



Controller            **BASE CONTROL / BASE IR**  
Control board       **BASE-W / BASE-E**

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**EN**

## User manual



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## 1.0 Introduction

The BASE CONTROL and BASE IR controllers are designed for controlling of door air curtains or of other air-conditioning units fitted with the internal BASE regulator both without heating as well as with water or electric heating. The controllers are intended for basic environment without humidity.

## 2.0 Technical parameters



	Controller - BASE CONTROL	Controller - BASE IR
Power supply:	10 VDC	2x AAA-type batteries
Connection:	Direct UTP cable (patch), RJ45	IR
Operation temperature:	10-35°C	5-40°C
IP rating:	IP20	IP20
Dimensions in mm (h x w x d):	86 x 86 x 25 mm	40 x 98 x 14 mm
Material:	ABS plastic	ABS plastic
IR frequency	-	38 kHz



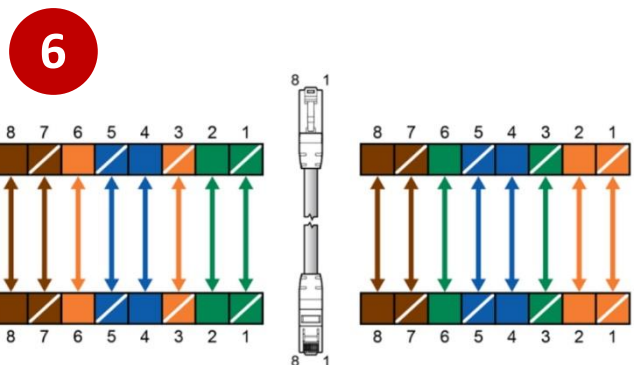
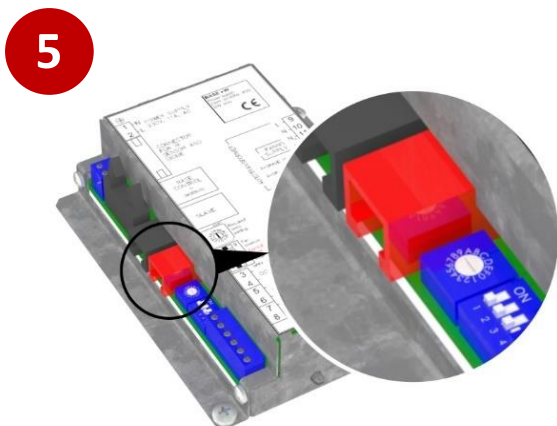
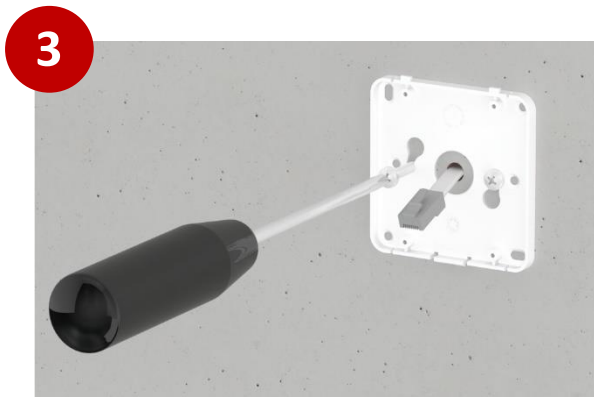
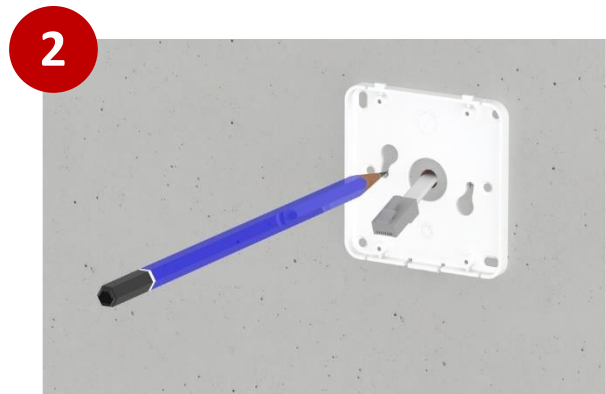
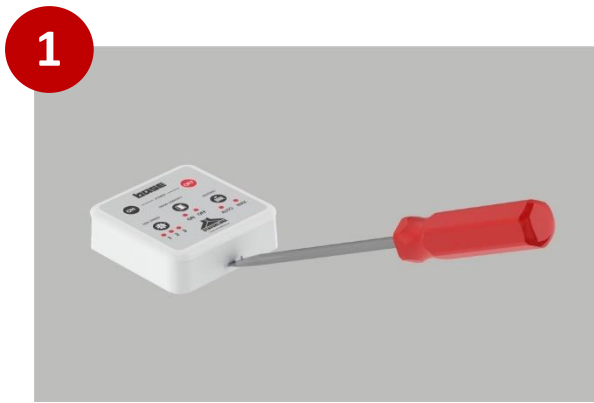
	Regulator – BASE-W	Regulator – BASE-E
Method of heating:	Water heat exchanger	Electric heating bars



**ATTENTION:** Before connecting the regulator (connecting to power supply), please check correct connection of all cables in the electronic fit-out of the unit. Also check correctness of protection pre-element according to design documentation.

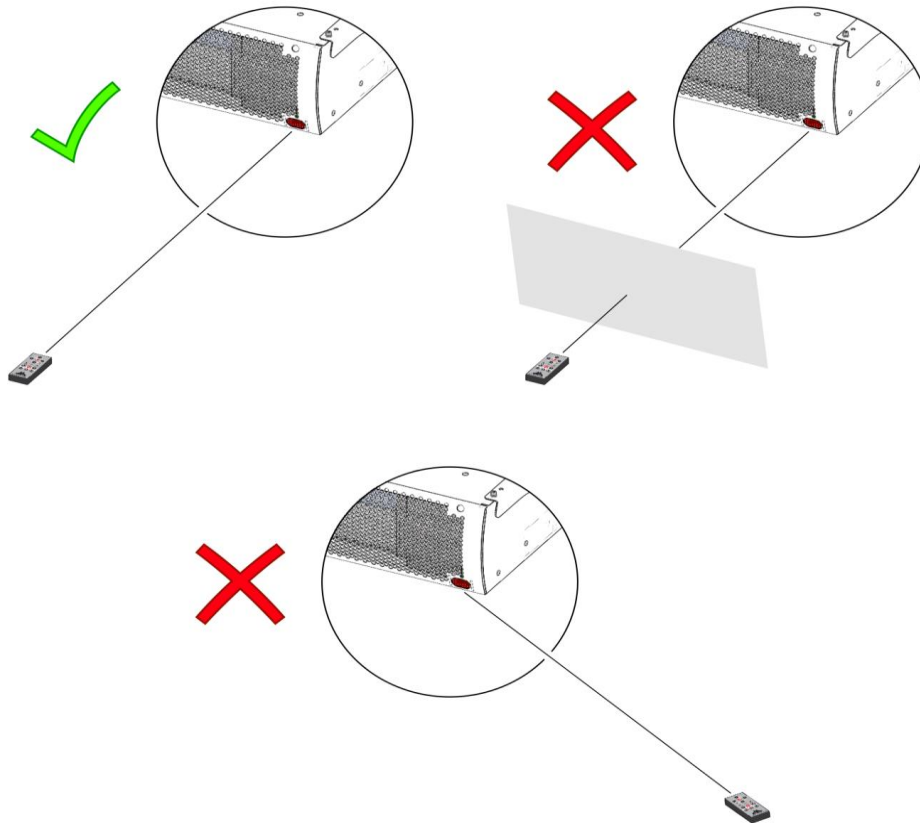
### 3.0 BASE CONTROL – assembly

- 1) Use a screwdriver to pry open the rear side of the plastic box.
- 2) Attach to the wall, guide the cable with connector through central hole, and mark placement of the wall plugs.
- 3) Use 6mm diameter bit to drill holes, install the S6 wall plugs, and screw the rear side to the wall.
- 4) Connect the cable with connector to RJ45 connector and snap in.
- 5) Connect the other end of the cable to the BASE regulator to “base control” terminals inside the air unit.
- 6) The connecting cable between the regulator and controller must be made as direct (patch).



## 4.0 BASE IR - use

For optimum use, make sure the remote controller directly sees the receiver of the air curtain (red round plastic window), and that there are no obstacles in the way. Control angle should have a minimum deviation.










### Battery:

The BASE IR remote controller is powered using standard 1.5 V AAA-type batteries. Batteries are not included. Use of rechargeable AAA-type batteries is not recommended for their low 1.2V voltage. Neither the control unit nor the controller indicate low battery status. Replace the batteries when control of the unit becomes less optimal and the commands “get lost”.



**ATTENTION:** Many factors may reduce the range of the remote controller (low battery, arrangement of rooms, insufficient visual contact, not aiming the remote controller to the IR receiver directly, and more).

## 5.0 Basic description of the controller features

		<b>Power ON:</b>	generally turns the unit on in the last setup before turning off (including Modbus).	
		<b>Power OFF:</b>	generally turns the unit off and saves its configuration, turns fans and heating off	
		<b>FAN 1:</b> <b>FAN 2:</b> <b>FAN 3:</b>	Turns the fan to level 1 Turns the fan to level 2 Turns the fan to level 3	
		<b>Door contact ON:</b> <b>Door contact OFF</b>	Door contact enabled Door contact disabled	
		<b>Heating OFF</b> <b>Heating ON:</b> <b>Heating MAX:</b>	Turns heating off Turns heating on to AUTO mode Turns heating on to MAX mode	

## 6.0 Description of features of hot water option

### Fans:



FAN SPEED



HEATING

ig:

speed of the fans is selected using a wall-mounted controller, remote IR controller, or Modbus. Three output levels (1-2-3) can be selected from with the button to select the fan speed. There is one-second time lag between switching the fan speeds.

levels of heating are selected using a wall-mounted controller, remote IR controller, or Modbus. Two output levels (AUTO-MAX) can be selected from with the button to select the heating output. Heating can be controlled independently on operation of the fan. There is no fan rundown after the heating is turned off. For operation of the regulation valve, NO option must always be used (or, open without voltage)! A condition for operation of heating is closed contact for thermostat or a jumper made (refer to electric wiring documentation).

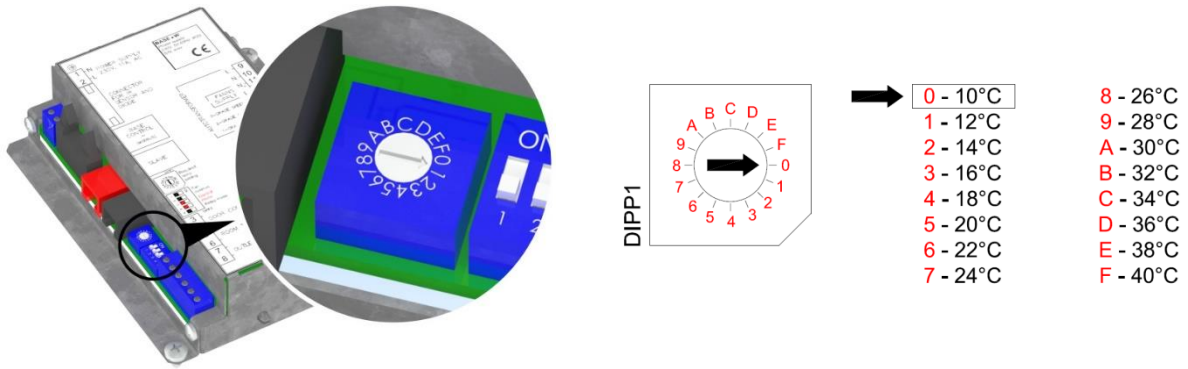
### Heating modes:

**HEATING OFF:** no heating

**HEATING AUTO:** in **AUTO** mode, the unit heats until configured exhaust temperature is set (configured using DIPP-1 switch in the regulator inside the unit) and when the room thermostat is up at the same time. When the room thermostat opens, heating deactivates immediately.

**HEATING MAX:** in **MAX** mode, the unit starts to full heating power. The heating is turned on depending on the room thermostat. When the room thermostat closes, full heating power turns on immediately, and vice versa.

**Required configurable exhaust temperature:** it is configured using the DIPP-1 switch located on the regulator inside the air unit.



**The room thermostat:**



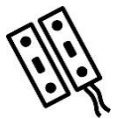
The thermostat allows to turn the heating; neither heating can be turned on and its output level modified when no thermostat is connected.

**Anti-frost protection:**



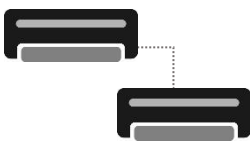
At 4°C exhaust, the heating will be enabled in **MAX** mode, fans will set to speed 2. In case the temperature drop continues, the fans are off at 1°C at the exhaust.

**Door contact:**

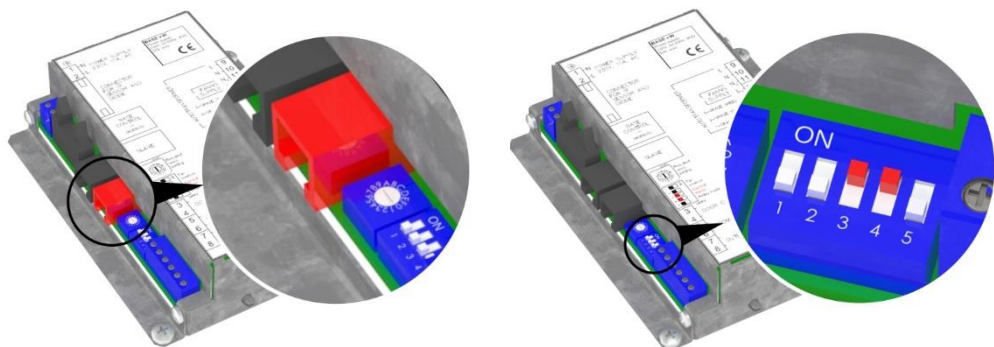


The door contact permits turning the fan on. When the door contact is not closed, the fans may neither be turned on, nor their speed may be changed. When the fans have already been turned on and the door contact opens, the rundown activates (rundown period according to DIPP-2 switch at existing speed), and upon expiry the fans turn off. Refer to chapter “DIPP-2”. When the door contact connects again, the fan turns on to the originally set revolutions.

**Master – Slave:**



The BASE regulator permits simultaneous connection of the second unit. Master (superior unit) and slave (inferior unit) are controlled from single controller (IR, wall-mounted, or Modbus), but slave behaves based on its input parameters (exhaust temperature, thermostat, DIPP-1, DIPP-2 – switches 1, 2).

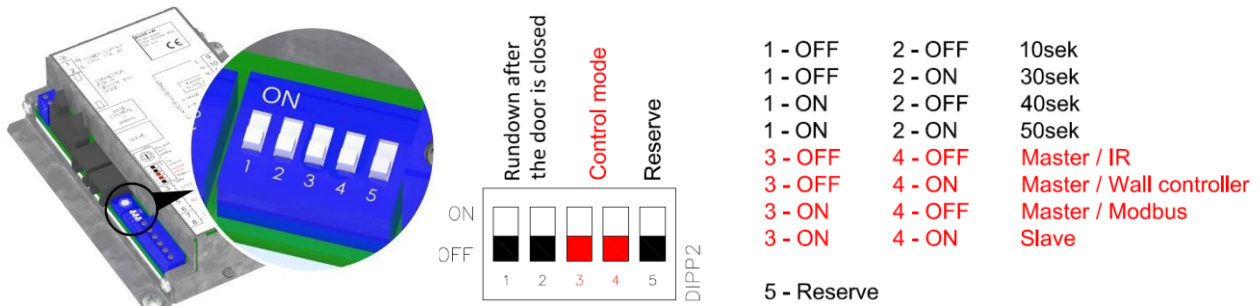


The slave curtain is always defined by DIPP-2 – switches 3, 4 in **ON position**.

Connection is made using a 6-pin cable into two RJ12 connectors identified on both interconnected regulators as “slave”.



**DIPP-2:** Configuration of rundown after the door is closed 10, 30, 40, 50 s is made using combination of the switches 1 and 2. Configuration of the method of control (BASE CONTROL, BASE IR, MODBUS, SLAVE) is made by the combination of switches 3, 4.



**“Black-out”:** The regulator periodically saves its current status. In case of power failure during normal use, upon recovery the regulator turns on in the same mode in which it was before the power failure. In case of power failure during active electric heating followed by recovery (of power supply), the heating must be set to 0, or reactivated manually.

## 7.0 Description of features in electric option

**Fans:**



Speed of the fans is selected using a wall-mounted controller, remote IR controller, or Modbus. Three output levels (1-2-3) can be selected from with the button to select the fan speed. There is one-second time lag between switching the fan speeds.

When heating is turned on together with the fan, the fan when switching from speed 1, 2, 3 (on) to speed 0 (off) first turns off the heating, turns on the rundown timer according to configured fan speed, however, the fan remains turned on at the existing speed.

When the fan is turned on again during operation of the timer, when it switches from 0 to 1, 2, 3, the fan switches to a speed and recovers heating on in the last configured mode (towing feature of the fan).

However, when the AFTER-COOLING time expires without pressing a fan button, the fan and heating will switch to 0, and heating status is not recovered after the next turning on. Prior to turning on the after-cooling by the fan (according to AFTER-COOLING), one-second lag is included to separate the fan after-cooling time between turning it off and on (for 1 second).

**Electric heater:**



Levels of the electric heater are selected using a wall-mounted controller, remote IR controller, or Modbus. The switch to toggle between levels of the electric heater is used to select between two heating output (AUTO–MAX). After turning off, the rundown of the fans is activated = after-cooling. A condition for the electric heater to run is closed contact for thermostat or jumper made (refer to electric wiring documentation).

Electric heater can be controlled independently on operation of the fan.

When the electric heater is turned on before the fan turned on earlier (door contact and thermostat contact on), the fan turns on automatically to level 2. The fan speed may be then arbitrarily increased or decreased.

**Modes of the electric heater:**

**HEATING OFF:** no heating

**HEATING AUTO:** in the **AUTO** mode the unit tries to keep the exhaust temperature as closest as possible to the configured exhaust temperature.



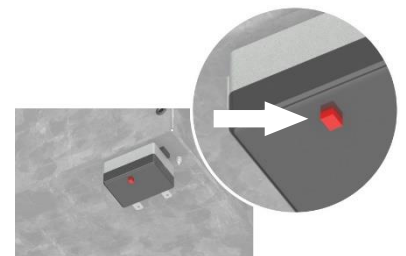
**When the fans are set to speed 1, no full heating output may be used.**

**HEATING MAX:** in **MAX** mode, the unit starts to full heating power. The unit tries to keep the exhaust temperature as closest as possible to the configured **max exhaust temperature = 45°C**. If exceeded, successive reduction of the heating output occurs. The electric heater is turned ON/OFF depending on the room thermostat.

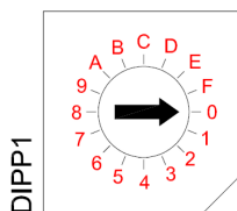
**After-cooling:** After the heater is turned off, AFTER-COOLING is set, i.e., fixed rundown of the fans used as after-cooling of the heating rods.

- Fan speed 1 = 60 seconds
- Fan speed 2 = 40 seconds
- Fan speed 3 = 30 seconds

**Emergency thermostat:** When permitted limit temperature inside the unit is exceeded, heating circuit is turned off by the emergency thermostat (pushbutton sprung up). After cooling down it is necessary to press the thermostat button back to default position and in particular, to find out the reason for the emergency thermostat.



**Required configurable exhaust temperature:** it is configured using the DIPP-1 switch located on the regulator inside the air unit.



<p>0 - 10°C</p> <p>1 - 12°C</p> <p>2 - 14°C</p> <p>3 - 16°C</p> <p>4 - 18°C</p> <p>5 - 20°C</p> <p>6 - 22°C</p> <p>7 - 24°C</p>	<p>8 - 26°C</p> <p>9 - 28°C</p> <p>A - 30°C</p> <p>B - 32°C</p> <p>C - 34°C</p> <p>D - 36°C</p> <p>E - 38°C</p> <p>F - 40°C</p>
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**The room thermostat:**



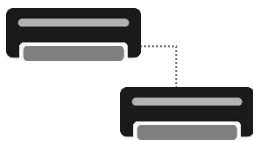
The thermostat allows to turn the heating; neither heating can be turned on and its output level modified when no thermostat is connected.

**Door contact:**

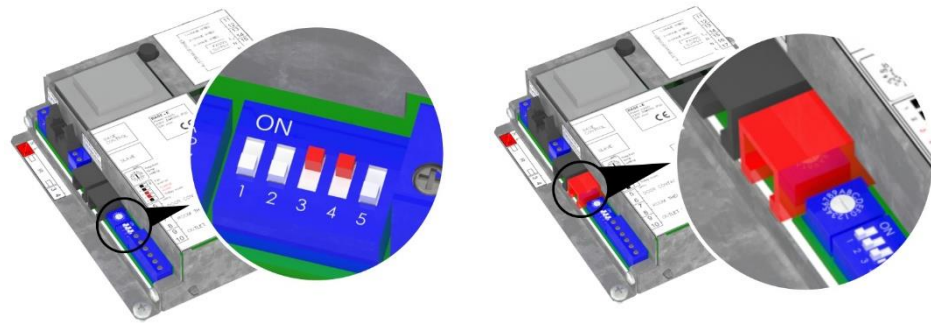


The door contact permits turning the fan on. When the door contact is not closed, the fans may neither be turned on, nor their speed may be changed. When the fans have already been turned on and the door contact opens, the rundown activates (rundown period according to DIPP-2 switch at existing speed), and upon expiry the fans turn off. Refer to chapter “DIPP-2”. When the door contact connects again, the fan turns on to the originally set revolutions.

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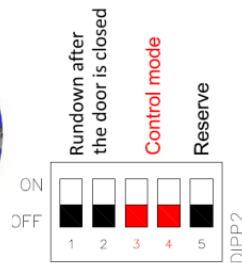


The slave curtain is always defined by DIPP-2 – switches 3, 4 in **ON position**.

Connection is made using a 6-pin cable into two RJ12 connectors identified on both interconnected regulators as “slave”.

**DIPP-2:**

Configuration of rundown after the door is closed 10, 30, 40, 50 s is made using combination of the switches 1 and 2. Configuration of the method of control (BASE CONTROL, BASE IR, MODBUS, SLAVE) is made by the combination of switches 3, 4.



1 - OFF	2 - OFF	10sek
1 - OFF	2 - ON	30sek
1 - ON	2 - OFF	40sek
1 - ON	2 - ON	50sek
3 - OFF	4 - OFF	Master / IR
3 - OFF	4 - ON	Master / Wall controller
3 - ON	4 - OFF	Master / Modbus
3 - ON	4 - ON	Slave

5 - Reserve


**“Black-out”:**

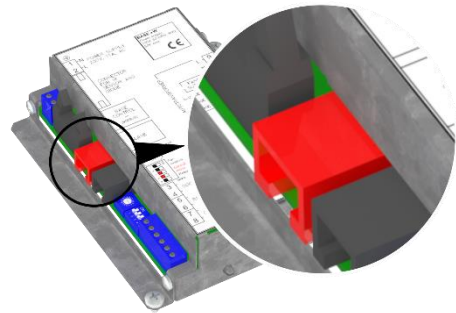
The regulator periodically saves its current status. In case of power failure during normal use, upon recovery the regulator turns on in the same mode in which it was before the power failure. In case of power failure during active electric heating followed by recovery (of power supply), the heating must be set to 0, or reactivated manually.

## 8.0 Modbus feature

The condition for the MODBUS activation is activation of this feature on the DIPP-2 switch (page 7 or 9).

Using the BASE regulator, the air conditioning unit may be controlled remotely via RS 485 port.

**Port:** RS 485 - RJ45 type connector 



**Modbus protocol mode:** RTU

**Supported features:** Reading of the registers MODBUS feature 3 (read holding registers).

Writing of the registers MODBUS feature 16 (write multiple registers).

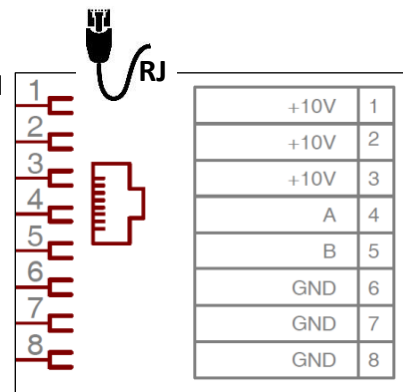
**Communication parameters:** Communication symbol rate - 9600 Bd

Data bits – 8

Stop bit – 1

Parity – even

Slave ID – 10



**Read-only registers:**

DEC address	HEX address	Type	Meaning	Note
1000	0x03E8	UINT16	SW version code	e.g., 1230 refers to 1.23.0
1001	0x03E9	UINT16	Status word	Bit0..on/off Bit1..door contact status Bit3..room thermostat status Bit4..heating thermostat status Bit5..heating enabled
1002	0x03EA	UINT16	Fan speed	0 to 3
1003	0x03EB	UINT16	Heating level	0 to 6 for BASE-E 0/1 for BASE-W
1004	0x03EC	INT16	Temperature of temperature sensor (x0,1°C)	-30°C up to +150°C -30.0 = -300 ... +150.0 = 1500
1005	0x03ED	INT16	Set temperature (x0,1°C)	Depending on rotary DIPP 10.0 = 100 ... 40.0 = 400
1006	0x03EE	UINT16	Set delay of door contact (s)	Depending on DIPP position 1 and 2
1007	0x03EF	UINT16	Relay configuration	1 for BASE-W 4 or 6 pro BASE-E depending on DIPP position 5
1008	0x03EE	UINT16	Mode configuration	1 - IR, 2 - WALL, 3 - MODBUS, 4 - slave
1009	0x03EE	UINT16	Door contact configuration	0 .. off, 1 .. NC enabled

1010	0x03F0	UINT16	Status of HW inputs	Bit0..Emergency thermostat Bit1..Room thermostat Bit2..Door contact
1011	0x03F1	UINT16	Status of HW outputs	Bit0..RE1 Bit1..RE2 Bit2..RE3 Bit3..RE4 Bit4..RE5 Bit5..RE6
1012	0x03F2	UINT32	Relay on count 1	
1014	0x03F4	UINT32	Relay on count 2	
1016	0x03F6	UINT32	Relay on count 3	
1018	0x03F8	UINT32	Relay on count 4	
1020	0x03FA	UINT32	Relay on count 5	
1022	0x03FC	UINT32	Relay on count 6	

**Registers for writing:**

DEC address	HEX address	Type	Meaning	Note
2000	0x07D0	UINT16	Control word	Bit0..on/off Bit1..door contact enabled Bit2..polarity of door contact (0=NO, 1=NC)
2001	0x07D1	UINT16	Required fan speed when door is open	1..3
2002	0x07D2	UINT16	Required fan speed when door is closed	0..3 – not in use yet!
2003	0x07D3	UINT16	Required heating mode	0=OFF, 1=AUTO, 2=MAX
2004	0x07D4	UINT16	-	Not in use yet!
2005	0x07D5	INT16	Temperature sensor correction (x0.1°C)	Within +/-10°C

## 9.0 Troubleshooting

Please read the following troubleshooting guide before contacting the supplier.

<p>The unit does not operate after pressing ON button.</p>	<ol style="list-style-type: none"> <li>1) <b>Door contact</b> If the “door contact” feature is active, open door or close the “door contact” feature.</li> <li>2) <b>Power supply</b> Check for correct connection of the unit power supply to “power supply” terminals in the regulator. Caution, only qualified technician may perform this.</li> <li>3) <b>Fuses</b> Check circuit breaker to which the air unit is connected, and make sure it conforms to minimum requirements for operation of the air curtain. Caution, only qualified technician may perform this.</li> <li>4) <b>Method of controlling the unit</b> Is the required correct unit control mode selected on the regulator? Wall-mounted control, IR remote control, Modbus? If Modbus control mode is selected, no IR, etc. may be used. Check DIPP-2.</li> <li>5) <b>IR control</b> Make sure the remote controller has a visual contact with the receiver of the unit (red oval plastic cover in right hand lower corner of the front mask), and aim directly at it.</li> <li>6) <b>IR control – batteries</b> Replace batteries in the remote controller and try again.</li> </ol>
<p>The fan of the unit does not stop after POWER OFF button is pressed.</p>	<ol style="list-style-type: none"> <li>1) <b>After-cooling</b> Isn't the after-cooling feature enabled? For electric version of the unit (BASE-E regulator) the after-cooling is activated when the fans are turned off – hence, the fans are on even after pressing OFF button on the controller. Wait 60 seconds after pressing OFF button.</li> <li>2) <b>IR control</b> Make sure the remote controller has a visual contact with the receiver of the unit (red oval plastic cover in right hand lower corner of the front mask), and aim directly at it.</li> <li>3) <b>IR control – batteries</b> Replace batteries in the remote controller and try again.</li> </ol>
<p>The unit does not heat after pressing some of the buttons for HEATING.</p>	<ol style="list-style-type: none"> <li>1) <b>Required exhaust temperature</b> What is the required exhaust temperature for AUTO mode configured on DIPP-1? Check for too low temperature.</li> <li>2) <b>Emergency thermostat</b> Check whether the emergency thermostat is not overheated. When permitted limit temperature inside the unit is exceeded, heating circuit is turned off by the emergency thermostat (pushbutton sprung up). After cooling down the thermostat button needs to be pressed back to default position.</li> <li>3) <b>IR control</b> Make sure the remote controller has a visual contact with the receiver of the unit (red oval plastic cover in right hand lower corner of the front mask), and aim directly at it.</li> </ol> <p><b>IR control – batteries</b> Replace batteries in the remote controller and try again.</p> 

## 10.0 Service

- Before any work with the unit, disconnect the electric power supply, mains supply for the unit. Electric shock hazard!
- For relevant electric wiring scheme, refer to the unit. The scheme for a supplied product is valid but it may be modified upon request of the customer or for production reasons depending on a specific request.
- Installation, electric connection, and repairs must be carried out by qualified persons according to § 6 of Decree No. 78 Coll. or according to applicable national standards and regulations. An expert company is needed to connect the heating medium.
- In case of damage to the BASE regulator, no unit must be disconnected. Just disconnect the unit from power supply and disassemble the regulator from the wall. Then, disconnect the cable connector and re-connect. In case of damage of the electronic fit-out of the unit it is always necessary to disconnect any power. Disassemble the control unit only after disconnection of all wires and disconnection of the earthing wires.
- All units are thoroughly checked and tested by the manufacturer before dispatch. The most frequent errors root from misunderstanding of the unit function or incorrect cabling and connection. For this, observe instructions from the manufacturer to avoid complex troubleshooting. In no case try to operate the unit when connected in a different way - the unit may operate for a while as you wish or expect but this irreversible step may result in damage beyond repair and loss. No warranty claims can be accepted with respect to this damage.









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