K20519EN ed.1

RHOSS
CREATING YOUR COMFORT

INVERTER

IDROWALL-I

Wall fan coli units
EC brushless motor

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Guide to reading the code

Range	Option	Dimension
IDROWALL-I	**V3**	**21 - 31 - 41**
Fan coil unit with casing for wall installation with brushless electronic motor and RS485 serial interface	3-way ON/OFF on board electrovalve	

General Features

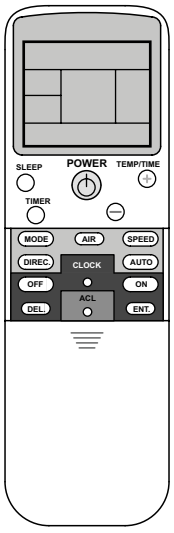
Idrowall-I is a wall-mounted fan coil unit with a brushless electronic motor complete with a 3-way ON/OFF solenoid valve and resident RS485 serial interface (Modbus RTU protocol).

Structural features

- Structure: made of heat-resistant ABS polymer, RAL 9003 colour, complete with renewable polypropylene filter, direction-adjustable fins and condensation drain tray with natural drainage.
- Vaned coil heat exchanger complete with air vent valve, ducted condensate drain and piping outlets in several directions.
- Fan: 3-speed bypass.
- Brushless EC motor Inverter with continuous speed adjustment.
- Motorised deflector with different positions.
- Water connections: smooth tube of 12 mm.
- Electronic control via microprocessor for management of the unit, supplied with the following functions:

• regulation functions: auto, cool, dry, fan- autofan, heat;
• comfort functions: orienting / swing, sleep, hot start, memory;
• Timer Function;
• MASTER/SLAVE function: the Master/Slave function allows you to control up to 63 slave units with no wired or remote control panel, with the auto-repeat function, by means of a single Master unit, equipped with a remote control or KWPI wired panel (maximum distance of 1200 m). The temperature sensor is on board the Master unit or the KWPI wired panel, if any.

- Infrared remote control with LCD, for manual or automatic regulation of all appliance functions according to the pre-set room temperature, supplied as standard.



(Dimensions 56 x 166 x 19 mm)

- Power supply voltage: 230V-1ph-50Hz.
- 3-way brass electrovalve with ON/OFF activation.

• **KVS**: 1,7
• **KVSby-pass**: 1,3

Declared conditions of use

Idrowall is a fan coil intended for the treatment of air (summer and winter climatisation) inside buildings used for domestic or similar purposes. The unit is not designed to be installed in rooms used for laundry purposes (IEC EN 60335-2-40).

The units comply with the following Directives:

- 2006/42/EC Machinery Directive
- Low voltage Directive 2006/95/EC
- Electromagnetic compatibility Directive 2004/108/EC
- Regulation n.327/2011/UE implementing Directive 2009/125/EC ERP
- Restriction of the use of certain hazardous substances in electrical and electronic equipment 2011/65/EU

Accessories supplied separately

• **KV2V**

The accessory allows you to control a 2-way electrovalve inside the unit, in replacement of the 3-way electrovalve supplied. The kit consists of: a 2-way valve body and threaded pipe to replace the 3-way valve. Assembled by installer.

• **K2TF**

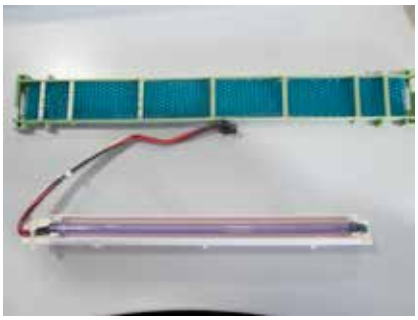
The accessory allows you to control an electrovalve outside the unit, in replacement of the 3-way electrovalve supplied. The kit consists of: a connector and cable for an external electric actuator; 2 threaded sockets to be connected instead of the 3-way electrovalve. Assembled by installer.

• KION

The ionizer is a complete unit emitter can electrically charge (ionize) the molecules of gas which comprises purifying the air.

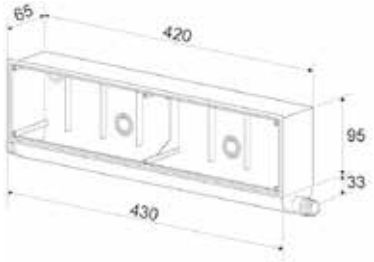
• KUV

The ultraviolet lamp is coupled to filter TiO2 (titanium dioxide): the ultraviolet light strikes the filter that acts on the basis photocatalytic thanks to the oxidizing power of titanium dioxide. The treated air is free from bacteria, spores and viruses.



• KVAM

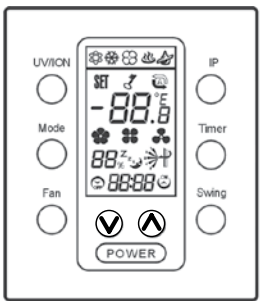
Built-in box on the wall.



Remote controle supplied separately

• KWPI

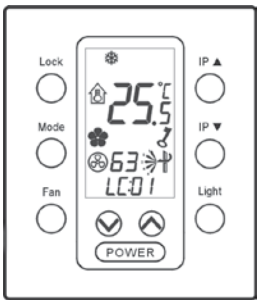
Electronic panel flush with LCD display (RAL 9003), for manual or automatic control of all functions of the unit, depending on the set temperature. Wall installation. Temperature sensor on-board panel.



(Dimensions 102 x 114 x 27 mm)

• KWPCI

Centralized electronic panel flush with LCD display (RAL 9003), to manage, individually or in groups of up to 63 units, with or without a remote control panel or flush KWPI (maximum distance of 1200 m). Wall installation. Each linked unit works on the basis of their measured temperature. Are not managed bands. Power supply V-ph-Hz 230-1-50.



(Dimensions 102 x 114 x 27 mm)

Gateway for connection to external BMS

• KGTW-BAC

Gateway RS485/BACnet, for communication from MODBUS RTU to BACNET IP; max 64 fan coil.

• KGW-LON - KGTW-LON

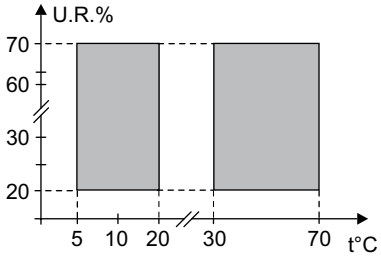
Gateway RS485/FTT10-LonWorks for communication from MODBUS RTU to FTT10-LonWorks; max 64 fan coil.

Note: The units Idrowall-I can be connected to the central control system RHOSS Control System for centralized management of the system and the time of day.

Functioning limits

The unit must not be operated with incoming water temperature above 70 ° C and below 5 ° C.

The unit must not be operated continuously in cooling mode in environments with high relative humidity (above 70%). Under these conditions the mouth of the outlet air may condense underlying objects that could damage the flooring and the wall on which the unit is attached.



t	water temperature inlet unit
U.R.	relative humidity ambient air
	room air temperature: 8°C ÷ 32°C

Technical Data

IDROWALL-I			**21**	**31**	**41**
Nominal cooling capacity (total heat) (*)	kW	max	2,01	2,98	3,54
		med	1,64	2,15	2,47
		min	1,33	1,90	1,90
Nominal cooling capacity (sensitive heat) (*)	kW	max	1,92	2,72	3,22
		med	1,53	1,95	2,26
		min	1,19	1,71	1,71
Water flow rate (*)	l/h	max	345	513	609
		med	283	370	425
		min	229	326	326
Water pressure drops (*)	kPa	max	20,7	39,0	50,8
		med	14,9	21,4	28,1
		min	10,3	16,0	16,0
Heating capacity (input water 50°C) (**)	kW	max	3,05	4,78	5,14
		med	2,34	3,46	4,11
		min	1,72	2,98	2,98
Water flow rate (**)	l/h	max	345	513	609
		med	283	370	425
		min	229	326	326
Water pressure drops (**)	kPa	max	20,7	35,7	46,7
		med	14,9	19,4	25,7
		min	10,3	14,3	14,3
Heating capacity (input water 70°C) (***)	kW	max	5,11	7,92	8,86
		med	3,91	5,60	6,62
		min	2,91	4,82	4,82
Water flow rate (***)	l/h	max	445	646	754
		med	340	499	584
		min	256	439	439
Water pressure drops (***)	kPa	max	34,5	59,3	74,8
		med	21,6	38,2	50,4
		min	12,9	29,6	29,6
Air flow rate	m^3/h	max	556	722	814
		med	413	473	581
		min	295	396	396
Fans	n.		1	1	1
Sound power	dB(A)	max	52	55	59
		med	43	46	51
		min	34	42	42
Sound pressure (****)	dB(A)	max	43	46	50
		med	34	37	42
		min	25	33	33
Coil water content	l		0,7	0,9	0,9
Water connections	Ø (mm)		12	12	12
Battery maximum working pressure	bar		6	6	6
Power supply	V-ph-Hz		230-1-50	230-1-50	230-1-50
Absorbed power	W	max	22	27	38
		med	14	15	19
		min	11	12	12
Maximum absorbed power	W		30	38	38
Max. absorbed current	A		0,26	0,3	0,3

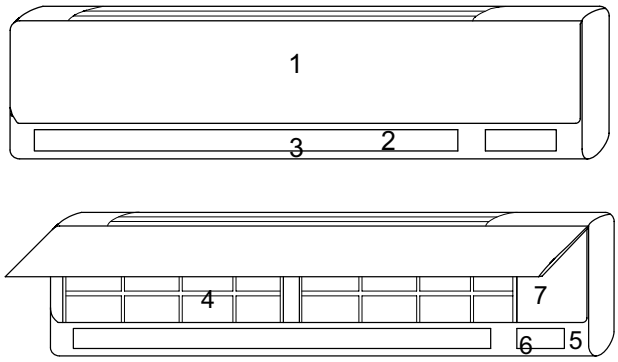
(*) In the following conditions: room temperature 27°C D.B.; 19°C W.B.; input water temperature 7°C with Δt 5°C

(**) At the following conditions: room temperature 20°C; inlet water temperature 50°C, water flow rate as (*).

(***) In the following conditions: room temperature 20°C; input water temperature 70/60°C.

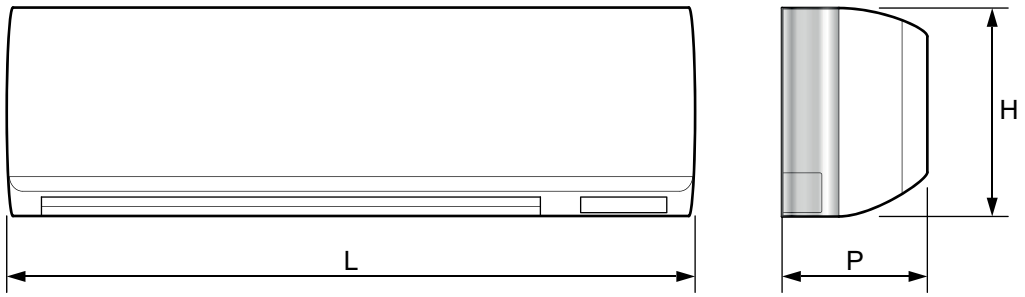
(****) The sound pressure level is lower than the power level of 9 dB (A) for an environmental volume of 100 m3 and echo time = 0.5 sec.

Description of the unit



1	Front panel
2	Deflector
3	Directable vanes
4	Air filters
5	Receiver and indication with LEDs
6	Emergency key
7	Electrical connection compartment

Dimensions and clearances

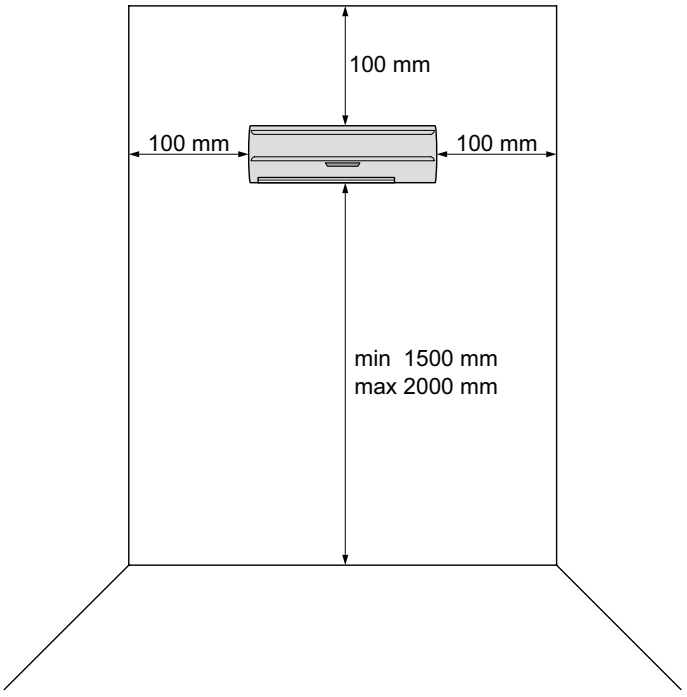


Model		**21**	**31**	**41**
L	mm	795	990	990
H	mm	290	290	290
P	mm	230	230	230
Weight	Kg	9,3	11,6	11,6

Clearance and positioning

- The unit is envisioned for indoor installation.
- The unit must be positioned respecting the minimum technical spaces recommended in the figure.
- Avoid installation in places exposed to direct sunlight.

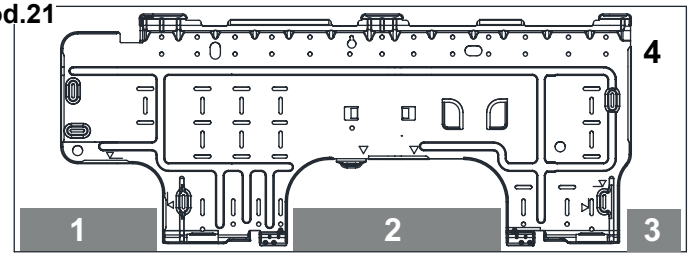
- Avoid installation of the unit in proximity of heat sources.
- Avoid installation of the unit in proximity of obstacles that limit the normal circulation of air.



Water connections

REAR VIEW

Mod.21

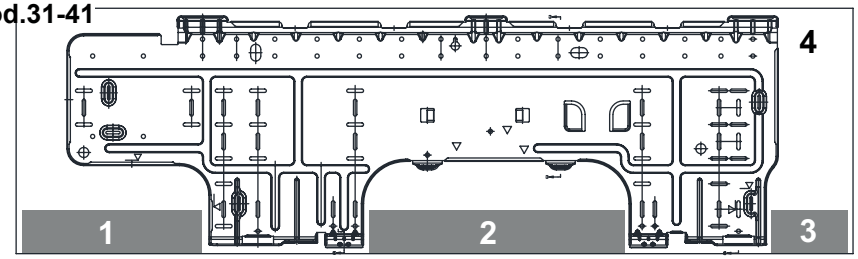


The figure indicates the positions of the holes in the wall for the passage of the pipes.

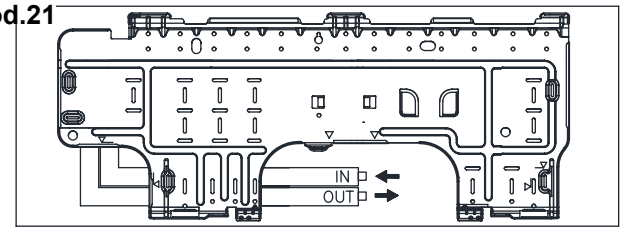
1. Hole for outgoing hydraulic pipes and drain pipes passing directly through the wall
2. Hydraulic pipe outlet and/or condensation drain hole
3. Hydraulic pipe outlet hole
4. Mounting plate

◦ The hydraulic piping and condensate drain can be connected to the system via the 3 outlets indicated in the figures.

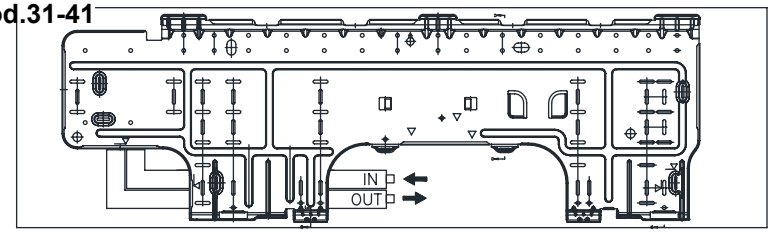
Mod.31-41

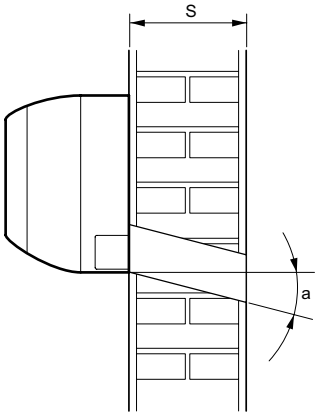


Mod.21



Mod.31-41





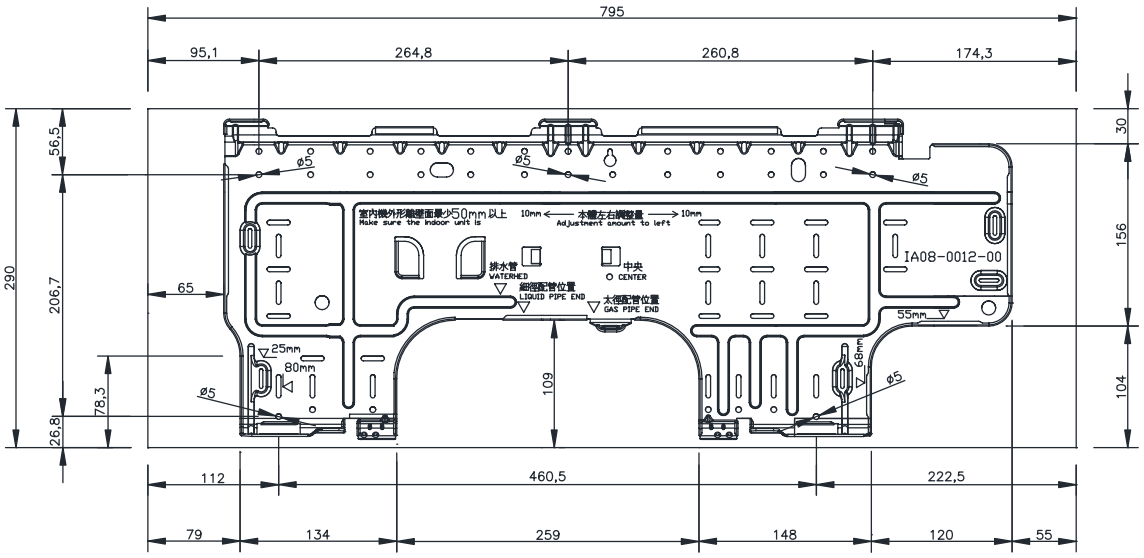
If passing through the wall directly:

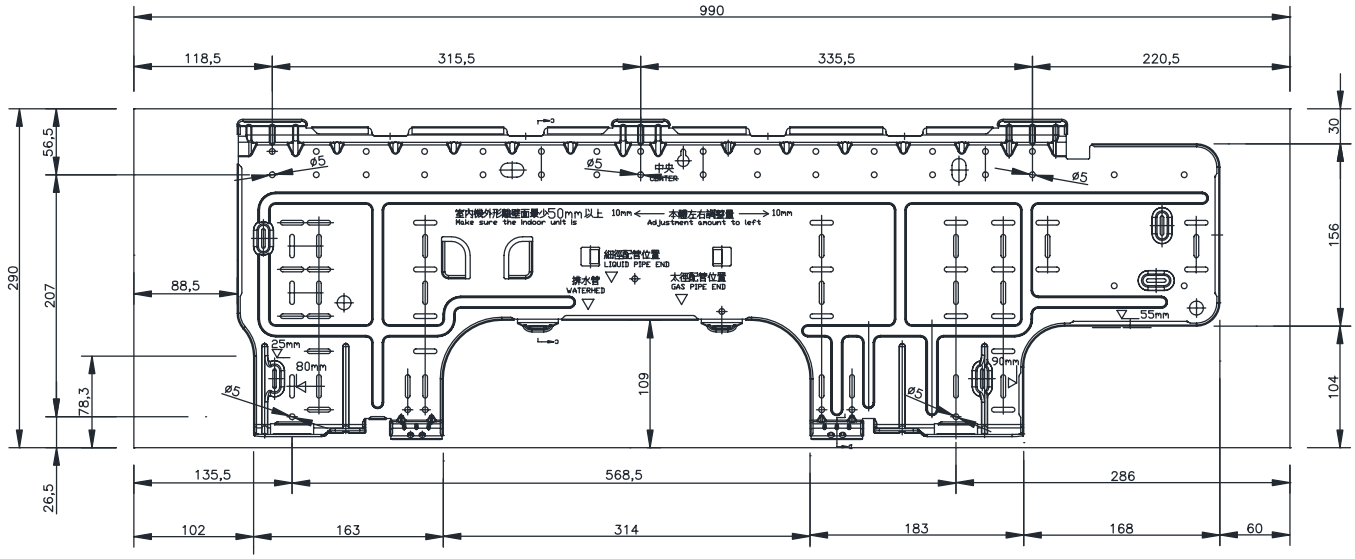
- the thickness of the wall (s) must not be greater than 500 mm;
- The hole in the wall must have a slope of at least 15° (**a**), to encourage condensation water to flow away naturally.

◦ the condensate drain system must be set up with an adequate fall, to ensure that the water escapes properly.

◦ the electric cables can be connected to the unit following the route of the water pipework, or alternatively using one of the three exits available.

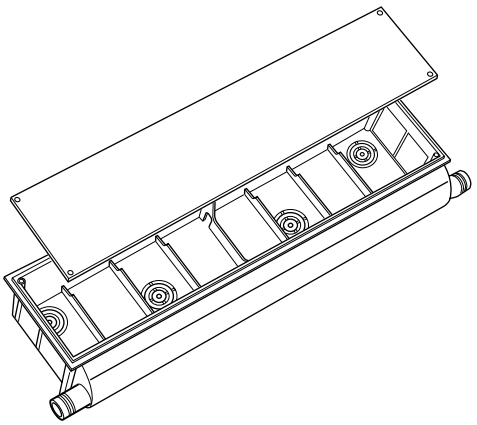
Instructions for fixing the unit

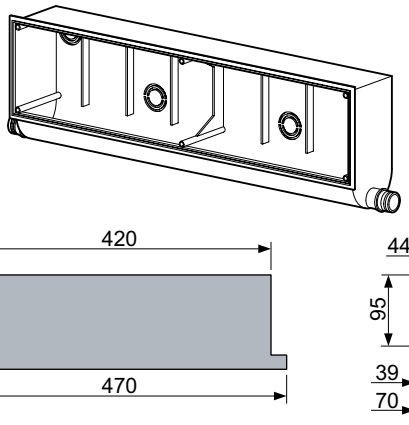


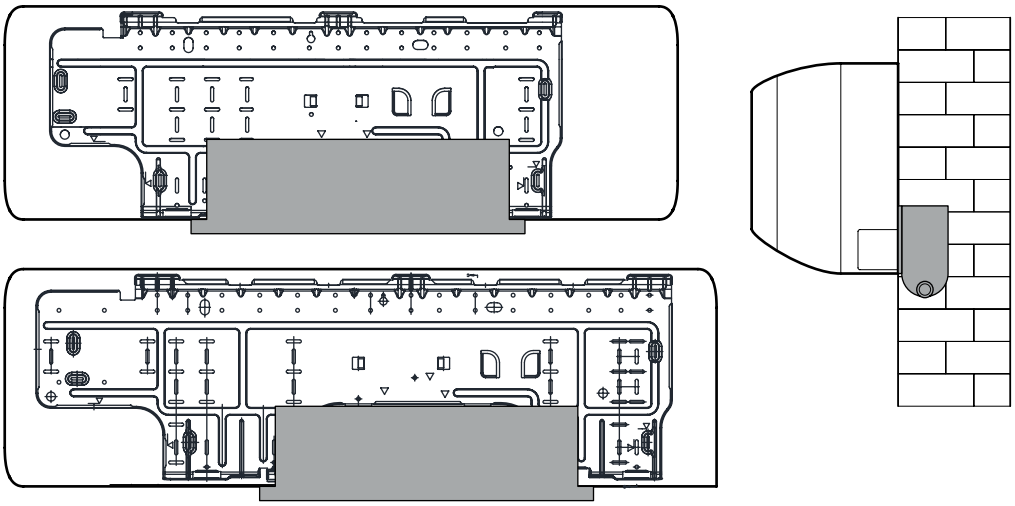


Accessory KVAM

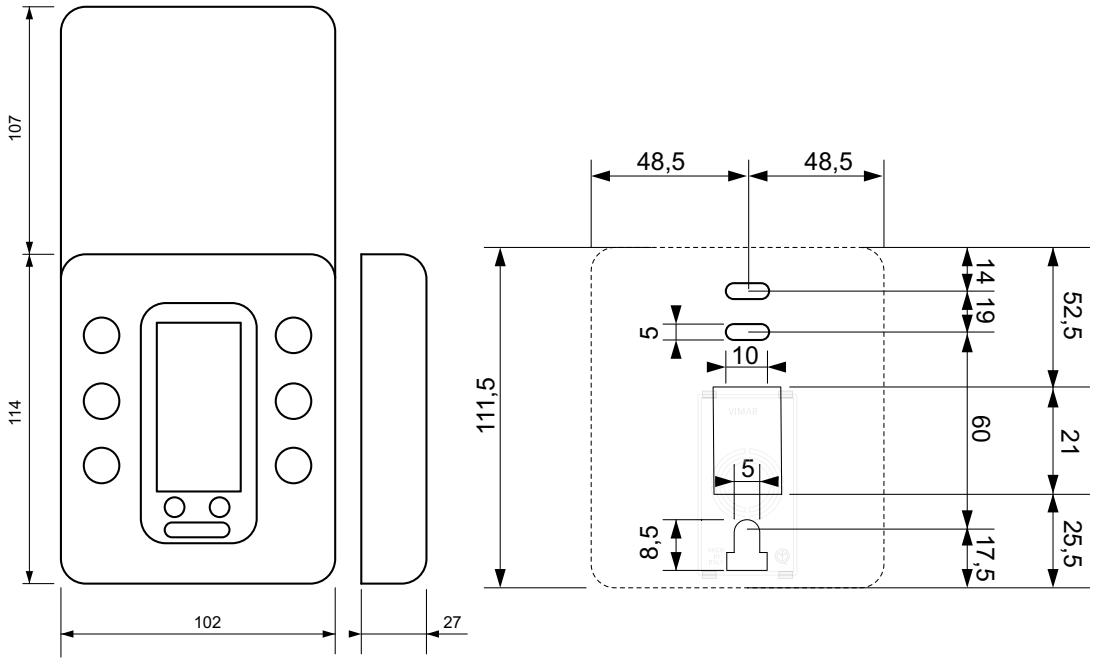
◦ Use the KVAM accessory to set-up the system side piping before installation.
◦ The condensate drain pipe can be connected directly to the tank.
◦ The electric cables can be connected to the unit following the route of the water pipework, or alternatively using one of the three exits available.



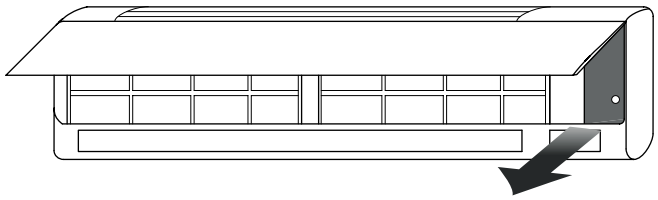


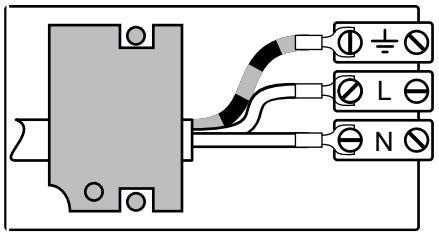


Accessory KWPI/KWPCI

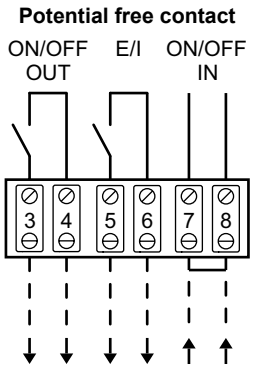


Electrical connections





• Auxiliary contact connection



Three auxiliary contacts are available:

ON/OFF OUTPUT (terminals 3-4)

A relay contact to start a chiller/heat pump:

- closed with hot or cold request
- open when the set point is reached, in FAN and in case of alarm

SUMMER/WINTER OUTPUT (terminals 5-6)

A relay contact to define the operating mode of the heat pump:

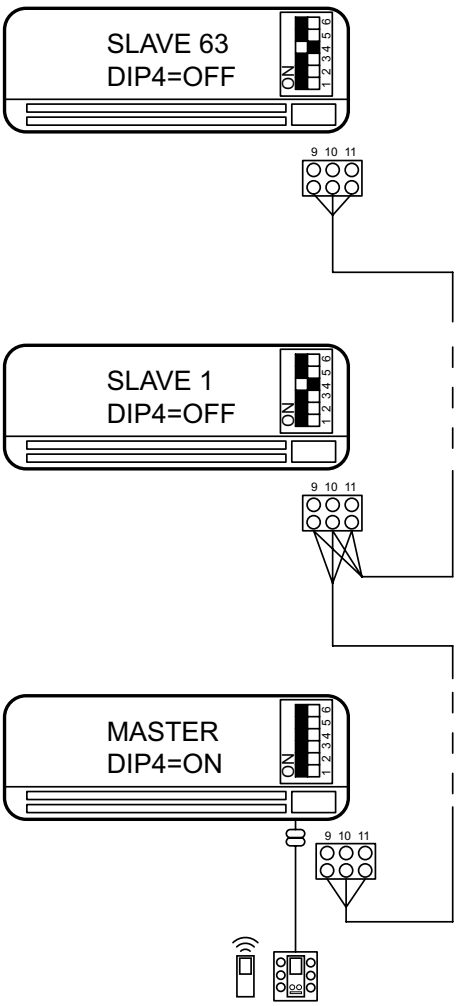
- closed if the Idrowall unit is in COOL/DRY/FAN mode
- open if the Idrowall unit is in HEAT mode

ON/OFF remote INPUT (terminals 7-8)

A dry input contact to turn the Idrowall on/off from the remote control (clock):

- closed => Idrowall ON (default)
- open => Idrowall OFF (no display, the deflector stays in the position it was in)

MASTER/SLAVE control



Master/Slave control up to 64 units in Master/Slave connection: this function allows you to manage another 63 Slave units via a Master unit controlled via remote control or control panel (KWPI) by means of automatic repetition of the functions.

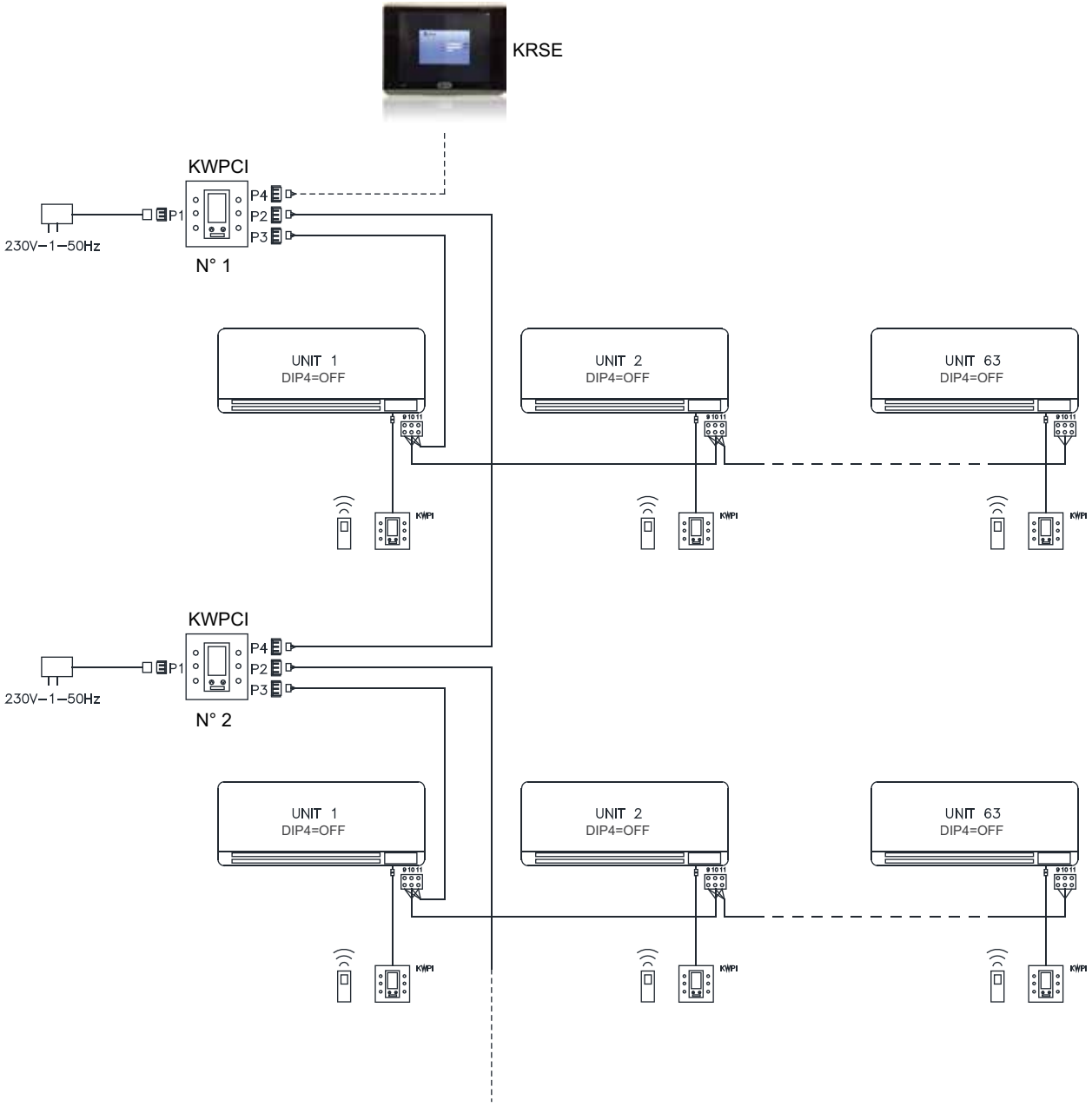
The maximum distance of the connection cable between the Master and the last Slave is 1200 m.

The network connection between the units must be set up via an AWG 14-22, 3 conductor + shield shielded cable.

CENTRALISED control with a KWPCI wired panel

KWPCI - Centralised electronic panel

Centralised electronic wired panel with LCD display (RAL 9003), 9 keys, to manage up to 63 units individually or in groups, with or without remote control or KWPI wired panel. Wall mounting installation. The centralised wired panel does not have an air sensor, therefore each unit works based on its own temperature reading. No time bands are managed. Power supply V-ph-Hz 230-1-50.

The network connection between the units must be carried out by means of an AWG 14-22, 3-conductor + shield shielded cable. The maximum distance of the connection cable between the units is 1200m.
The panels can be connected in a maximum number of 5, up to a total of 315 units (63 units for each of the 5 centralised panels).

Nota Bene: The Idrowall-I units can be managed by means of the RHOSS centralised Control-System and RHOSS SUPERVISOR for centralised control of the system and the time bands.