of installation against freezing.
- ☞ Large load - to 2 kW for each output - allows to direct connection most of electrical appliances without the use of contactor.
- ☞ Keyboard lock
- ☞ The possibility of own definition temperature settings.
- ☞ Automatic or manual control of fan speed.

## TECHNICAL DATA

- ☞ Energy consumption: < 5 W
- ☞ Storage temperature: -5 ÷ 50 °C
- ☞ Displayed temperature: -20 ÷ 0 °C every 1 °C
- ☞ 0 ÷ 120 °C every 0,1 °C
- ☞ Setting range : 0 ÷ 100 °C every 0,5 °C
- ☞ Fan switching points setting 0,5 ÷ 20 °C every 0,5 °C
- ☞ Accuracy: 1 °C
- ☞ Main hysteresis: 0,2 ÷ 1 °C every 0,2 °C
- ☞ 1 ÷ 20 °C every 0,5 °C
- ☞ Fan hysteresis: 0,2 ÷ 1 °C every 0,2 °C
- ☞ 1 ÷ 20 °C every 0,5 °C
- ☞ Maximum load: 2000 W /relay
- ☞ Power supply: 230V AC
- ☞ Casing: ABS
- ☞ Dimensions [mm]: 120x120x23
- ☞ Display: LCD (4``)
- ☞ Control: Electronic
- ☞ Protection rating: IP30
- ☞ Memory of settings: 12 months

## AVAILABLE MODELS

- ☞ **BL** - blue backlight (backlight is activated by pressing any button and deactivated after a certain period of inactivity)
- ☞ **RC** - IR remote control

## SCOPE OF DELIVERY

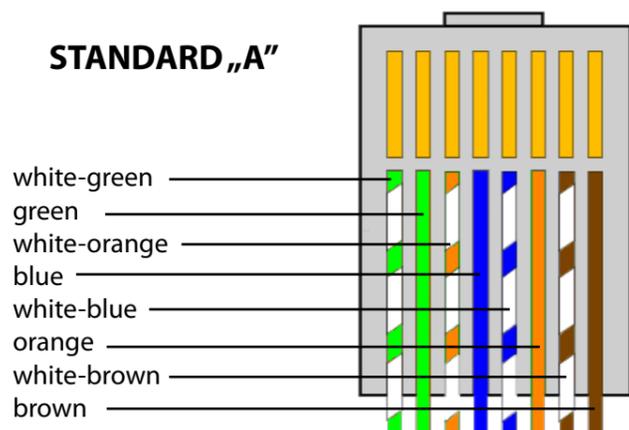
- ☞ 1x Controller (the main panel)
- ☞ 1x Actuating module
- ☞ 1x Ethernet wire 1 meter (other length on request)
- ☞ 1x Built-in temperature sensor
- ☞ 1x Operating manual
- ☞ 1x Pilot of remote control with battery (only with **RC** model)

## GENERAL CONSIDERATIONS

- ⚠ During installation of controller, the supply of electricity should be turned off. It's recommended to entrust the installation a specialized institution.
- ⚠ **IB-Tron 3100AC** controller consists of two parts: main panel with LCD display, keyboard and actuating module, with power adapter, relays, input clamps and output clamps of controller.
- ⚠ Control panel is adapted to surface-mounting or to mounting on a standard wiring box (spacing of holes- about 60mm, box- about 75x75mm). Actuating module is predicted to be placed on a DIN 35 mm rail (installation
- ⚠ Both of modules are connected with each other by Ethernet wire (twisted pair, 8-wire cable), connected to the RJ-45 connector. We supply wire with a length of 1m. Wire of any length is supplied on request.
- ⚠ Controller measures temperature by built-in sensor in main panel. If temperature has to be measured in other place (e.g. in hot water tank or in central heating buffer), the controller can be supplied with bring-out external sensor (scope of delivery doesn't include external sensor).

## GENERAL CONSIDERATIONS

⚠ Ethernet wire should be identically clamped on both sides:



## OPERATING PRINCIPLE

Controller measures temperature by built-in sensor. It can work in a one of two modes: heating or cooling.

If the controller works in heating mode, with decrease of temperature below desired value followed by switching of heating device (**V4** output), to raise the temperature.

If the controller works in cooling mode, with increase of temperature above desired value followed by switching cooling device (**V4** output), to lower the temperature.

Controller also has three outputs to control 3-speed fan (**V1÷V3**). At the time of switching gear, power phase is given on output which corresponds to this gear (other outputs are disconnected). Controlling of fan speed can be in manual mode or automatic mode.

In manual mode of fan work, user can set speed of fan or turn off the fan by himself (phase isn't given on any output of **V1÷V3**). In this case, controller can't automatically

## OPERATING PRINCIPLE

change speed of the fan.

In automatic mode of fan work, fan speed is regulated by controller. Automatic turning off the fan isn't possible, fan always works at least at first gear.

In heating mode, when real temperature is lower than desired temperature, fan works at higher gear.

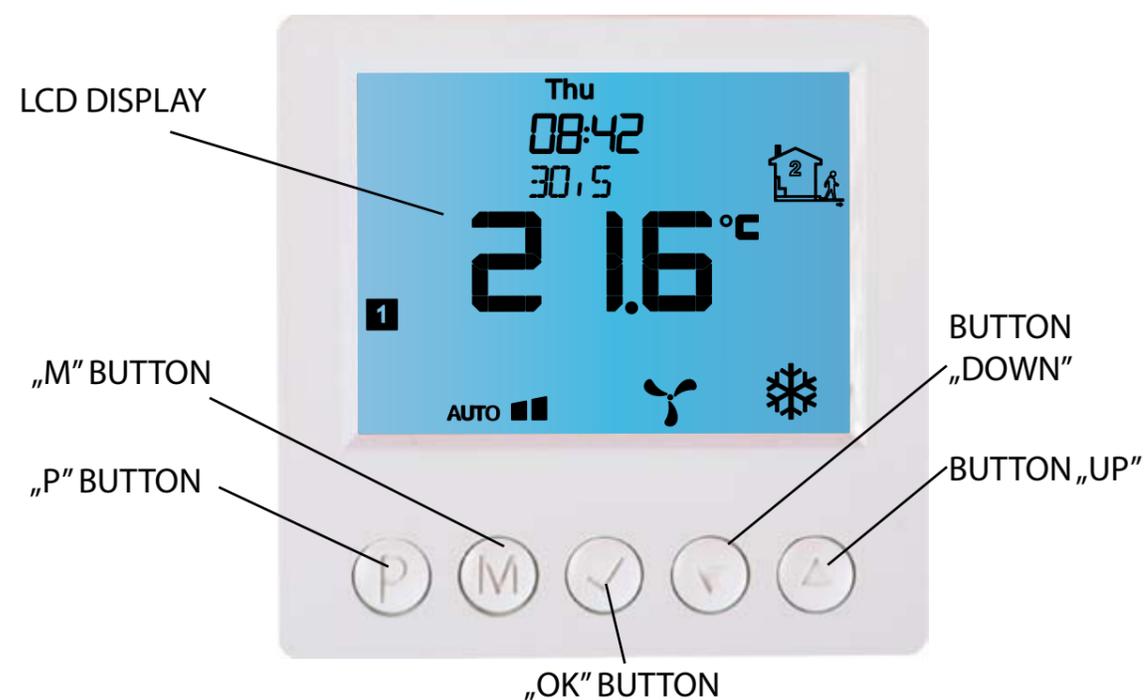
In cooling mode, when real temperature is higher than desired temperature, fan works at higher gear.

Switching thresholds and hysteresis for the thresholds can be set by the user in the wide range of temperatures. Switching points of particular outputs are defined by several parameters, which meaning is explained later in this manual.

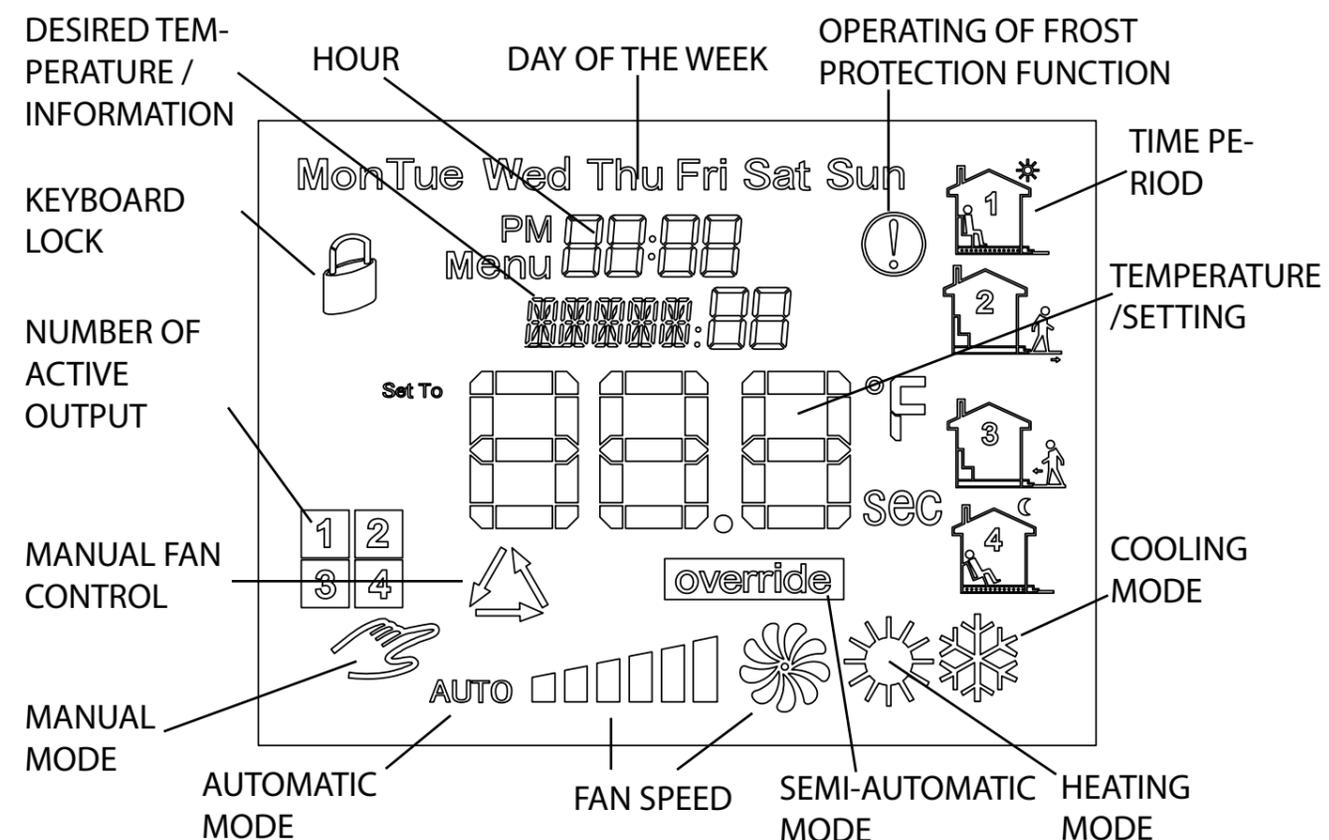
## EXAMPLES OF APPLICATIONS

- Room thermostat with control of heating or cooling intensity.
- Controller for switching different actuating devices after exceeding next temperature thresholds.

## MAIN PANEL OF CONTROLLER



## LCD DISPLAY



## ACTUATING MODULE OF CONTROLLER

Actuating module contains a power adapter and actuating part of controller (relays). It contains two laths of screw clamps and socket RJ-45.

If one of the outputs **V1÷V4** is switched on (active), power phase appears on clamp **ON** of this output (relay shorts clamp **ON** with clamp **L** of **POWER** connector). If not, phase is given on clamp **OFF** of this output (relay shorts clamp **OFF** with clamp **L** of **POWER** connector).



## CONNECTION TERMINALS

**V4** - main output of controller. To this output you have to connect actuating device.

**V3** - the third gear of fan.

**V2** - the second gear of fan.

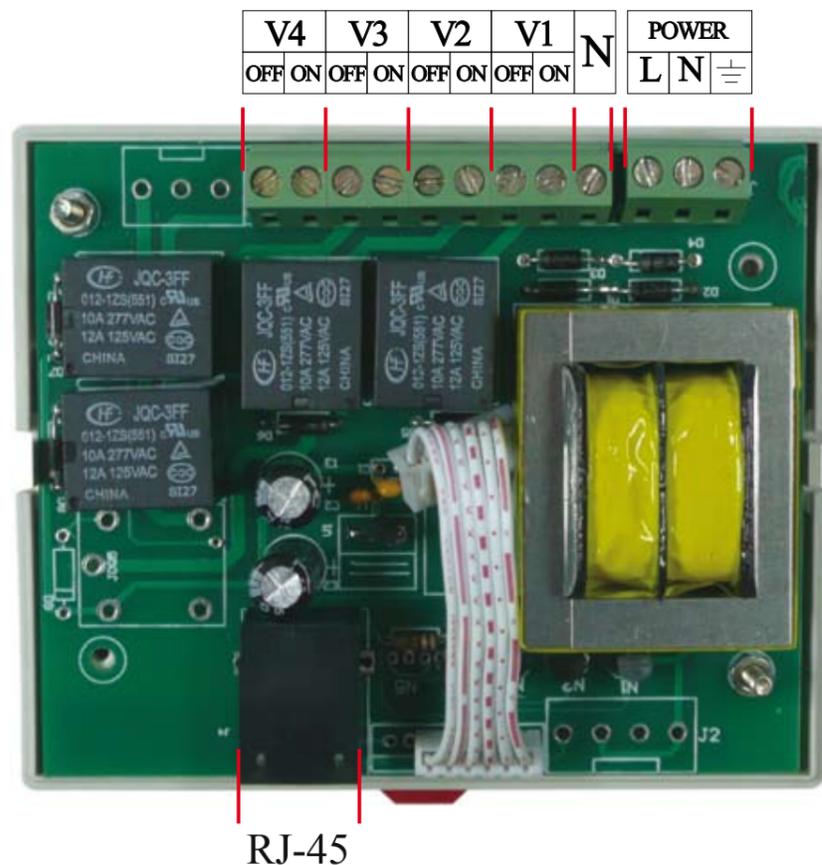
**V1** - the first gear of fan.

**N** - connection of neutral wire. Internally shorted with clamp „**N**“ of „**POWER**“ connector.

**POWER** - controller power supply:

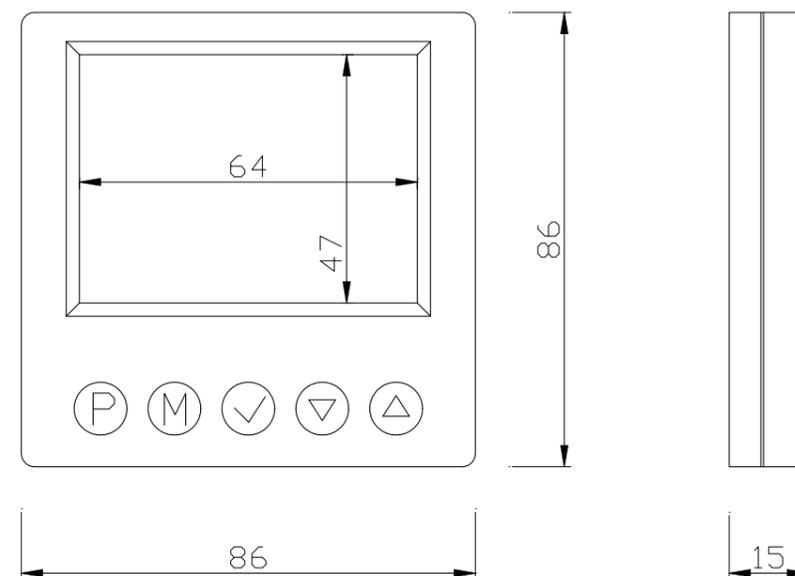
- » **L** - power phase;
- » **N** - neutral wire;
- » Summary clamp of earthing

**RJ-45** - socket of Ethernet wire, which connects both parts of device.

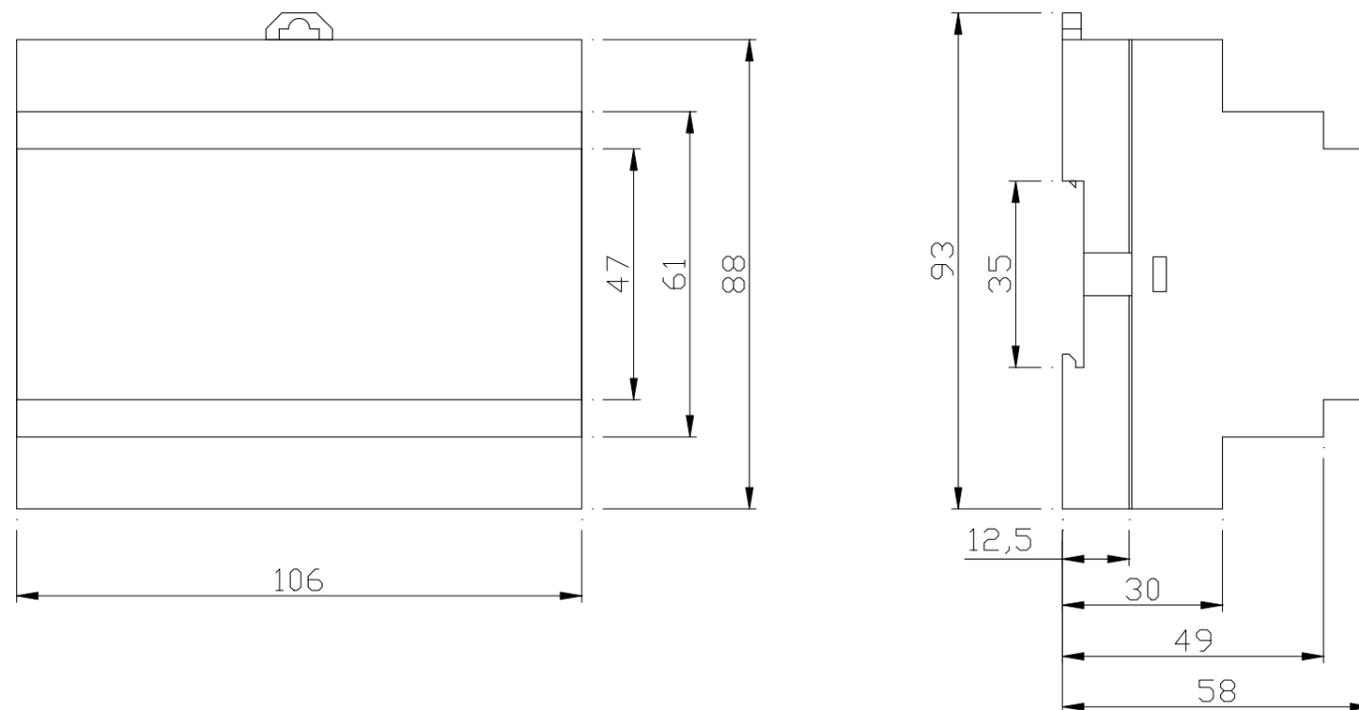


## DIMENSIONS

### MAIN PANEL

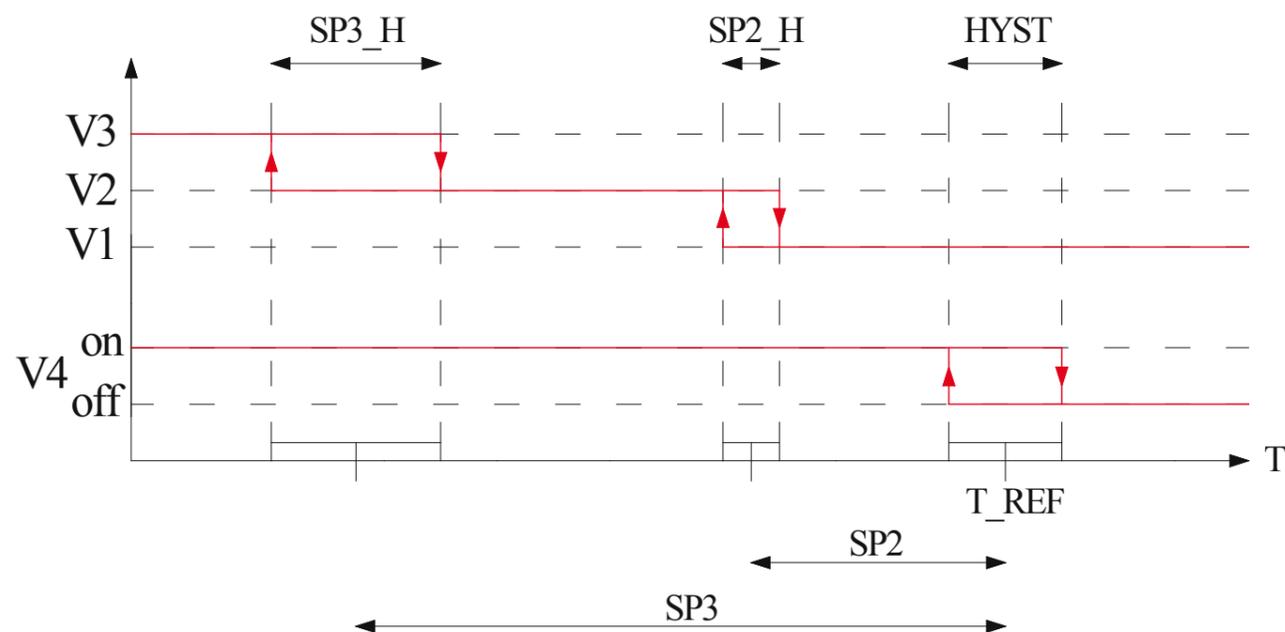


### ACTUATING MODULE



## SWITCHING THRESHOLDS IN HEATING MODE

In mode of automatic regulation of fan speed, the controller switches outputs which control the fan in properly defined points. Characteristic of switching is as below:



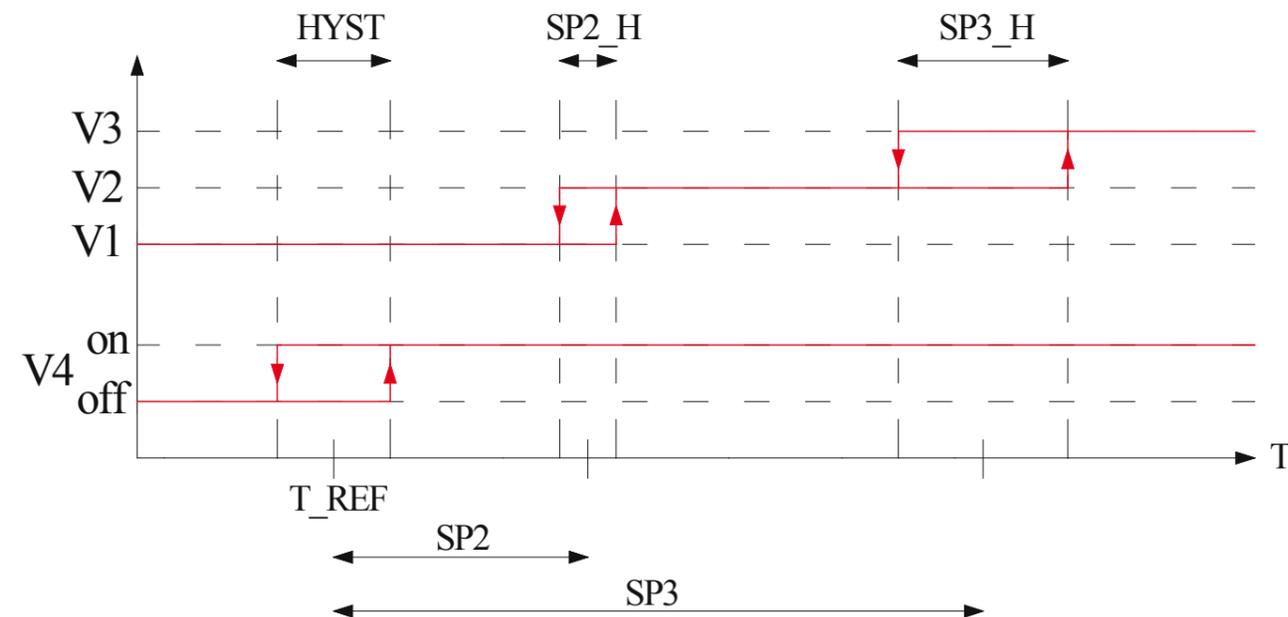
Parameters on this characteristic mean:

- » **T\_REF** - Desired temperature (reference temperature). When real temperature is lower than desired temperature, follows switching on of voltage on output **V4** (including hysteresis). If not, output **V4** is disabled.
- » **HYST** - Hysteresis of switchings of output **V4**. It means a difference between switching on and switching off the output **V4**.
- » **SP2** - Switching threshold of the second fan gear (output **V2**) of desired temperature. For example: If desired temperature is 20 °C and value of **SP2** is 2 °C, the second gear of fan will be switched on, when real temperature falls below 18 °C (including hysteresis).
- » **SP2\_H** - Hysteresis of switchings between the first and the second gear of fan.
- » **SP3** - Switching threshold of the third fan gear (output **V3**) of desired temperature. For example: If desired temperature is 20 °C and value of **SP3** is 4 °C, the third gear of fan will be switched on, when real temperature falls below 16 °C (including hysteresis).
- » **SP3\_H** - Hysteresis of switching between the second and the third gear of fan.

At the moment can be active only one of outputs **V1÷V3**. In mode of automatic regulation of fan speed is not possible to turn off the fan - the first gear of fan is switched on even when desired temperature is reached.

## SWITCHING THRESHOLDS IN COOLING MODE

In mode of automatic regulation of fan speed, the controller switches outputs which control the fan in properly defined points. Characteristic of switching is as below:

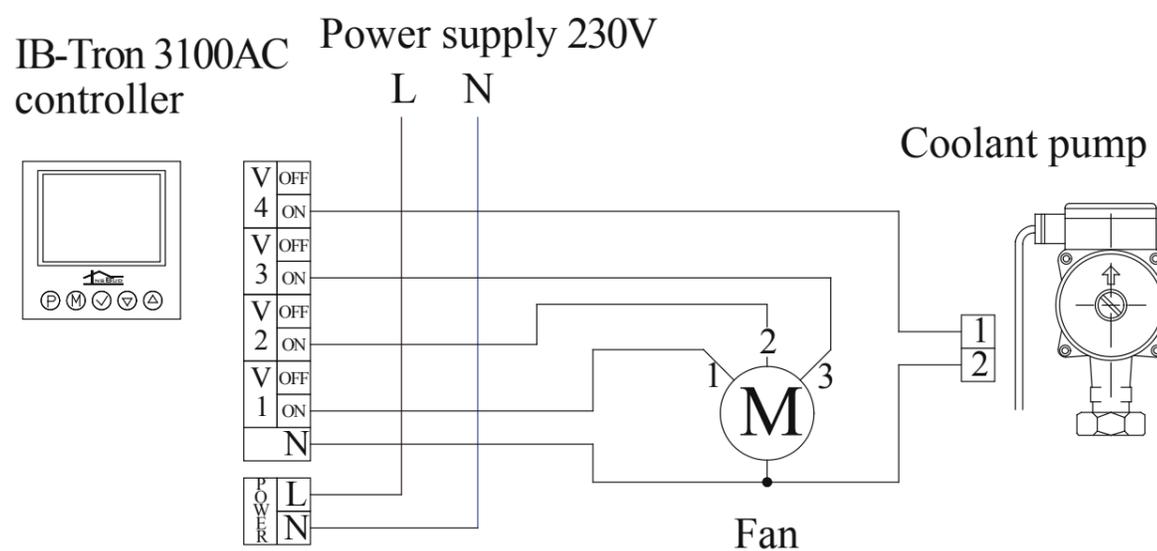
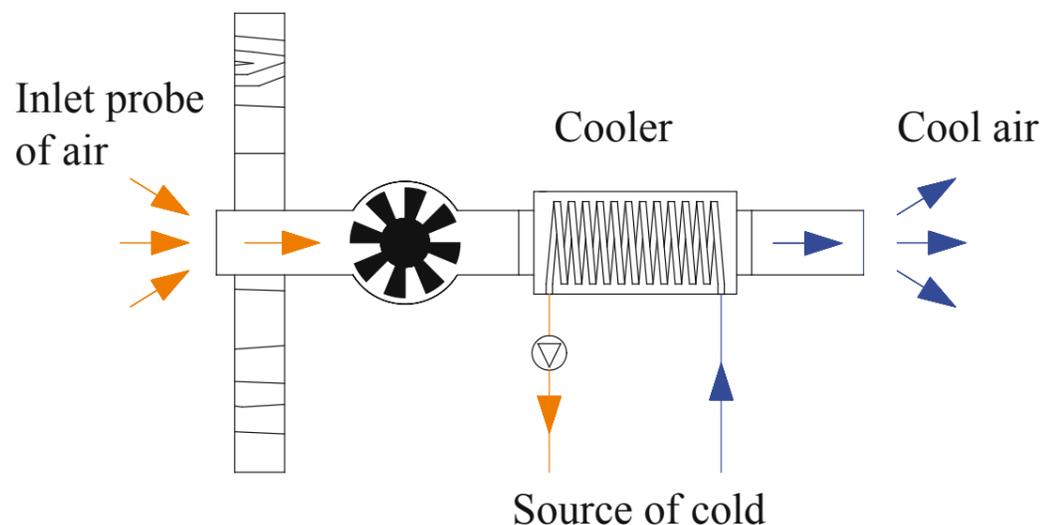


Parameters on this characteristic mean:

- » **T\_REF** - Desired temperature (reference temperature). When real temperature is higher than desired temperature, follows switching on of voltage on output **V4** (including hysteresis). If not, output **V4** is disabled.
- » **HYST** - Hysteresis of switchings of output **V4**. It means a difference between switching on and switching off the output **V4**.
- » **SP2** - Switching threshold of the second fan gear (output **V2**) of desired temperature. For example: If desired temperature is 20 °C and value of **SP2** is 2 °C, the second gear of fan will be switched on, when real temperature rises above 22 °C (including hysteresis).
- » **SP2\_H** - Hysteresis of switchings between the first and the second gear of fan.
- » **SP3** - Switching threshold of the third fan gear (output **V3**) of desired temperature. For example: If desired temperature is 20 °C and value of **SP3** is 4 °C, the third gear of fan will be switched on, when real temperature rises above 24 °C (including hysteresis).
- » **SP3\_H** - Hysteresis of switching between the second and the third gear of fan.

At the moment can be active only one of outputs **V1÷V3**. In mode of automatic regulation of fan speed is not possible to turn off the fan - the first gear of fan is switched on even when desired temperature is reached.

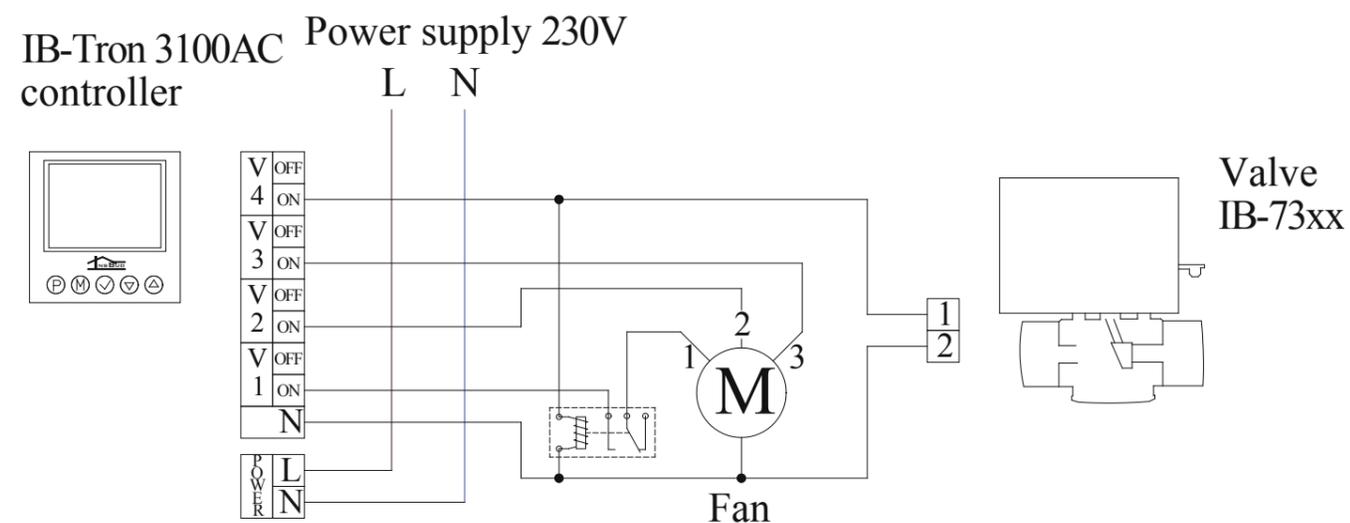
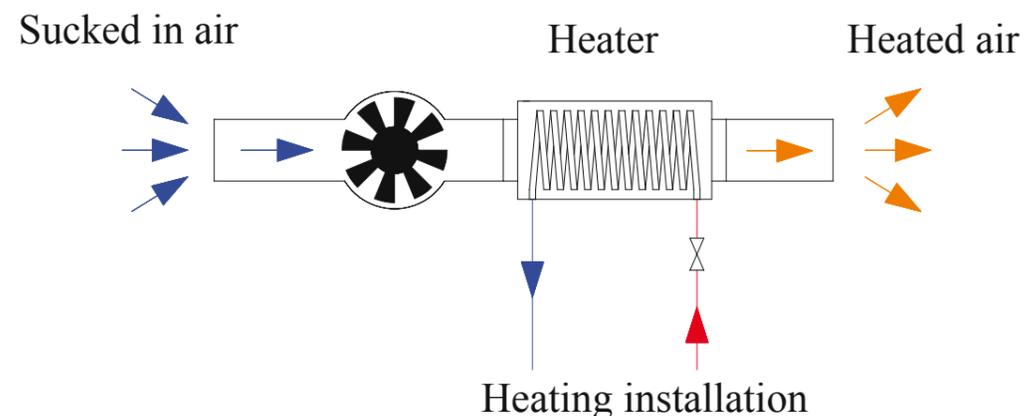
EXEMPLARY CONNECTION OF CONTROLLER



Example above presents one of the possibility use of controller **IB-Tron 3100AC** in cooling mode. Ventilation in the room is forced by the fan, and in canal, which supplies air, is installed cooler powered by liquid. Circulation of cooling liquid is forced by pump. If circulation is turned off, air passing through the cooler is not cooled.

If temperature in room is lower than set temperature, coolant pump is turned off and fan is set on the lowest gear (with possibility of manual change to another gear). If temperature in room is higher than desired temperature, coolant pump is activated. Besides, if previously set thresholds are exceeded, fan can be switched on higher gear. You can manually control the fan at any time.

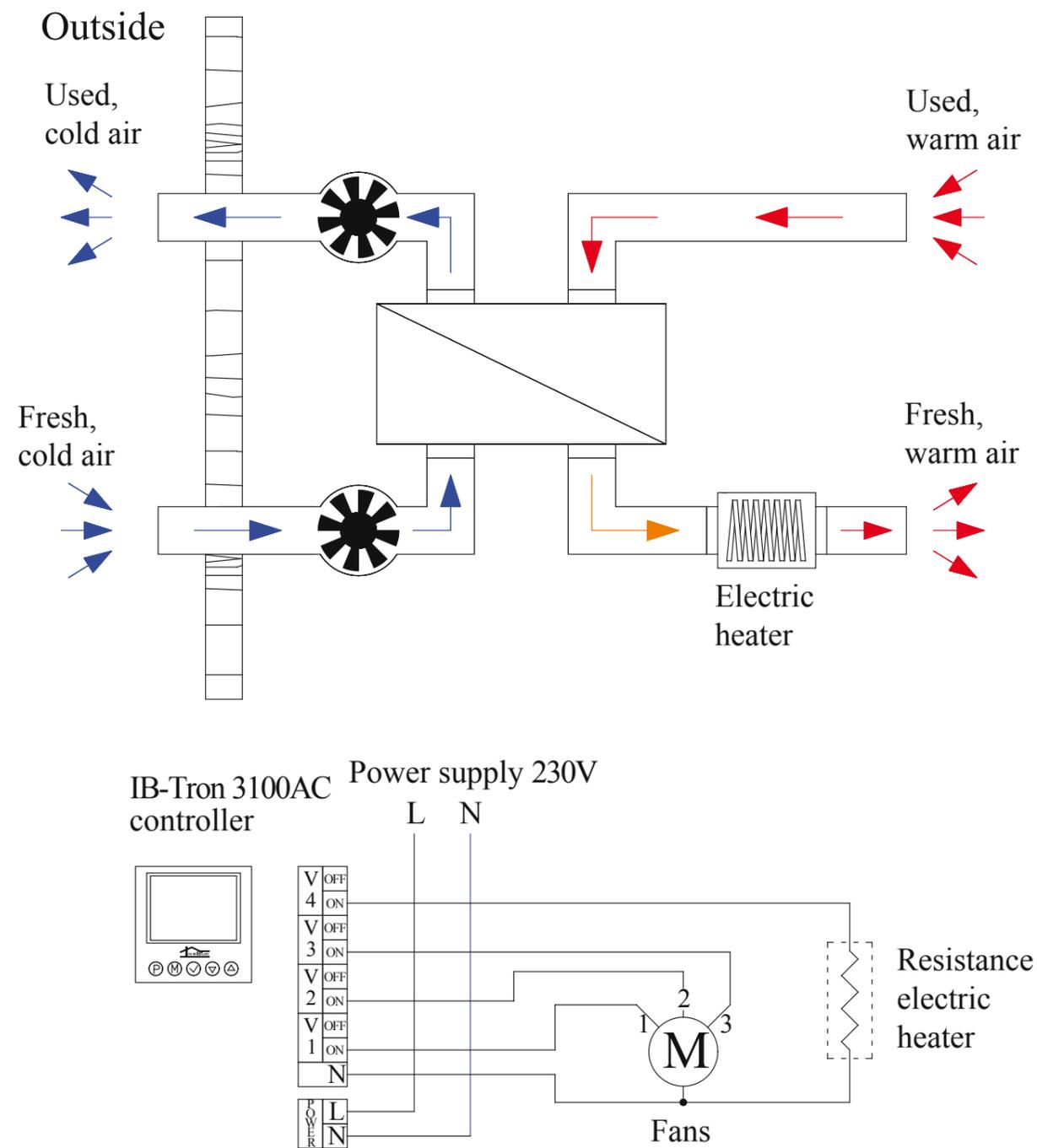
EXEMPLARY CONNECTION OF CONTROLLER



Example above presents one of the possibility use of controller **IB-Tron 3100AC** in heating mode. This diagram is typical work layout of two-pipes fan coils. Fan coil sucks in air from ventilation system or from room by using the fan. Water air heater is incorporated into the heating circuit. If fan coil valve is open, water flows through the heater and heats air.

If temperature in the room is higher than set temperature, valve is closed and fan is turned off. If temperature in room falls below desired temperature, valve is opened and fan is turned on. Fan speed depends on current demand for heat. You can manually control the fan at any time.

## EXEMPLARY CONNECTION OF CONTROLLER



Example above presents one of the possibility use of controller **IB-Tron 3100AC** in heating mode. Outputs **V1÷V3** control speed fans of recuperator and electric air heater is connected to the **V4** output (if heater is a high-power, you have to connect it by external contactor). If temperature in the room is above desired threshold, the heater is turned off and recuperator works on the lowest gear (other gear can be set manually). If temperature in the room falls below desired threshold, the heater will be turned on - gear of the fan will be higher, if more heat is missing.

## TURNING ON CONTROLLER

**P** To turn on or turn off controller, you have to press button „**P**”.

When the controller is turned off, on display is shown only current temperature. Temperature isn't regulated and actuating devices are turned off. **FROST PROTECTION** function is an exception.

## CONFIGURATIONAL MENU

In configurational menu are set parameters of controller work. To enter to the configurational menu, please:

**P** If controller is turned on, please turn it off by pressing button '**P**'.

**M** When the controller is turned off, press and hold for about 3 seconds button '**M**'.

Controller is in configurational mode. Displayed are: inscription '**Menu**', setting number (from 01 to 19), code shortcut of setting (e.g. '**MOde**'), value and unit of setting.

**▽** To change value of indicated setting, press button '**DOWN**' or '**UP**'.



**M** To move to the next setting, press button '**M**'. After reaching the last (19) setting, pressing the button '**M**' again causes return to the first setting.

Controller comes out of the configurational menu after a set time of inactivity or after pressing one of the buttons: '**P**' or '**OK**'. Pres-

## CONFIGURATIONAL MENU

sing button '**P**' causes save changes and turning on the controller. Pressing button '**OK**' causes save changes and controller is turned off.

## LANGUAGE IN MENU

Configurational menu can be described in Polish language or English language. To select language in menu, please:

**M** Enter to the configurational menu. Press button '**M**' until you see on display setting number 01, marked as '**JEZYK**' in Polish language or '**LANG**' in English language.

**▽** Select '**LANG**' to set English language or '**JEZYK**' to set Polish language. Exit the configurational menu or move to other setting.



## WORK MODE

Controller can work in heating mode or cooling mode. To choose suitable mode, please:

**M** Enter to the configurational menu. Press button '**M**' until you see on display setting number 02, marked as '**TRYb**' in Polish language or '**MOde**' in English language.

**▽** Choose '**H**' to set heating mode or '**C**' to set cooling mode. Exit the configurational menu or move to other setting.



## HYSTERESIS OF OUTPUT V4

Hysteresis means a difference (in °C or °F) between threshold of switching on and switching off the actuating device. For example: If heating mode is turned on, set temperature is 20°C and hysteresis is set on 1°C, the actuating (heating) device will be switched on when the temperature falls below 19,5°C and device will be switched off after temperature increase above 20,5°C. Next switching on of actuating device will be again after temperature decrease below 19,5°C.

Higher value of hysteresis reduces number of cycles switch on/switch off of actuating device (saving device), but it causes greater temperature fluctuations.

To change value of hysteresis, please:

 Enter to the configurational menu. Press button 'M' until you see on display setting number 03, marked as 'HIST' in Polish language or 'HYST' in English language.

 Set desired value. Exit the configurational menu or move to other setting.



## SP2 - SWITCHING ON OUTPUT V2

If in heating mode, the current temperature is lower by the value of SP2 than desired temperature, fan switches gear from the first to the second.

Analogically, if in cooling mode, the current temperature is higher by the value of SP2 than desired temperature, fan switches gear from the first to the second.

## SP2 - SWITCHING ON OUTPUT V2

To set value of parameter SP2, please:

 Enter to the configurational menu. Press button 'M' until you see on display setting number 04, marked as 'SP2'.

 Set desired value. Exit the configurational menu or move to other setting.



## SP3 - SWITCHING ON OUTPUT V3

If in heating mode, the current temperature is higher by the value of SP3 than desired temperature, fan switches gear from the second to the third.

Analogically, if in cooling mode, the current temperature is higher by the value of SP3 than desired temperature, fan switches gear from the second to the third.

To set value of parameter SP3, please:

 Enter to the configurational menu. Press button 'M' until you see on display setting number 05, marked as 'SP3'.

 Set desired value. Exit the configurational menu or move to other setting.



Value of parameter **SP3** have to be greater than value of parameter **SP2**. This is guaranteed by the software of controller: if we increase value of **SP2** and at some point this value is identical as value of **SP3**, value of **SP3** is automatically increased by 0,5°C.

## SP2\_H - HYSTERESIS OF POINT SP2

Hysteresis of switching point between the first gear and the second gear is analogically defined as the main hysteresis (hysteresis of output **V4**): it's difference in °C between switching of the first gear and the second gear. For example: if desired temperature is 20°C in the heating mode, value of **SP2** is 3°C and hysteresis of point **SP2** is 1°C, switching from the first gear to the second gear will be after temperature decrease below 16,5°C and switching from the second gear to the first gear will be after temperature increase above 17,5°C.

To set value of **SP2** point hysteresis, please:

 Enter to the configurational menu. Press button 'M' until you see on display setting number 06, marked as 'SP2\_H'.

 Set desired value. Exit the configurational menu or move to other setting.



## SP3\_H - HYSTERESIS OF POINT SP3

Hysteresis of switching point between the second gear and the third gear is analogically defined as the main hysteresis (hysteresis of output **V4**): it's difference in °C between switching of the second gear and the third gear. For example: if desired temperature is 20°C in the heating mode, value of **SP2** is 5°C and hysteresis of point **SP2** is 1°C, switching from the second gear to the third gear will be after temperature decrease below 14,5°C and switching from the third gear to the second gear will be after temperature increase above 15,5°C.

## SP3\_H - HYSTERESIS OF POINT SP3

To set value of **SP2** point hysteresis, please:

 Enter to the configurational menu. Press button 'M' until you see on display setting number 07, marked as 'SP3\_H'.

 Set desired value. Exit the configurational menu or move to other setting.



Value of hysteresis **SP2\_H** and **SP3\_H** shouldn't be too high, because temperature ranges of switchings can not overlap. This is guaranteed by the software of controller: too high hysteresis can not be set.

## CALIBRATION

After proper connection the controller is ready to work and the controller is factory calibrated to work with internal sensor. However, with long wires, displayed temperature may be different from real temperature.

In this case you have to calibrate the device by yourself:

 Enter to the configurational menu. Press button 'M' until you see on display setting number 08, marked as 'KALib' in Polish language or 'CALib' in English language.

 Set value, by which you have to change current temperature display to get correct indication. Exit the configurational menu or move to other setting.



## TIME OF INACTIVITY

It is the time, counted from the last press of any button, after which the controller comes out from the settings mode of parameters to default mode. Higher value gives the user more time to enter settings.

To set time of inactivity, please:

-  Enter to the configurational menu. Press button 'M' until you see on display setting number 09, marked as 'ZWLOK' in Polish language or 'PTd' in English language.
-  Set desired value. Value may be from the range 5÷30s with step 5s.. Exit the configurational menu or move to other setting.
- 

## MINIMUM VALUE OF SETTING

The user can define his own range of temperature settings by specifying the minimum and maximum range. During setting desired temperature, it's not possible to introduce a higher value than maximum value and lower than minimum value.

To set minimum value of setting, please:

-  Enter to the configurational menu. Press button 'M' until you see on display setting number 10, marked as 'MIN'.
-  Set minimum value from the setting range.. Exit the configurational menu or move to other setting.
- 

## MAXIMUM VALUE OF SETTING

Analogically as above, you can define maximum value of temperature setting range. It's not possible to set higher temperature than maximum temperature.

To set maximum value of setting, please:

-  Enter to the configurational menu. Press button 'M' until you see on display setting number 11, marked as 'MAX'.
-  Set maximum value from the setting range. Exit the configurational menu or move to other setting.
- 

## TIME OF BACKLIGHT

This is a time, after which is fading of LCD backlight, counted from the last press of a button. To set time of backlight, please:

-  Enter to the configurational menu. Press button 'M' until you see on display setting number 12, marked as 'POdSW' in Polish language or 'LIGHT' in English language.
-  Set desired value. Value may be from the range 10÷60s with step 5s. Value 'OFF' may be also chosen - backlight always turned off, or value 'ON' - backlight always turned on. Exit the configurational menu or move to other setting.
- 

## TEMPERATURE UNITS

User has ability to choose if the temperature must be in °C or °F.

To change temperature unit, please:

-  Enter to the configurational menu. Press button 'M' until you see on display setting number 13, marked as 'JEdN' in Polish language or 'UNIT' in English language.
-  Select temperature unit. Exit the configurational menu or move to other setting.
- 

## TIME FORMAT

User has ability to choose if the time must be displayed in 12-hour format or 24-hour.

To change time format, please:

-  Enter to the configurational menu. Press button 'M' until you see on display setting number 14, marked as 'ZEGAR' in Polish language or 'CLOCK' in English language.
-  Select format 12-hour or 24-hour. Exit the configurational menu or move to other setting.
- 

## FROST PROTECTION FUNCTION

FROST PROTECTION function protects installation against freezing. When temperature falls below desired critical value, actuating device is activated (output V4) and suitable gear of the fan, even if the controller is turned off. Simultaneously on display flashes a warning symbol:



FROST PROTECTION function can be turned off if it's necessary. To set value of critical temperature or turned off the function, please::

-  Enter to the configurational menu. Press button 'M' until you see on display setting number 15, marked as 'FROST'.
-  Select value of critical temperature from the range 1÷10 °C (function is turned on) or select 'OFF' (function is turned off). Exit the configurational menu or move to other setting.
- 

## NUMBER OF TEMPERATURE SETTINGS

When controller works with a timetable of temperature settings (automatic mode), it has the ability to program four different time segments during the day, each of them with assigned temperature setting. There are two modes of temperature programming:

- » Each segment has independent temperature setting (there are four different temperature settings)
- » There are two different temperature settings: the first for segments 1 and 2, the second for segments 3 and 4.

## NUMBER OF TEMPERATURE SETTINGS

To select number of independent values temperature settings, please:

-  Enter to the configurational menu. Press button '**M**' until you see on display setting number 16, marked as '**ILOSC**' in Polish language or '**SC**' in English language.
-  Select number of different temperature settings: 2 or 4. Exit the configurational menu or move to other setting.
- 

## GUARD FUNCTION

GUARD function protects actuating elements (valve, pump, fan) from damage. If this function is activated, the controller once every two weeks turns on for a minute the start-up sequence, even when there is no need from point of view of system logic. It prevents damage of actuating elements.

To activate or deactivated GUARD function, please:

-  Enter to the configurational menu. Press button '**M**' until you see on display setting number 17, marked as '**GUARD**'.
-  Set value '**ON**' to activate GUARD function or value '**OFF**' to deactivate this function.
- 

## TEST OF OUTPUTS

Controller has function 'test of outputs'. This function allows to check if relays work properly and verify correctness of connecting and efficiency actuating devices.

To enter to test mode, please:

-  Enter to the configurational menu. Press button '**M**' until you see on display setting number 18, marked as '**TEST**'.
-  Select value from the range 1 ÷ 4, which corresponds to switching of corresponding outputs. The value '**OFF**' means that all of outputs are turned off. After test of outputs, exit the configurational menu or move to other setting.
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## SOFTWARE VERSION

In response to suggestions and opinions our customers, we try to increase systematically functionality of controllers, so from time to time may appear newer software version.

To check current software version, please:

-  Enter to the configurational menu. Press button '**M**' until you see on display setting number 19, marked as '**WER**' in Polish language or '**VER**' in English language. Indicated value means software version. It is a value to read only, we can't change it. Exit the configurational menu or move to other setting.

## AN HOUR AND A DAY OF THE WEEK

To set current hour and a day of the week, please:

-  Turn on controller.
-  Press button '**OK**'. Displayed hour starts flashing.
-  Set current hour.
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-  Press button '**OK**' again. A day of the week starts flashing.
-  Set day of the week:
  - Mon - Monday
  - Tue - Tuesday
  - Wed - Wednesday
  - Thu - Thursday
  - Fri - Friday
  - Sat - Saturday
  - Sun - Sunday
- 
-  Confirm settings.

## FACTORY SETTINGS

To reset controller and go back to factory settings, please:

-  Turn off controller.
-  Press and hold for about 3 seconds both buttons: '**M**' and '**OK**' simultaneously. On display will show for about 5 seconds inscription '**RESET**'.
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## KEYBOARD LOCK

To protect controller from unwanted change settings, you can lock controller keyboard.



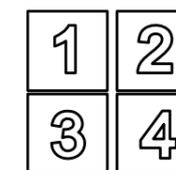
When keyboard lock is activated, on display is visible a padlock symbol and keyboard doesn't respond to pressing keys.

To activate/deactivate keyboard lock, please:

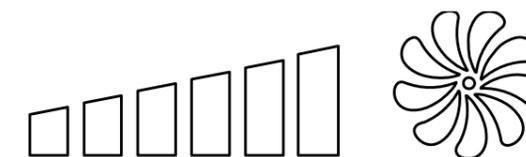
-  Press and hold for about 3 seconds both buttons: '**DOWN**' and '**UP**' simultaneously.
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## ACTIVE OUTPUTS

To illustrate on display, which outputs are currently activated, displayed are suitable symbols:



When one of the outputs **V1÷V4** is activated, a digit corresponding to this output is displayed.



To indicate current speed fan (state of outputs **V1÷V3**), a bar indicator and animated fan symbol are displayed (if gear is higher, fan on display rotates faster). When fan works on the first gear, two bars are shown. When fan works on the second gear, four bars are shown. When fan works on the third gear, six bars are shown.

## WORK SCHEDULER

Controller has ability to programm work timetable of temperature settings in a weekly cycle. It means setting of programmed temperature at concrete hour.

With timetable you can set lower intensity of ventilation in periods when e.g. building is not used or in nocturnal periods, and higher intensity when building is used.

You can program four time segments each day of the week, which were symbolically presented on display:



Higher temperature  
e.g. 7:00 - reveille



Lower temperature  
e.g. 9:00 - outgo the house



Higher temperature  
e.g. 15:00 - return to house



Lower temperature  
e.g. 21:00 - sleep

To make your own work timetable, please:

- P** Turn on controller. Make sure that controller is set in automatic mode with work timetable (mode of automatic regulation of temperature). On display is inscription **'AUTO'**:

AUTO

## WORK SCHEDULER

- M** If instead inscription 'AUTO' on display is hand symbol (manual mode), press button **'M'**.



Pressing this button when controller is turned on, causes switching between manual mode and automatic mode.

- P** Press and hold for about 2 seconds button **'P'**. On display will show inscription **'PROG'** and current day of the week starts flashing.



Select a day of the week by buttons **'DOWN'** and **'UP'**, which concerns setting. Holding down the button **'UP'** will select whole week. Holding down this button again will select days from Monday to Friday. Holding down button **'UP'** one more time will select only Saturday and Sunday.



Confirm choice with the button **'P'**.



The following steps describe programming one of time segments. You have to repeat these steps for all four time segments. On the right on display is shown segment symbol, which concerns the setting.



On display starts flashing an hour, about which work segment will start. Set the hour.

## WORK SCHEDULER



Confirm choice with the button **'P'**.



On display starts flashing temperature set for the work segment. Set the temperature.



Confirm choice with the button **'P'**.

You have to repeat these steps until the program all four time segments.



After programming all four time segments the controller returns to standard displaying mode.



The fourth time segment lasts until the beginning of the first time segment the next day (e.g. from 9:00 p.m. on Monday to 7:00 a.m. on Tuesday).



If there is no need to use all four time segments, you can set short time segments for example:

- » 1. 7:00
- » 2. 7:01
- » 3. 7:02
- » 4. 15:00



If parameter **'ILOSC'** in the configurational menu is set on value 2, temperature setting of the second time segment will be automatically assigned to the first time segment and temperature the fourth time segment will be assigned to the third time segment. If parameter **'ILOSC'** is set on value 4, each of time segment has its own temperature setting.

## MANUAL MODE

In manual mode the controller constantly keeps desired temperature (without work timetable).



If controller works in manual mode, on display is visible hand symbol and time segment symbol is not visible.



Controller is in the manual mode until user doesn't change it to automatic mode.

To change mode to manual/automatic, please:



When controller is turned on, press button **'M'**.

To set or change desired temperature in manual mode, which the controller has to keep, please:



Press button **'DOWN'** or **'UP'**. On display will appear current temperature setting. Enter a new value.

Confirm choice with the button **'OK'**.

## SEMI-AUTOMATIC MODE

In semi-automatic mode is manual correction of desired temperature in current time segment. After the end of the current time segment, controller returns to the automatic mode and works with the timetable.

 You can move to semi-automatic mode only from automatic mode.

To enter manual temperature correction for current time segment, please:

-  When controller is in the automatic mode, press button '**DOWN**' or '**UP**'.
-  On display will appear current temperature setting. Enter a new value.
-  Confirm choice with the button '**OK**'.

 When controller is in the semi-automatic mode, on display is inscription '**override**'.

override

To exit the semi-automatic mode before the end of current time segment (cancel temperature correction) and return to the timetable, please:

-  Press and hold for about 2 seconds button '**M**'.

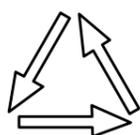
## CONTROLLING OF FAN

Fan speed (state of outputs **V1÷V3**) are default set automatically based on the current temperature and defined points of fan switching. The fan can not be automatically turned off, it always works at least on the first gear (when the controller is turned on).

It is possible another mode of fan work, independent of current temperature and other settings. In this independent mode, user chooses speed fan and this speed is kept all the time. Turning off the fan is also possible.

To enter to mode of independent fan control, please:

-  Turn on the controller.
-  Press and hold for about 2 seconds button '**UP**'. On display should appear three arrows, which symbolise mode of independent regulation.



-  Press and hold simultaneously for about 2 seconds both buttons: '**UP**' and '**M**' to increase fan speed.
-  Press and hold simultaneously for about 2 seconds both buttons: '**DOWN**' and '**M**' to decrease fan speed.
-  Press and hold simultaneously for about 2 seconds both buttons: '**DOWN**' and '**M**' to decrease fan speed.
-  To exit the mode of independent fan control, press and hold button '**UP**'.

## SHORTENED MANUAL

-  **Turning on controller.** To turn on or turn off the controller, press the button.

## Configurational menu.

-  To enter to the configurational menu, turn off the controller.
-  Press and hold button for about 3 seconds.

Numbers of settings in the menu:

- 01 - Language in the menu
- 02 - Work mode
- 03 - Hysteresis of output V4;
- 04 - SP2 - Switching on output V2;
- 05 - SP3 - Switching on output V3;
- 06 - SP2\_H - Hysteresis of point SP2;
- 07 - SP3\_H - Hysteresis of point SP3;
- 08 - Calibration;
- 09 - Time of inactivity;
- 10 - Minimum value of setting;
- 11 - Maximum value of setting;
- 12 - Time of backlight;
- 13 - Temperature Units;
- 14 - Time Format;
- 15 - 'FROST PROTECTION' function;
- 16 - Number of temperature settings;
- 17 - 'GUARD' function;
- 18 - Test of outputs;
- 19 - Software version;

## An hour and a day of the week.

-  Press button. Set a clock.
-  Press button again. Set a day of the week.
-  Press button one more time to confirm settings.

## SHORTENED MANUAL

## Factory settings.

-  Turn off the controller.
-  Press and hold for about 3 seconds both buttons.



-  **Keyboard lock.** Press and hold for about 3 seconds both buttons.



## Work scheduler.

-  In the automatic mode press and hold button for 2 seconds.
-  Press and hold button to select all days of the week. Press and hold button again to select days from Monday to Friday. Press and hold button one more time to select only Saturday and Sunday.

-  Press button and enter start time and temperature values for each segments.

-  **Manual mode.** To change work mode, press button.

-  To change temperature value in the manual mode, press one of the buttons.



## SHORTENED MANUAL

 **Semi-automatic mode.** In the automatic mode press one of the buttons and enter temperature.



 Press and hold button to exit earlier from the mode.



**Manual fan control.** Press and hold button for 2 seconds to enter to manual mode.



Press and hold both buttons for 2 seconds to increase speed fan.



Press and hold both buttons for 2 seconds to decrease speed fan.



Press and hold button to exit the mode.

## ERRORS

On display may appear symbols that signify:

-  **LO** - temperature is lower than -20°C.
-  **HI** - temperature is higher than 120°C.
-  **ERR** - temperature sensor is not connected or is damaged.

 In cases above for safety actuating devices are turned off and the fan works on the first gear.

## WARRANTY

 Warranty is granted on 24 months from the date of purchase of goods.

 Any defect disclosed during the warranty period will be removed within 21 working days, from the date of adoption of goods for service.

 In case of necessity of import goods or components from abroad, repair time is extended by the time needed to bring them.

 Customer provides product to service at his own cost. If the product is shipped at the expense of the service, it won't be received.

 At time repair service has no obligation to provide substitute product.

 Warranty repair will be made upon presentation of properly and legibly filled your warranty card, signed by guarantor and with sales document.

 Warranty covers only defects arising from causes inherent in goods. Damage resulting from external causes such as: mechanical damage, pollution, flooding, weather, improper installation or improper wiring and operations. Warranty does not apply in case unauthorized repair by customer, changes in software (firmware) and device formatting.

 Due to the natural consumption of consumables, some of them are not covered by warranty (for example: cables, battery, loader, micro contacts, buttons).

 In the event of unjustified claim for warranty repair, all additional cost are on customer's side.

 Service has right to refuse to perform warranty repairs for following: differences between documents and goods marks, make repairs on their own by customer, changes in product construc-

## WARRANTY

tion without authorization.

 Warranty repair refusal is equivalent to loss your warranty.

 If it is not possible to test product before its purchase (distance selling), it is possible to return goods within 10 days. Returned goods cannot bear signs of exploitation, it must contain all elements with which it was delivered.

 In the case of return of purchased goods all shipping costs are on buyer side. For shipment please enclose purchase document and give precise details of the buyer with account number on which will be refunded an amount equal to the value of the returned goods, no later than 21 days from the date of delivery of the goods. This amount is reduced by shipping costs if these costs were incurred by the seller. Delivery of copy of document correction is necessary to a refund. Before return of goods please contact with seller.

 Warranty terms may be changed by local InsBud company partner.

„INSBUD”

ul. Niepodległości 16a

32-300 Olkusz

Poland

sales department: +48 (32) 626 18 00

sales department: +48 (32) 626 18 18

technical department: +48 (32) 626 18 07

technical department: +48 (32) 626 18 08

fax: +48 (32) 626 18 19

e-mail: insbud@insbud.net