

CONTROL PANEL





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This user's manual is a main operating document intended for technical, maintenance, and operating staff.

The manual contains information about the purpose, technical details, operating principle, design, and installation of the S16 unit (-s) and all of its (their) modifications.

Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country. The information in this user's manual is correct at the time of the document's preparation.

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SAFETY REQUIREMENTS

- Please read the user's manual carefully prior to installing and operating the unit.
- All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.
- The warnings contained in the user's manual must be considered most seriously since they contain vital personal safety information.
- Failure to follow the rules and safety precautions noted in this user's manual may result in an injury or unit damage.
- After a careful reading of the manual, keep it for the entire service life of the unit.
- While transferring the unit control, the user's manual must be turned over to the receiving operator.



UNIT MOUNTING AND OPERATION SAFETY PRECAUTIONS



Disconnect the unit from power mains prior to any installation operations.





- close proximity to heating equipment.
- Do not change the power cable length at your own discretion.
- Do not bend the power cable.
- Avoid damaging the power cable.
- Do not put any foreign objects on the power cable.



- Do not use damaged equipment or cables when connecting the unit to power mains.
- Do not touch the unit controls with wet hands.
- Do not carry out the installation and maintenance operations with wet hands.
- Do not allow children to operate the unit.





- Do not operate the unit outside the temperature range stated in the user's manual.
- Do not operate the unit in aggressive or explosive environments.
- While installing the unit follow the safety regulations specific to the use of electric tools.



Unpack the unit with care.



When the unit generates unusual sounds, odour or emits smoke disconnect it from power supply and contact the Seller.



- Do not wash the unit with water.
- Protect the electric parts of the unit against ingress of water.
- Disconnect the unit from power mains prior to any technical maintenance.



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



PURPOSE

THE UNIT SHOULD NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL, OR SENSORY CAPACITIES, OR THOSE WITHOUT THE APPROPRIATE TRAINING. THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING. THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORIZED ACCESS BY UNATTENDED CHILDREN.

The wall control panel with a sensor display is designed for controlling industrial and domestic supply and exhaust ventilation units as well as other air handling units.

The control panel is not designed for standalone operation.

It is rated for continuous operation.

DELIVERY SET

NAME	NUMBER
Control panel	1 pc.
User's manual	1 рс.
Packing	1 рс.

TECHNICAL DATA

Ambient temperature, [°C]	+5+40
Relative humidity, [%]	580 (no condensation)
Cable cross-section, [mm ²]	0.25
Casing material	Plastic
Dimensions (WxHxD), [mm]	130x86x30
IP code	IP20

MOUNTING AND CONNECTION

The control panel connects to the air handling unit via a four-core Unitronic LiYY cable 0.25 mm² in cross-section. The cable is pre-wired to the air handling unit and the panel terminal block at the factory. Make sure to memorize the positions and the colours of the wires connected to the terminal block to restore the original configuration upon re-installing the panel. The cable colours are given on the terminal block label: + Yellow; B Green; A Brown; **L** White.

2

The mounting box is not included into the control panel installation kit.







4







5



DO NOT LAY THE CABLE IN CLOSE PROXIMITY TO THE CONTROL PANEL CABLE! WHILE ROUTING THE CONTROL PANEL CABLE DO NOT COIL THE EXTRA LENGTH.

BATTERY REPLACEMENT

The battery supports the operation of the clock built into the control panel in the event that the air handling unit goes offline due to a power outage. When the battery discharges completely while the unit is offline the clock stops and the date and time settings are reset leading to incorrect date and time readings upon a subsequent power-up of the unit and, as a result, incorrect scheduled operation. To prevent this make sure that the battery is in good condition. Use only fresh batteries for replacement.

- 1 Disconnect the unit from power supply.
- 2 Undo two self-tapping screws in the bottom part of the casing.



3 Pull the top part of the casing aside to facilitate access to the circuit board. Replace the battery. The control panel uses a CR1220 lithium battery.



- 4 Re-assemble the control panel in the reverse order.
- 5 Connect the unit to the electric mains and set the control panel date and time.



UNIT CONTROL



Fig. 2 Control panel button functions

The control panel screen displays the information about the current state of the ventilation system automatic control system. The screen interface is divided into several main windows. Use the Right/Left buttons to navigate between the windows. To enter the functions menu press Enter. To return to the language menu press Exit.

Upon connecting the air handling unit to the electric mains and automatic cut-out switch activation the control panel screen displays the manufacturer's logo. If the «Restart» function has been enabled (see p. 10.1) the air handling unit switches on automatically in a few seconds. If the «Restart» function is disabled, press the Up or Down button to select the air handling unit status.



To save the selected status select «Off» and press Enter. The light goes off and the air handling unit remains disabled. To enable the air handling unit select «On» in the window and press Enter. The air handling unit activates, the green LED indicator lights up, and the screen displays the main window with the current information (see Fig. 3).

The air temperature can be regulated in two ways:

- using the supply air duct temperature sensor;
- using the room air temperature sensor built into the control panel.

The main windows display the following information:

Window 1 (see Fig. 3) — temperature regulation using the supply duct air temperature sensor:

- «a» current temperature in the supply duct;
- «b» pre-set supply duct temperature value (SETPOINT);
- «c» current fan speed;
- «d» current heater output;
- «e» current operation mode of the air handling unit;
- «f» current time.



The air handling unit operation mode (field «e») has three possible values:

- «M» the manual mode. Any adjustments to the parameter values such as air flow rate, heating temperature as well as air handling unit activation or deactivation can only be made by the user. The daily timer and weekly schedules are disabled.
- «D» daily timer enabled. The air handling unit is enabled or disabled according to the pre-programmed temperature, air flow rate and daily operation schedule. However, this mode also allows to enable or disable the air handling unit manually.
- «W» weekly schedule enabled. The air handling unit is enabled or disabled according to the pre-programmed temperature, air flow rate and weekly operation schedule. However, this mode also allows to enable or disable the air handling unit manually.
 - To enable temperature regulation using the room air temperature sensor press the Up or Down button. Main Window 1 displays the information given on Fig. 4.



Room	+23°C	Fan	#2
		пеа	er 34 %
Set	+23°C	Ρ	12 :3 4

Fig. 4

Window 2, see Fig. 5:

To switch to Window 2 press the Right button.

«h» - temperature regulation using the outdoor air temperature sensor;

«i» - temperature regulation using the exhaust air temperature sensor downstream of the heat exchanger.



The outdoor air temperature and the exhaust air temperature sensors are not available in some air handling unit modifications. In that case the missing sensors are marked with the «**» symbol (see Fig. 6).

Outdoor	+12°C	Fan	#2
		Heate	r 34 %
Exhaust	**°C	Ρ	12 :3 4

Fig. 6

To return to main Window 1 press the Left button.

Window 3:

To switch to Window 3 press the Left button.

Window 3 displays the list of possible alarms. The «+» symbol corresponds to an alarm presence while the «-» symbol — to its absence. In the event of an alarm the red LED goes on and the screen displays the corresponding alarm symbol. Upon the sound alarm activation the warning signal will continue until the air handling unit is powered off or sound alarm is disabled.

Alarm signals:

«Pressostat». This signal is activated by the differential pressure sensor (pressure relay) installed on the air handling unit air filter. This is the signal to replace the air filter.

«Heater overheating». This signal warns about abnormally high air temperature in the electric heater chamber. The signal circuit includes normally closed contacts of thermal cut-out switches installed in the electric heater chamber and the series-connected control coil of the electromagnetic contactor used for emergency opening of the heater supply circuits. This signal means that the air supply to the heater is insufficient.

«Communication loss». This signal is triggered by an interruption of data exchange between the control panel and the air handling unit controller. This may result from a bad contact of the four-core cable connecting the control panel and the air handling unit.

Furthermore, in case of an emergency in addition to generating this alarm signal the automatic control system switches the fans to heater cooling mode and stops the fan motors on elapse of the set time period.

Functions menu:

To enter the functions menu from main Window 1 press the Enter button.

Move the cursor and select the respective icon in the functions menu to access the controller functions (see Fig. 7). Use the Right/Left buttons to navigate. To change the current parameter setting use the Up/Down buttons. To enter the current function settings menu press Enter or press Exit to cancel or move up a level.



List of functions menu icons and their meaning:

Fig. 7









Weekly schedule setup

Unit activation options:

Immediate turning OFF

Upon pressing the Enter button the air handling unit is disabled after heater cooling within 120 seconds.



Turn OFF delay

Upon pressing the Enter button the user is prompted to enter the air handling unit deactivation delay. In this example upon entering the delay value and pressing the Enter button the air handling unit will switch off after 20 minutes.

Deactivation in:		
00 hours	20	minutes

Temporary shutdown

Upon pressing the Enter button the user is prompted to enter the temporary deactivation time. On elapsing the air handling unit switches on automatically and continues to operate using the parameters in place before the temporary deactivation. In this example upon the time selection and pressing the Enter button the air handling unit will switch off after heater cooling within 120 seconds and re-activate in 90 minutes.

Deactivation in:		
01 hours	30	minutes

2. Speed (air capacity) setup.

The user is prompted to select one of the three fan speed stages using the Up/Down buttons.

3. Control temperature (setpoint) setup.

Use the Up/Down buttons to set the control temperature (air temperature in the supply duct or in the serviced space) within the +10 \div + 40 °C range. There is also the «**» heater forced shutdown mode. If the heater is disabled, supply air heating is not available.

4. Date/time setup. Calendar setup.

Year	12	Day	
Date	12	Hours	NIQ
Day	31	Minutes	34

Use the Up/Down and Left/Right buttons to move the cursor to the necessary field, then press the Enter button and change the item value using the Up/Down buttons.



Year	12	Day	МО
Month	12	Hours	11
Date	31	Minutes	34

Press the Enter button once again to go back to the functions menu. To exit the functions menu press the Exit button.

5. Daily timer setup.

The daily timer activates and deactivates the air handling unit at the pre-programmed period of time on a daily basis.

	Daily timer
	Activate
_	Deactivate
_	

Upon selecting «Daily timer - On» set the unit activation and deactivation time.

Turn ON time:	Turn OFF time:
12: 12	21:34

Use the Left/Right buttons to move the cursor to the necessary field. Then use the Up/Down buttons to change the timer value. Press the Enter button to return to the functions menu and save the new settings. In the example above the air handling unit will deactivate at 21:34 and activate at 12:12.

Once the daily timer has been enabled the main window shows «D» («Daily timer enabled») in the «Operation mode» field.

Attention! The weekly schedule has priority over the daily timer. If the daily timer and the weekly schedule are used simultaneously the main window shows «W» («Weekly schedule enabled») in the «Operation mode» field of the main window.

6. Weekly schedule setup.

The weekly schedule is used to automatically maintain the pre-programmed temperature and fan speed at a certain time of a certain day of the week as well as to enable and disable the air handling unit at a certain time automatically. Unlike the daily timer the weekly schedule items trigger when the current time matches the programmed value (not during the pre-programmed period of time). The user can set up to 15 programs for each day of the week. Upon the weekly schedule activation the main window shows «W» «Weekly schedule enabled» in the «Operation mode» field. Although the weekly schedule and the daily timer can be used simultaneously, the weekly schedule has priority over the daily timer. When used simultaneously the main window shows «W» in the «Operation mode» field.

To set up the weekly schedule use the operation mode menu:

Activate	
Deactivate	
Review	

6.1 «Activate» - enabling the weekly schedule. Press the Enter button to enable the weekly schedule and review the current settings. Up/Down: change the current position of the day of the week or program number of the chosen day (depending on the cursor position).

MONDAY		N:01
(5 #3	t° ₿ 23°C	12:34

Left/Right: use the cursor to select «Day of the week» or «Program number» field for the current day of the week.

MONDAY		N:01
(5 # 3	t° ₿ 23°C	12:34

In this example program #01 includes the following actions for MONDAY: switch the fan speed to stage 3 and set the control temperature to +23 °C at 12:34. Moving one step up produces the following readings:

MONDAY		N:02
(5 #1	t° ₿ 20°C	22:30

This means that according to Program #2 the control temperature setting will be reduced to +20 °C and the fan speed will be set to speed stage 1 at 22:30.



6.2 «Deactivate» - disabling the weekly schedule and exit to the functions menu.

6.3 «Review» - settings preview in the read-only mode;

6.4 «Edit» - weekly schedule program editing mode. This mode allows editing the air temperature and fan performance settings, adding and deleting programs for specific days of the week as well as editing the values entered previously.

Weekly schedule setup:

Use the Up/Down buttons to select the day of the week (for example, MONDAY). Program number «# 00» means that there aren't any programs created for the given day.



Having selected the day of the week press Enter to move to the next program selection position. The rest of the settings such as air capacity, air temperature and time are completed automatically using the current parameters.



In this example the following actions are set for Program #01 for MONDAY: switch fan speed to stage 3 and set the control temperature to +23 °C at 12:34. Press the Enter button to switch to Program #01 parameter editing window.



Use the Left/Right buttons to select the parameter position and then use the Up/ Down buttons to set the parameter value. In this example the cursor is currently at the clock field. To set the time for Program #01 activation use the Up/Down buttons.

MO N:01	S	t ∯
12:34	#3	23°C

To complete the program setup (in this case it is Program #01 for Monday) press the Enter button.

MONDAY		_ N:01
(5 # 3	🕂 🖁 23°C	14:34

To switch to the following program press the Enter button.

MONDAY		N:02
(5 # 3	🕂 🖁 23°C	12:34

In this example Program #02 has been added. This way more programs can be added for the selected day of the week. As shown in Program #02 example, set the control temperature to +25 °C. To do this press the Enter button while the cursor is at Program #02, enter the editing window, set the cursor to the temperature field and enter «25» using the Up/Down buttons.

MO N:02	S	t∔
12:34	#3	25°C

Then press Enter.



MONDAY		N:02
IS #3	t° ₿ 25°C	12:34

Program #02 has been entered into the memory.

The weekly schedule settings enable forced heater shutdown. Enter Program #01 by pressing the Left or Right button, and then press the Up or Down button.

MONDAY		N:01
(\$ # 3	🕂 🖁 23°C	14:34

To enter Program #01 editing mode press the Enter button:

МО	N:01	S	ť∔
14	34	#3	23°C

Use the Up/Down buttons to set the desired temperature «**»:

МО	N:01	S	t∔
14	: 34	#3	**

To finish editing the parameters press Enter.

MONDAY			N:01
(5 # 3	tÅ	**	14:34

In this example air heating option is disabled for program shown.

To program the air handling unit to shut down enter the «**» value into the speed selection field using the Up/Down buttons. The temperature value will set to «**» automatically. This will cause the air handling unit to shut down at the pre-programmed time.

MONDAY			N:01
\$ **	tå	**	14:34

To edit or delete a program from the list for a given day of the week press the Left of Right button to move the cursor to the desired program number and select the program number to edit or delete by pressing the Up or Down buttons. To proceed with editing press Enter to switch to the editing window. Press Enter to delete the selected number program. Upon deleting the cursor will return to the day of the week selection position, the program will be deleted from the memory and its number will be assigned to the next program in the sequence causing all the remaining programs to shift one level down on the list.

Example of deleting Program #01:

Press the Exit button:

While in the day of the week selection menu (in this case MONDAY) move the cursor to Program #01: Select Program #02 in the «MONDAY» position:

MONDAY		N:02
(\$ # 3	t° ₿ 25°C	12:34

Press the Left or Right button. Switch to the program selection menu:

MONDAY		N:02
(\$ # 3	🕂 🖁 25°C	12:34

Select Program #01 by pressing the Up or Down buttons:

MONDAY		N:01
S**	t≟ **	14:34
-		
MONDAY		N:01
(£ #3	∔°≜ 25°C	12:34

/entilatoren

The values entered into Program #02 (speed stage 3, control temperature +25 °C, and program activation time 12:34) have shifted one number down while Program #01 values have been permanently deleted from the list. In other words, Program #02 parameters have replaced those of Program #01. This method allows deleting programs made in error. Press Exit to return to the weekly schedule mode selection menu.

6.5 «Reset» - deleting all the previously made programs for all days of the week from the memory.

7. Filter replacement interval setup.

The filter replacement interval can be programmed in the 10 ÷ 99 days. Upon elapsing of the period the main window of the control panel screen is replaced with the following message:



This message only serves as a filter replacement warning and does not affect the air handling unit operation. The machine hours counter is enabled only during the air handling unit operation and remains disabled while the unit is off.

To clear the message press Enter which takes to the Functions mode. After returning to the main window the warning message replaces the main window again. To disable the warning message go to the Functions mode, select the «Filter replacement interval setup» icon and set the new value by using the Up/Down buttons.

8. LED backlight activation/deactivation.

The LED screen backlight can be enabled or disabled. When enabled the light remains always on. When the «Auto» mode is selected the screen lights up for two minutes after the last press of any button.

9. Sound signal activation/deactivation.

The sound signal accompanies any changes made to the unit settings and provides the air handling unit emergency warning. In case of an emergency (while the sound signal is enabled) the sound alarm will signal an emergency situation until reset.

10. Engineeering settings.

Air handling unit equipment parameter list. By default the service settings menu is password-protected (see p. 10.5).

10.1 «Restart after power failure». This parameter enables the air handling unit reactivation after a power failure. In the event of a power failure (unit shutdown with a subsequent restart) the air handling unit remains disabled if restart is disabled. If restart is enabled the air handling unit returns to the previous mode (disabled or enabled) and continue to follow the daily timer and weekly schedule program. Format: 1 - enable, 0 - disable. Default value: 1.

10.2 «t° heat exch. freeze protect.» - the outdoor air temperature threshold for engaging the heat exchanger freeze protection sequence which involves the bypass damper position adjustment (while the bypass is in the automatic mode - see p. 10.3). Range: $-10 \div +10$ °C. Default value: 0 °C.

10.3 «Bypass mode» - «Open» / «Auto». While in the «Open» mode the bypass damper is permanently open. In the «Auto» mode the bypass damper remains closed until the outdoor air temperature drops below the threshold value set by the «t° heat exchanger freeze protection» parameter (see p. 10.2) in which case the damper will cyclically open for 5 minutes and close for 25 minutes. Format: 0 = Open, 1 = Auto. Default value: 1.

10.4 «Data exch. protocol» is used for ensuring compatibility with other automatic control systems. The default value is «1».

10.5 «Change password» enables changing the current password used for entering the Engineering Menu. To disable the password enter 0000. Range: 0000 ÷ 9999. Default value: 1111.

10.6 «Default settings» enables resetting all the settings to the factory values (set by default).

10.7 «Sensor correction» enables correction of the built-in temperature sensor. Value range: ±9 °C. Default value: 0 °C.

STORAGE AND TRANSPORTATION REGULATIONS

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range from +5 °C to +40 °C and relative humidity up to 70 %.
- Storage environment must not contain aggressive vapors and chemical mixtures provoking corrosion, insulation, and sealing deformation.
- Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit.
- Follow the handling requirements applicable for the particular type of cargo.
- The unit can be carried in the original packaging by any mode of transport provided proper protection against precipitation and mechanical damage. The unit must be transported only in the working position.
- Avoid sharp blows, scratches, or rough handling during loading and unloading.
- Prior to the initial power-up after transportation at low temperatures, allow the unit to warm up at operating temperature for at least 3-4 hours.



MANUFACTURER'S WARRANTY

The product is in compliance with EU norms and standards on low voltage guidelines and electromagnetic compatibility. We hereby declare that the product complies with the provisions of Electromagnetic Council Directive 2014/30/EU, Low Voltage Directive 2014/35/EU and CE-marking Directive 93/68/EEC. This certificate is issued following test carried out on samples of the product referred to above. The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, installation, and operation regulations. Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation, the user is entitled to get all the faults eliminated by the manufacturer by means of warranty repair at the factory free of charge. The warranty repair includes work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

The warranty repair does not include:

- routine technical maintenance
- unit installation/dismantling
- unit setup

To benefit from warranty repair, the user must provide the unit, the user's manual with the purchase date stamp, and the payment paperwork certifying the purchase. The unit model must comply with the one stated in the user's manual. Contact the Seller for warranty service.

The manufacturer's warranty does not apply to the following cases:

- User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismounted by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packaging and in the user's manual.
- User's failure to ensure timely technical maintenance of the unit.
- External damage to the unit casing (excluding external modifications as required for installation) and internal components caused by the user.
- Redesign or engineering changes to the unit.
- Replacement and use of any assemblies, parts and components not approved by the manufacturer.
- Unit misuse.
- Violation of the unit installation regulations by the user.
- Violation of the unit control regulations by the user.
- Unit connection to power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in power mains.
- Discretionary repair of the unit by the user.
- Unit repair by any persons without the manufacturer's authorization.
- Expiration of the unit warranty period.
- Violation of the unit transportation regulations by the user.
- Violation of the unit storage regulations by the user.
- Wrongful actions against the unit committed by third parties.
- Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
- Missing seals if provided by the user's manual.
- Failure to submit the user's manual with the unit purchase date stamp.
- Missing payment paperwork certifying the unit purchase.



FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT.



USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP.



CERTIFICATE OF ACCEPTANCE

Unit Type	Control panel
Model	S16
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

SELLER INFORMATION



INSTALLATION CERTIFICATE

The S16 unit is installed pursuant to the requirements stated in the present user's manual.				•••••	
Seller					··
Address					
Phone Number				• • •	
Installation					
Technician's Full Name		1			
Installation Date:		Signature:		· · · · · ·	
The unit has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer.			Installation	 1 Stamp	
Signature:					

WARRANTY CARD











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