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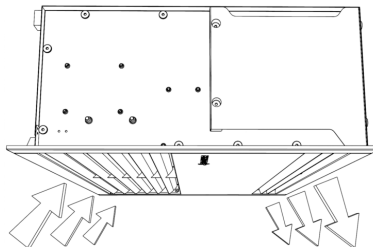
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1. GENERAL INFORMATION

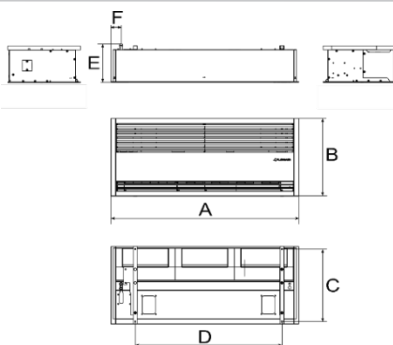
Purpose of SOLANO CEILING is to minimize heat losses (or unwanted heat gains) by door openings. Solano Ceiling is a recessed type and can be a part suspended ceiling.

La gamme de rideaux d'air SOLANO CEILING types:

- CEILING-W-100 – curtain with water heat exchanger max. range 5 m;
- CEILING-N-100 – curtain without heat exchanger max. range 5 m;
- CEILING-E-100 – curtain with electrical heat exchanger max. range 5 m;
- CEILING-W-150 – curtain with water heat exchanger max. range 5 m;
- CEILING-N-150 – curtain without heat exchanger max. range 5 m;
- CEILING-E-150 – curtain with electrical heat exchanger max. range 5 m;
- CEILING-W-200 – curtain with heat exchanger max. range 5 m;
- CEILING-N-200 – curtain without water heat exchanger max. range 5 m;
- CEILING-E-200 – curtain with electrical heat exchanger max. range 5 m.



2. DIMENSIONS



CEILING	A	B	C	D	E*	F
W/N/E-100	1057 mm	600 mm	561 mm	770 mm	297 mm	96 mm
W/N/E-150	1546 mm	600 mm	561 mm	1207 mm	297 mm	84 mm
W/N/E-200	2034 mm	600 mm	561 mm	1621 mm	297 mm	157 mm

* Given height for CEILING-W, height for CEILING-E/N equals 284 mm

3. TECHNICAL DATA

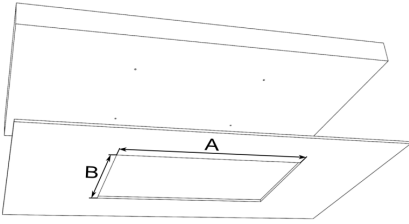
	W-100	N-100	E-100	W-150	N-150	E-150	W-200	N-200	E-200	
Power supply [V/Hz]	230 / 50		3x400 / 50		230 / 50		3x400 / 50		230 / 50	
Power consumption [kW]	0,34	0,42	7,5	0,36	0,44	11,5	0,38	0,49	15,5	
Current consumption [A]	1,5	1,9	11	1,6	2	16,6	1,7	2,2	22,4	
Air flow [m³/h]	1	2200	2300	2200	3200	3200	3200	4000	3600	4000
	2	2500	2700	2500	3500	4000	3500	4300	4300	4300
	3	2600	3500	2600	4000	4800	4000	5200	6600	5200
Max acoustic pressure level [dB(A)]**	1	54	56	54	55	56	55	56	58	56
	2	58	60	58	59	60	59	61	63	61
	3	62	64	62	63	65	63	64	66	64
IP-Insulation class	21/F									
Connecting stub ["]	1/2	-	-	1/2	-	-	1/2	-	-	
Max. water temperature [°C]	95	-	-	95	-	-	95	-	-	
Max. water pressure [MPa]	1,6	-	-	1,6	-	-	1,6	-	-	
Temperature increase (ΔT) [°C]*	15	-	11	15	-	12	16	-	13	
Weight [kg]	32,3	31,7	34,5	41,2	38,9	42,4	50	47,2	53,2	
Weight of unit filled with water [kg]	33,1	-	-	42,4	-	-	51,6	-	-	

* CEILING-W temperature increase at inlet air 10°C and heating agent temperature 90/70°C / CEILING-E temperature increase at inlet air 10°C

** Acoustic pressure level has been measured 3 m from the unit in a 500 m³ space with a medium sound absorption coefficient. **INSTALLATION**

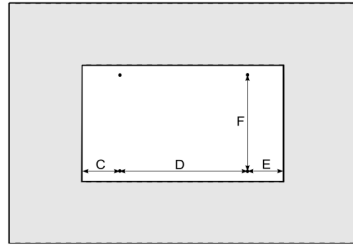
4. INSTALATION

1.



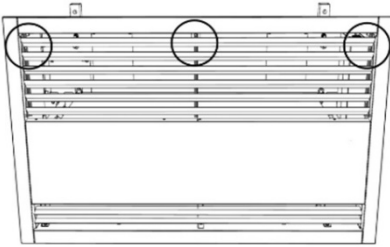
CEILING	B [mm]	A [mm]
W/N/E-100	572	1024
W/N/E 150	572	1510
W/N/E 200	572	2000

2.

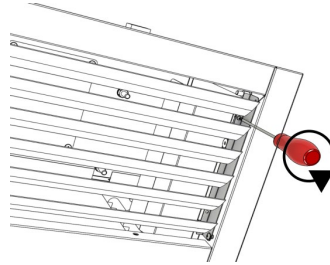


CEILING	C [mm]	D [mm]	E [mm]	F [mm]
W/N/E 100	133	770	121	561
W/N/E -150	182	1207	122	561
W/N/E -200	256	1621	123	561

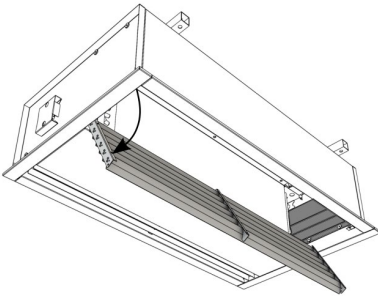
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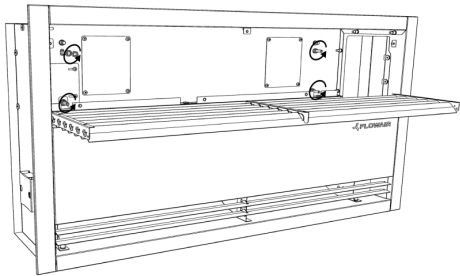
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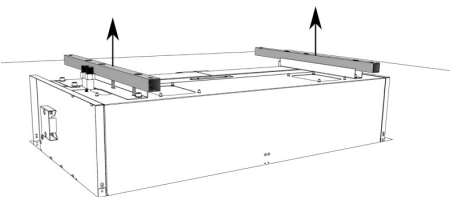
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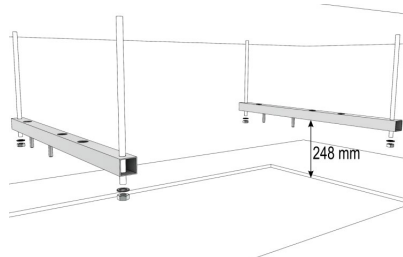
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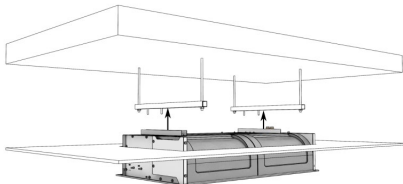
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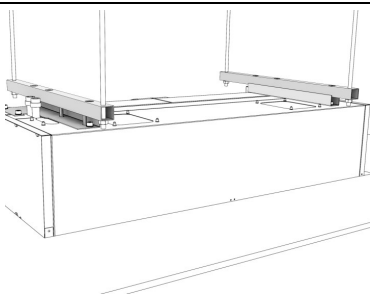
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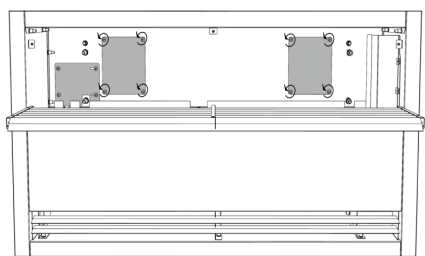
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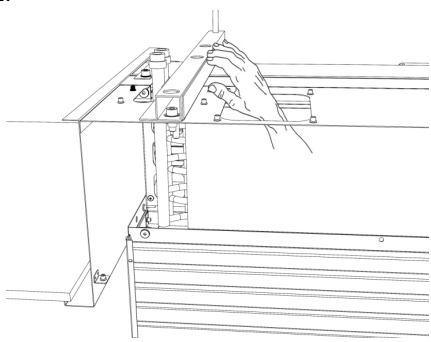
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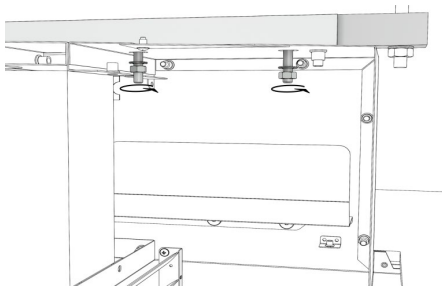
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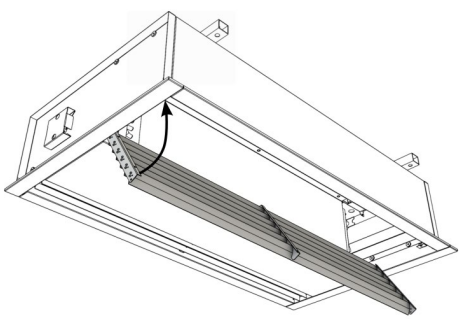
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13.



14.

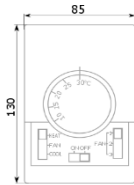


S-ECM CONTROL:

- Connecting curtains – controlling up to 5 units with one controller S-C;
- controlling up to 31 units with one controller S-TOUCH
- Connecting to curtain room thermostat*, door contact*, valves with actuator*, speed controller*;
- BMS connection;

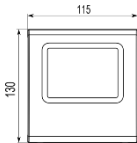
* optional equipment

5.1. CONTROL ELEMENTS



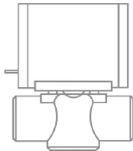
S-C - 3-speed fan switch with room thermostat

Temperature range::
+10 ... +30°C
Operating temperature range:
0 ... +40°C
IP/Insulation class:: IP30
Max current:
inductive 5A, resistive 6A
Power supply: 230V/50Hz

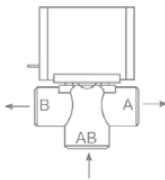


S-TOUCH

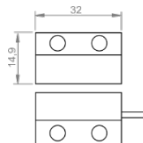
Temperature range::
+5 ... +35°C
Operating temperature range: -10 ... +60°C
IP/Insulation class: IP30
Power supply: 24VDC



S-V-2-1/2" – two-way 1/2 valve with actuator
IP/Insulation class:
IP20 Power supply:
200 – 240V 50/60Hz
Max water temperature: +93°C
Max water pressure: 2,1MPa
Kvs: 3,0 m3/h
Opening time: 18 s

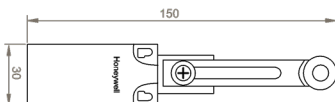


S-V-3-1/2" – three-way 1/2 valve with actuator
IP/Insulation class: IP20
Power supply:
200 – 240V 50/60Hz
Max water temperature: +93°C
Max water pressure: 2,1MPa
Kvs: 3,4 m3/h
Opening time: 18 s



S-DS-MAG – magnetic door switch

IP/Insulation class: IP 64
Connectors: NC
Max current: inductive/resistive 0,5A
Max relay current: inductive 3A
Max operating contactors distance: 8-12 mm

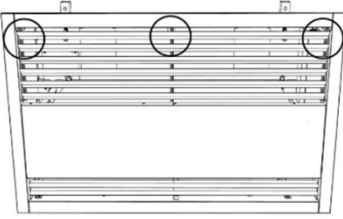


S-DS-MEC – mechanical door switch

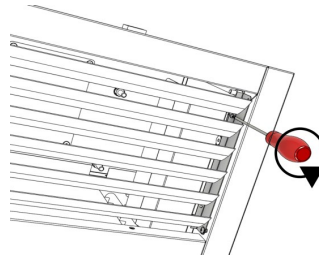
Operating temperature range: -10 -+80°C
IP/Insulation class:
IP 65 Connectors: 1xNC | 1xNO
Max current: resistive 10A – inductive 3A
Max Power load: 300VAC or 250VDC

5.2. CONNECTING GUIDE

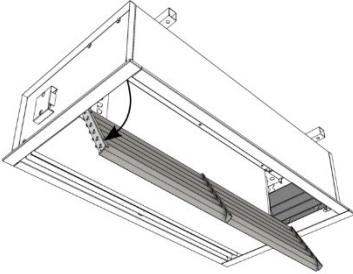
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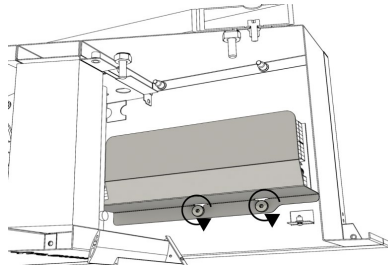
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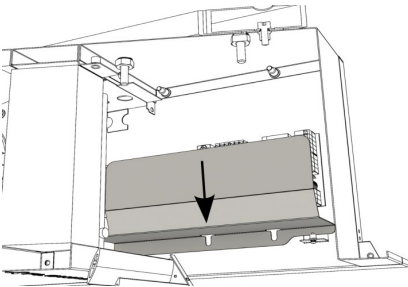
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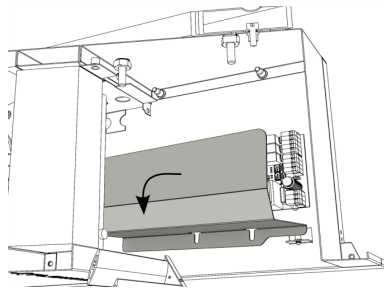
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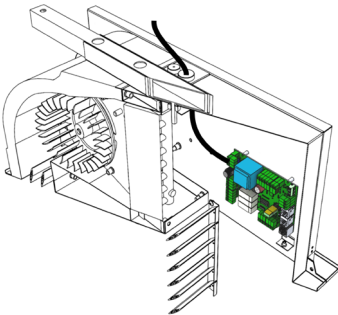
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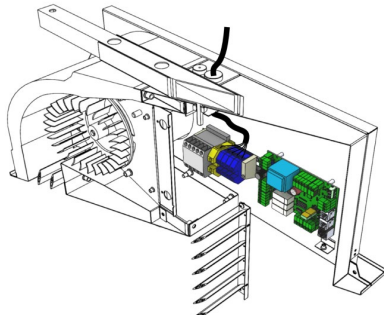
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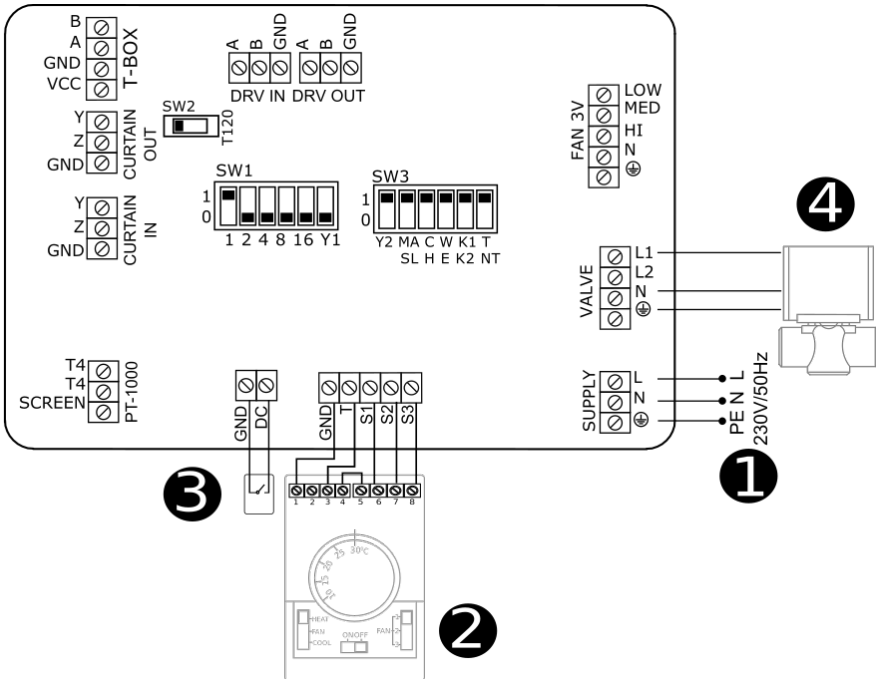
7. CEILING-W/N



8. CEILING-E



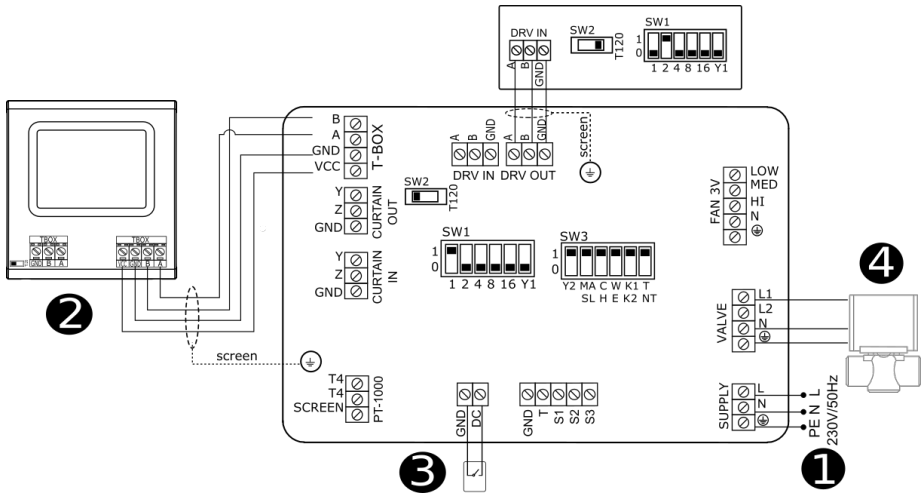
5.3.1. REGULATION S-C - SOLANO CEILING-W/N WIRING DIAGRAMS



- ❶ Power supply 230V/50Hz (OMY 3x1mm²)
- ❷ Air curtain step switch with thermostat S-C (OMY 5x0,5mm²)
 - HEAT- heating mode
 - FAN - room thermostat deactivated
 - COOL - cooling mode
 - 1;2;3 – step switch
- ❸ Door contact S-DS-MEC/ S-DS-MAG (door closed – contacts opened; door opened – contacts closed) (OMY 2x0,5mm²)
- ❹ Valve with actuator S-V-2-1/2" (OMY 3x0,75mm²) or S-V-3-1/2" (OMY 3x0,75mm²)

A – Exchanger water supply
 AB – Valve water supply
 B – Return pipe water supply

5.3.3. REGULATION S-TOUCH - SOLANO CEILING W/N WIRING DIAGRAM

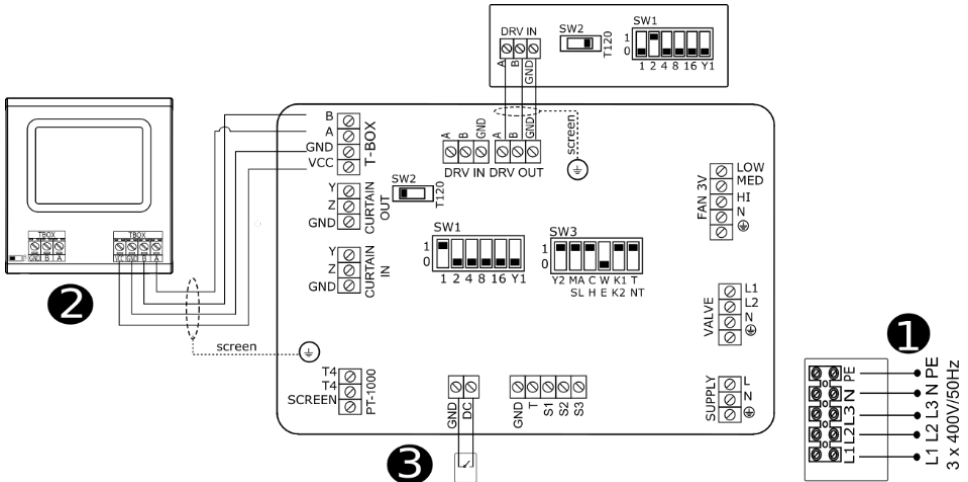


- ❶ Power supply 230V/50Hz (OMY 3x1mm²)
- ❷ S-TOUCH (LIYCY-P 2x2x0,5mm²)
- ❸ Door contact S-DS-MEC/ S-DS-MAG (door closed – contacts opened; door opened – contacts closed) (OMY 2x0,5mm²)
- ❹ Valve with actuator S-V-2-1/2" (OMY 3x0,75mm²) or S-V-3-1/2" (OMY 3x0,75mm²)

A – Exchanger water supply
 AB – Valve water supply
 B – Return pipe water supply

NOTE: In last S-TOUCH in line, dipswitch SW2 has to be switched to the right – T120.

5.3.4. REGULATION S-TOUCH - SOLANO CEILING E WIRING DIAGRAMS



1 Power supply 3x400V/50Hz

- SOLANO CEILING-E-100 (min. 5x2,5 mm²) (Overcurrent B16)
- SOLANO CEILING-E-150 (min. 5x4,0 mm²) (Overcurrent B20)
- SOLANO CEILING-E-200 (min. 5x4,0 mm²) (Overcurrent B25)

2 S-TOUCH (LIYCY-P 2x2x0,5mm²)

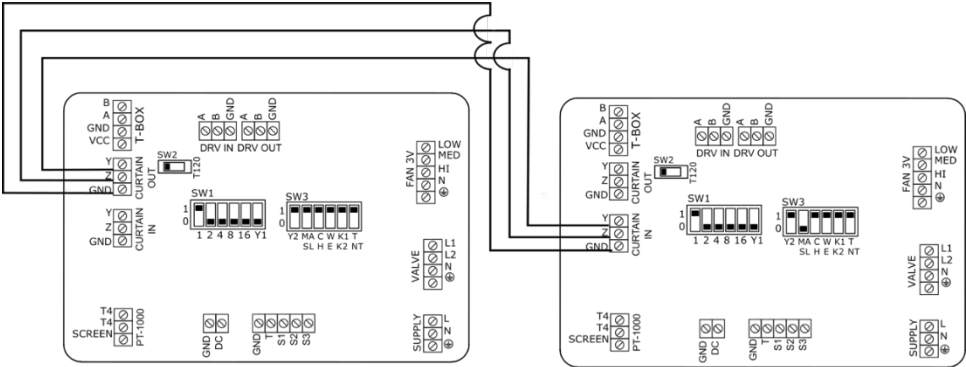
- 3** Door contact S-DS-MEC/ S-DS-MAG (door closed – contacts opened; door opened – contacts closed) (OMY 2x0,5mm²)

ATTENTION:

Switch 4 on SW3 to the position “E” and then restart the system switching it off for 5 seconds. Each time the device is switched off the heaters are being cooled for next 30 seconds.

NOTE : In last S-TOUCH in line, dipswitch SW2 has to be switched to the right – T120.

5.3.5. CONTROL SYSTEM - MASTER-SLAVE COMMUNICATION



Electrical air curtain chaining provides control from 1 to 5 devices using one S-C / S-TOUCH and S-DS. Electrical air curtain chaining might be done by cable OMY 3x0,5mm² using connectors CURTAIN IN; CURTAIN OUT

Connecting units among themselves ensure transfer of controlling signals. Whatever each curtain need to be supplied directly.

Switch 2 on SW3 set In position:

- For MASTER curtain
- For SLAVE curtain

In case to connect several devices to one S-TOUCH and independent (local) work of curtains with door switches use DRV IN ; DRV OUT connectors.

5.3.6. CONTROL SYSTEM – BMS CONNECTION

S-ECM driver has a possibility to be connected to integrated Building Management System (BMS).

Connection must be made using 3-poliges wire to connectors:
IN-A; IN-B; GND (SIGNAL GROUND).

S-ECM Parameters:

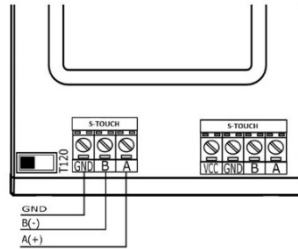
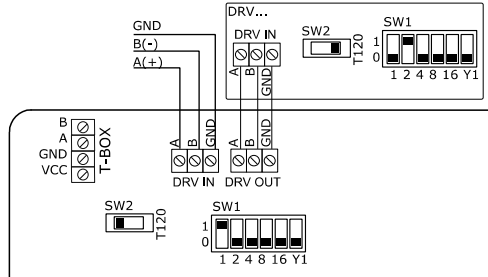
Name	Description
Physical layer	RS485
Protocol	MODBUS-RTU
Baud rate	38400 [bps]
Parity	Even
Data bits	8
STOP bits	1

S-TOUCH Parameters:

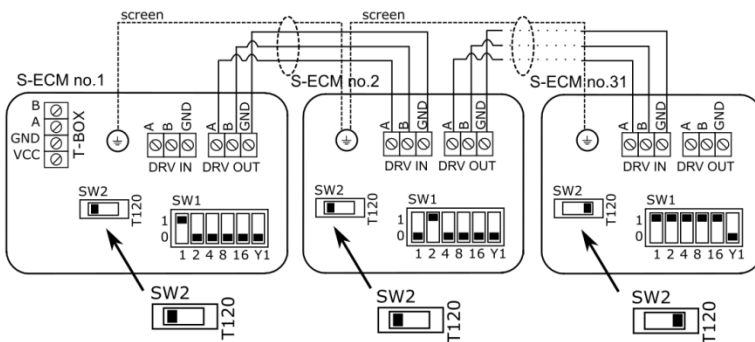
Name	Description
Physical layer	RS485
Protocol	MODBUS-RTU
Baud rate	9600-230400 [bps]
Parity	Even
Data bits	8
STOP bits	1

NOTE :

In last appliance in line, dipswitch SW2 has to be switched to the right – T120.



5.3.7. CONTROL SYSTEM – S-ECM CHAINING



























NOTE: In last S-ECM in line, dipswitch SW2 has to be switched to the right – T120. The maximum length of the connecting cable 50 m (LIYCY-P 2x2x0,5mm²).


It is possible to connect up to 31modules S-ECM and control them with one S-TOUCH controller.


5.3.8. CONTROL SYSTEM – SETTING BMS ADDRESS

When connecting S-ECM modules to the S-TOUCH controller or BMS, you have to binary set addresses on each (each S-ECM must have individual address) S-ECM module by DIP-switch SW1. To address modules check if the power supply is turned off, than set then the addresses as shown in the table, than turn on the power supply.

S-ECM	Address S-ECM					
1						
2						
3						
...						
31						
	1	2	3	4	5	6
	1	2	4	8	16	Y1

Adress S-ECM

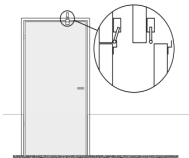
 switch down

 switch up

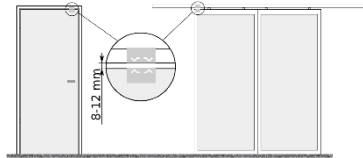
6. DOOR CONTACT INSTALLATION

Sample of door contact installation.

S-DS-MEC In case of installation in way which is show on drawing below, connectors 21 and 22 need to be used.
Hinged doors



S-DS-MAG In the case of sliding doors (with a parallel installation of the sensor and magnet) is required distance 8-12 mm between the sensor housing and the magnet.
For Hinged door max 8 mm between housing and magnet.



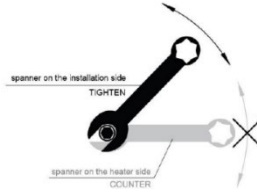
7. GUIDELINES FOR CONNECTION WITH POWER SUPPLY

- Before connecting the power supply check the correctness of controllers connection. These connections should be executed in accordance with their technical documentation.
- Before connecting the power supply check whether the mains voltage is in accordance with the voltage on the device data shield.
- Starting the device without connecting the ground conductor is forbidden.

8. GUIDELINES FOR CONNECTION WITH PIPELINE

- The connection should be executed in a way which does not induce stresses. It is recommended to use flexible pipes to deliver heating agent to the exchanger.
- It is recommended to install vent valves at the highest point of the system.
- The system should be executed so that, in the case of a failure, it is possible to disassemble the device. For this purpose it is best to use shut-off valves just by the device.

- The system with the heating medium must be protected against an increase of the heating medium pressure above the permissible value (1.6 MPa).
- While screwing exchanger to pipeline - connecting stubs has to be hold by wrench.



9. OPERATION

- The device is designed for operation inside buildings, at temperatures above 0°C. In low temperatures (below 0°C) there is a danger of freezing of the medium.

The manufacturer bears no responsibility for damage of the heat exchanger resulting from freezing of the medium in the exchanger. It is forbidden to place any objects on the heater or to hang any objects on the connecting stubs.

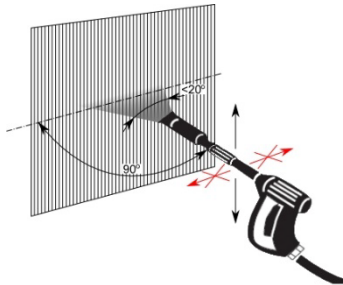
- The device must be inspected periodically. In the case of incorrect operation of the device it should be switched off immediately.
- It is forbidden to use a damaged device. The manufacturer bears no responsibility for damage resulting from the use of a damaged device.
- If it is necessary to clean the exchanger, be careful not to damage the aluminium lamellas.
- For the time of performing inspection or cleaning the device, the electrical power supply should be disconnected.
- In case water is drained from the device for a longer period of time, the exchanger tubes should be emptied with compressed air.

10. CLEANING AND CONSERVATION

Periodically need to be checked exchanger condition. Exchanger filled with dirt causes in heat output and air flow drop.

If cleaning of heat exchanger is needed use listed guidelines.

- Disconnect power supply of unit.
- Dismount inlet grill guard
- It is recommended to use pressured air to clean the exchanger, air stream need to be directed perpendicular to exchanger and moved along lamellas.
- It is prohibited to use water or sharp items to clean exchanger.
- Other installed equipment do not need be cleaned.



11. OUTLET GRILL ADJUSTING

Outlet lamellas/blades are adjustable within +/- 10 ° range. By manually setting the angle of the airflow stream, you can adjust an air barrier to the conditions around the door opening.

Adres:

Cairox
Airvance Group
Rue des Barronnières
01700 Beynost – France