DOSPEL
Leader in ventilation

EN

MAINTENANCE MANUAL
WARRANTY CARD

OPTIMAL
AIR HANDLING UNIT

Below documentation shall be kept by user!
In case of not following the conditions of this document, the warranty expires.

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CONTENTS

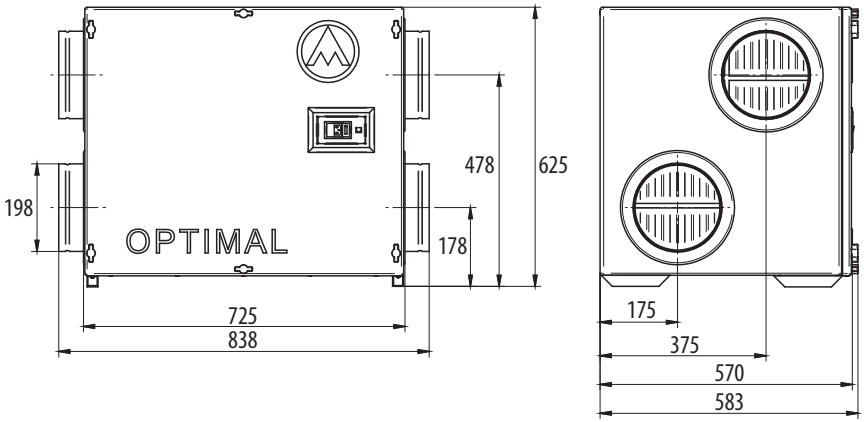
1. GENERAL INFORMATION

1.1. Purpose

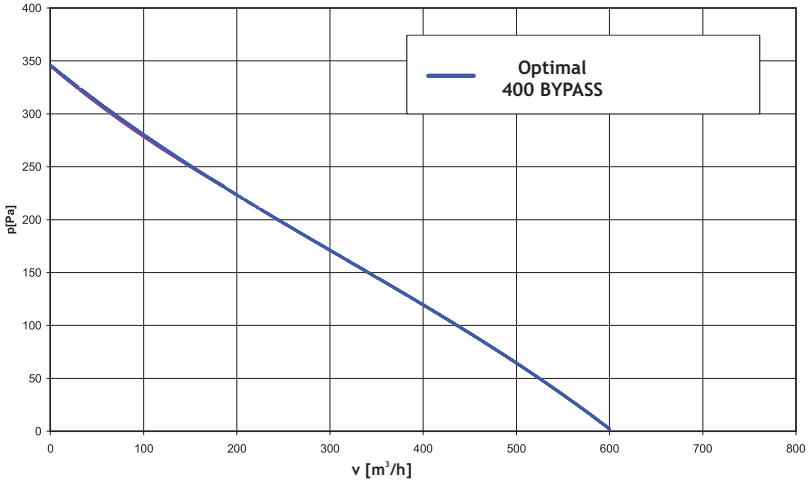
OPTIMAL air handling unit is destined for air exchange in residential buildings.
The purpose of the unit is to bring fresh air from the outside and to siphon off used air from the rooms with simultaneous heat recovery.

1.2. Technical specification

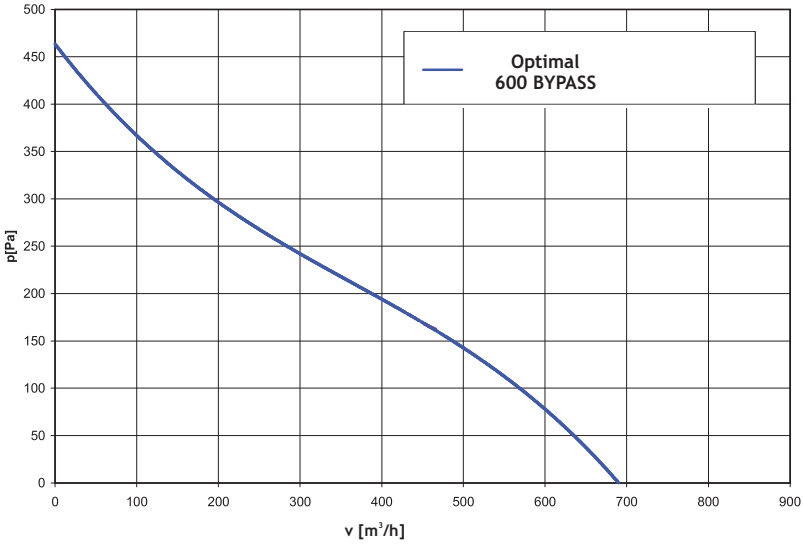
	OPTIMAL 400 BYPASS	OPTIMAL 600 BYPASS
Dimensions	838 mm x 631 mm x 583 mm	
Diameter of ventilating connectors	198mm	
Air flow (100 Pa)	400m^3/h	600m^3/h
Disposal compression	0-340 Pa	0-450 Pa
Max power consumption	min. 20W / max. 150W	min. 20W / max. 250W
Heat recovery efficiency	up to 95%	
Power supply voltage	230 VAC / 50Hz	
Motor rational speed	1400 rpm	1650 rpm
Type of motor bearing	roller bearing	
Acoustic pressure	max. 52dB(A)/1m	max. 53dB(A)/1m
Insulation class	I	
Internationl protection rating	IP40	
Weight	48,8 kg	49,8 kg



1. Nominal dimensions of OPTIMAL



2. Flow efficiency characteristics OPTIMAL 400 bypass



3. Flow efficiency characteristics OPTIMAL 600 bypass

2. ASSEMBLY

2.1. Required exploitation conditions

The unit and ducts should be assembled in rooms with temperature 5°C - 30C and heat-separated form surroundings.

Not following above conditions will cause liquefaction of condensate and cumulate it inside and outside of the unit which may cause dampness in the room or damage to the unit.

WARNING!

1. Ventilation installation and other belonging elements must be in accordance with Polish Norms referring to ventilation in residential and public utility buildings.
2. The unit is not destined for drying the unseasoned houses.
3. In case of damage to elements arising from not following the above instructions, they will be not repaired under warranty.
4. Due to design reasons there is a possibility of mixing the air inside the unit with amount not exceeding 2%.

2.2. Pre-assembly requirements

While planning the assembly of the unit consider:

- ensuring the expliotation conditions of the unit
- possibility of bringing about ventilation pipes to the device
- possibility of siphonning of steam condensate
- possility of bringing about electric energy
- easy access to maintenance and repairs

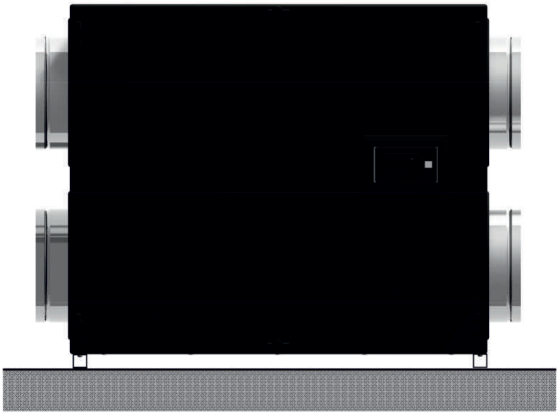
Prior to connecting the unit check elements condition, including casing and wiring. In order to avoid any damage, the unit should be kept in safe place in original packaging.

2.3. Unit location

The unit is destined for assembly under dry roofed rooms with basements (attics, utility room). The unit should be assembled in a way to allow free drain condensate from the tub.

WARNING!
Manufacturer does not include assembly elements with the unit. Buyer should purchase elements separately.

After unit is placed, it shoud be leveled. It has an essential meaning for proper work of the condensate drainage system.

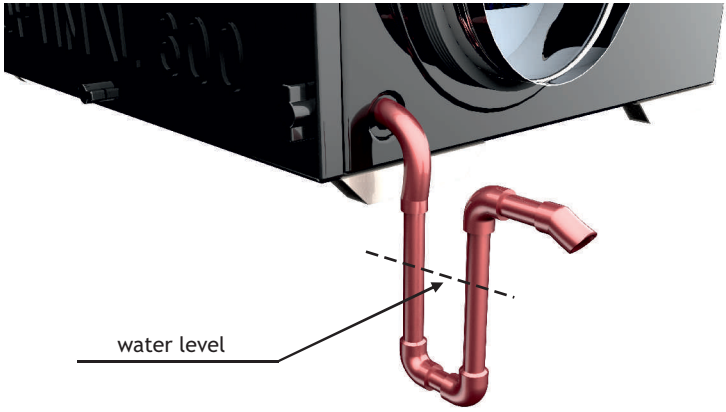


4. Proper positioning of the unit. It is essential to keep level of the base

2.4. Assembly of condensaation dreinage system

Steam condensation can be observed during unit's work. It is completely normal and it is not an abnormality in working. In order to siphon out condensate the unit is equipped with stub pipe placed on the right side. It is essental to properly connect the pipe siphoning out the condensate.

Exemplary way of conneting the pipe is shown below. The pipe should have adequate diameter to the stub-pipe (1/2"). It shoud be bent into letter "U" and suffused with water until stabilizing its level. Shipon should be palced around 150 mm from the unit and radius should not be less than R=30 mm. Given measures should be taken as minimal.

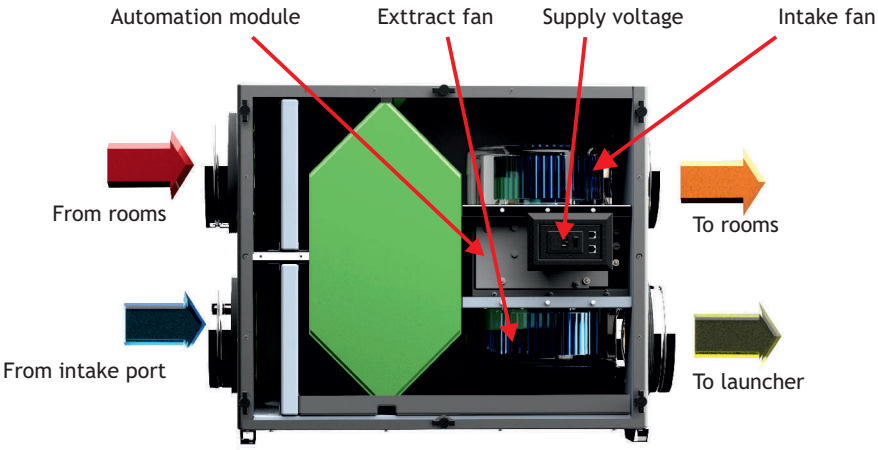


5. Exemple of pipe assembly to siphon out condensate

2.5. Connection to ventilation

Inner stub-pipes diameters are 198mm and are fitted to standard Termoflex ducts 200 mm. Ventilation ducts should be assembled carefully with the use of OZ duct clip (4 pcs).

In case of assembly in temparature below 12°C and above 32°C it is recommended to insulate ventilation ducts with mineral wool of min. thickenss 30 mm. Such operation will assure efficient work of the ventilation system.



6. Designation of the unit with stub-pipe description

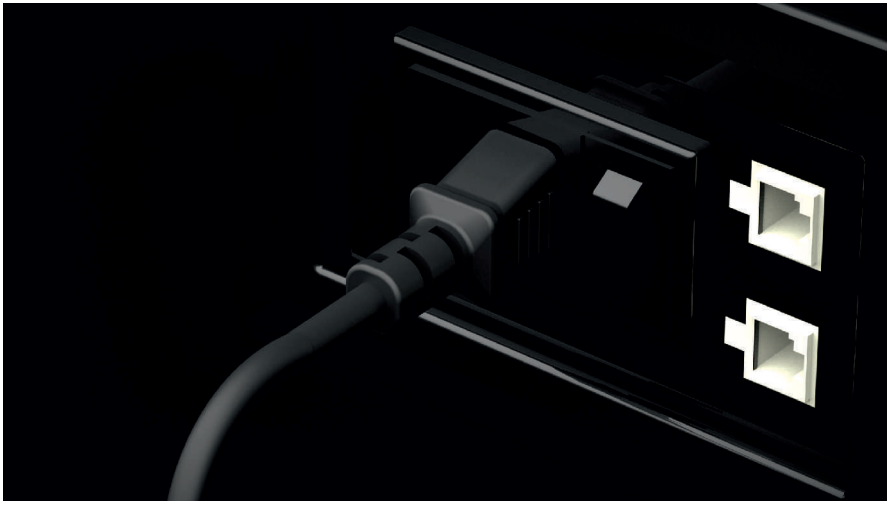
2.6. Conneting to power grid

Unit should be connected directly to one phase outlet 230V/50Hz in the most accessible place. All electrical matter should be perfomed by authorized person.

WARNING!

Prior to maintenance work or repairs, unit should be disconnected from the power outlet by pulling the plug out.

In case of damaging the wire, replacement can only be performed by authorized person.



7. Manner of conneting power cord

3. STARTING THE UNIT

3.1. General remarks

1. Prior to starting the unit read the manual.
2. Check if there is no objects present in the ducts which may damage the unit or endanger health.
3. It is recommended to test the working mode of the unit prior to connecting it to ventilation.

WARNING!

While testing the installation follow the safety rules in order to avoid improper direction of airflow, i.e. open chimney duct or other devices with open fire towards room.

3.2. Connecting control panel

Air handling unit is equipped with weekly controller.

Control panel is delivered with 20 m connection cord ended with plug type RJ11.

Control panel should be placed on a wall, but you should previosuly plan how to lead cord from unit to panel.

WARNING!!! Cord cannot be less than 5m long.

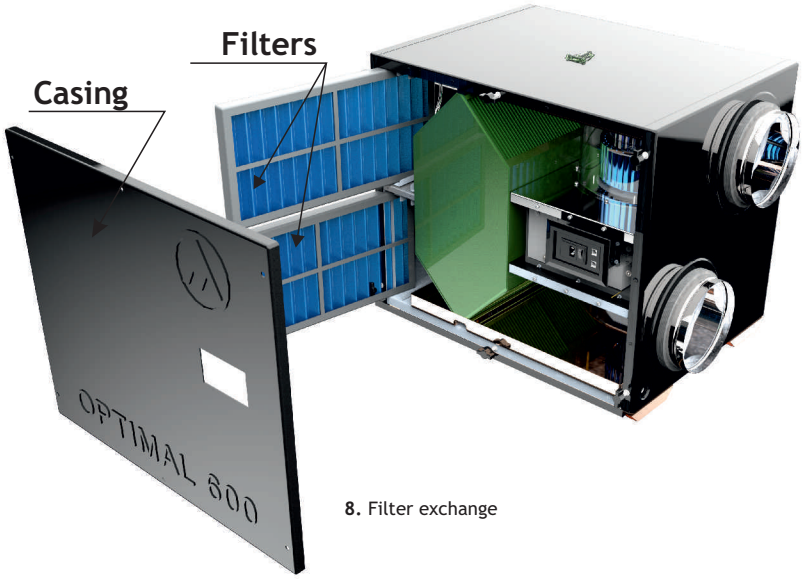
3.3. Starting the unit

- 1. Read the manual
- 2. See if there is no damage
- 3. Place unit in wanted place
- 4. Connect control panel
- 5. Connect connection cord to power grid 230 V
- 6. Turn on the unit using control panel ot turn on "TURBO" mode for 3 minutes
- 7. Check if there is air flow at the stub-pipes (WARNING! Do not put hands inside the stub-pipes - may results in injuries!)
- 8. Turn off the unit using control panel
- 9. Unplug power cord from grid
- 10. Disconnect control panel from unit
- 11. Mount the unit in ventilation system
- 12. Lead control panel's cord from unit to destined mounting place
- 13. Mount control panel
- 14. Connect unit to control panel
- 15. Connect power cord to power grid
- 16. Turn on control panel and set weekly program
- 17. Control air intake efficiency in accordane with project

Once all above is performed, the unit can be used.

3.4. Usage and maintenance

Properly mounted Optimal does not require any special maintenance during use. Maintenance is the replacement of air filters. Visual indication informs about filter replacement.



8. Filter exchange

Filter exchaange in steps:

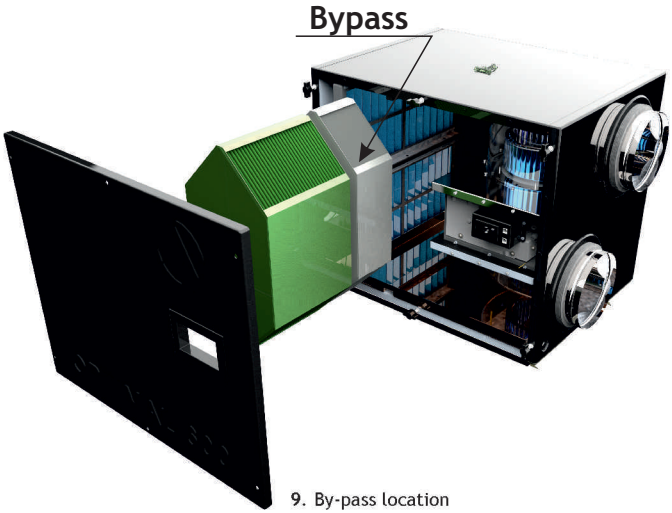
1. Disconnect connection cord from power grid
2. Disconnect control panel from the unit
3. Dismount the casing by unscrewing butterfly screws
4. Carefully take out used filters and replace with new ones
5. Mount back the casing and screw with butterfly screws
6. Connect power cord and control panel
7. Connect unit to power grid
8. Reset the timer

WARNING!!!

Unit should not work without filters. It is only recommended for testing, but no longer than 10 minutes.

3.5. Summer mode

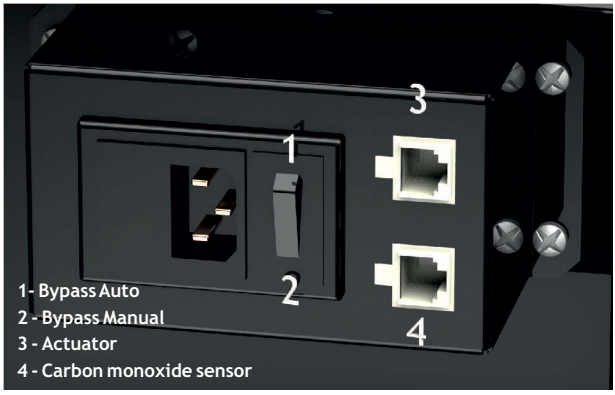
During unit's work heat recovery is only needed to temperature of around 18°C. Cold recovery is neecessary in ventilated rooms if temperature is above 26°C. When outter temperature is between 15-26°C it is required to use by-pass, which results in ommision of warming the air. For this purpose Optimal 400 by-pass/600 b-pass ar equipped with automatic by-pass.



9. By-pass location

The moment when by-pass is opened hear exchange does not take place. By-pass is used for cooling ventilated rooms with the use of cool air for example from GWC.

Switch, presented on the picture below in position By-Pass Manual means opening the actuator. It closes when outter temperature falls below 10℃. Switching to By-Pass Auto means automated work of actuator.



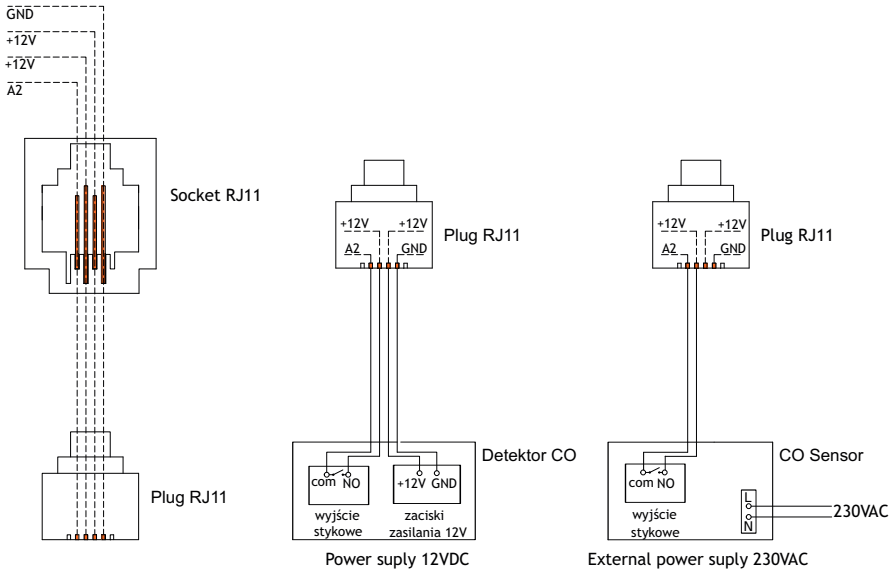
10.

3.6. Working with carbon monoxide sensor (option)

OPTIMAL unit is designed to work with carbon monoxide sensor. Basic function of this sensor it detection of carbon monoxide and generating alarm when excessive amount of it is detected. Sensor decreases risk of carbon monoxide poisoning and allows to take action in life-threatening situations.

Carnon monoxide sensor should be installed in:
- room with fireplace or tiled stove
- room with gas burners
- bathroom with warm water gas heaters
- boiler house
- garage or workshops

Unit working with carbon monoxide sensor results in exhaust and intake fans to work on maximum speed. Decrease of carbon monoxide in air allows unit to return to normal operation mode. Detailed description of carbon monoxide sensor can be found in manual.



4. Exploitation Recommendation

- **Necessity of filter replacement is signaled by countdown timer via visual warning.**

The filter cartridge made of polyester fabrics cannot be cleaned and must be replaced with a new one if necessary. New filters should be ordered from the device supplier.

The time indicator of contamination of the filter counts down the time remaining until the next filter change.

To start the countdown for the first time, press and hold the RESET button for 3 seconds.

The need to replace the filter is signaled by audible and visual signals - after the countdown is over, the digits 00 00 00 are displayed on the screen.

The signal must be reset by pressing the RESET button.

The device is equipped with a magnet and CR1130 battery.

- **Fan check-up**

Despite of required maintenance work (cleaninf/filer exchange) dust and grase can be slowly embed inside the fan, which can decrese its effecitivity. Fan can be cleand with cloth or soft brush. Keep caution while cleaning not to damage fan's impeller. Do not clean with water, do not put in water! Solid dirt can be cleaned with denaturated alcohol. Prior to placing back - dry well.

- **Control of condensate's stub-pipe**

Stub-pipe can become dirty overtime by fixed particles brought by air. It is recommended to periodically check (by flushing with water) stub-pipe patency. Clean if needed.

- **Cleaning intake and exhaust**

Unit is a part of a whole system. the system supplies fresh air and launches used air through ducts and intake/exhaust diffusers. Air diffusers are installed in ceilings, walls, bathrooms and rooms. They should be periodically cleaned with warm water and soap, if needed. If they were dismounted for cleaning they should be put in the same places - they cannot be changed.

- **Control of fresh air inlet and launcher**

Pollution as leafs, insects, dust, etc.) can clog air inlet which causes air flow throttling.

Check and clean air inlet at least twice a year.

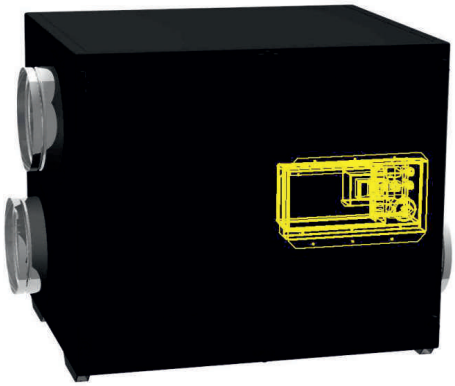
Launcher installed on wall must be checked (cleaned if needed) at least once a year.

- **Duct check-up (every 5 years)**

Dust and grease particles will pile up in duct despite of recommended maintenance which can decrease effectivity of installation. Due to that fact, ducts should be cleaned/exchanged when needed.

- **5. Electrical connection - automation module**

Optimal unit has a separated automation module, in which electrical connections are led. For service purposes the module can be demounted as whole and examined on separate service desk.



11. Location of automation module

5.1. Disassembly and assembly of automation module

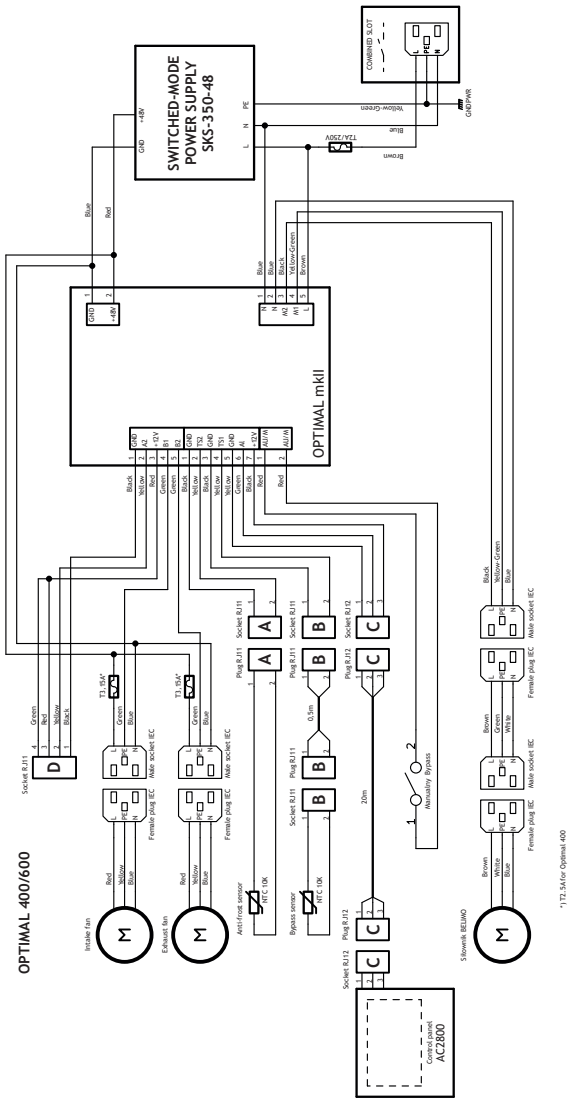
1. Disconnect connection cord from power grid
2. Disconnect panel control's connection cord from automation module
3. Dismount the casing by unscrewing butterfly screws
4. Unscew screws holding module inside the unit (6 pcs)
5. Remove module from the casing
6. Disconnect fans, temperature sensor and bypass

Assembly is performed in reversed order. Once performed start unit.
Connections in automation module are carried in accordance with scheme attached to this document.

WARNING!!!

Disassembled module can be connected by authorized person on prepared test stand only. Module is equipped with elements under 230VAC which can cause damage to health when carried out by unqualified person.

5.2. Connection scheme



12. Connection scheme

WARNING:
Electric equipment is not a household waste. Once exploitation time is over it should be disassembled by hand with use of wrench, screwdrivers and pliers). Electric motors, automation, power supply, steel elements and those made out of plastics should be recycled. Information where to recycle is available at local administration offices.

AC2800 DIGITAL CONTROLLER
Instructions

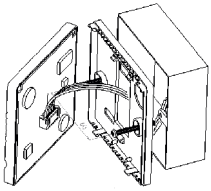
- WEEKLY PROGRAMMABLE TIMER
- BLUE BACKLIGHT (OPTIONAL)
- ANALOG 0-10VCD OUTPUT FOR FAN CONTROLLER
- ON/OFF TIMER
- ELECTRONIC THERMOMETER

SPECIFICATION

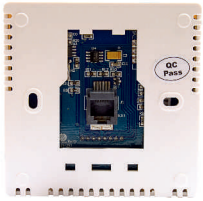
SET POINT RANGE: 0-99%
SETP: 1%
NUMBER OF ZONES PER 24 HRS: 4
TEMPERATURE SENSOR: NTC 10K
PROTECTION DEGREE: IP30
DISPLAY: LCD

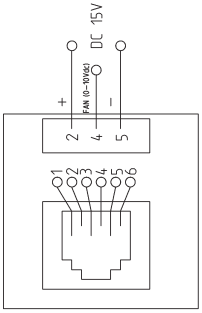
POWER SUPPLY: DC 12V-15V
DIMENSIONS: 86x86x13 mm
CASING: ABS FLAME RESITANT
OPERATION RATING:
TEMPERATURE: 0~40°C
HUMIDITY: 5~95% (NON-CONDENSATING)

ASSEMBLY

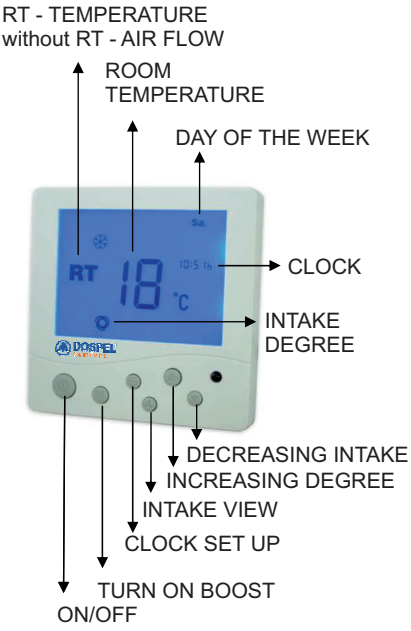


CONNECTION SCHEME





CONTROLLER'S DESCRIPTION



5.4. Obsługa panelu sterującego

5.4.1.POWER ON/OFF

- Turn on/off AC2800 by pressing

5.4.2. INTAKE VIEW

Pressing will indicate percentage of intake.

5.4.3. BOOST MODE

For boost press "M". In this mode fans will work at their maximum RPM what will also be shown on display by

5.4.4. WORKING IN WEEKLY PROGRAMME

In this mode controller works directly after it;s turned on. It displays current room temperature next to "RT" sign. Additionaly one of signs is displayed showing intensity of ventilation in rooms.

Pressing or switches level of intake. Implemented change is on untill switching to next programmed mode.

5.4.5. SETTING THE CLOCK

Press – to set minutes

Press or zmienić nastawę minut.

Again press – to set hours.

Press or to set hours.

Press to set day of the week.

Using or choose accurate day of the week "Mo/Tu/We/Th/Fr/Sa/Su".

5.4.6. ICONS ON DISPLAY

is shown when intake is is above 60% maximum value.

is shown when inatke is between 30%-60% maximum value.

is shown when intake is below 30% maximum value.

5.4.7. PROGRAMMING THE CONTROLLER

Press and hold for 3 seconds until number 1 and Mo (Monday) shows. This means time zone nr 1 is set for Monday.

Press or to set required zone.

To confirm press

Use or to set required intake (%).

To confirm press

After programming all 1-4 for Monday, repeat all above after switching days Tu/We/Th/Fr/Sa/Su.

Use scheme below to avoid mistakes, in which you can prepare needed data during programming.

Day	Weekly clock			
	1	2	3	4
	Time zone	Time zone	Time zone	Time zone
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Product information according to Commission Regulation no 1253/2014 and Commission Regulation no 1254/2014

	Unit	OPTIMAL 400	OPTIMAL 600
Supplier		DOSPEL	DOSPEL
Device indentifier		OPTIMAL 400	OPTIMAL 600
Specific energy consumtion (SEC) - average climate		-33	-33
Specific energy consumtion (SEC) - cold climate		-69	-69
Specific energy consumtion (SEC) - warm climate		-10	-10
SEC range - average climate		B	
SEC range - cold climate		A+	A+
SEC range - warm climate		F	E
Device type		RVU BVU	
Type of drive		AC2800 controller Variable speed regulation	
Heat recovery system		recuperative	
Thermal efficiency of heat recovery	%	95	
Maximum flow rate	[m^3/h]	400	600
Fan's drive power consuption	[W]	140	200
Sound power level (L_{wa})	[dB(A)]	52	53

	Unit	OTIMAL 400	OPTIMAL 600
Flow rate	[m^3/s]	0,08	0,12
Pressure difference rate	[Pa]	50	50
Specific power input (SPI)	[W/(m^3/h)]	0,35	0,33
Control factor (CTRL)		0,95	
Internal leakage rate	%	Not more than 2	
Internal leakage rate	%	Not more than 2	
Filter change warning signal		Visual filter change warning signal	
Website		www.dospel.com	
Annual electricity consumption per 100 m^2	[kWh/year]	441	422
The annual heating saved (cold climate)	[kWh primary energy /year]	85	
The annual heating saved (average climate)	[kWh primary energy /year]	44	43
The annual heating saved (warm climate)	[kWh primary energy /year]	20	20

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