AFTER-SALES SERVICE TECHNICAL MANUAL

New cassette series fan coil

FCL

AERMEC
COMPANY QUALITY SYSTEM
ICIM
ISO 9001 - Cert. n° 0128/4
CISQ IQNet
AERMEC S.P.A.

FCL - FAN COIL

The FCL cassette-type fan coil:

4 sizes for 2-pipe systems

FCL 32 - FCL 36 - FCL 42 - FCL 62

4 sizes for 4-pipe systems

FCL 34 - FCL 38 - FCL 44 - FCL 64

VERSIONS

The cassette fan coils are available in three versions, to satisfy all system requirements.
The sizes, performance levels and outer dimensions are the same as those for the standard FCL version.
In this manual, versions FCL_V and FCL_VL2 will only be referred to when there are differences compared with the standard FCL version; otherwise they will simply be called FCL. Versions FCL_V and FCL_VL2 are available upon request.

• **Standard FCL version**, with standard internal 3-way valve fitted with fast connection actuator and visual signalling of the position.

• **FCL_V2 version**, with standard internal 2-way valve fitted with fast connection actuator and visual signalling of the position, suitable for systems with a variable water flow rate.

• **FCL_VL version**, without an internal valve.

DESCRIPTION OF THE FCL CASSETTE-TYPE FAN COILS

The FCL cassette-type fan coil is a room air treatment terminal unit. The FCL concentrates high technological and functional characteristics that make it the ideal climate control unit for all types of rooms. The unit is installed in a suspended ceiling with the possibility to send conditioned air to adjacent rooms and introduce external air regardless of unit ventilation. Thanks to its dimensions, the FCL can be perfectly integrated in standard 600x600 suspended ceiling panelling.
The standard FCL unit is available in two versions, for 2-pipe and 4-pipe systems. The FCL cassette-type fan coil is only complete when used with a grille of the GLL range - an obligatory accessory for the operation of the fan coil. The grille accessory of the GLL range not only offers delivery and suction with a filter, but also a special electric box with bayonet coupling to the connector bound to the unit's load-bearing structure. The air filter is easy to remove and clean; it has a self-supporting structure and is characterised by high efficiency and low pressure drops.
The same standard FCL unit can be configured in a number of versions by simply combining it with 3 different grille groups of the GLL range (obligatory accessories) that determine its working modes.

- GLL 10 M: with remote control, louvres oriented by the remote control, IR receiver integrated in the grille. GLL-M is complete with an electronic thermostat able to manage all the configurations (heating coil with valve, cooling coil with valve, supplementary or replacement electric heater) as well as all the functions (heating, cooling, continuous or thermostat-operated ventilation, dehumidification, timed switch-on or switch-off operations). When working with the electric heater, the ventilation is only active at maximum and medium speeds. The air filter can be regenerated with a fire resistance class of V0 (UL 94). The grille is made of plastic, colour RAL 9010.

- GLL 10 R: with remote control, louvres oriented manually, IR receiver integrated in the grille. GLL-R is complete with an electronic thermostat able to manage all the configurations (heating coil with valve, cooling coil with valve, supplementary or replacement electric heater) as well as all the functions (heating, cooling, continuous or thermostat-operated ventilation, dehumidification, timed switch-on or switch-off operations). When working with the electric heater, the ventilation is only active at maximum and medium speeds. The air filter can be regenerated with a fire resistance class of V0 (UL 94). The grille is made of plastic, colour RAL 9010.

- GLL 10: version with louvres oriented manually, must be interfaced with an external control panel, single or centralised (not included). The working modes are managed from the control panel. It is necessary to choose a control panel that can manage all the functions and any accessories that may be installed. The air filter can be regenerated with a fire resistance class of V0 (UL 94). The grille is made of plastic, colour RAL 9010.

The load-bearing structure, reinforced with a galvanised steel side band, contains insulation elements in expanded polystyrene obtained from injection moulding for purposes of noise reduction and air routing.
The condensation drip tray is in one piece, with V0 self-extinguishing level and joined by means of over-moulding technology to the insulation in expanded polystyrene with flame retardant additive.
The heat exchange coil has a shaped profile to increase the exchange surface.
In the standard version, the unit contains a 3-way valve with a fast connection actuator and visual signalling of the position; there are also another two versions available, one with a 2-way valve and the other with no valve. A second valve for 4-pipe systems is available as an accessory in the versions for systems with fixed or variable flow rates.
The ventilation unit offers particularly quiet operation. It has 3 speeds for the smaller sizes (FCL 32-34-36-38) and 4 speeds for the larger sizes (FCL 42-44-62-64) so you can choose the 3 speeds that best meet the individual needs of power supplied and quiet operation. The FCL can be set with continuous fan operation to prevent the layering of room air.

Main customisations envisaged:

- electric heater for heating (accessories RXL and RXLE) - supplementary or replacement, they can be installed in 2- or 4-pipe units

- 3-way valve for heating coils for 4-pipe systems (accessory VHL1)

- 2-way valve for heating coils for 4-pipe systems with variable water flow rate (accessory VHL2)

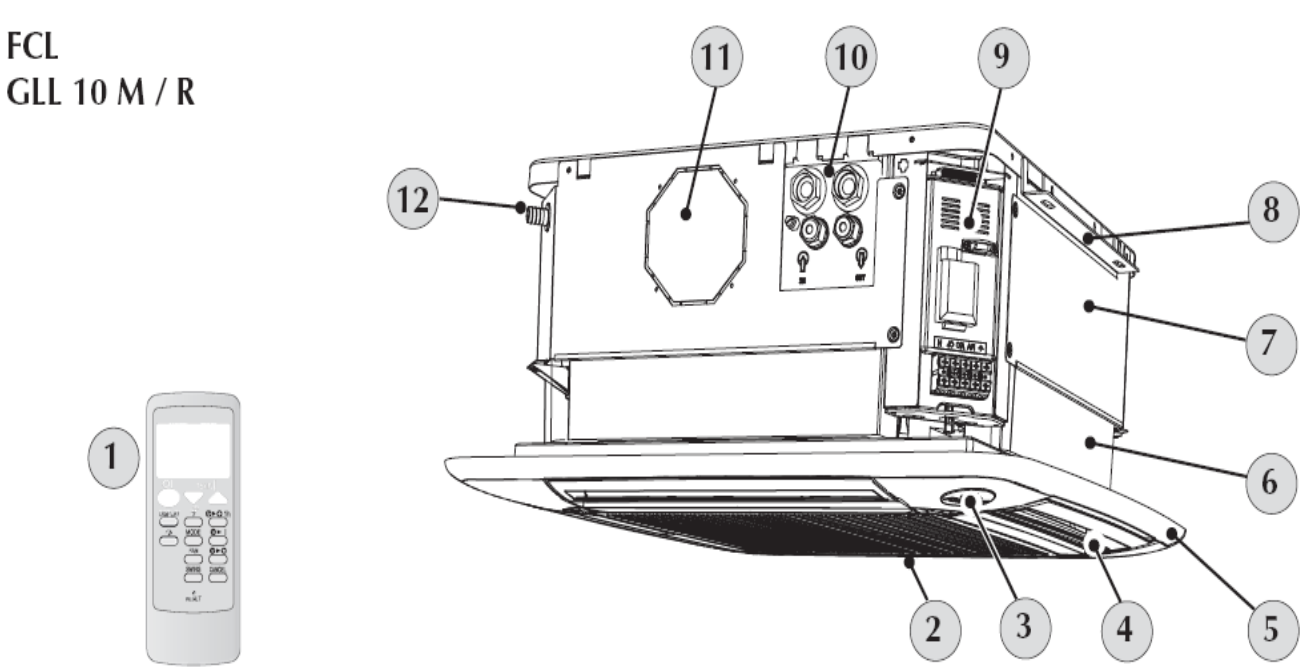
- connection flange for delivery air conduit towards a second nozzle, even in an adjacent room (accessory KFL)

- connection flange for external fresh air conduit, even with the fan switched off (accessory KFLD)

- electrostatically pre-charged air filter, regenerated with class-2 fire resistance (UL 900), (accessory).

MAIN COMPONENTS

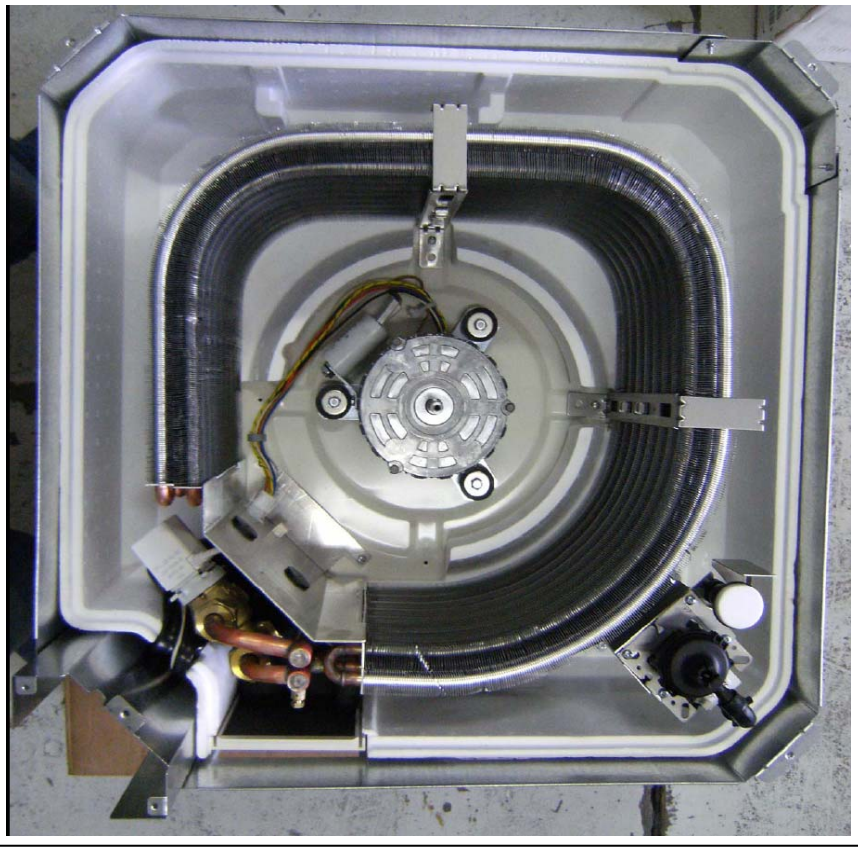
1. Remote control (GLL10M; GLL10R)
2. Grille with air filter
3. Receiver (GLL10M; GLL10R)
4. Air delivery deflector
5. Grille frame
6. Basin
7. Base
8. Fixing brackets
9. Electric box
10. Plumbing connections
11. Push-out
12. Condensate discharge



DESCRIPTION OF THE COMPONENTS

Base

The unit is characterised by a reinforced, integral metal structure with insulation in expanded polystyrene obtained from injection moulding for purposes of noise reduction and air routing. The load-bearing base is in galvanised sheet steel and is varnished with polyester powders. The following are fixed to the base: fixing brackets, coils, motor and fan, condensate discharge pump, attachment plate, control board unit and condensate drip basin. By means of the flanges, it allows the channels (for renewing environmental air and/or delivery to an adjacent room) to be joined to the sides.

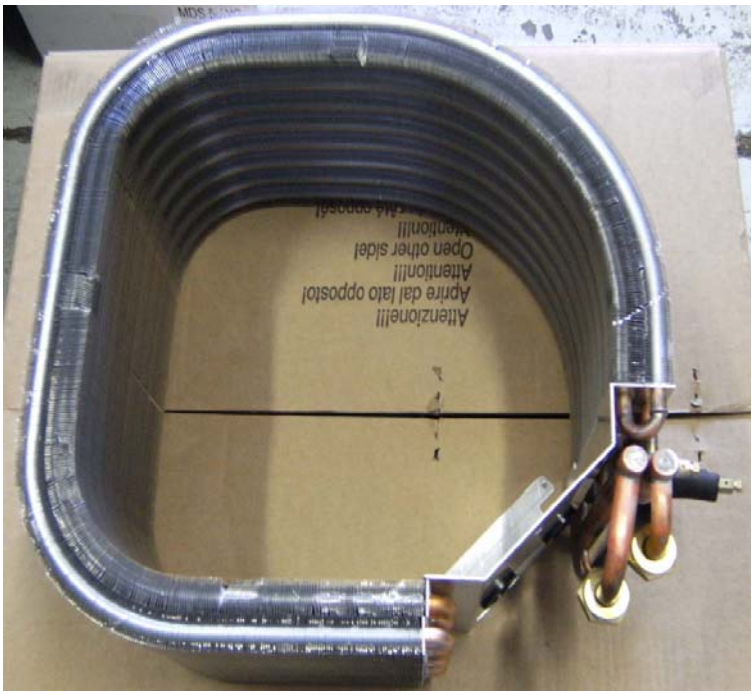


Basin

Basin closing off the unit. Made of injection co-moulded polystyrene to avoid thermal dispersion and the formation of condensate, it conveys conditioned air towards the louvres and from the condensate drip basin. The air intake conveyor is equipped with a protective grille that impedes access to the moving fan.

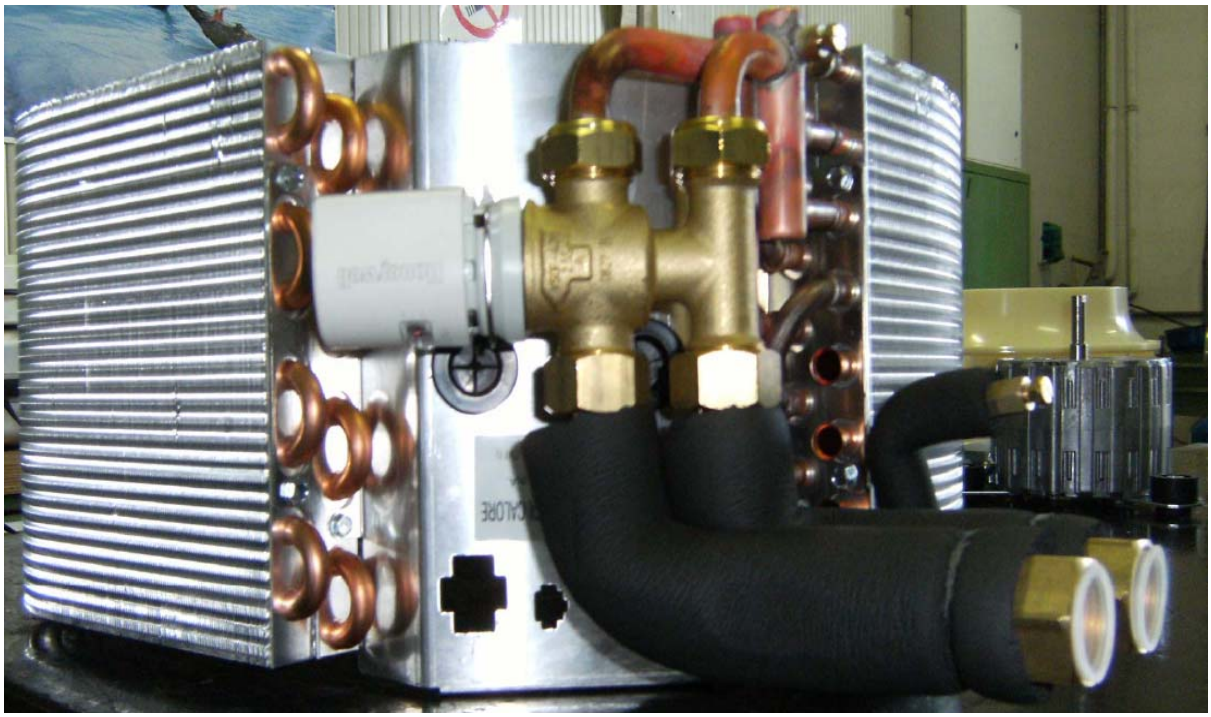
Thermal exchange battery

The coils used have copper pipes and corrugated or turbulent aluminium louvres. They are designed to offer the maximum heat exchange surface. All batteries are provided with air bleed pipes and water drain valves, located respectively on the highest and lowest point of the battery circulation.



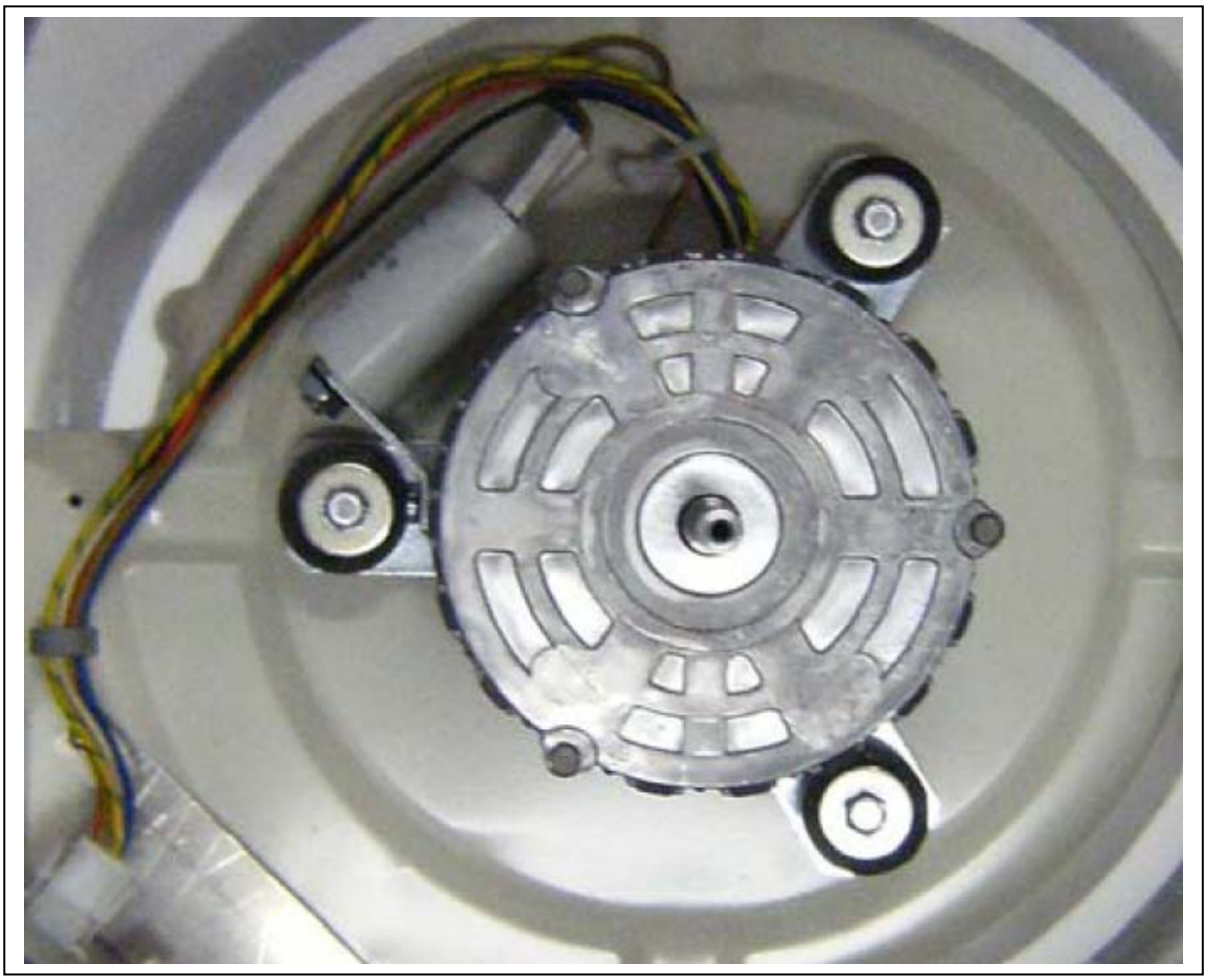
Three-way valve

Internal 3-way valve, of the all-or-nothing type, with fast connection actuator and visual signalling of the position, assembled as standard on the heating/cooling coil, powered with a voltage of 230V ~ 50Hz.

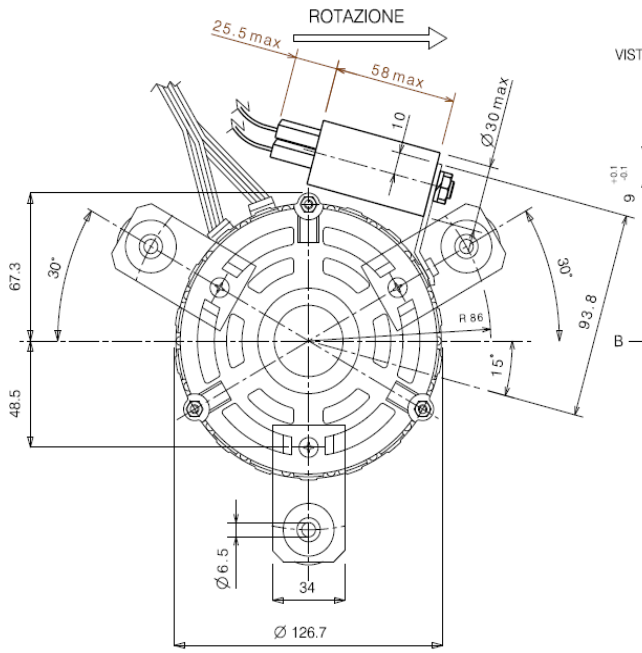


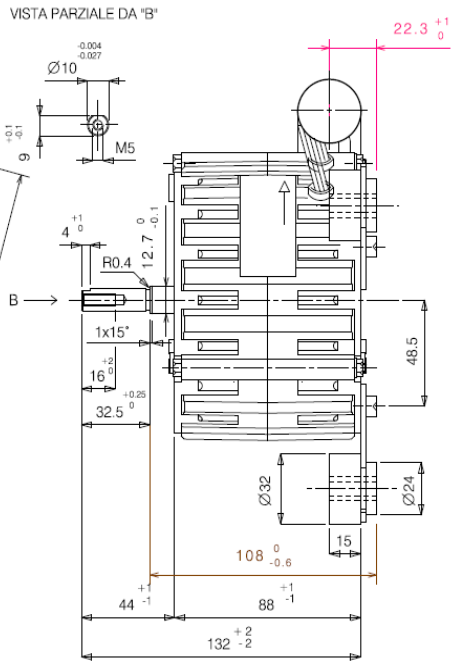
Fan unit

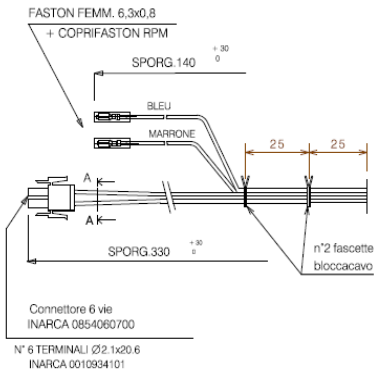
The fan unit, with the latest axial-centrifugal fan designed to obtain low sound emissions, is dynamically and statically balanced and coupled with a 4-speed motor. The fan unit can be easily accessed for cleaning and maintenance.



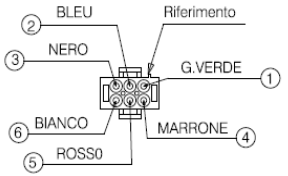
Motor for FCL 32- 34- 36- 38

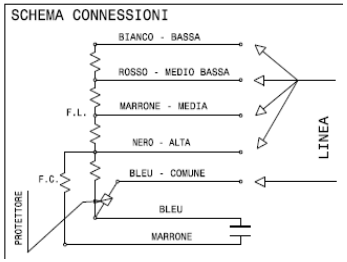






SEZIONE A-A





I dati riportati sono riferiti alle prove del motore montato su FCA completo di griglia, installato a tunnel con plenum di aspirazione e mandata.

CONDENSATORE	ALTA VEL.	MEDIA. VEL.	MEDIO BASSA VEL.	BASSA VEL.
1,5 µF	930 GIRI/MIN 0,31A	620 GIRI/MIN 0,2A	470 GIRI/MIN 0,14A	350 GIRI/MIN 0,1A

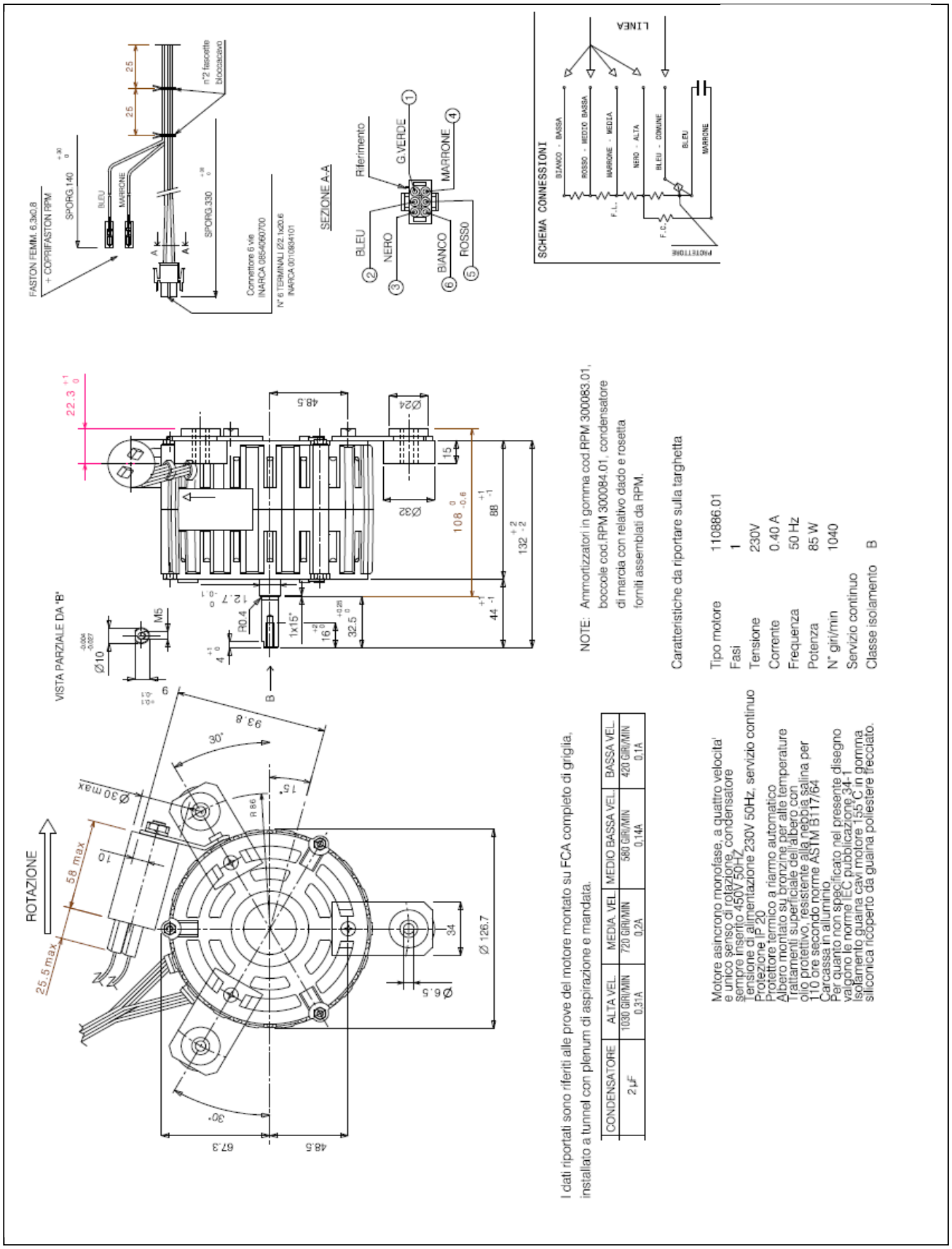
NOTE: Ammortizzatori in gomma cod.RPM 300083.01, boccole cod.RPM 300084.01, condensatore di marcia con relativo dado e rosetta forniti assemblati da RPM.

Motore asincrono monofase, a quattro velocita' e unico senso di rotazione, condensatore sempre inserito 450V 50HZ
Tensione di alimentazione 230V 50Hz, servizio continuo
Protezione IP 20
Protettore termico a riarmo automatico
Albero montato su bronzine per alte temperature
Trattamenti superficiale dell'albero con olio protettivo, resistente alla nebbia salina per 110 ore secondo norme ASTM B117/64
Carcassa in alluminio
Per quanto non specificato nel presente disegno valgono le norme IEC pubblicazione 34-1
Isolamento guaina cavi motore 155°C in gomma siliconica ricoperto da guaina poliestere frecciato.

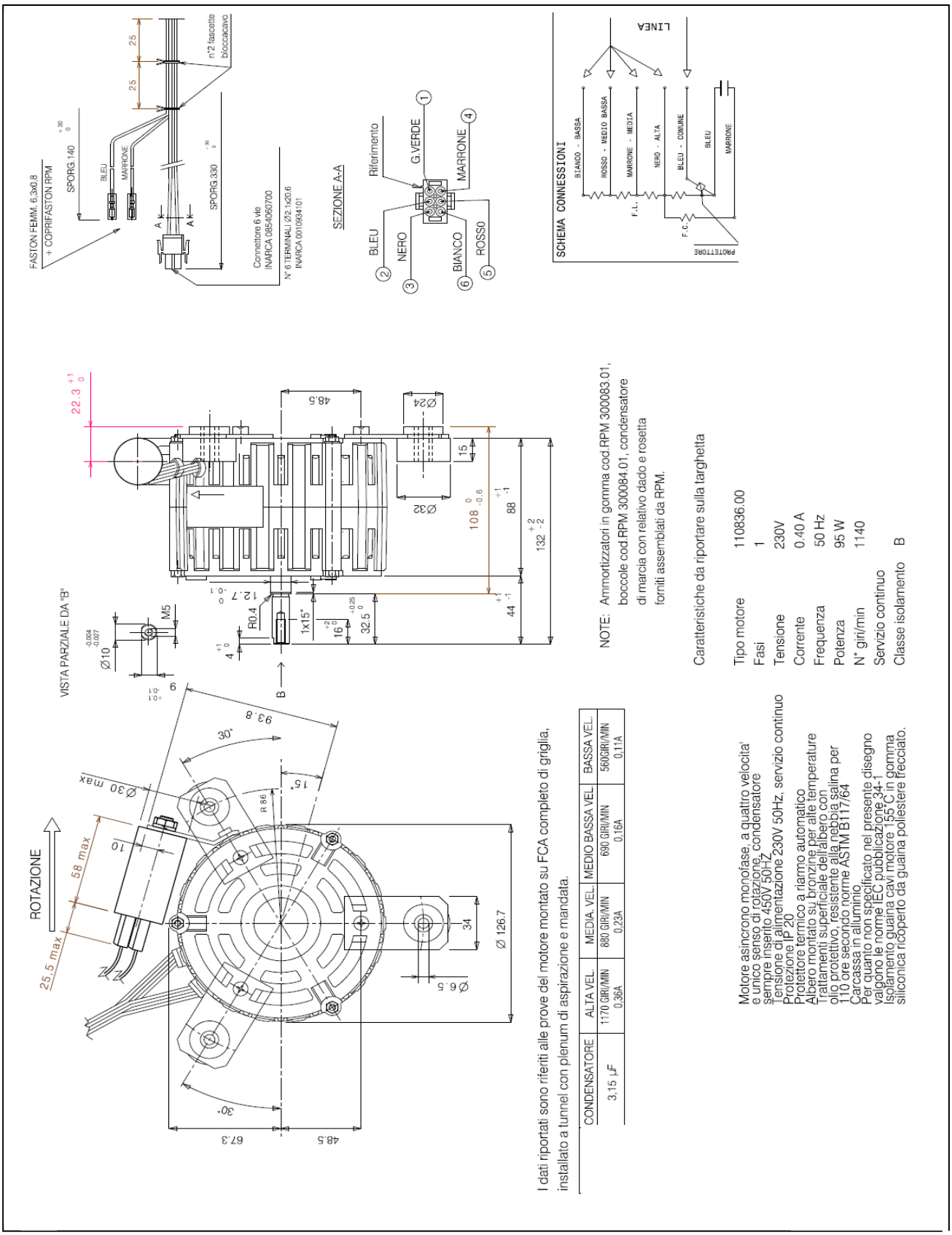
Caratteristiche da riportare sulla targhetta

Tipo motore	110886.00
Fasi	1
Tensione	230V
Corrente	0.35 A
Frequenza	50 Hz
Potenza	75 W
N° giri/min	950
Servizio continuo	
Classe isolamento	B

Motor for FCL 42- 44



Motor for FCL 62- 64



I dati riportati sono riferiti alle prove del motore montato su FCA completo di griglia, installato a tunnel con plenum di aspirazione e mandata.

CONDENSATORE	ALTA VEL.	MEDIA. VEL.	MEDIO BASSA VEL.	BASSA VEL.
3,15 µF	1170 GIRI/MIN	880 GIRI/MIN	690 GIRI/MIN	560GIRI/MIN
	0,36A	0,23A	0,16A	0,11A

NOTE: Ammortizzatori in gomma cod.RPM 300083.01, boccole cod.RPM 300084.01, condensatore di marcia con relativo dado e rosetta forniti assemblati da RPM.

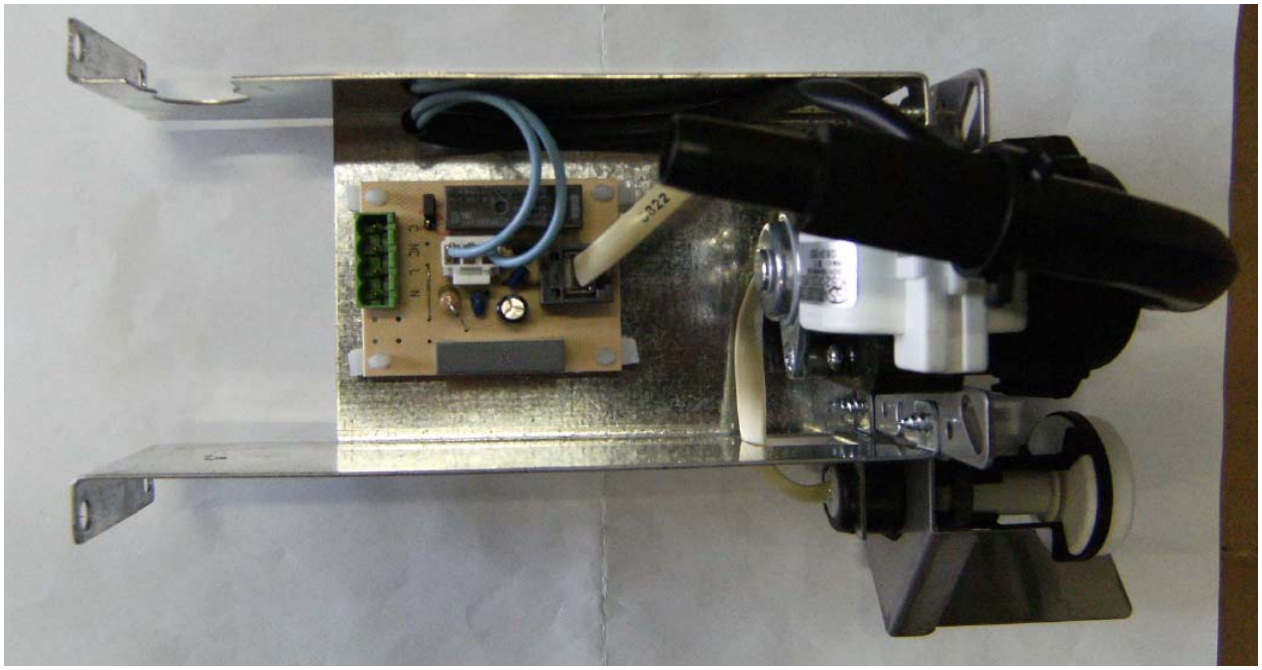
Caratteristiche da riportare sulla targhetta

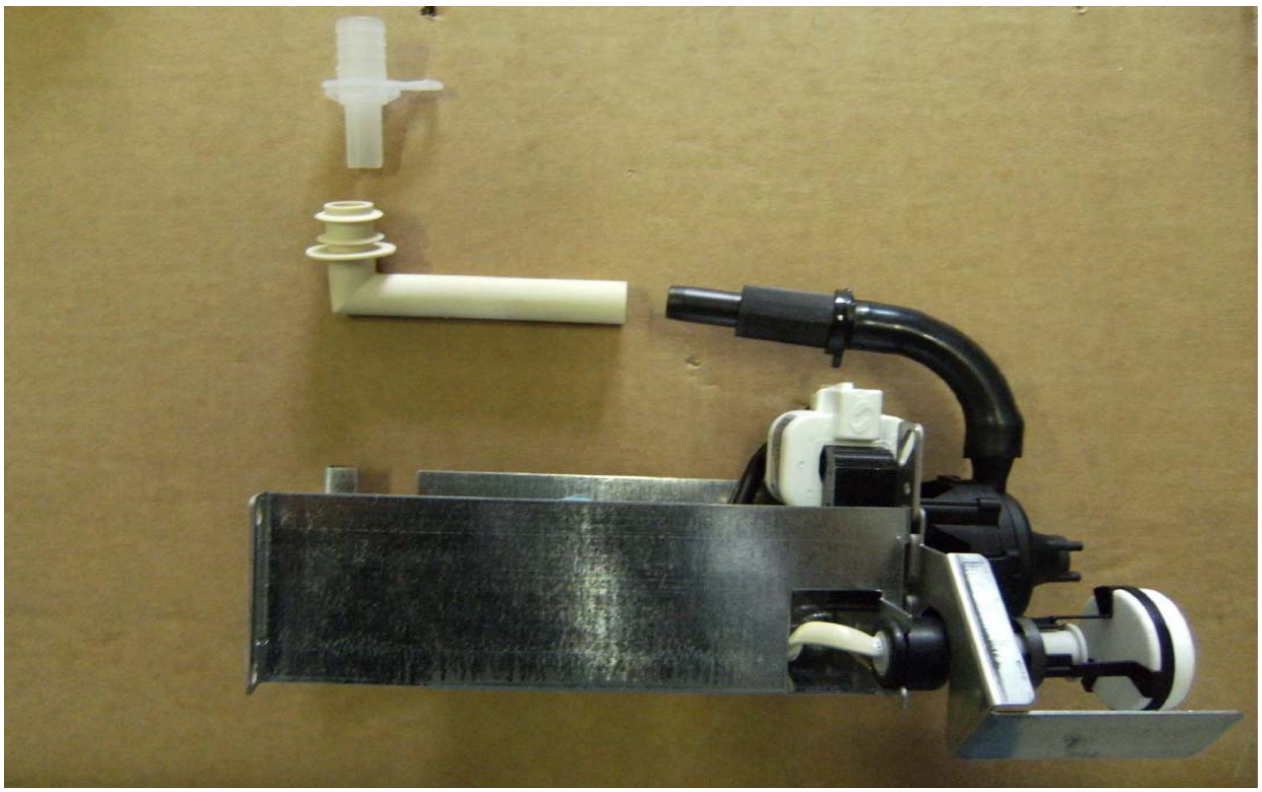
Tipo motore	110836.00
Fasi	1
Tensione	230V
Corrente	0.40 A
Frequenza	50 Hz
Potenza	95 W
N° giri/min	1140
Servizio continuo	
Classe isolamento	B

Motore asincrono monofase, a quattro velocita' e unico senso di rotazione, condensatore sempre inserito 450V 50HZ
Tensione di alimentazione 230V 50Hz, servizio continuo
Protezione IP 20
Protettore termico a riarmo automatico
Albero montato su bronzine per alte temperature
Trattamenti superficiale dell'albero con olio protettivo, resistente alla nebbia salina per 110 ore secondo norme ASTM B117/64
Carcassa in alluminio
Per quanto non specificato nel presente disegno valgono le norme IEC pubblicazione 34-1
Isolamento guaina cavi motore 155°C in gomma siliconica ricoperto da guaina poliestere treccialo.

Condensate discharge device

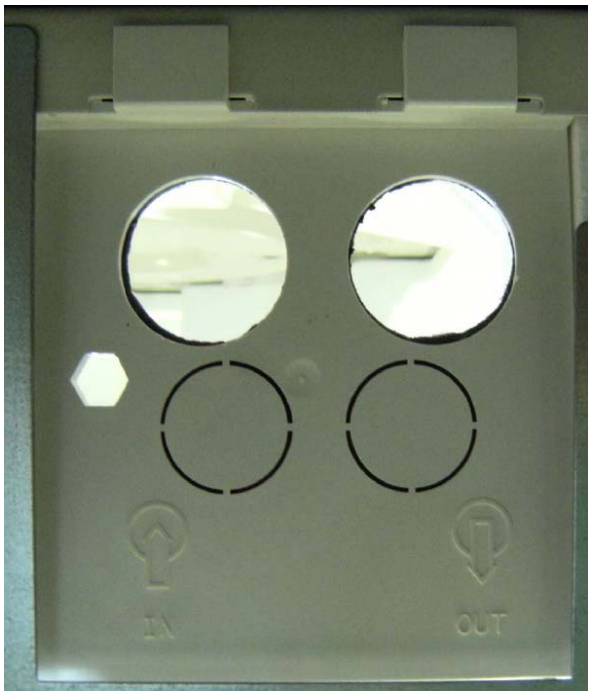
The condensate discharge device disposes of the condensate that is produced by the unit and deposited in the polystyrene basin. The device consists of a control card, a non-return valve, a 3-level float and a pump with a maximum pressure of 800mm. The unit can be easily connected to the condensate discharge system by means of a plastic connector with an external Ø of 16mm.
ALARM: when the level of condensate in the basin reaches the prefixed limit, the alarm will stop the flow of water to the battery, allowing only the fan to function.





Attachment plate

The attachment plate groups together the plumbing connections and the vent of the coil's primary circuit for 2-pipe and 4-pipe systems. The plates contain raised symbols that identify the input (IN) and output (OUT) plumbing connections for the water.



Intake and delivery grille unit

The grille is part of the GLL range unit (obligatory accessory). The form and opening of the intake slats were developed in order to have the best possible distribution of the air, both when functioning in winter as well as in summer. Suction is made via the central grille, and delivery via the perimeter openings that can be manually oriented (or, only for version GLL10M, by means of the remote control). In plastic, colour RAL 9010, it contains the air filter that can be easily removed for cleaning.

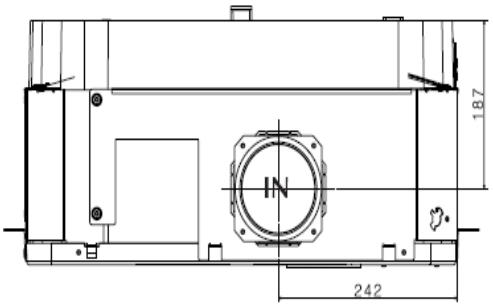
Versions GLL10M and GLL10R are equipped with an electronic thermostat with receiver and an IR remote control that allows you to set all the working parameters of the device. It functions very well up to a distance of 7 metres from the receiver. Other electronic equipment, fluorescent lamps and direct exposure to the sun's rays may cause interference with the working of the remote control.

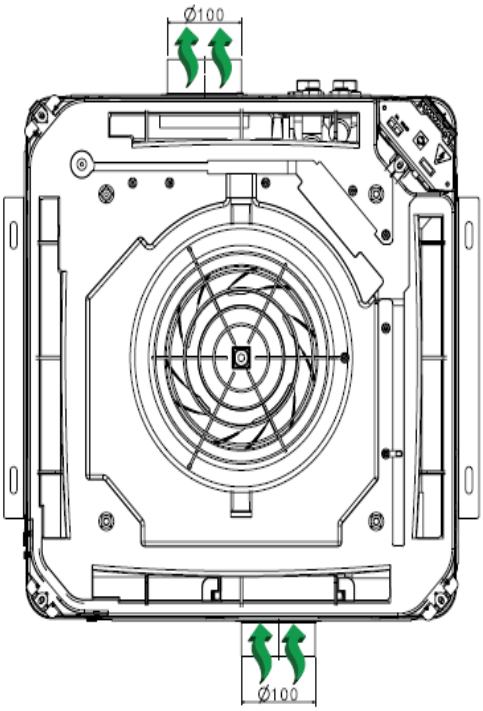
GLL10R includes: remote control, electric box with electronic card, ambient probe, air filter, support hooks, insulation for closing a delivery louvre.

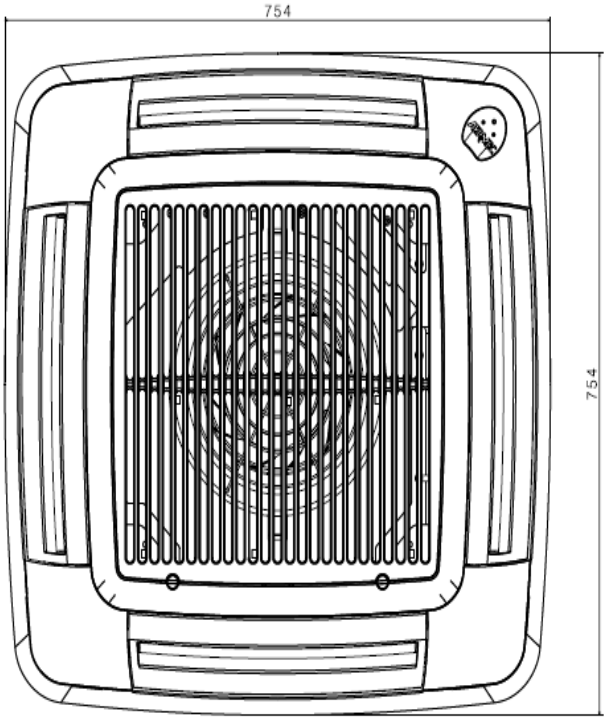
Electric box

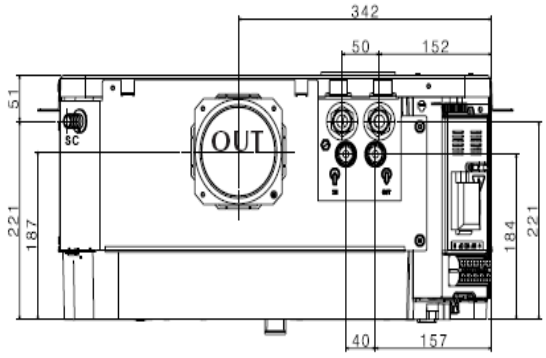
The electric box is part of the grill unit and is inserted with bayonet coupling in the connector bound to the unit's load-bearing structure.

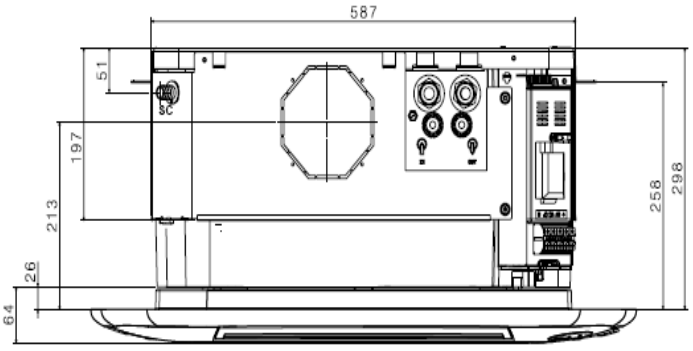
Sizes and weights











	FCL	32	34	36	38	42	44	62	64
FCL_	kg	20,5	21,0	20,5	21,0	20,5	21,0	22	22,5
FCL_2V	kg	20,5	21,0	20,5	21,0	20,5	21	21	22,5
FCL_VL	kg	20,0	20,5	20,0	20,5	20,0	20,5	21,5	22

TECHNICAL DATA

FCL				32	34	36	38	42	44	62	64
Heating											
Heating capacity 70°C	speed 4	*(E)*	W	-	-	-	-	8000*(E)*	3070*(E)*	10700*(E)*	3800*(E)*
	speed 3		W	5000*(E)*	2600*(E)*	6300*(E)*	2600*(E)*	6450	2730	8560	3380
	speed 2		W	4090	2190	4730	2190	4915	2290	7015	2990
	speed 1 (min.)		W	3570	1950	3820	1950	4010	1960	5850	2640
Heating capacity 50°C	max. speed	*(E)*	W	2380	-	3750	-	4950	-	6250	-
Water flow rate 70°C			l/h	430	224	542	224	688	264	920	327
Water pressure drop 70°C			kPa	12	11*(E)*	12	11*(E)*	19	14*(E)*	30	21*(E)*
Water pressure drop 50°C		*(E)*	kPa	9*(E)*	-	14*(E)*	-	23*(E)*	-	32*(E)*	-
Cooling											
Total cooling capacity	speed 4	*(E)*	W	-	-	-	-	3950	3650	4980	4610
	speed 3		W	1900*(E)*	1900*(E)*	3000*(E)*	2770*(E)*	3400	3140	4310	3990
	speed 2		W	1680	1680	2480	2290	2725	2515	3680	3405
	speed 1 (min.)		W	1495	1495	2060	1900	2165	2000	3085	2855
Sensible cooling capacity	speed 4	*(E)*	W	-	-	-	-	3160	2920	3815	3530
	speed 3		W	1520*(E)*	1520*(E)*	2400*(E)*	2240*(E)*	2625	2420	3180	2940
	speed 2		W	1285	1285	1880	1750	2000	1845	2640	2440
	speed 1 (min.)		W	1100	1100	1510	1410	1545	1425	2160	2000
Water flow rate			l/h	327	327	516	476	679	628	857	793
Water pressure drop		*(E)*	kPa	10	10	15	13	25	22	36	31
Air flow rate	speed 4		m³/h	-	-	-	-	700	700	880	880
	speed 3		m³/h	600	600	600	600	530	530	660	660
	speed 2		m³/h	410	410	410	410	360	360	500	500
	speed 1 (min)		m³/h	300	300	300	300	260	260	380	380
Fans			n.	1	1	1	1	1	1	1	1
Sound power	speed 4	*(E)*	dB (A)	-	-	-	-	53	53	61	61
	speed 3	*(E)*	dB (A)	46	46	46	46	46	46	54	54
	speed 2	*(E)*	dB (A)	38	38	38	38	38	38	47	47
	speed 1 (min.)	*(E)*	dB (A)	35	35	35	35	35	35	41	41
♪Sound pressure	speed 4		dB (A)	-	-	-	-	44	44	52	52
	speed 3		dB (A)	37	37	37	37	37	37	45	45
	speed 2		dB (A)	29	29	29	29	29	29	38	38
	speed 1 (min.)		dB (A)	26	26	26	26	17	17	23	23
Coil connections 3R			ø Gas	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Coil connections 1R			ø Gas	-	1/2"	-	1/2"	-	1/2"	-	1/2"
Max. motor power			W	45	45	45	45	75	75	83	83
Max. input current			A	0,22	0,22	0,22	0,22	0,33	0,33	0,37	0,37
Peak current			A	0,66	0,66	0,66	0,66	0,99	0,99	1,11	1,11
Weight			kg	20,5	21	20,5	21	20,5	21	22	22,5

Power supply = 230ACV 50Hz

(E) = EUROVENT certified performance

Performance values refer to the following conditions:

♪ Sound pressure measured in an 100 m³ semi-reverberant test chamber with reverberation time Tr = 0.5s.

Cooling:
- room air temperature 27 °C D.B., 19 °C W.B.;
- maximum speed:
- water inlet temperature 7 °C; Δt water 5 °C.

Heating:
- room air temperature 20 °C D.B.;
- maximum speed:
- water inlet temperature 70 °C; Δt water 10 °C;

Operating limits

Maximum water input temperature ..... 80 °C
Maximum operating pressure..... 8 bar
Operating voltage .....230V(±10%) ~ 50Hz
Room temperature ..... 0÷45°C
Room humidity .....<85% U.R.

Water flow limits 3 rows coil:	**MOD. FCL**	**32-34**	**36-38**	**42-44**	**62-64**
Minimum water flow	l/h	100	150	150	300
Maximum water flow	l/h	750	1100	1100	2200
Water flow limits 1 row coil:	**MOD. FCL**	**34**	**38**	**44**	**64**
Minimum water flow	l/h	50	50	50	100
Maximum water flow	l/h	400	400	400	900

Sound pressure level

Speed FCL	32	34	36	38	42	44	62	64
Speed 4	-	-	-	-	44	44	52	52
Speed 3	37	37	37	37	37	37	45	45
Speed 2	29	29	29	29	29	29	38	38
Speed 1 (Min)	26	26	26	26	26	26	32	32

Sound pressure level (weighted A) measured in a room with 100 m^3 volume , reverberation time t= 0,5 s , direction.factor Q= 2 , distance r= 2,5m .

ACCESSORIES

Obligatory accessories

Grilles of the GLL range are obligatory accessories as the FCL units are supplied without them

GLL M (RAL 9010)
Air delivery and pick-up grille. Louvres oriented by the remote control and electronic control, IR receiver integrated in the grille.

GLL R (RAL 9010)
Air delivery and pick-up grille. Louvres oriented manually and electronic control with remote control.

GLL (RAL 9010)
Air delivery and pick-up grille. Louvres oriented manually, requires an external control panel (accessory).

AIR FILTER Fire resistance Class 2 (UL 900). Easily extractable, it is supplied with the GLL accessories in a sealed box, to be opened only upon use.
The electrostatically pre-charged filter combines the normal mechanical filtering of the air that passes through the filter, with an electrostatic attraction of powder that increases its filtering considerably. The electrostatic pre-charge of the filter is spent after two years of the box being opened, after this period it behaves like a normal filter.

Accessories

KFL
Kit composed of a 100mm metal flange that sends the air into an adjacent room.

KFLD
Kit composed of a 100mm metal flange and a bulkhead in galvanised and insulated steel sheet. KFLD allows external air intake to be directly released into the room without being mixed.

RXL
Electric heater for heating, can be installed on FCL units. (Requires a thermostat with control of heater and GLL10).

RXLE
Electric heater for heating, can be installed on the single-fan FCL units. (Requires GLL10M or GLL10R).

SIT 3
Each fan coil fitted with a SIT3 card becomes a Slave and can be controlled from a centralised control panel with an electromechanical selector or with SIT5. Up to ten fan coils fitted with SIT 3 can be applied to a single centralised command. The electronic control panels or those with valve control must also be interfaced with a SIT 5. The electromechanical control panel with just the speed control can be fitted directly to the SIT 3 without the SIT 5 interface.

SIT 5
The SIT 5 accessory, a Master interface card, connects to the electronic control panels or electromechanical control panels with command of the valves and/or electric heaters. The SIT 5 interface card requires that all fan coils connected to it (up to 10) be fitted with SIT3 Slave interface cards.

SWA EXTERNAL PROBE (FMT20A/AW)
The probe detects the temperature of the ambient air if connected to the connector (A) of the panel FMT20A/AW; the ambient air temperature probe incorporated in the panel is automatically deactivated. It detects the temperature of the water in the system for ventilation consent, if connected to the connector (W) of the panel FMT20AW. Two SWA probes can be connected simultaneously to the panel FMT20AW. The probe has a 6m cable.

SW MINIMUM WATER TEMPERATURE PROBE
The SW accessory is a probe that detects the temperature of the water inside the heating coil, and it prevent the fans from working when the water temperature is less than 39°C. The SW probes are fit for a 230V single phase power supply. The probe has cables of 2500mm for SW3 and 700mm for SW4.

VHL1 VALVE
Motor-driven three-way valve for the heating battery in 4-pipe systems. Obligatory accessory in the 4-pipe systems.

VHL2 VALVE
Motor-driven two-way valve for the heating battery in 4-pipe systems. Obligatory accessory for 4-pipe systems with variable flow rates.

FMT10 FLUSH-MOUNTING CONTROL PANEL WITH ELECTRONIC THERMOSTAT
Electronic thermostat for fan coils installed in systems with 4 pipes, 2 pipes and 2 pipes with heater, with the possibility of connecting two On - Off valves to shut off the water feeding the coils. Commands simplified with only two selectors for temperature and ventilation control (3 speeds). External air probe (6m cable supplied with probe-holder) to be positioned inside the fan coil. Flush-mounting (module 503). For further information, refer to the instructions supplied with the accessory.

FMT20AW FLUSH-MOUNTING CONTROL PANEL WITH ELECTRONIC THERMOSTAT AND LCD DISPLAY
Electronic thermostat with LCD display for fan coils installed in systems with 4 pipes, 2 pipes and 2 pipes with heater, with the possibility of connecting two On-Off valves to shut off the water feeding the coils. Air temperature probe inside the panel. FMT20AW can be combined with SWA external air and water probes. Flush-mounting (module 503).

PX2 CONTROL PANEL WITH SELECTOR
Control panel with manual command of the ventilation speed, consisting of on/off selector and a 3-position selector for fan speed. Wall-mounted installation. See the accessory instructions for further information.

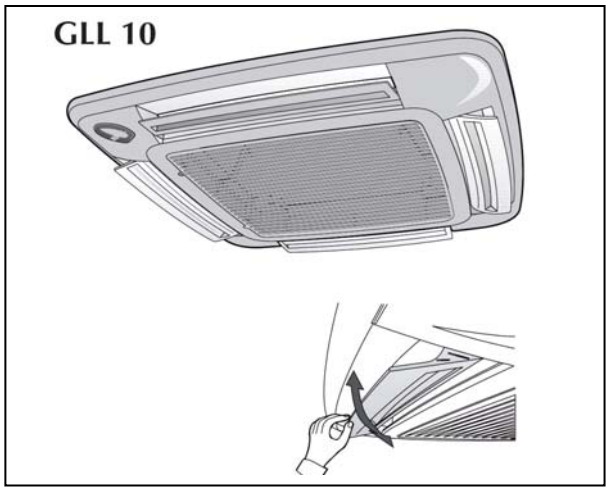
PXA E CONTROL PANEL WITH MULTIFUNCTION ELECTRONIC THERMOSTAT
Multifunction, electronic room thermostat for fan coils in 2-pipe or 4-pipe systems. Simplified controls with only two selectors to control temperature and ventilation, 3 speeds + automatic speed, on-off and automatic summer-winter switching, according to water temperature. The minimum water temperature probe SW is available as an accessory. It interrupts the heating function when the water temperature is below 35°C. Wall-mounted installation. See the accessory instructions for further information.

PXA R CONTROL PANEL WITH MULTIFUNCTION ELECTRONIC THERMOSTAT
Multifunction, electronic room thermostat for fan coils in 2-pipe systems and an electric heater. Simplified commands with only two selectors to control temperature and ventilation, 3 speeds + automatic speed, on/off, activation of the electric heater when desired, and automatic summer/winter switchover according to water temperature. Equipped with a minimum water temperature probe that interrupts the heating function when the water temperature is below 35°C. By suitably adjusting the dip switches on the card, it can also be used for 2-pipe or 4-pipe systems without an electric heater. Wall-mounted installation. See the accessory instructions for further information.

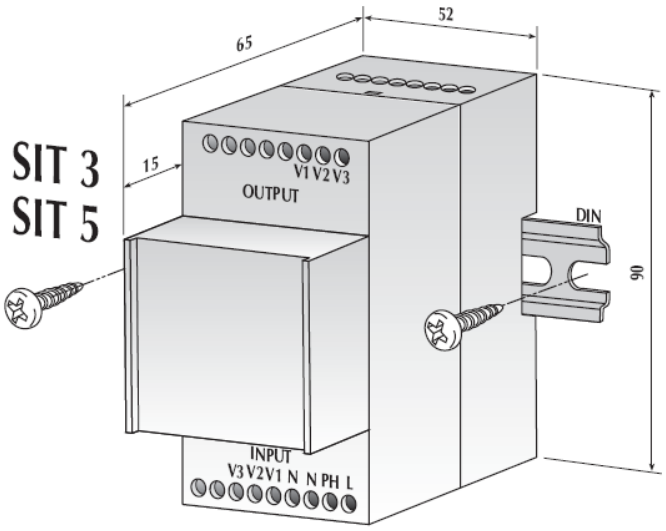
WMT10 CONTROL PANEL WITH THERMOSTAT
Electromechanical thermostat for fan coils installed in 4-pipe, 2-pipe and 2-pipe with heater systems, with the possibility of connecting two On-Off valves to shut off the water feeding the coils. The panel is electrically protected by an internal fuse. Continuous or thermostat-controlled ventilation. Wall-mounted installation.

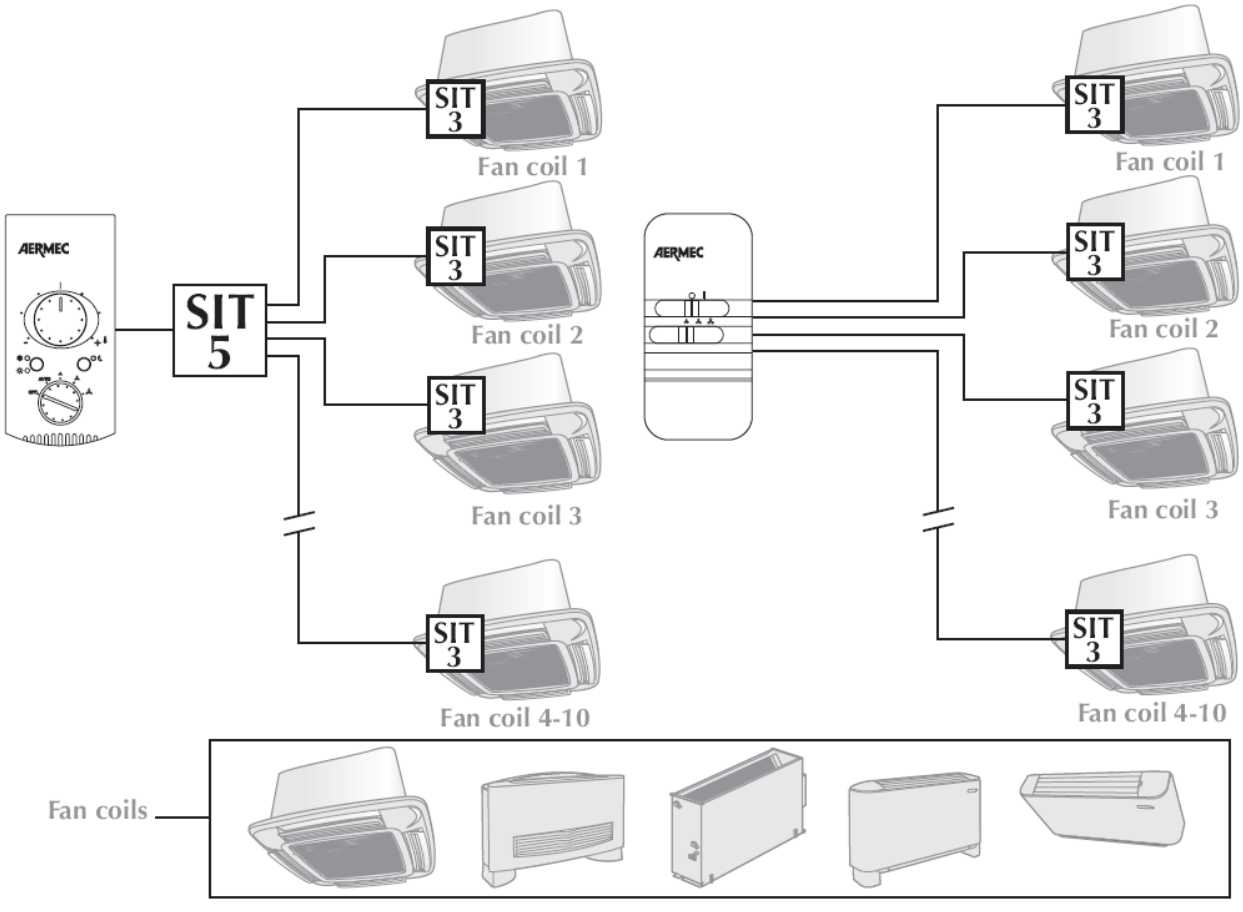
Consult the compatibility table for selection.

Mod. FCL	32	34	36	38	42	44	62	64
GLL 10	✔	✔	✔	✔	✔	✔	✔	✔
GLL 10 M	✔	✔	✔	✔	✔	✔	✔	✔
GLL 10 R	✔	✔	✔	✔	✔	✔	✔	✔
KFL	✔	✔	✔	✔	✔	✔	✔	✔
KFLD	✔	✔	✔	✔	✔	✔	✔	✔
RXL*	✔		✔		✔		✔	
RXLE**	✔		✔		✔		✔	
SW3*	✔	✔	✔	✔	✔	✔	✔	✔
SW4**	✔	✔	✔	✔	✔	✔	✔	✔
SWA	✔	✔	✔	✔	✔	✔	✔	✔
VHL1		✔		✔		✔		✔
VHL2		✔		✔		✔		✔
SIT 3*	✔	✔	✔	✔	✔	✔	✔	✔
SIT 5*	✔	✔	✔	✔	✔	✔	✔	✔
FMT10*	✔	✔	✔	✔	✔	✔	✔	✔
FMT20*	✔	✔	✔	✔	✔	✔	✔	✔
PX*	✔	✔	✔	✔	✔	✔	✔	✔
PX 2*	✔	✔	✔	✔	✔	✔	✔	✔
PXAE*	✔	✔	✔	✔	✔	✔	✔	✔
PXAR**	✔	✔	✔	✔	✔	✔	✔	✔
WMT10**	✔	✔	✔	✔	✔	✔	✔	✔

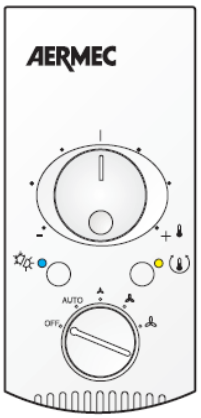


SIT3 - SIT5 SCHEDE INTERFACCIA

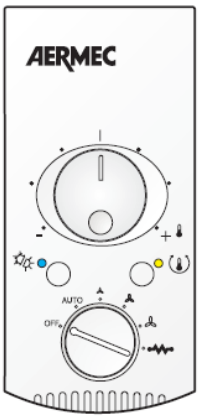




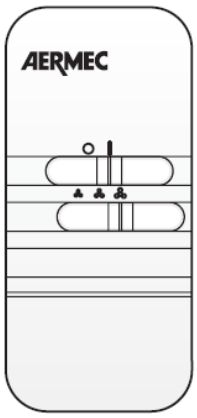
PXAE



PXAR

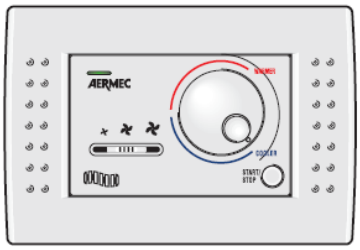


PX2

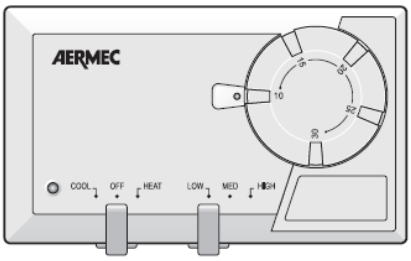


FMT20AW

FMT10



WMT10



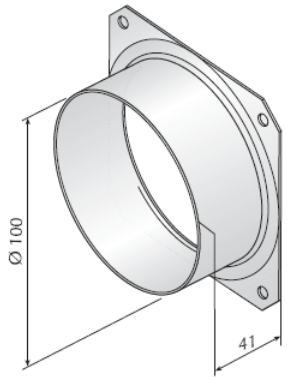
SW4

SW3 L=2500mm
SW4 L=700mm

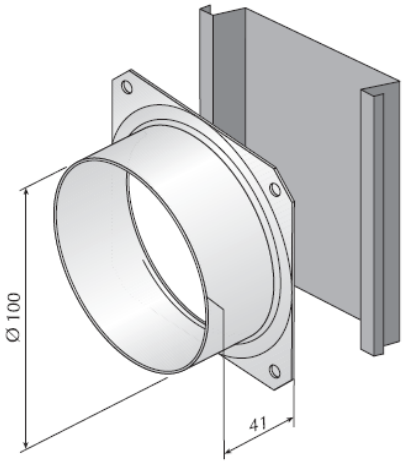
SWA

SWA L=6000mm

KFL



KFLD



Installation information

WARNING: before carrying out any interventions, make sure the power supply has been cut off.
WARNING: before carrying out any interventions, adopt the proper personal protective equipment.
WARNING: the appliance must be installed according to the national plant engineering regulations.
WARNING: the electrical connections, the installation of the fan coils and relevant accessories should be performed by a technician who has the necessary technical and professional expertise to install, modify, extend and maintain systems, and who is able to check the systems for the purposes of safety and correct operation.
WARNING: install a device, main switch or plug that allows you to completely cut off the power supply to the unit.

Instructions which are essential for the proper installation of the equipment are given here. The final touches to all procedures are, however, left to the experience of the installation engineer in accordance with the specific requirements.
Do not install units in premises where there are inflammable gases or acid or alkaline substances that could irreparably damage the aluminium-copper heat exchanger or internal plastic parts.
Do not install the unit in workshops or kitchens where the oil vapours mixed with the treated air can be deposited on the exchange coils, reducing their performance, or on the parts inside the unit, damaging the plastic parts.
Choose a position in the centre of the room if possible; the regulation of the air output allows the air to be distributed optimally in the room. Generally the best position of the louvres is that which allows the launch of the air adhering to the ceiling for the coined effect, during cold functioning. The opening positions are indicated on the side section of the air flow unit for correct machine operation when hot (opening 20°) and cold (opening 10°). There are intermediate and completely closed positions available. Thanks to the special shapes of the louvres, the machine can also function with the deflectors completely closed.
The regulation of the air output allows the air to be distributed optimally in the room.
Do not install at a height above three metres.
The FCL unit is prepared for connections with channelling for the fresh air and for the delivery of treated air to an adjacent room.

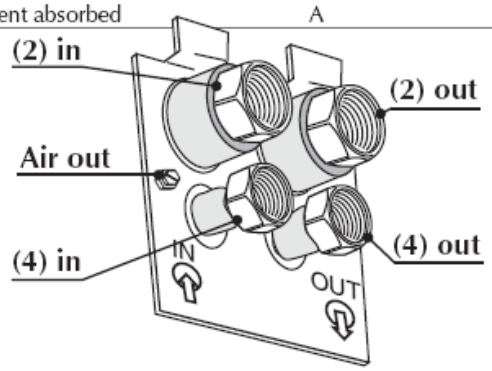
CONNECTIONS

PLUMBING CONNECTIONS

The plumbing connections are made with flat fittings complete with seal gaskets (supplied).
In the 4-pipe version of the unit, it is essential to install the VHL1 valve accessory. For this purpose use the supplied gaskets. The accessory has gaskets for connection to the system.
Information for the correct installation of the VHL1 valve is contained in the accessory instruction booklet.
The delivery and return pipes must be equal, suitably scaled and insulated to avoid heat dispersion and dripping during cold functioning.

TECHNICAL DATA

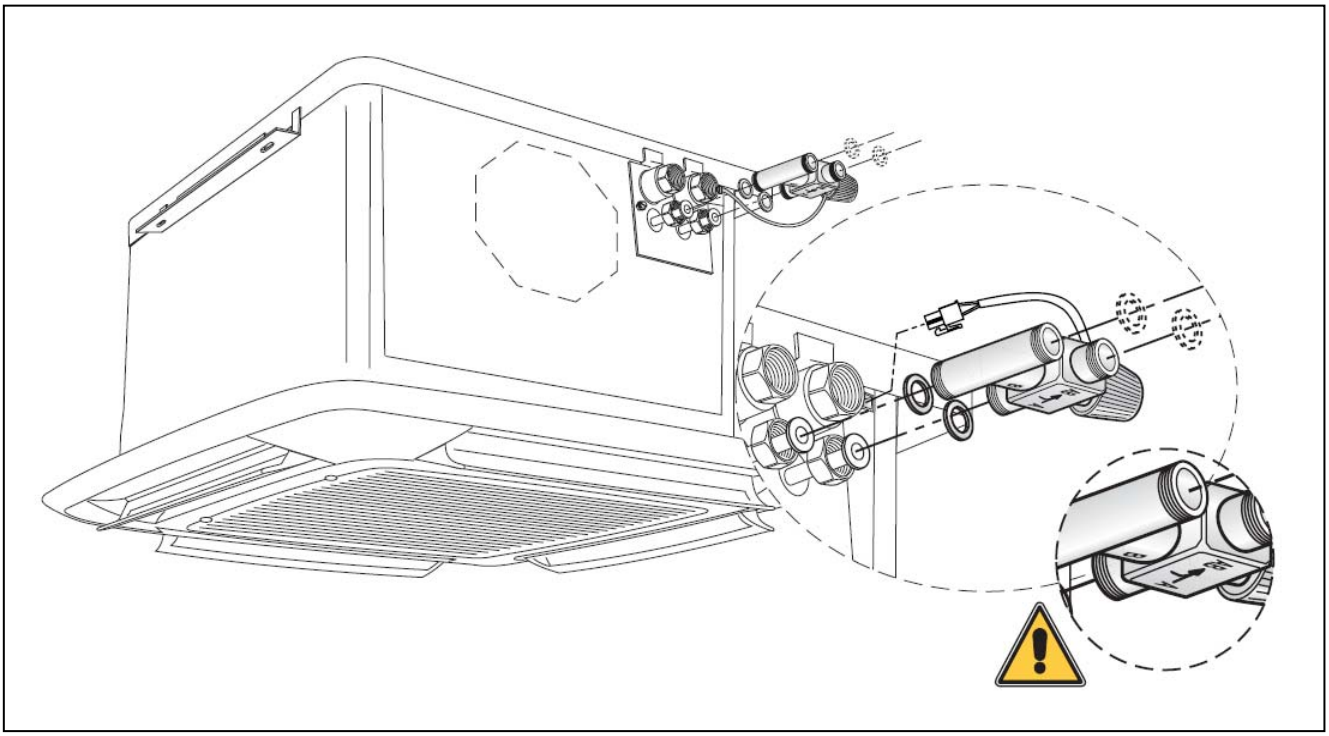
Mod. FCL		32	34	36	38	42	44	62	64
Number of fans	n.	1	1	1	1	1	1	1	1
Standard coil connections	ø	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″
Additional coil connections	ø	-	1/2″	-	1/2″	-	1/2″	-	1/2″
Power absorbed	W	45	45	45	45	75	75	83	83
Current absorbed	A	0.22	0.22	0.22	0.22	0.33	0.33	0.37	0.37



CONNECTIONS

(2) = Standard coil connections (3/4″ F)
Air = Standard coil air bleeding
(4) = Hot water coil attachments (1/2″ F)
(FCL 34 - FCL 38 - FCL 44 - FCL 64)

SC = Condensate drain (male Ø 16 mm)



CONDENSATE DISCHARGE CONNECTION

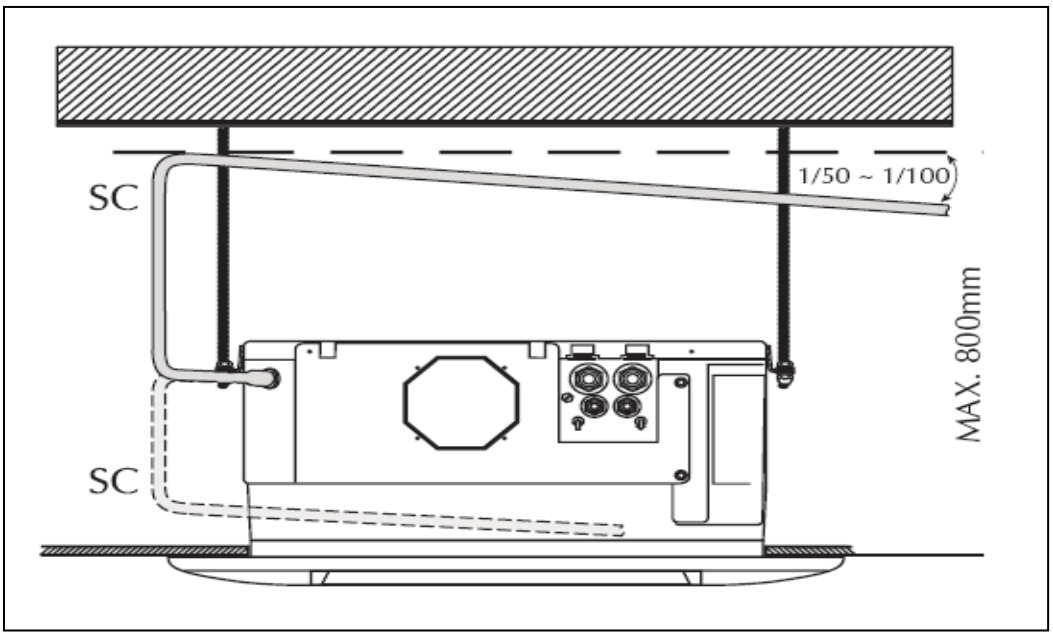
During cold functioning the indoor unit removes humidity from the air. The condensate water must be eliminated by connecting the appropriate discharge coupling to the piping of the condensate discharge system.

The polystyrene basin has a hole permitting the condensate to be fully run off (this is also useful in the event of disassembly). The drainage hole must always be closed again with the rubber plug provided.

The unit is fitted with a number of floating pump devices for raising the condensate from the basin to the drainage, consisting of an electronic card, an electric pump with non-return valve, and a floating cock with a 3-level sensor: ON, OFF and Alarm.

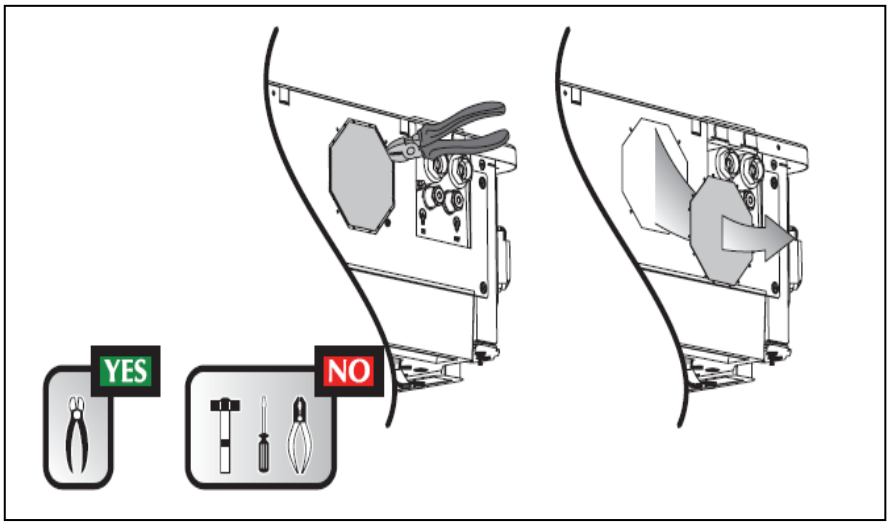
The power supply for the float/pump device must never be interrupted. In the event of an alarm, the float device interrupts the flow of water in the coil. The basin is fitted with an overflow hole to ensure that the condensate water runs off if the floating pump device is not working. In this case dripping can be seen from the grille.

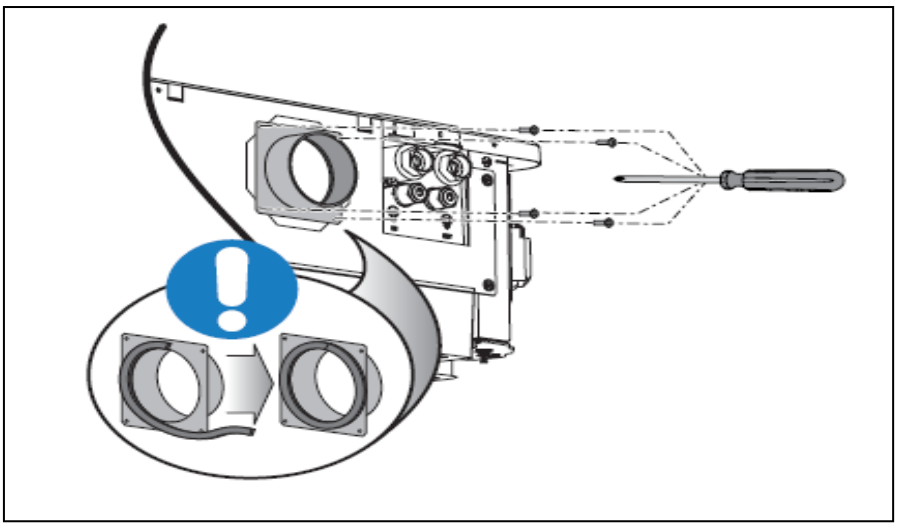
The pump allows a maximum head of 80cm from the level of the suspended ceiling, if this is not high enough you will have to use an auxiliary device. You are advised to use rigid piping that is heat-insulated, to avoid condensation on the outer surfaces.

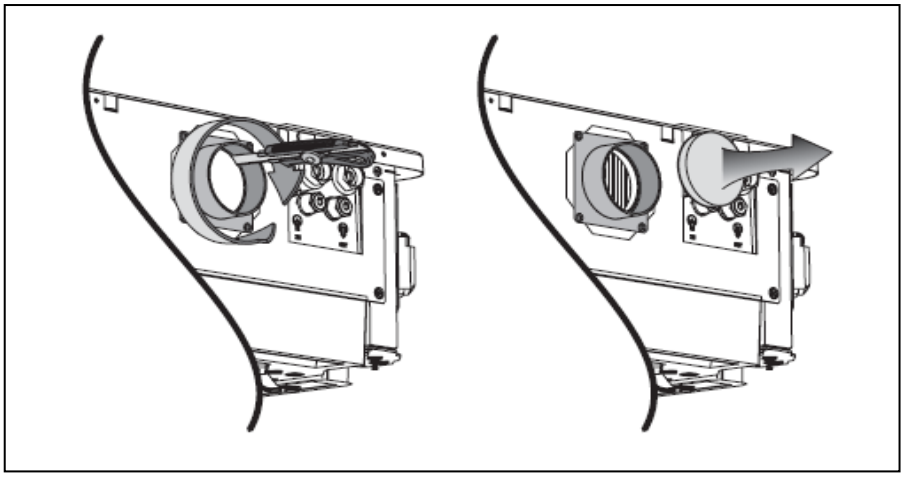


CONNECTIONS FOR THE DELIVERY OF TREATED AIR TO AN ADJACENT ROOM

The unit can be connected to a conduit (diameter 100mm) for delivering treated air to an adjacent room via the circular KFL flange accessory. The application of the flange requires a hole to be opened up on the side.







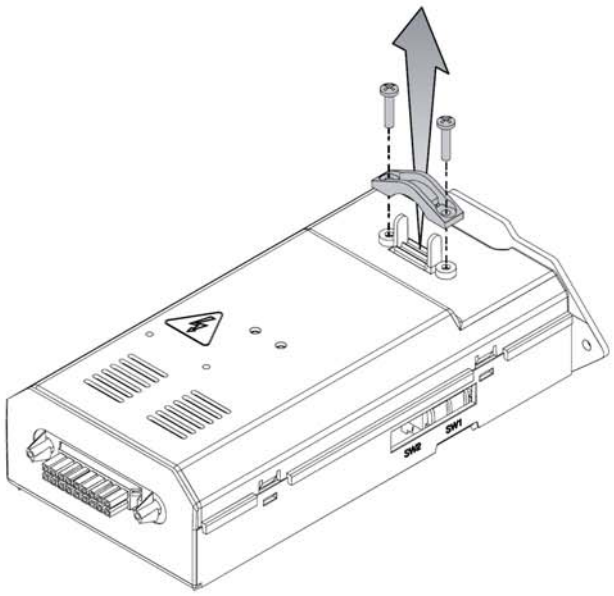
CONNECTIONS FOR THE INTAKE OF FRESH EXTERNAL AIR

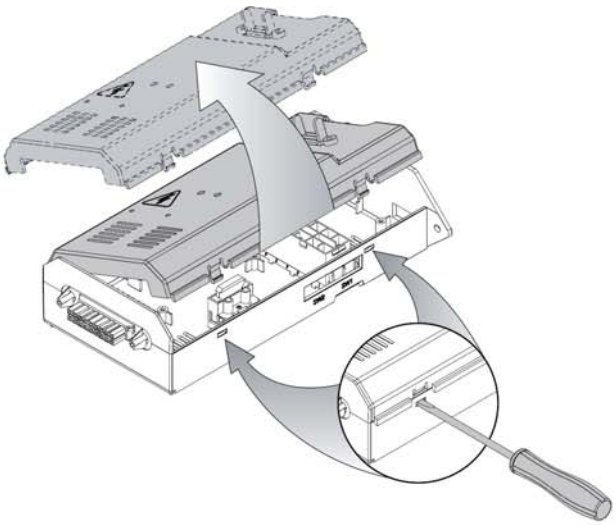
The unit can be connected to a fresh air intake conduit via the circular KFLD flange accessory (diameter 100mm), applied to the vent. The application of the flange requires a hole to be opened up on the side. The connection with the outside is direct, regardless of unit ventilation.
The KFLD accessory also includes a deflector, to be assembled inside the unit.

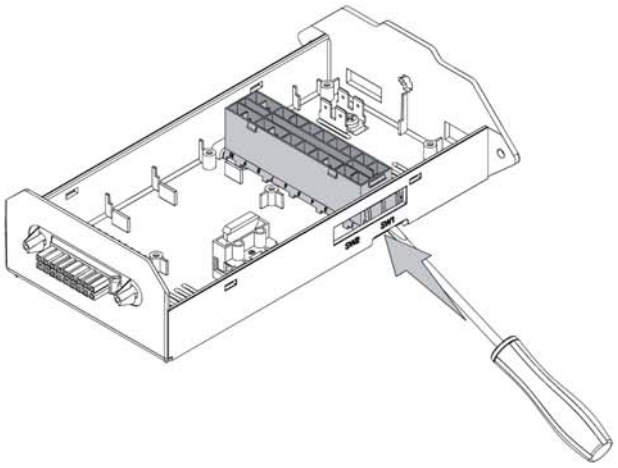
ELECTRICAL WIRINGS

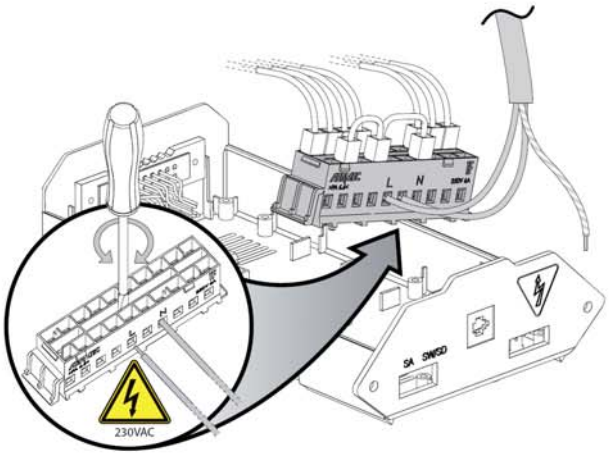
The unit must be connected directly to an electrical outlet or to an independent circuit. The FCL cassette fan coils must be powered with a current of 230V ~ 50 Hz and connected to the earth; the line voltage must however fall within the tolerance of ±10% compared with the nominal value.
To protect the unit against short-circuiting, fit an omnipolar thermal trip max. 2A 250V (IG) to the power line, with a minimum contact opening distance of 3mm.
The electrical power cable must be of the H07 V-K or N07 V-K type with 450/750V insulation if inside a tube or raceway.
Use cables with double H5vv-F type insulation for visible cable installation. When making the connections, follow the wiring layouts supplied with the equipment and shown in this document.
The four-speed fan speed permits various connection alternatives, connect the cables from the control panel to the terminals of the three speeds chosen.

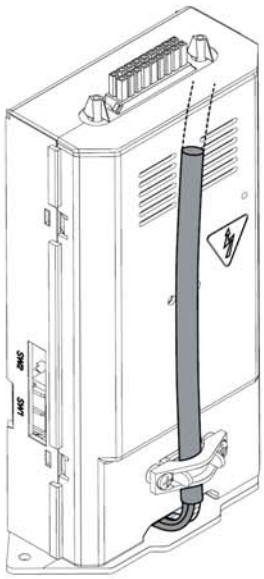
GLL

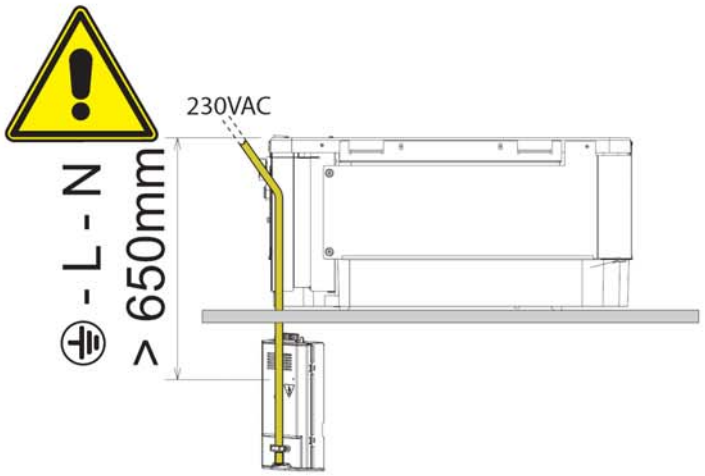




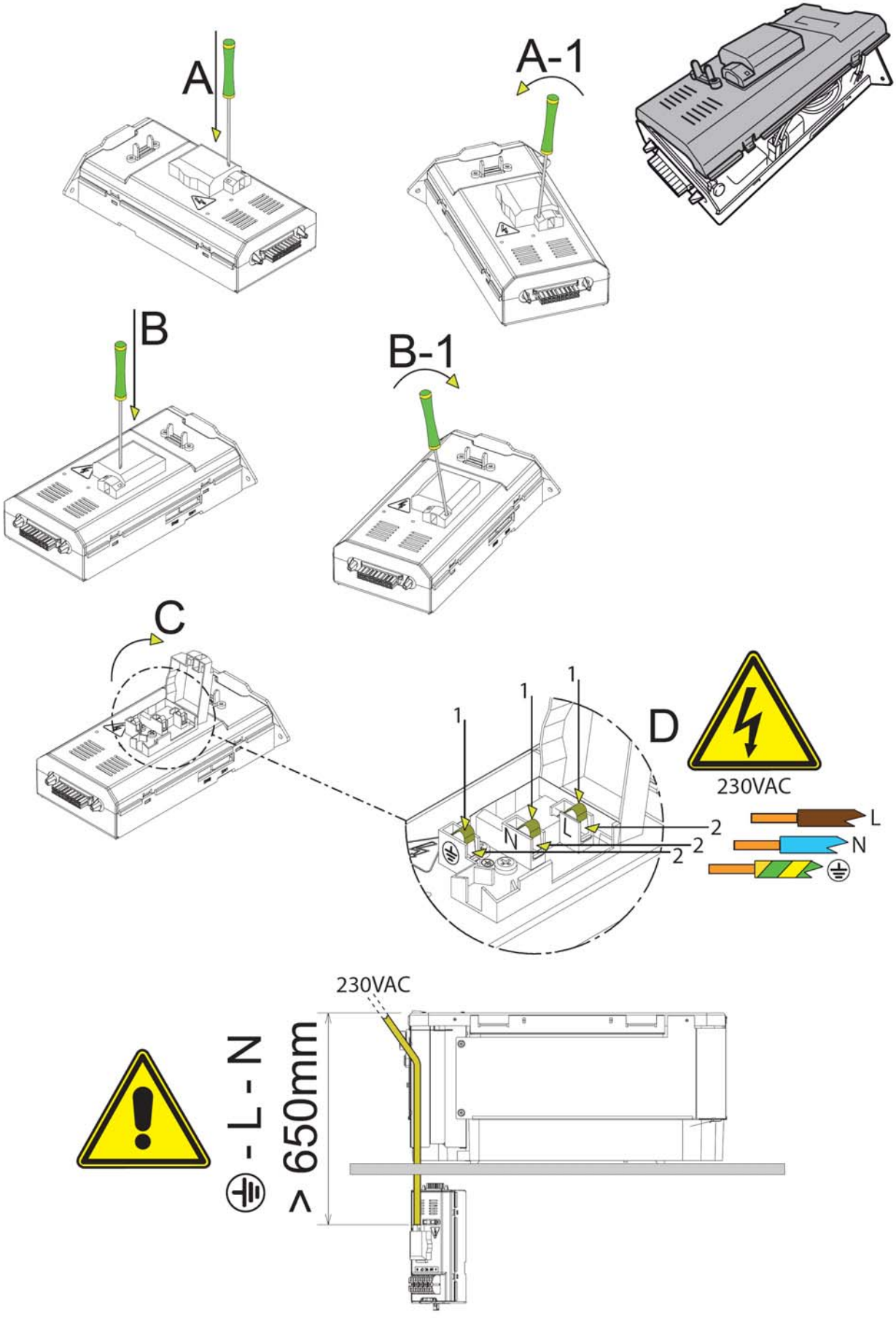








GLL M
GLL R

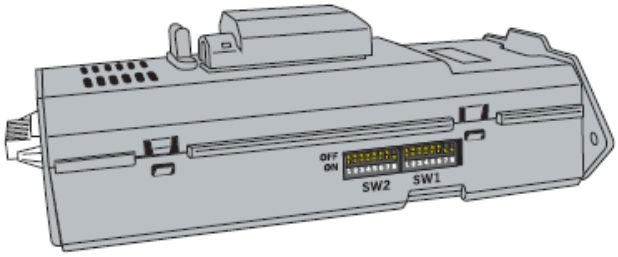


DIP SWITCH CONFIGURATION

Turn off the power to the unit.
To be performed in the installation phase, only by expert staff.
SW2 contains settings that must not be modified (the table states default settings).
By acting on the Dip-Switches of SW1 the following functionalities are obtained:

SW 2

Dip 1 (Default **OFF**)
Factory settings.
Dip 2 (Default **OFF**)
Factory settings.
Dip 3 (Default **OFF**)
Factory settings.
Dip 4 (Default **OFF**)
Factory settings.
Dip 5 (Default **OFF**)
Factory settings.
Dip 6 (Default **OFF**)
Factory settings.
Dip 7 (Default **OFF**)
Factory settings.
Dip 8 (Default **ON**)
Factory settings.



SW 1

Dip 1 (Default **OFF**)
Resistance control:
- functioning in integration mode, OFF
- functioning in replacement mode, ON.

Dip 2 (Default **OFF**)
Presence of the resistance:
- without electric heater, OFF,
- with electric heater, ON.

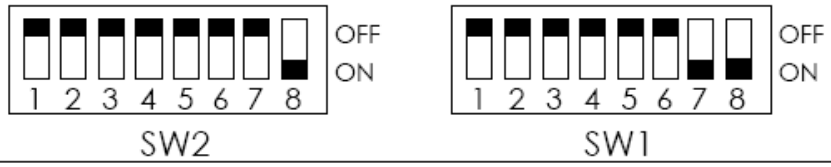
Dip 3 (Default **OFF**)
System type:
- 2 pipes (FCL32 - FCL 36 - FCL 42 - FCL 62), OFF
- 4 pipes (FCL34 - FCL 38 - FCL 44 - FCL 64), ON.

Dip 4 (Default **OFF**)
Factory settings.
Dip 5 (Default **OFF**)
Factory settings.
Dip 6 (Default **OFF**)
Ventilation control:
- continuous ventilation, OFF
- thermostat ventilation heating mode, ON.

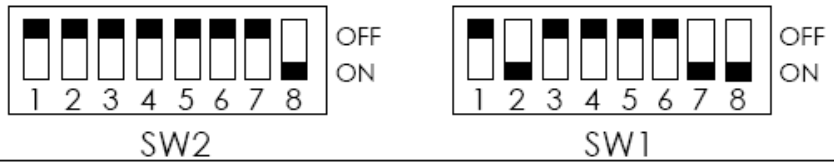
Dip 7 (Default **ON**)
Factory settings , ON.
Dip 8 (Default **ON**)
Factory settings , ON.

SOME EXAMPLES :

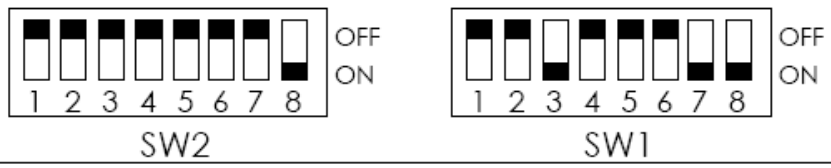
FCL 2 pipe (default)



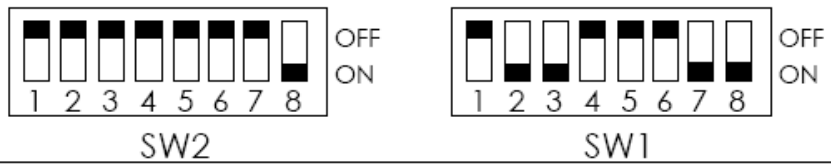
FCL 2 pipe + Electric heater



FCL 4 pipe



FCL 4 pipe + Electric heater



WIRING DIAGRAMS

KEY

AL = Power supply

CE – EX = External contact

CN = Connector

CRE = Electric heater contactor

F = Fuse

IG = Master switch

M = Control board

ML = Louvre motor

MV = Fan motor

NC – 00 = Not connected

PE – GND = Earth connection

RE – RX – RXL = Electric heater

SA = Ambient probe

SC = Control card

SW = Minimum water temperature probe

TR = Feeding voltage transformer

TSR = Automatically rearming thermostat

TSRM = Thermostat with manual reset

VHL – VCF = Solenoid valve

VC = Heating solenoid valve

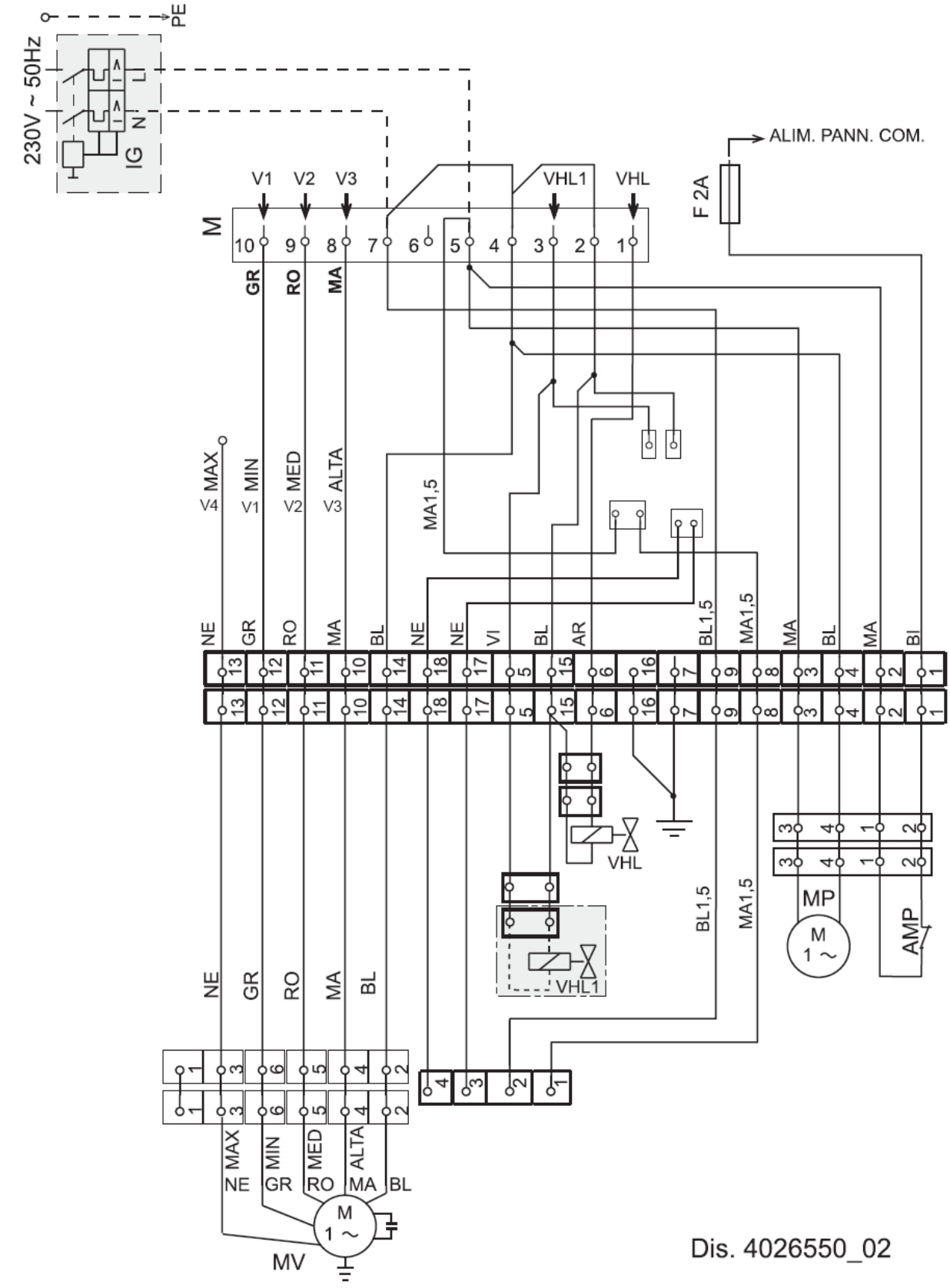
VF = Cooling solenoid valve

nal components

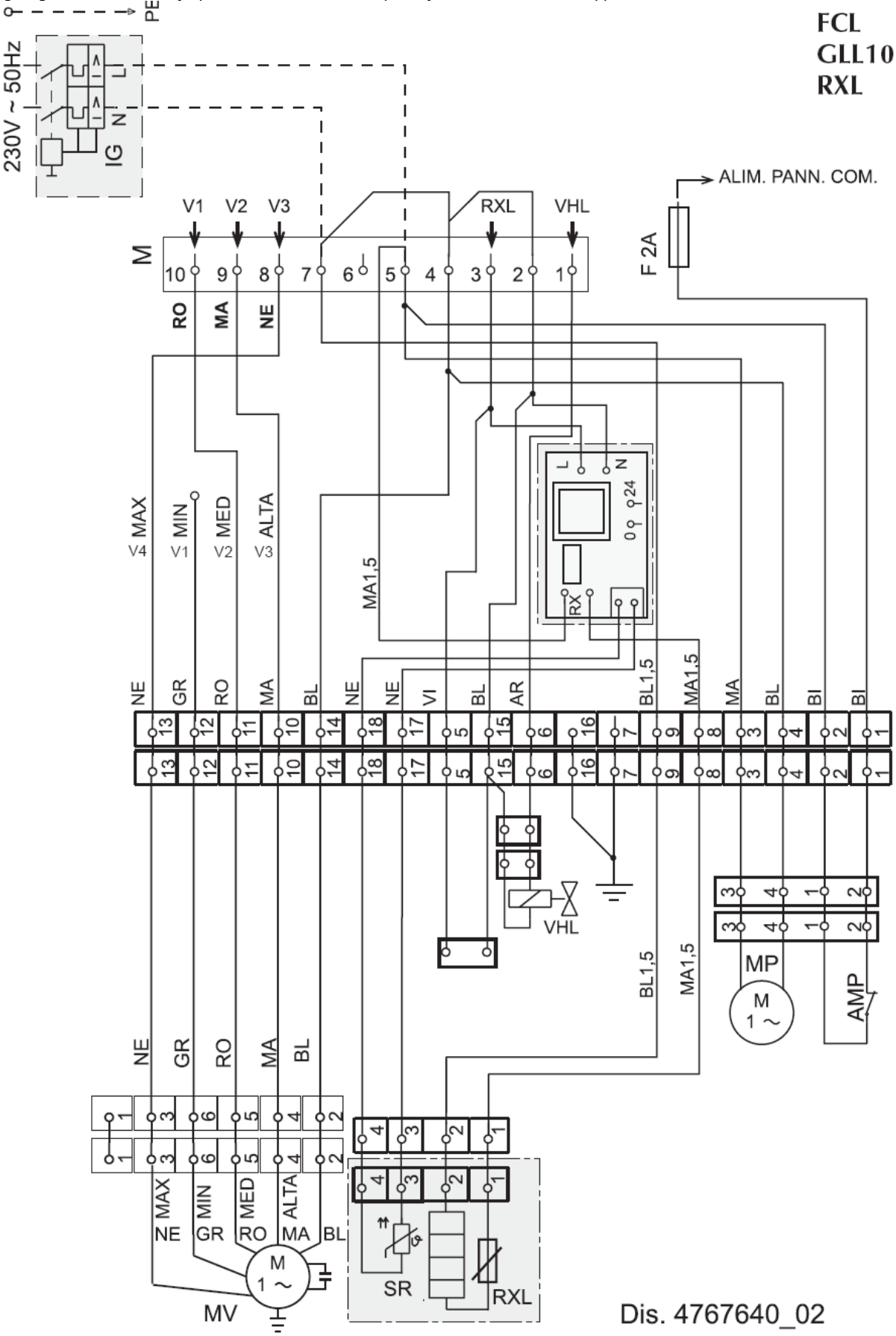
= Connections to be made on site

AR = Orange **BI** = White **BL** = Blue
GR = Grey **MA** = Brown **NE** = Black
RO = Red **VE** = Green **VI** = Purple

FCL

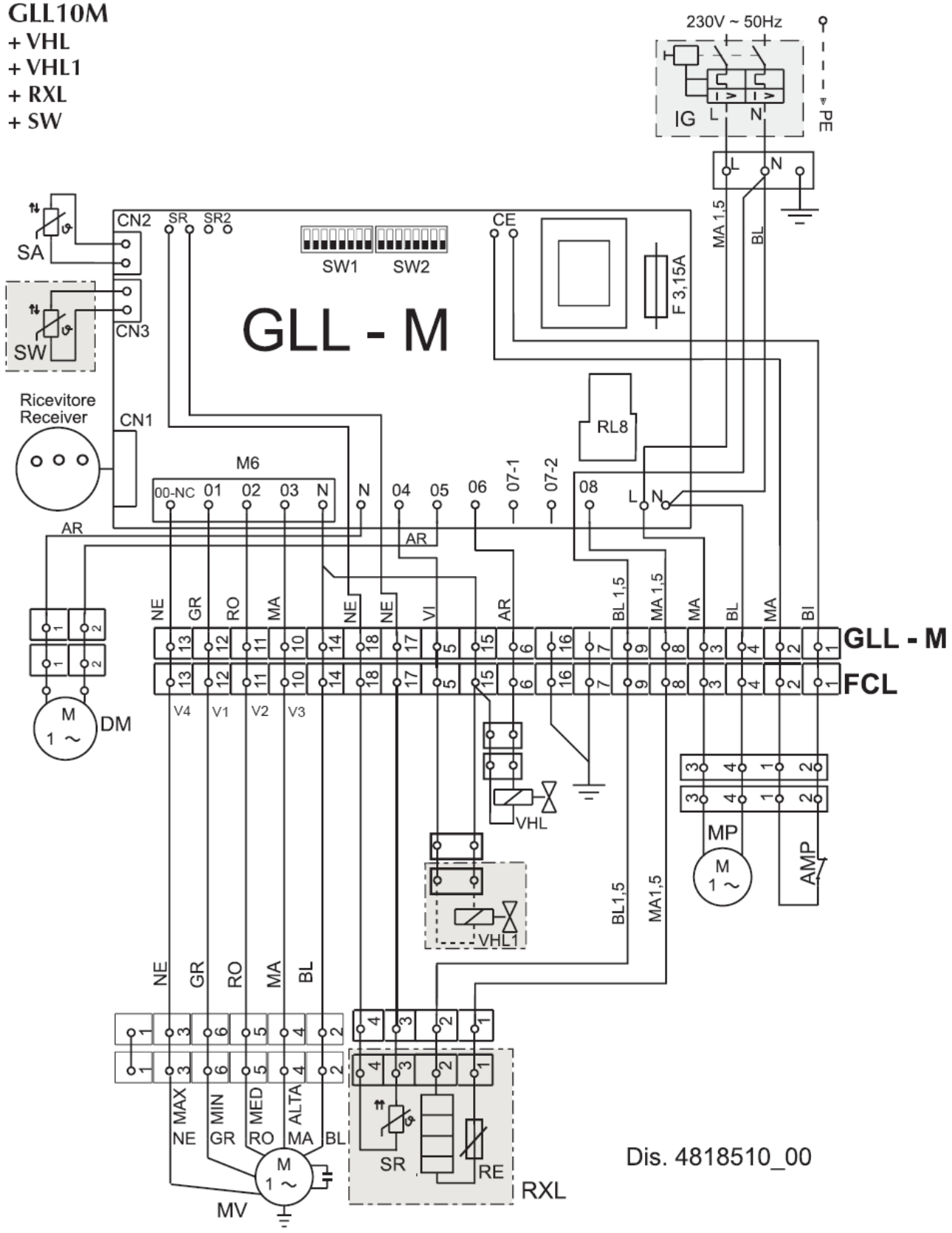

PE
230V ~ 50Hz
IG
L
N
ALIM. PANN. COM.
F 2A
M
V1
V2
V3
VHL1
VHL
10 9 8 7 6 5 4 3 2 1
GR
RO
MA
MAX
MIN
MED
ALTA
V4
V1
V2
V3
MA1,5
NE
GR
RO
MA
BL
NE
NE
VI
BL
AR
BL1,5
MA1,5
MA
BL
MA
BI
VHL
VHL1
MP
M
1 ~
AMP
BL1,5
MA1,5
NE
GR
RO
MA
BL
MAX
MIN
MED
ALTA
NE
GR
RO
MA
BL
M
1 ~
MV
Dis. 4026550_02

Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.



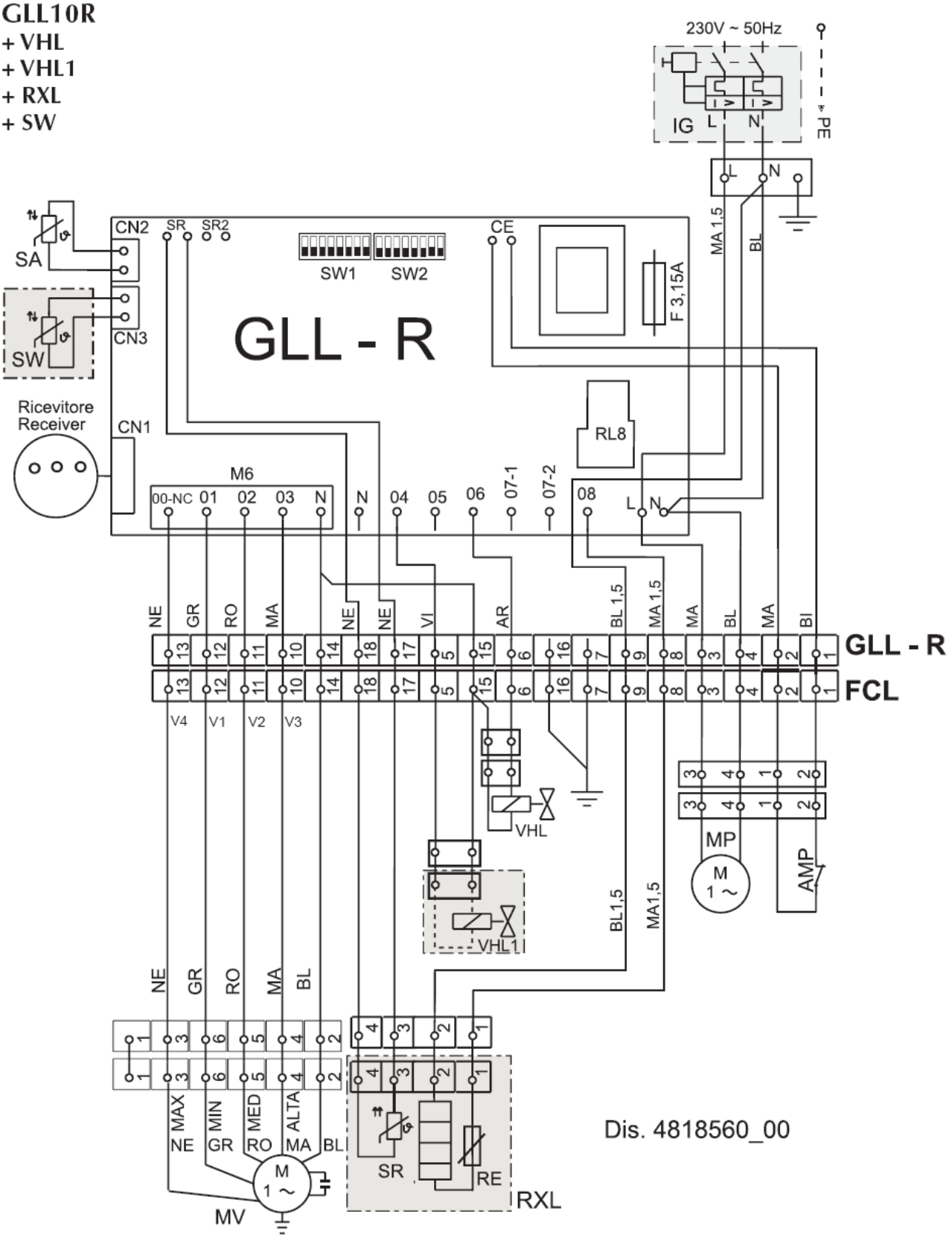
Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.

FCL
GLL10M
+ VHL
+ VHL1
+ RXL
+ SW

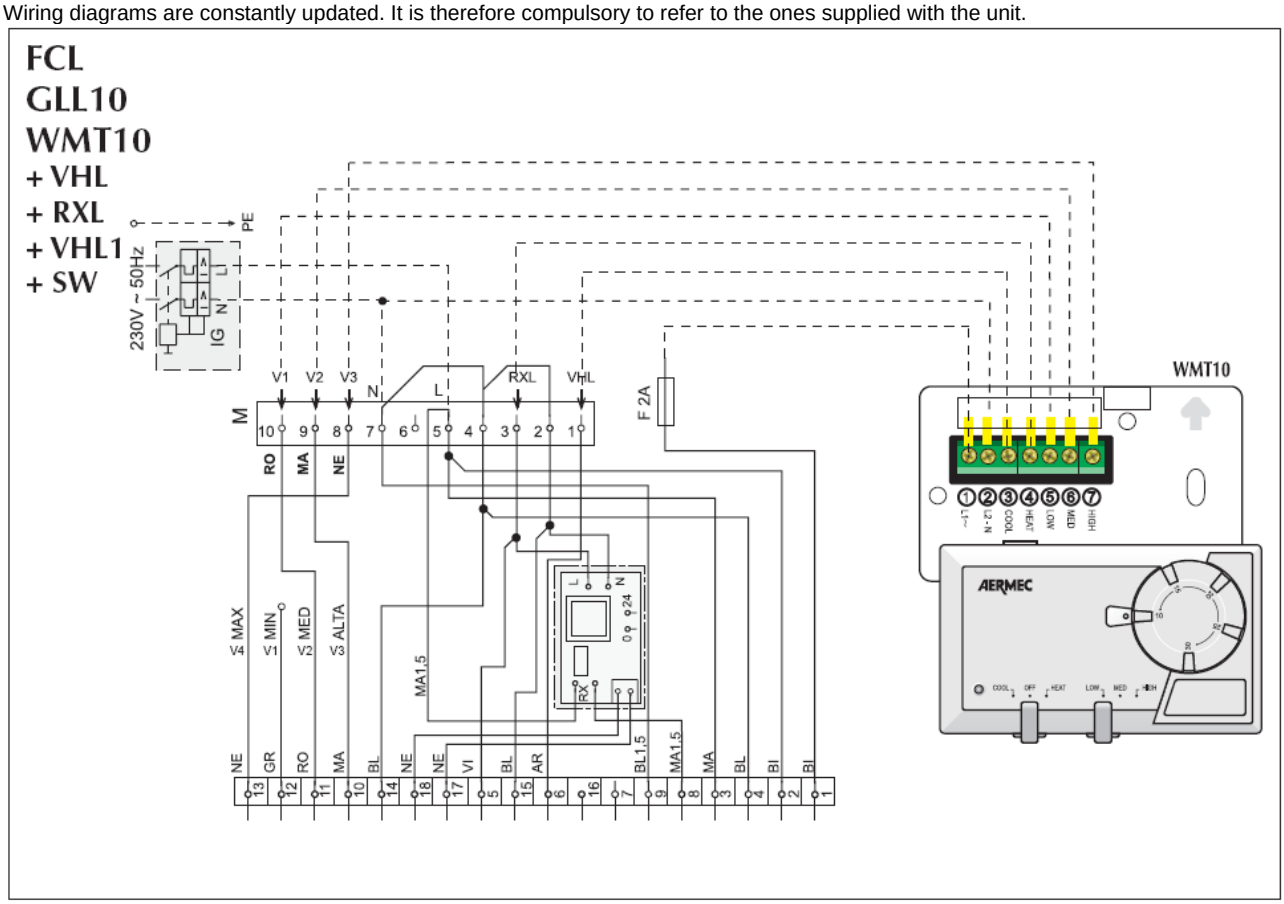


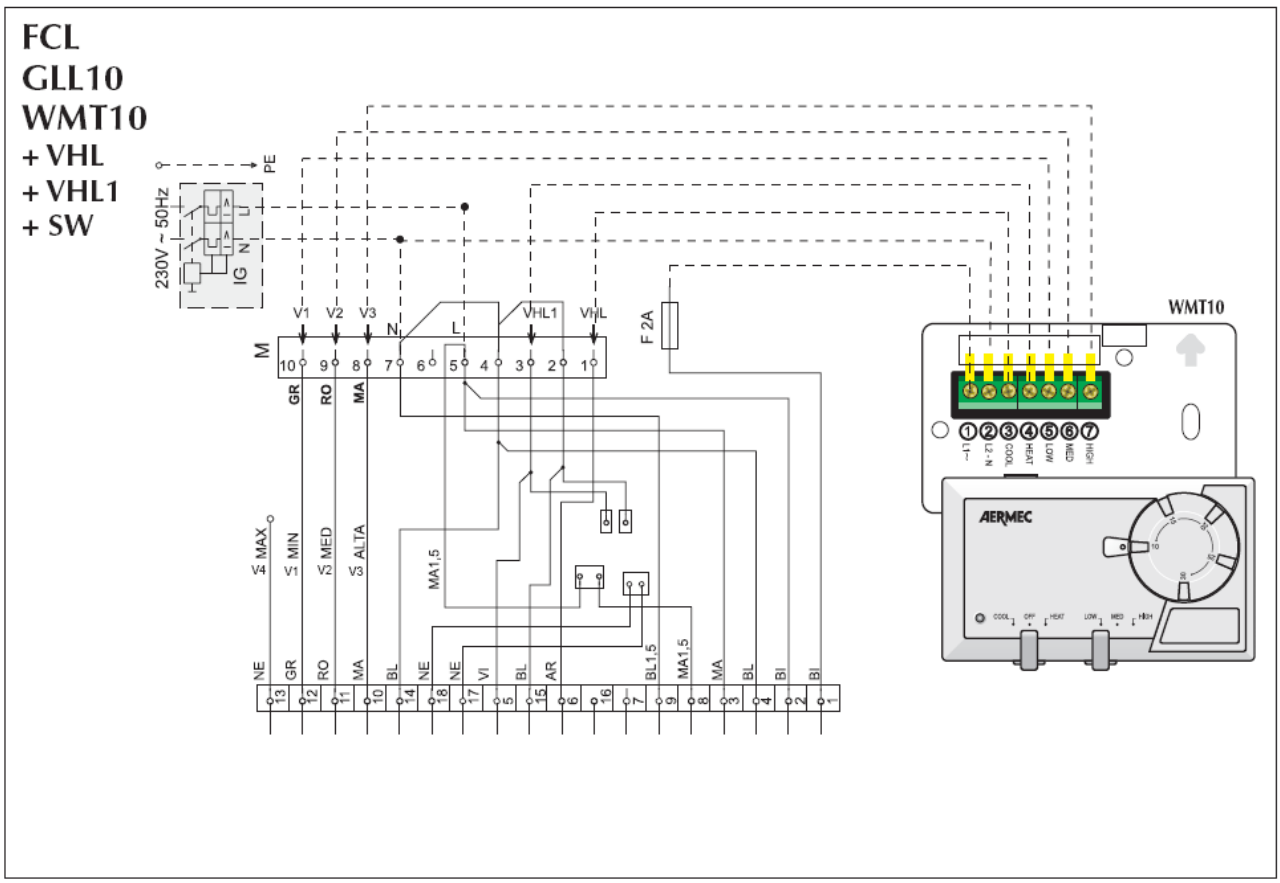
Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.

FCL
GLL10R
+ VHL
+ VHL1
+ RXL
+ SW

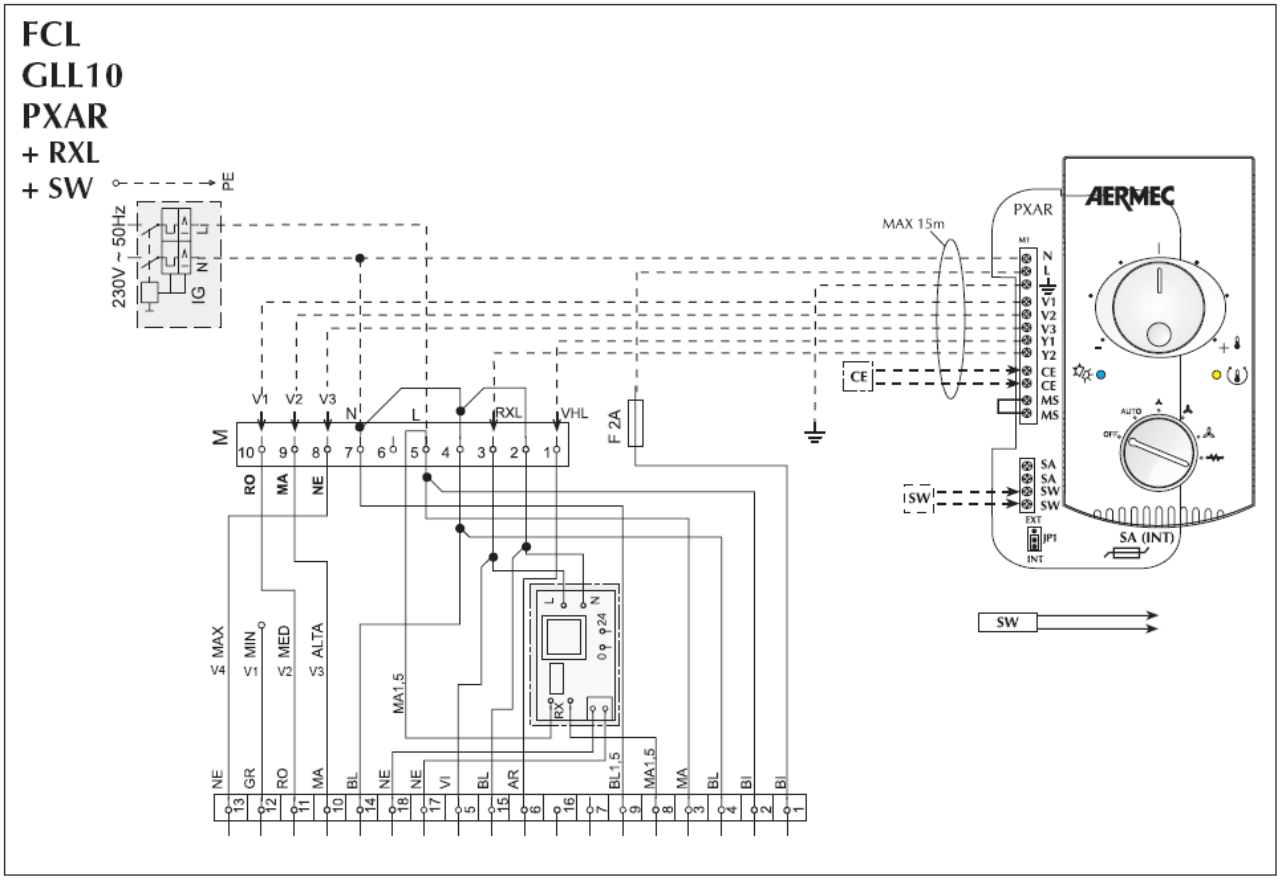


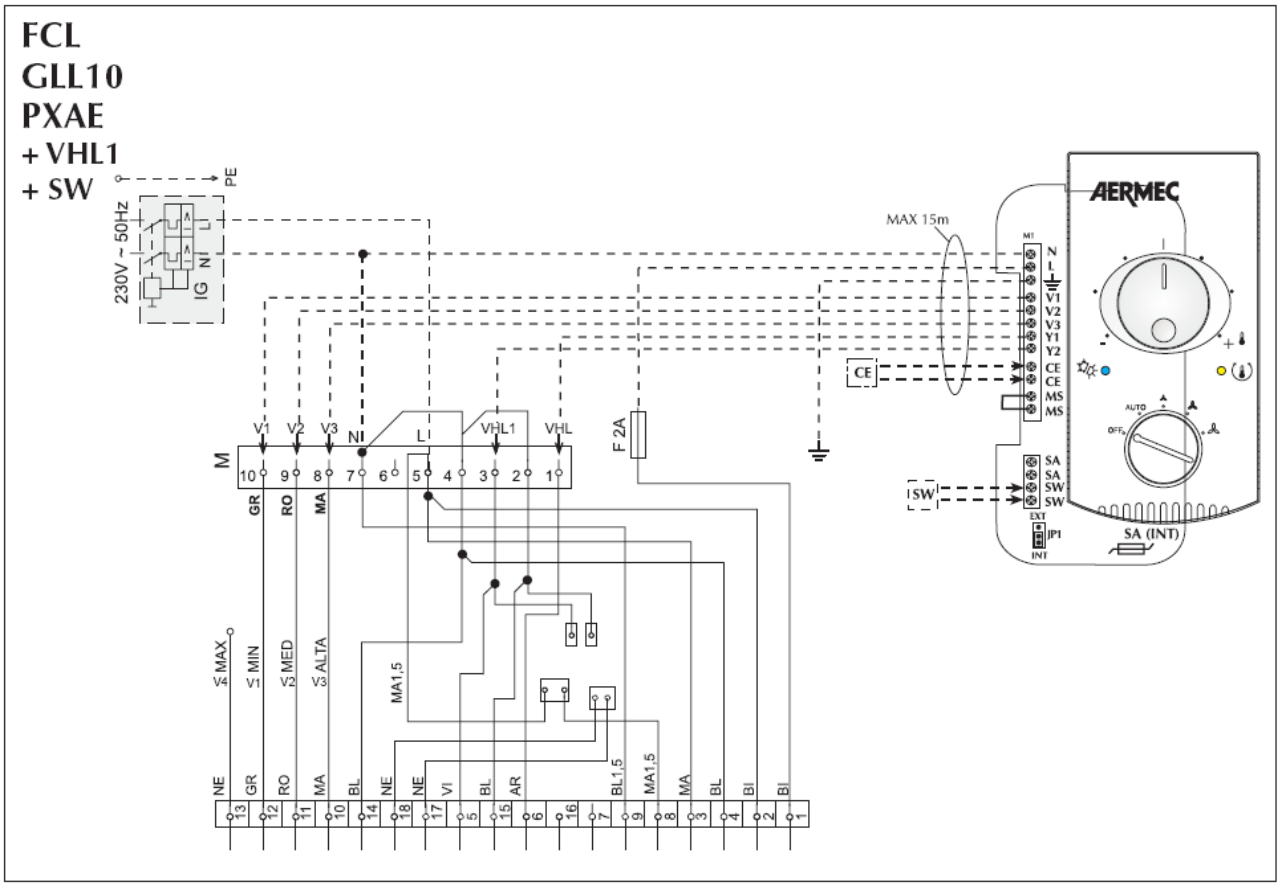
Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.



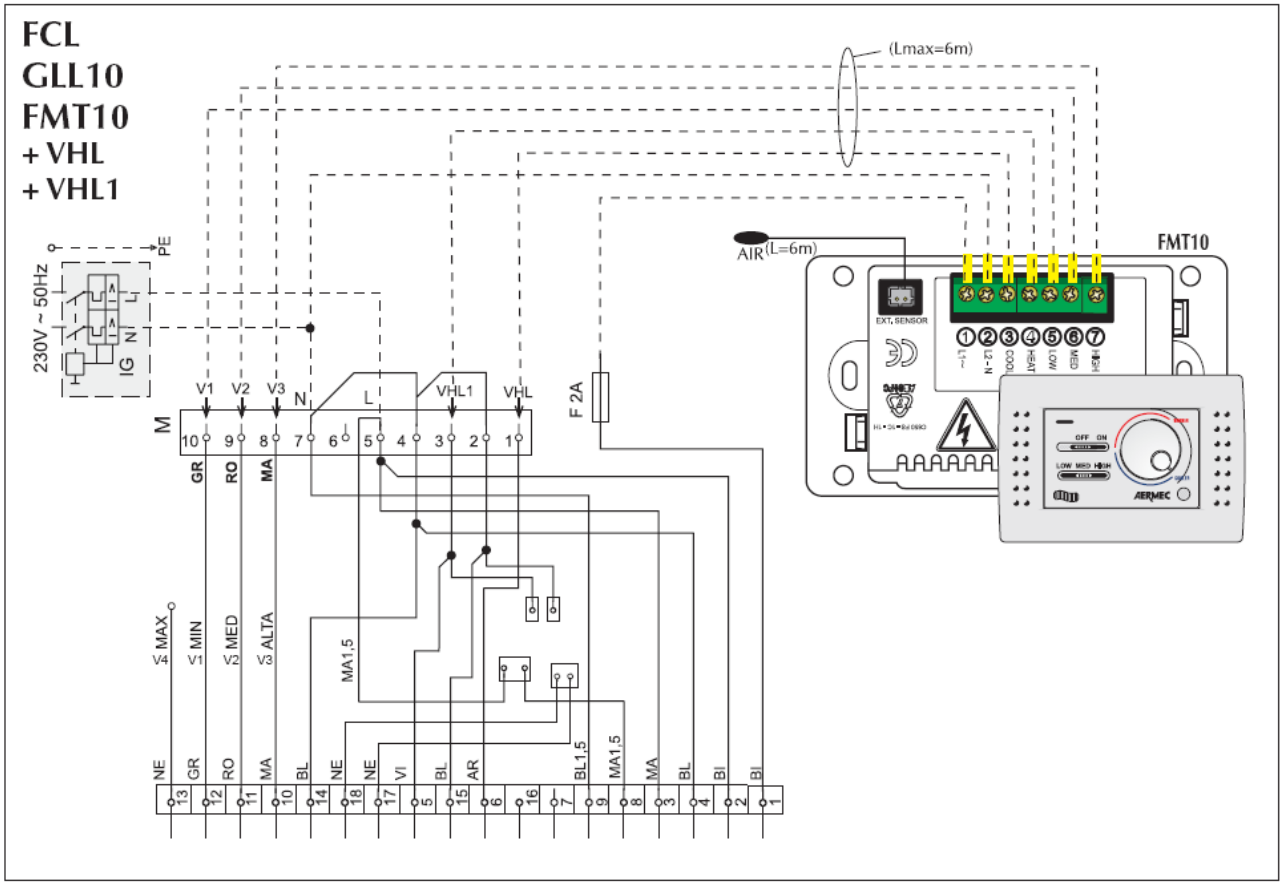


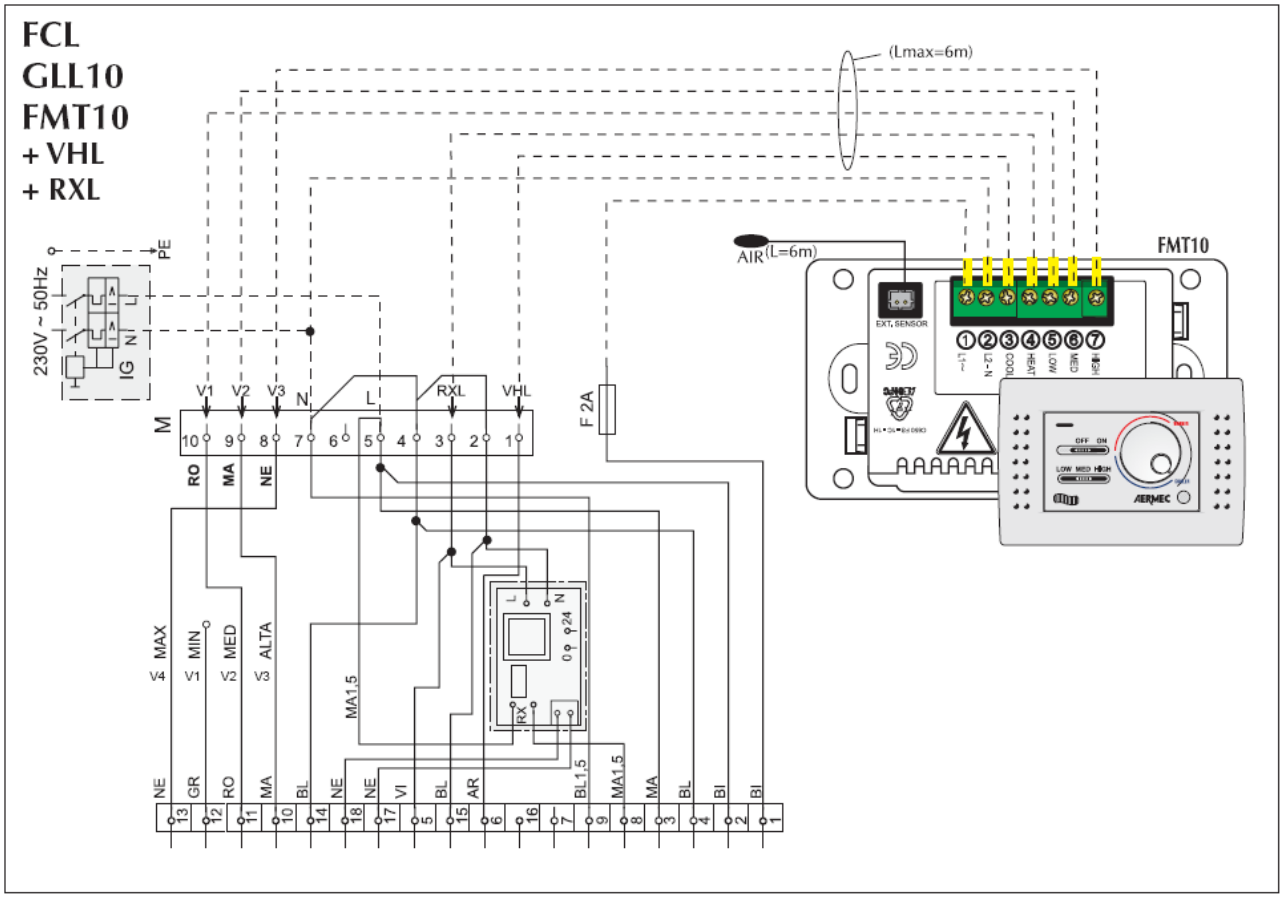
Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.



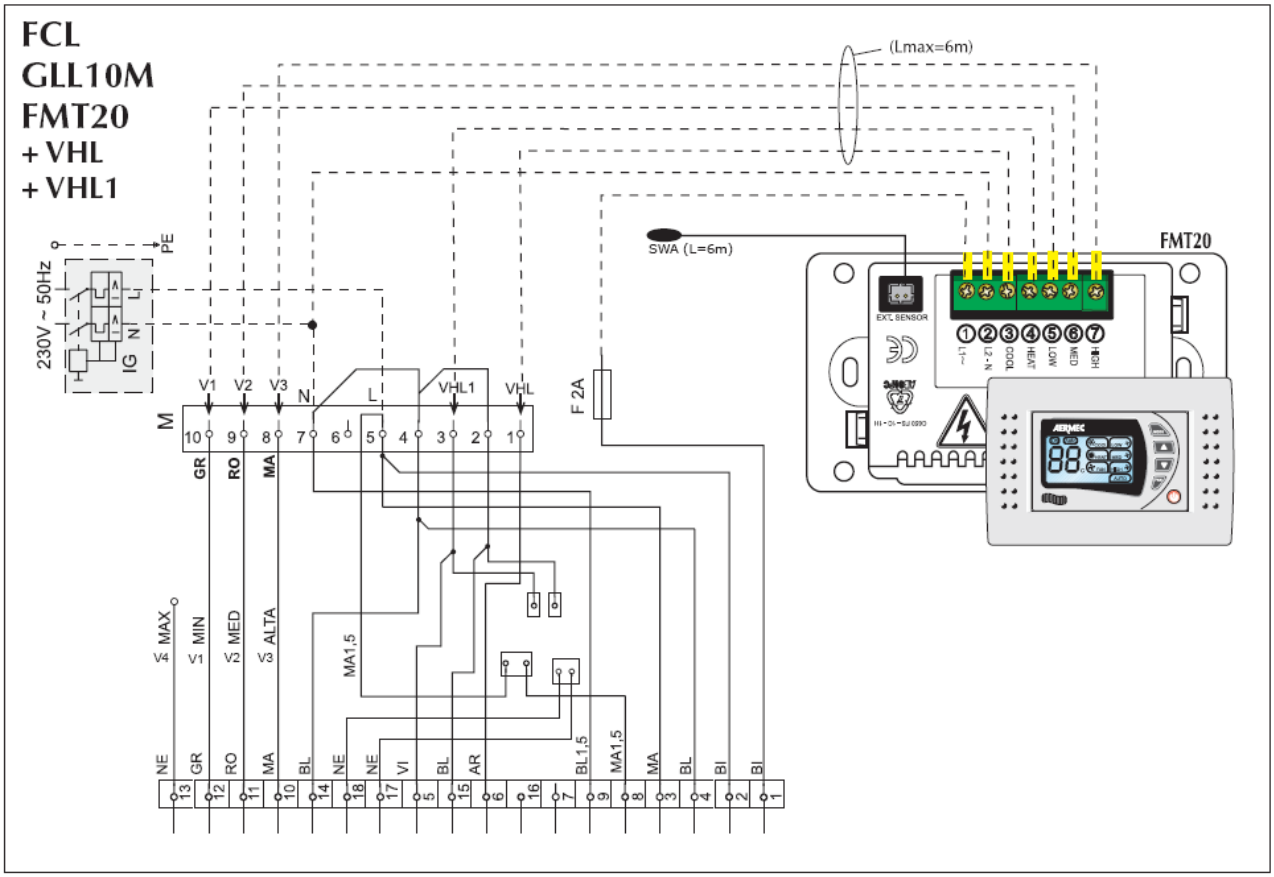


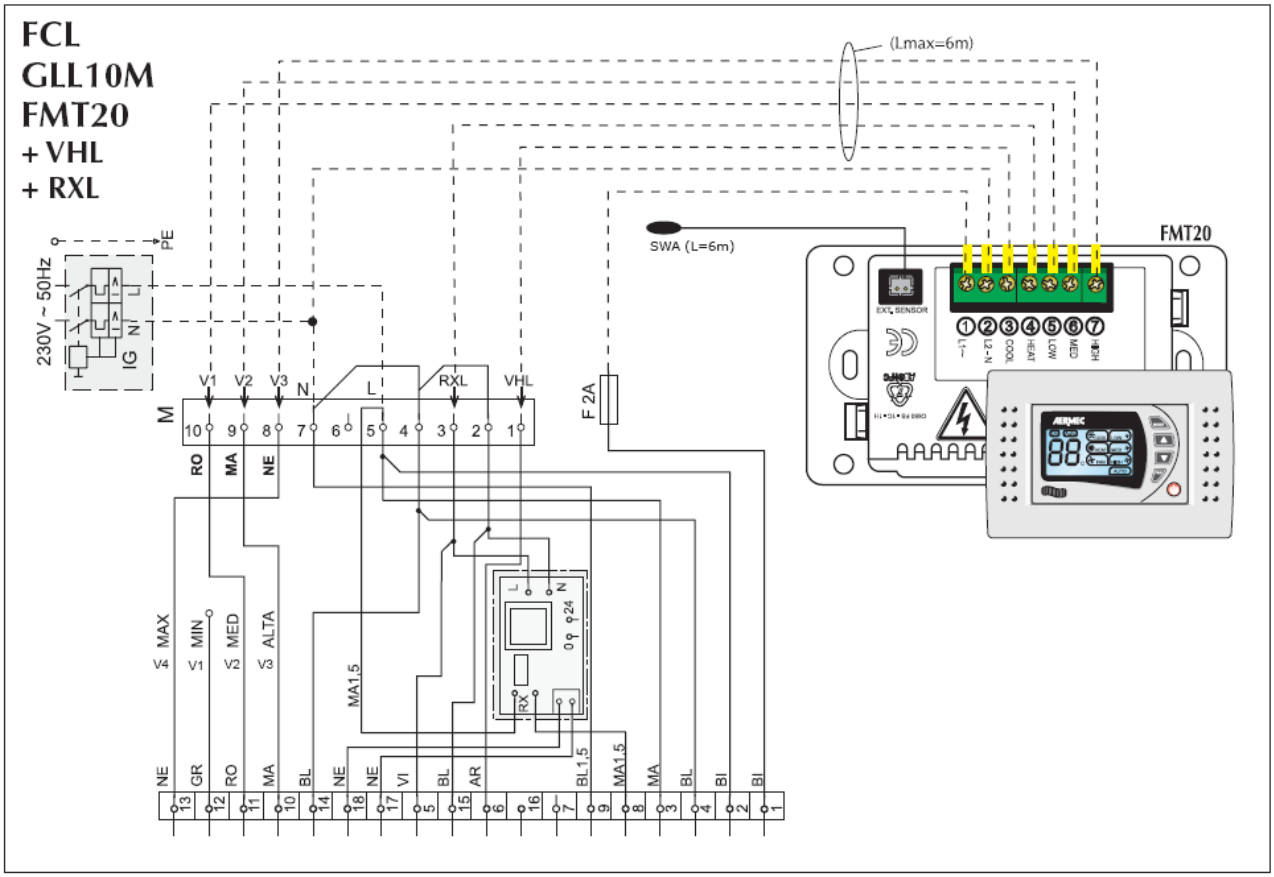
Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.





Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.

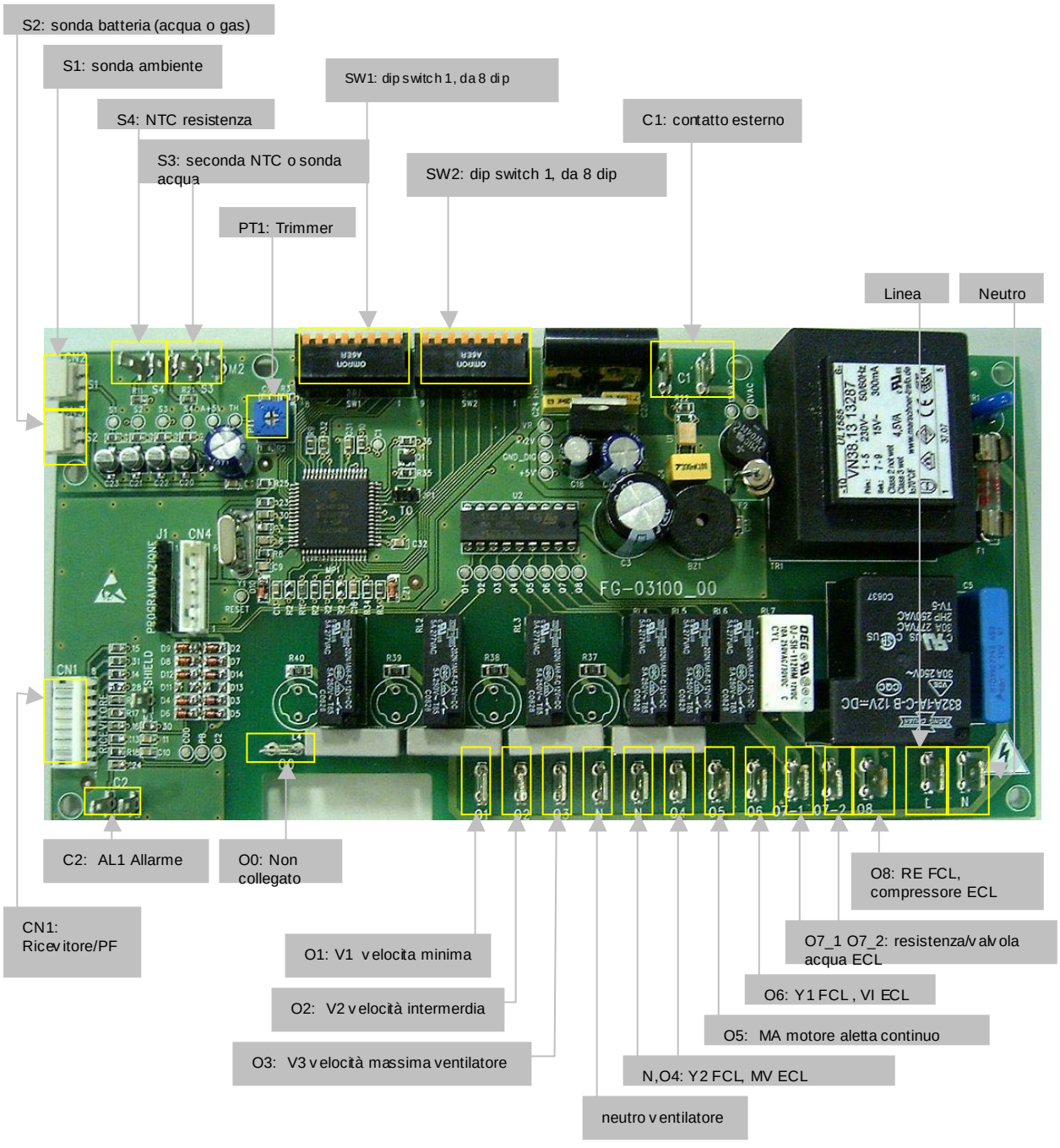




Wiring diagrams are constantly updated. It is therefore compulsory to refer to the ones supplied with the unit.

ELECTRONIC ADJUSTMENT

The card for commanding the cassette is shown below, with an indication of the outputs



control card input/output

I/O	Type	FCL hydronic cassette (twin/single)	Electrical characteristics
CN1	Rapido	CN1: connector for 4-LED receiver (on the unit)	Connector for 4-LED receiver (on the unit)
OO	Faston 6.35mm	V0: output not used	Potential-free Faston. Used to support 4-speed motors.
O1	Faston 6.35mm	V1: minimum fan speed output	Output: voltage 230V AC, current 5 A (Relay)
O2	Faston 6.35mm	V2: medium fan speed output	Output: voltage 230V AC, current 5 A (Relay)
O3	Faston 6.35mm	V3: maximum fan speed output	Output: voltage 230V AC, current 5 A (Relay)
N	Faston 6.35mm	N: neutral	Output: neutral fan
N	Faston 6.35mm	N: neutral	Neutral louvre motor
O4	Faston 6.35mm	Y2: water valve output 2 (FCL 4 pipes)	Output: voltage 230V AC, current 5 A (Relay)
O5	Faston 6.35mm	MA: continuous louvre motor output	Output: voltage 230V AC, current 5 A (Relay)
O6	Faston 6.35mm	Y1: water valve output 1 in FCL	Output: voltage 230V AC, current 5 A (Relay)
O7_2	Faston 6.35mm		Output: voltage 230V AC, current 10 A (Relay) (**)
O7_1	Faston 6.35mm		Input: voltage 230V AC, current 10 A (Relay) (**)
O8	Faston 6.35mm on the relay	RE:heater accessory output	Output: voltage 230V AC, current 30 A (Relay)
L	Faston 6.35mm on the relay	L: line	Power supply line input 230V AC
N	Faston 6.35mm	N: neutral	Power supply neutral input 230V AC
CN2 S1	Rapido Molex	SA: ambient probe input	NTC 10Kohm
CN3 S2	Rapido Molex	SW: Water probe	NTC 10Kohm
m2 S3	2 Minifaston 2.8mm	SR2: heater probe on the second heater (twin)	NTC 10Kohm
m2 S4	2 Minifaston 2.8mm	SR: heater probe (NTC heater)	NTC
C1	2 Faston 6.35mm	CE: ext. contact (can be used as remote on/off or alarm)	Optoinsulated input (for clean contact)
C2	2 Minifaston 2.8mm	AL1	Digital alarm input (for clean contact)
SW1-SW2		SW1-2	16 dip switch
CN4	Rapido Molex	Not used	
J1	Strip step 2.54mm	MCU programming	Various programming and control signals

(**) Clean contact

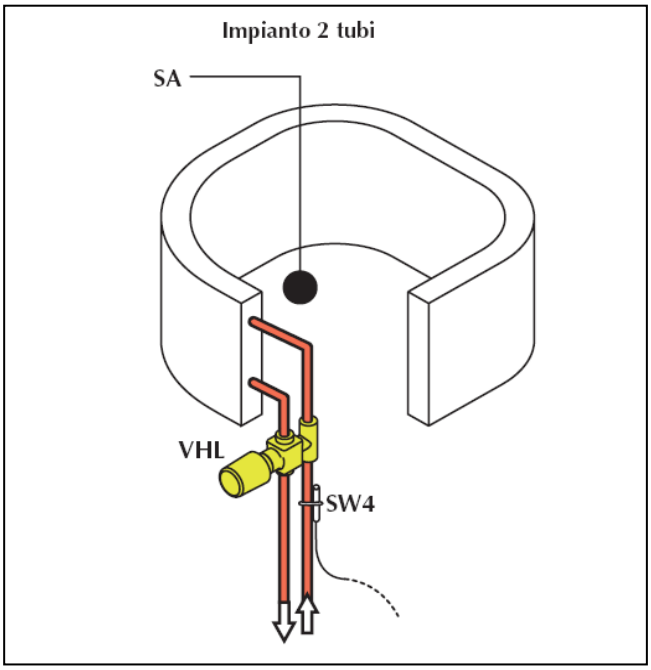
Types of machine

The configuration of the cassette machines in fan coil mode is shown below.

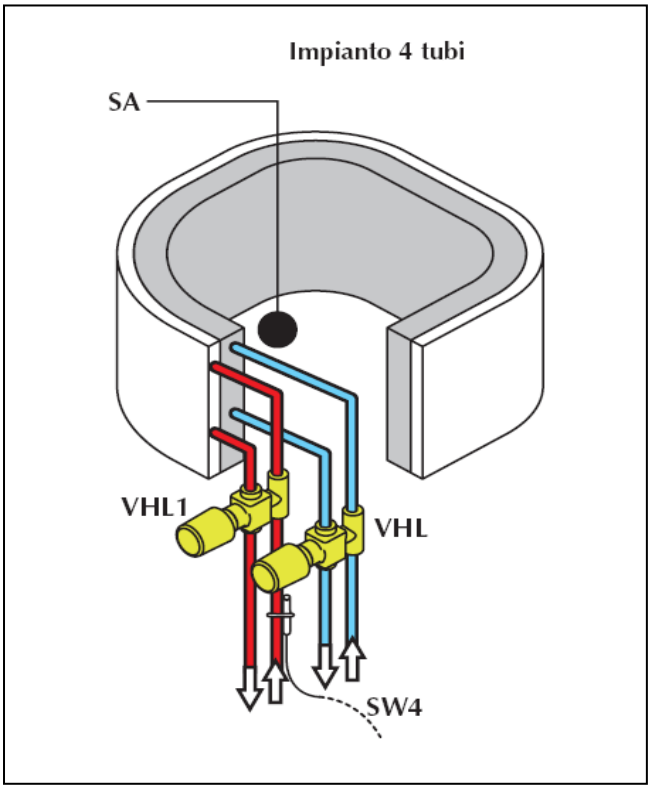
Cassette fan coil (FCL)

From the control point of view, the machine logic involved can be traced to the cases indicated in the figures, and are the 2-pipe and 4-pipe cassettes and those with supplementary or replacement electric heater and any water control probe up line or down line from the valve. There are four possible configurations represented below.

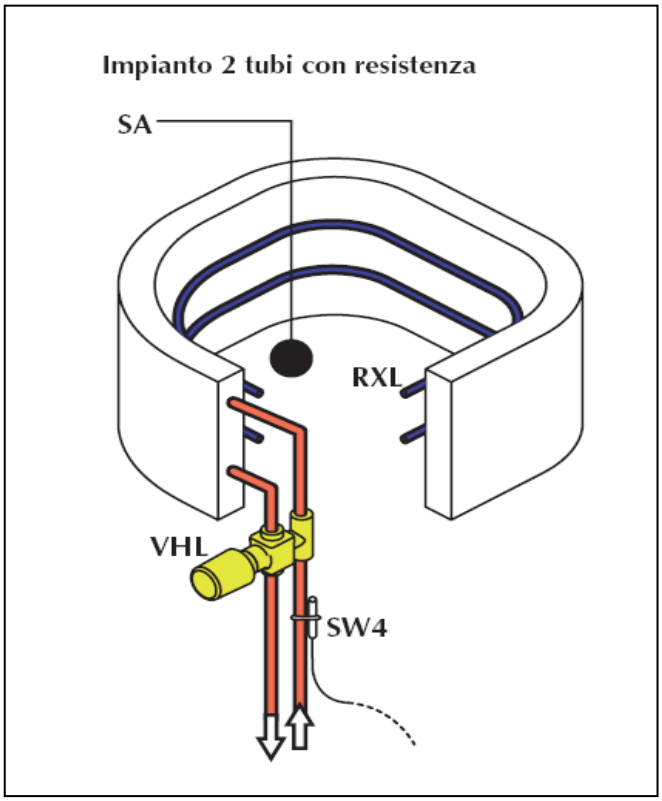
2-pipe fan coil,
with water probe (optional)
up line from the valve or on the coil
Key:
SA ambient probe
SW water probe
VHL solenoid valve (Hot/Cold)



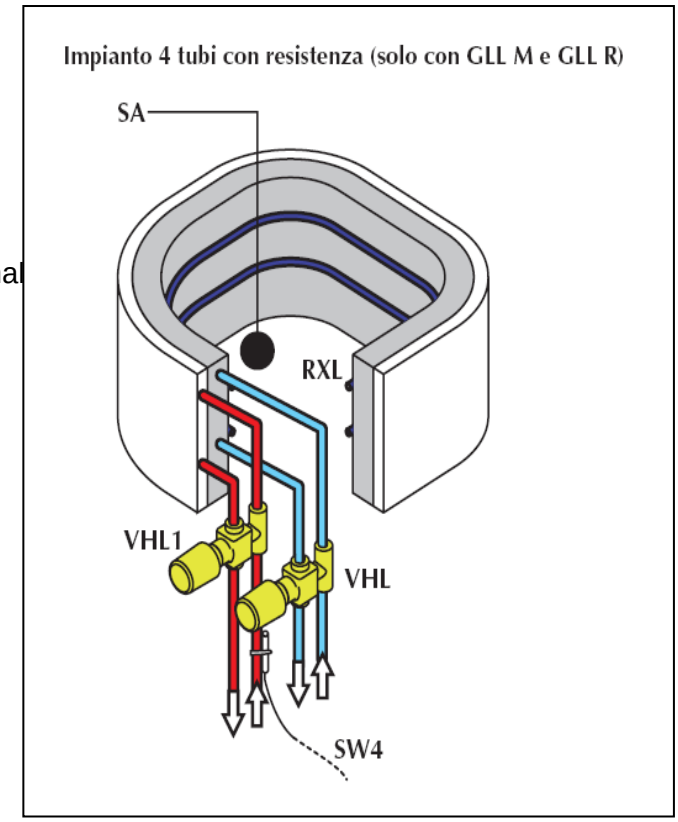
4-pipe fan coil,
with hot water probe (optional)
up line from the valve or on the coil
Key:
SA Ambient probe
SW Water probe
VHL Cold valve
VHL1 Hot valve



2-pipe fan coil,
with supplementary/replacement electric heater
with water probe (optional)
only up line from the valve
Key:
SA Ambient probe
SW Water probe
RXL Electric heater
VHL Solenoid valve (Hot/Cold)



4-pipe fan coil,
with electric heater and hot water probe (optional
only up line from the valve
Key:
SA Ambient probe
SW Water probe
RXL Electric heater
VHL Cold solenoid valve
VHL1 Hot valve



Using the system

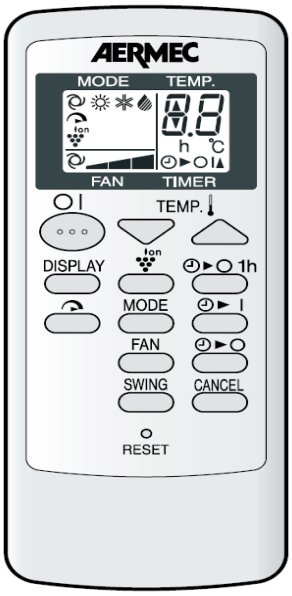
This section shows the selection of the functioning mode by the user via remote control, and the configuration of the system by the manufacturer and installer by means of dip switches.

Compatibility of remote controls

The table shows the compatibility between remote controls and board codes and replacements:

	CRMC- A698JBEZ (new) 9111183	**CRMC- A360JBEO (old) 9104268**
Code 3404200 and subsequent 9114864 FCL ass. board 9114521 board with electric box	Compatible	Compatible

Selecting the functioning mode



Remote control settings:

The remote control unit makes it possible to control the following parame

- turning the unit on and off
- setting the required temperature
- setting the functioning type, i.e.
  - heating
  - cooling
  - automatic
- programming the Timer for switch-on or delayed switch-off
- Selecting the speed of the internal fan (minimum, medium, maximum, automatic)
- positioning of the louvre and swing function

The liquid crystal display on the remote control shows all the selected functioning parameters. The correct reception of the remote control by the machine is indicated with a beep and brief flashing of the yellow LED.

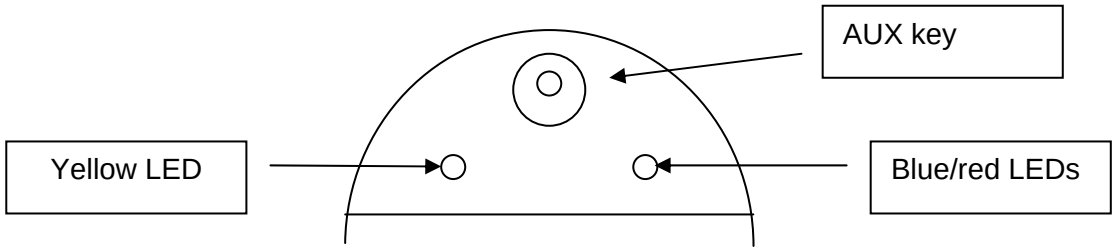
For detailed instructions relating to the remote control, refer to the manual.

Emergency setting and receiver visualisations

If necessary there is an “AUX” key on the grille receiver, that activates the "Auto-Emergency" mode.
In this mode, the machine functions automatically dependent on the ambient temperature read the moment the AUX key is pressed.
Turning off is also via the same “AUX“ key. (Note: if the Auto-Emergency function is selected, the functioning of the Programmer Timer is overridden).
The pressing of the AUX key is indicated with an acoustic signal.

The on-board panel might include:

- receiver,
- 2 pairs of LEDs (yellow/green, red/blue)
- AUX key



The blue/red LEDs indicate the machine functioning status (heating/cooling), while the yellow LED is for the timer.

Yellow LED	Red LED	Blue LED	Status
			Machine off
●			Machine off, timer active and awaiting automatic start up
		●	Machine functioning in cooling mode
	●		Machine functioning in heating mode
●		●	Machine turned on in cooling mode. Timer set for automatic switch-off.
●	●		Machine turned on in heating mode. Timer for automatic switch-off.

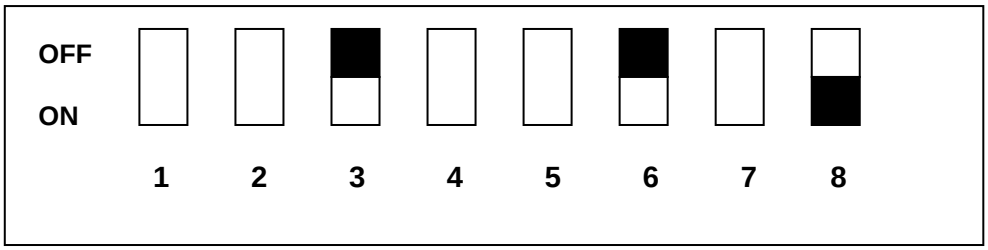
Setting the dip-switches on the board.

The microprocessor of the board recognises the type of machine from the way the dip-switches are set. The configurations that can be set are:

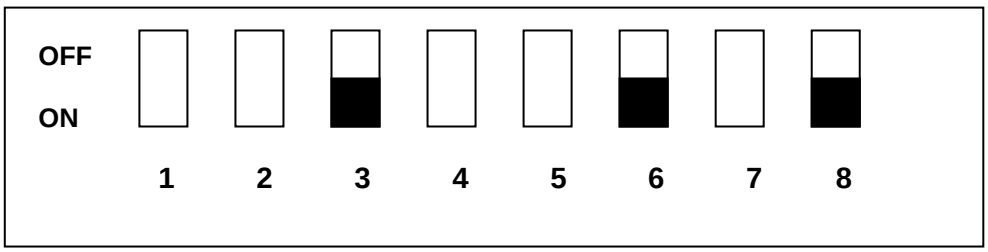
- FCL cassette-type fan coil
- FCL cassette-type twin fan coil

It is also possible to configure machines ECL, EXC, CUCCIOLO, EXM, ANCX, but this procedure lies outside the scope of this document.
The type of machine on which the control board is installed is determined by switches 3, 6, 8 of SW2. The other switches are used for other purposes, and are illustrated in the following paragraphs.

FCA



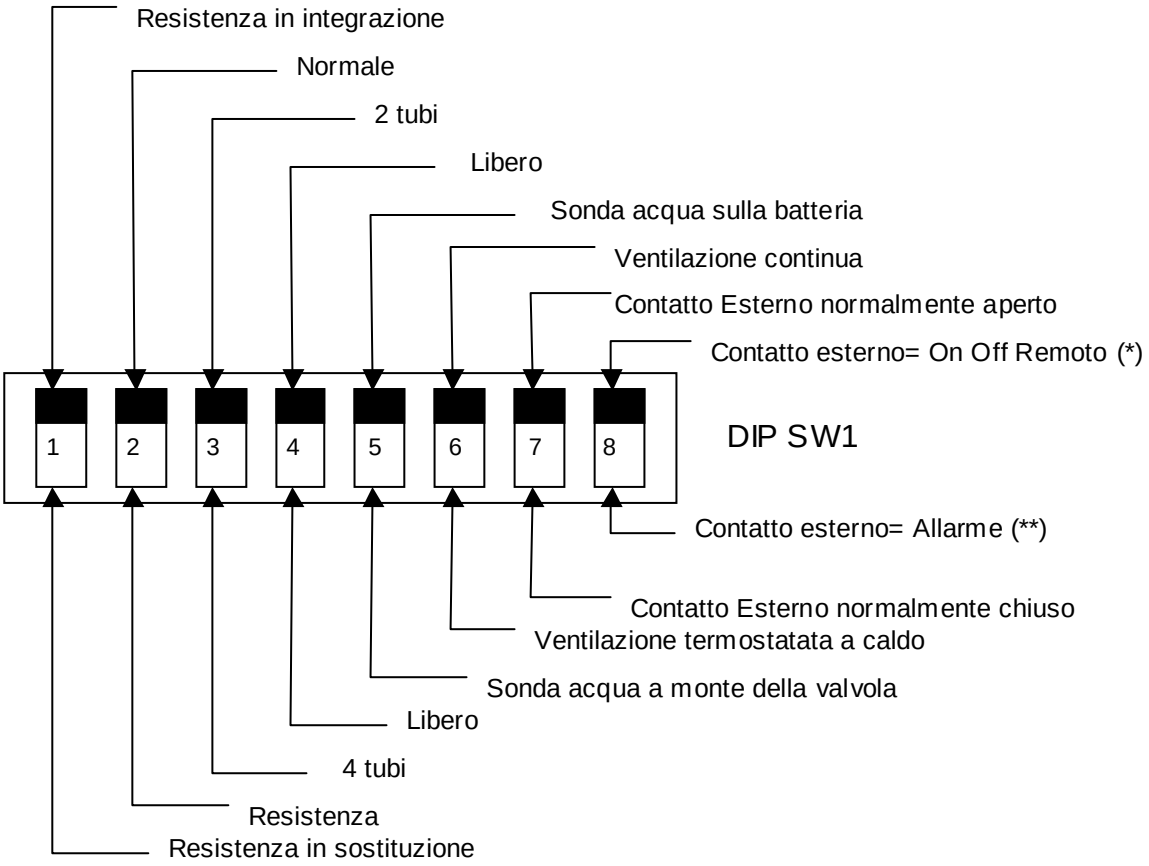
FCA TWIN



Meaning of the dip-switches in the fan coil (FCL) configuration

With dip-switches 3, 6, 8 of SW2 in FCL configuration, the dip-switches SW1 and SW2 assume this meaning.

The meaning of the SW2 dip-switch

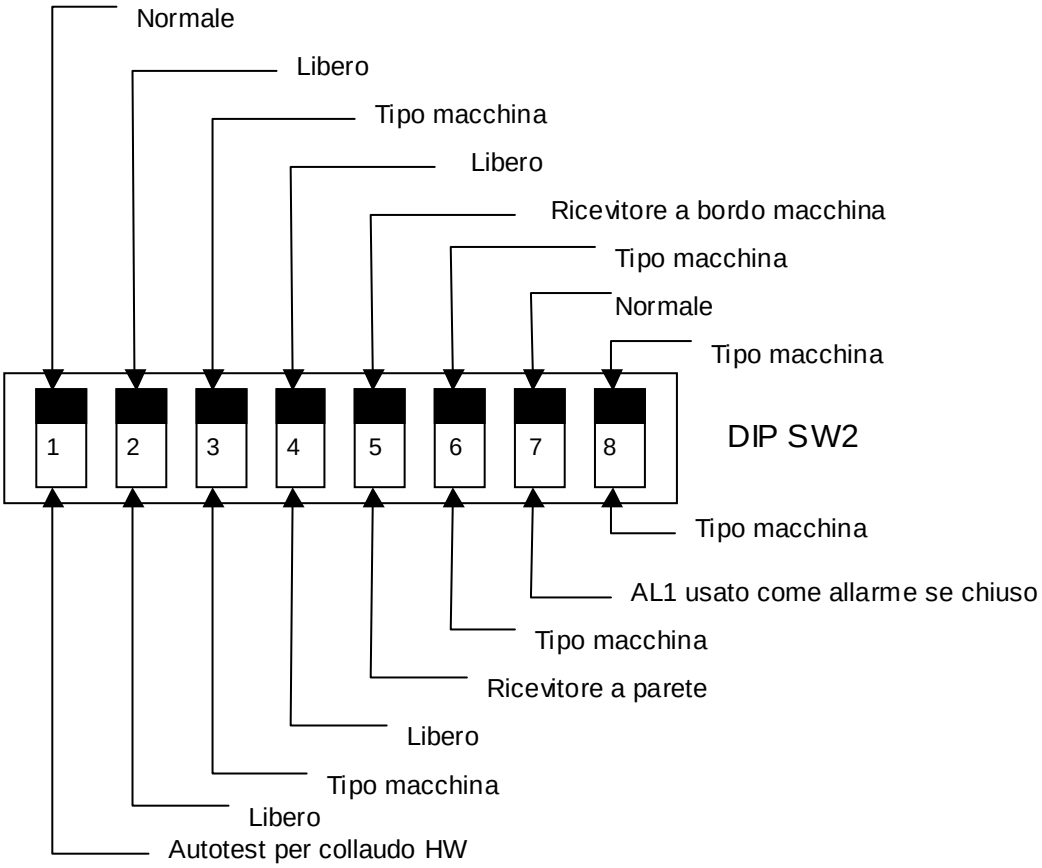


Note: (*) External contact in Normal condition = ON mode ON
(**) External contact in Normal condition = Alarm not present

DIP1 RESISTANCE: OFF in integration to the heat pump, ON in replacement
DIP2 RESISTANCE: OFF not present , ON present
DIP3 : OFF 2 pipes, ON 4 pipes
DIP4 : not used
DIP5 WATER PROBE: OFF after water valve, ON before water valve
DIP6 VENTILATION: OFF continous, ON thermostated in heating mode

	Dip7	Dip8	
On-Off remote	**OFF**	**OFF**	**Open = ON mode**
	ON	**OFF**	**Closed = ON mode**
External alarm	**OFF**	**ON**	**Closed = Alarm**
	ON	**ON**	**Open = Alarm**

The meaning of the SW2 dip-switch

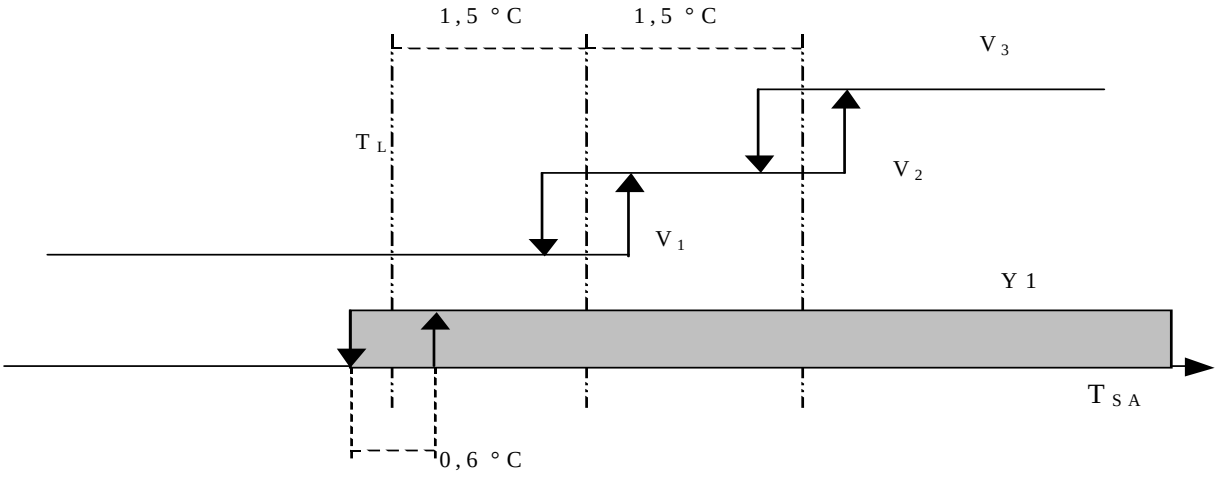


DIP1 not used
DIP2 not used
DIP3 decides kind of unit
DIP4 not used
DIP5 OFF receiver on the unit, ON on the wall
DIP6 decides the kind of unit
DIP7 OFF standard position, ON used like alarm AL1 if closed
DIP8 decides kind of unit

Control logics

Cooling mode (fan coil)

By means of the remote control it is possible to set the cooling mode and set an operating temperature. If the fan speed is set in **automatic** mode the system selects the fan speed for itself and decides the opening of the water valve depending on the difference between the operating temperature set by the user (setting) and the temperature measured by the ambient probe.

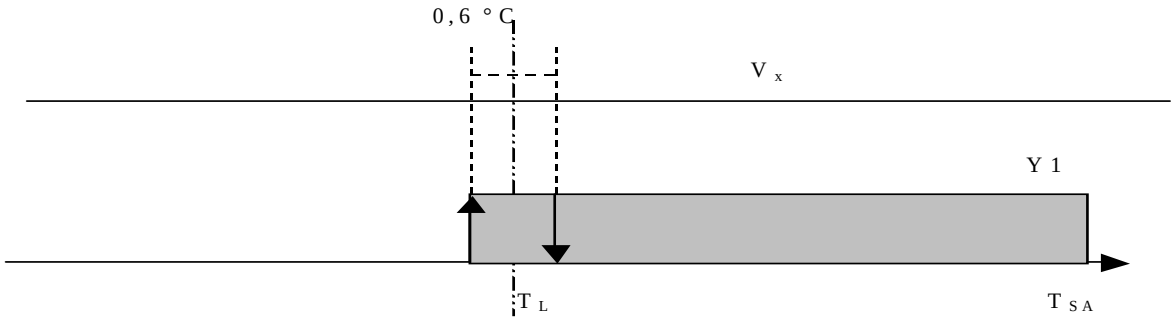


cooling mode, speed set by the user

Key

T_{SA}: ambient probe temperature
T_{SW}: water probe temperature
T_L: operating temperature (set by the user)
V_1, V_2, V_3: speed (maximum, medium, minimum)
V_X: speed selected by the user
Y1: solenoid valve

While if the V_x speed of the fan is set from the panel (or remote control) the behaviour will be the following:

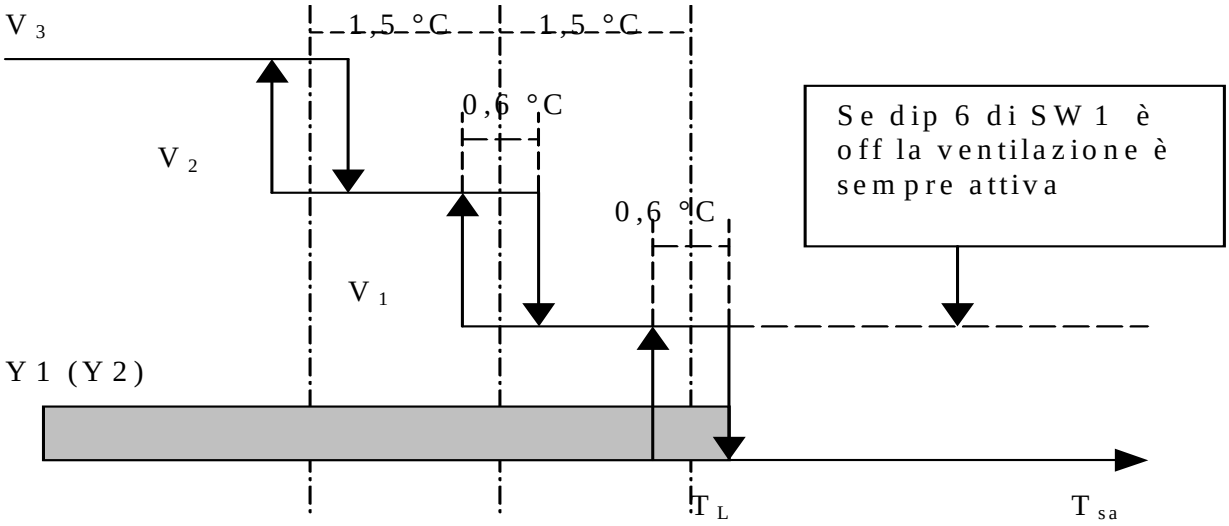


cooling mode with fan speed set by the user

In the case of the **4-pipe** configuration, in the cooling mode, the control board rather than the generic solenoid valve VS, will control the cooling solenoid valve VSF (shown in brackets in the diagrams above) while the heating solenoid valve (VSC) is closed.

Heating mode (fan coil)

By means of the remote control it is possible to set the heating mode and a reference temperature. The system will set a fan speed depending on the difference between the operating temperature and the probe temperature. With the fan set in automatic mode the behaviour of the machine is described in the diagram below:

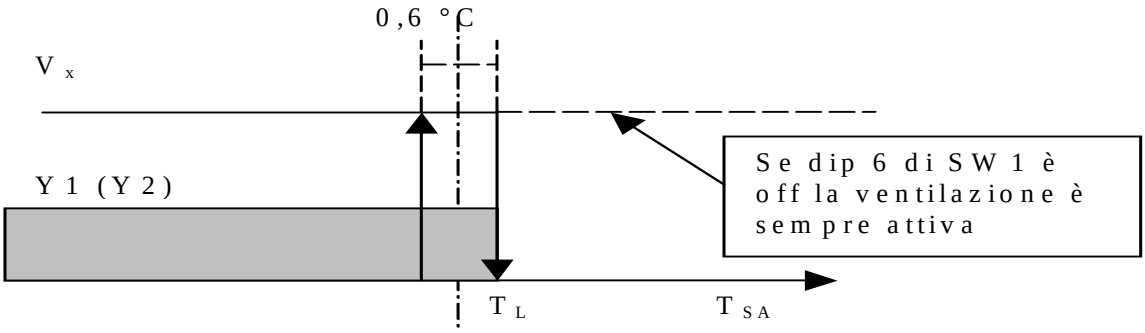


heating mode, speed set by the user

Key

T_{SA}: ambient probe temperature
T_L: operating temperature (set by the user)
V_1, V_2, V_3: speed (maximum, medium, minimum)
V_x: speed selected by the user
Y1: solenoid valve
Y2: heating water solenoid valve (4-pipe configuration)
RE: electric heater (supplementary or replacement)

If the fan speed is set from the remote control, the behaviour will be the following (Vx speed set by the user):



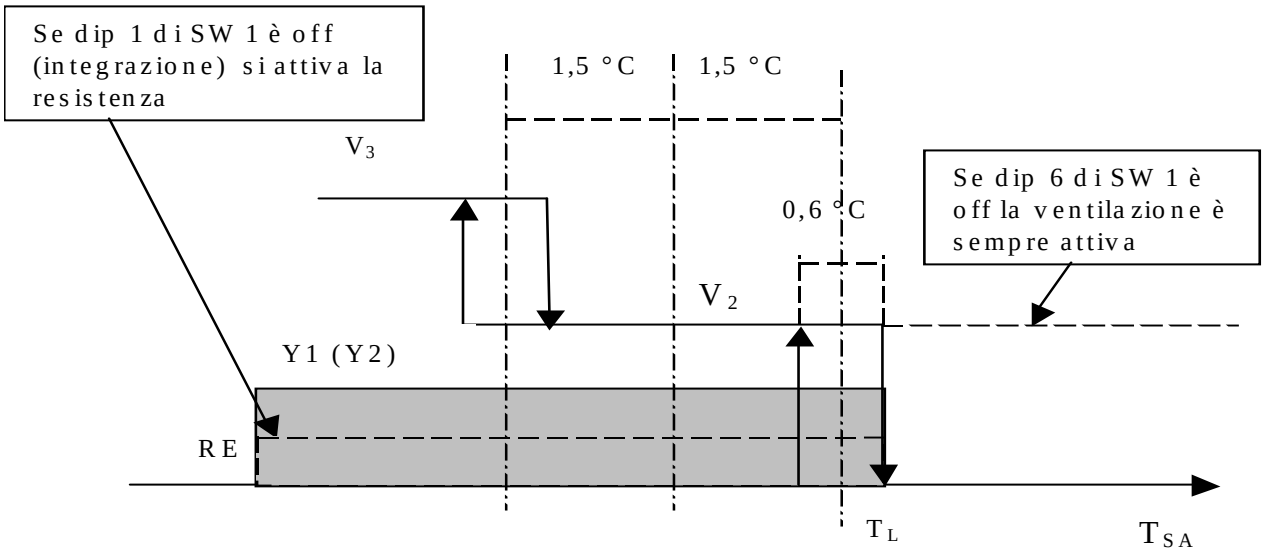
heating mode, with fan speed set by the user

In the 2-pipe configuration the heating mode is activated by controlling the general solenoid valve Y1, while in the **4-pipe** configuration the heating water solenoid valve Y2 is controlled with the same logic, and closing the cooling water valve (that in the 4-pipe case is Y1) as soon as the heating mode is imposed.

Configuration with electric heater

If the system has an electric heater, the only fan operating speeds allowed will be the maximum (V_3) and medium (V_2). The dip-switches determine whether a supplementary or replacement electric heater is active:

- supplementary: the electric heater is activated at the same time as the heating water valve, to increase the efficiency of the machine. Or, if there is not enough water, the electric heater is activated to make up for the shortage of water.
- Replacement: the electric heater is only activated to make up for the shortage of heating water.



heating mode, with electric heater and fan in automatic mode

In each of the heating modes described above, if the ventilation is measured by a thermostat (dip 5 of SW1 is ON), the fan will not be switched on instantly when suitable conditions are obtained, but will follow the timed setting described in:
Thermostat-controlled heating ventilation: pre-heating of coil and **Thermostat-controlled heating ventilation: pre-heating of electric heater**.

Safety thermostat on the electric heater

Initially, after waiting 1' and a half minutes, the software checks that the electric heater reaches at least 50° (otherwise an electric heater absence alarm is indicated).
The control software verifies the temperature of the electric heater via the NTC: if the temperature detected is over 160°C, it cuts off the power supply, and this is reset when the NTC electric heater falls below 140°C[1]. After the power supply has been interrupted for two minutes, the alarm counter is increased; the alarm counter is also increased for every subsequent minute of interruption to the power supply. The counter is decreased after 5 minutes from the moment it began to increase. When the alarm counter reaches position 3, the system goes into alarm lock mode.

[1] With reference to the datasheet of the Shibaura temperature probes equipped with PSB thermistor with a G-type heater-temperature curve: about 10 Kohm are equivalent to 160°C and 18 Kohm to 140°C

Motorised louvre

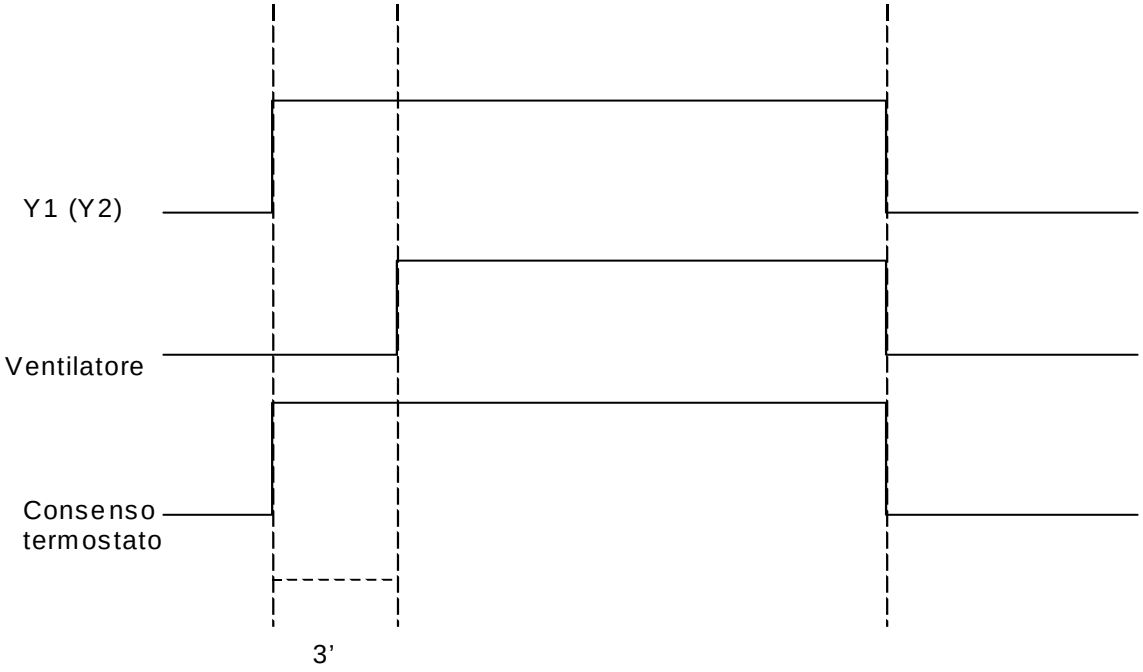
From the remote control, the swing key will put the louvre into motion and this will continue to rotate until the next (stop) command. The louvre also stops when the ventilation stops (e.g. because the setting has been reached).

Ambient probe

The reading of the temperature by means of the ambient probe is continuous with the ventilation in operation. If the machine is not operating, **with thermostat-controlled heating ventilation**, after three minutes the machine opens the water valve (Y1 if 2 pipes or Y2 if 4 pipes) and, after waiting 2'40'' for the complete opening of the valve, activates a period of ventilation (30'') and then reads the temperature of the ambient probe. If the thermostat continues not to give the enabling signal to switch on, the next reading takes place after 8 minutes (30'' ventilation and subsequent reading). After which the reading is taken every fifteen minutes.

Thermostat-controlled heating ventilation: pre-heating of coil

If thermostat-controlled heating ventilation is activated, the fan is not turned on immediately when the envisaged conditions occur; it waits for a period of time. This allows the solenoid valve to completely open and make the heating water flow into the coil. The valve opening time is around 2 minutes and 40 seconds, and this is also the value of the delay before the fan is activated.

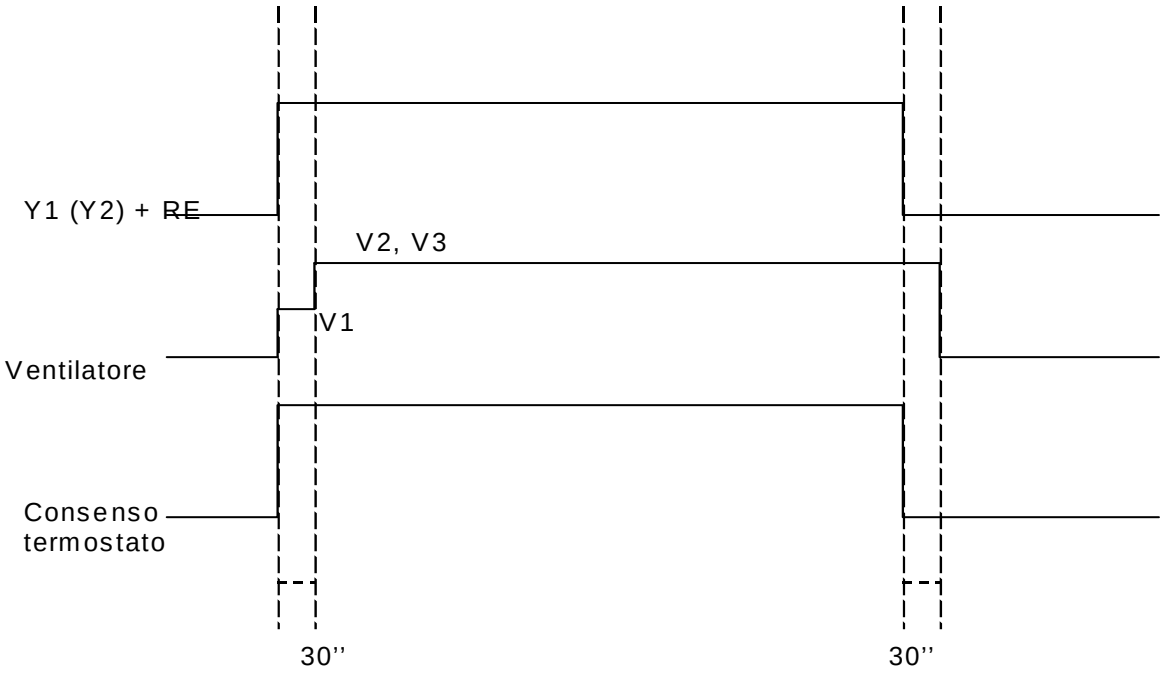


Heating fan timing (without electric heater)

Following the first activation of the fan, the fan inhibition time is calculated automatically and depends on how long the valve had been closed for, and it can therefore vary from a minimum of 0' 00'' to a maximum of 3'.

Thermostat-controlled heating ventilation: pre-heating of electric heater.

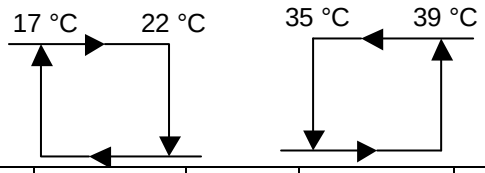
If the electric heater is used (whether as a supplement or replacement) the timing takes into account the need to prevent the electric heater remaining at high temperatures for too long. When the electric heater is turned on, a pre-heating phase begins (30 seconds at V_1) before arriving at full capacity. When the electric heater is turned off, the fan stays active for another 30 seconds (post-ventilation):



Heating fan timing (with electric heater)

Water control (optional)

It is possible for a probe (SW 4) to be installed for reading the temperature of the water circulating in the exchange coils. Below there is a detailed description of a control logic for enabling/disabling the loads on the basis of the temperature read by the water probe and the functioning mode set from the remote control. Thus, if a water probe has been installed, the control logics of the functioning modes (seen beforehand) must take into account the enabling/disabling of the load controlled by the water check.



Configuration	Mode		Hysteresis		Hysteresis	
Two-pipe fan coil, with upline water probe	HEATING	Y1 off, FAN on				Y1 enabled FAN enabled
	COOLING	Y1 enabled FAN enabled		Y1 off FAN on		
Two-pipe fan coil, with water probe on the coil	HEATING	Y1 enabled FAN on				Y1 enabled FAN enabled
	COOLING	Y1 enabled FAN enabled		Y1 enabled FAN on		
Four-pipe fan coil, with upline heating water probe	HEATING	Y2 off FAN on				Y2 enabled FAN enabled
	COOLING	Y1 enabled FAN enabled				
Four-pipe fan coil, with heating water probe on the coil	HEATING	Y2 enabled FAN on				Y2 enabled FAN enabled
	COOLING	Y1 enabled FAN enabled				
Two-pipe fan coil with electric heater with upline water probe	HEATING	Y1 off FAN enabled RE enabled				Y1 enabled FAN enabled RE on if supplement
	COOLING	Y1 enabled FAN enabled		Y1 off FAN on		
Four-pipe fan coil with electric heater with upline heating water probe	HEATING	Y2 off FAN enabled RE enabled				Y2 enabled FAN enabled RE on if supplement
	COOLING	Y1 enabled FAN enabled				

behaviour of the system with water probe

Important notes:

The configuration with electric heater and water probe on the coil is not envisaged.

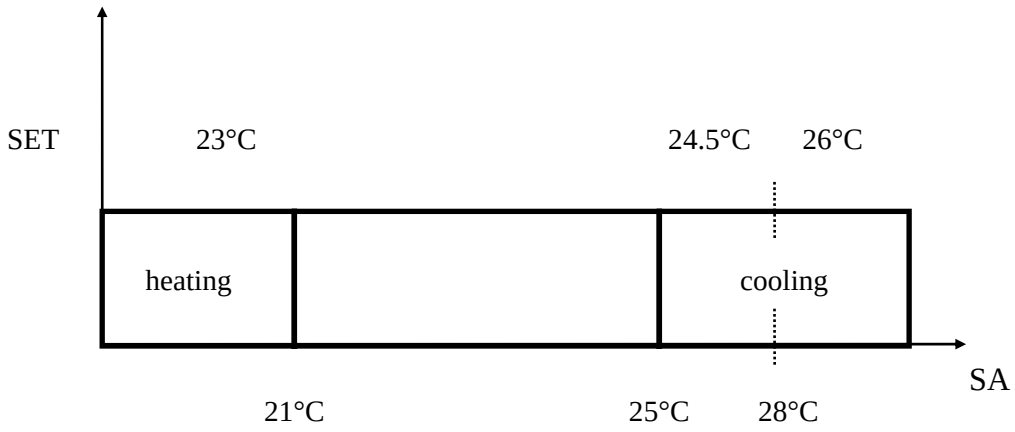
In the case of a replacement electric heater and the water probe absent or broken, the system assumes that the water temperature is always sufficient: the electric heater is NEVER activated.

The replacement electric heater continues to function for 2’40’’after the reactivation of the heating water valve, to allow the hot water to start circulating again.

With continuous ventilation: if the water probe is on the battery and the valve is closed (because the set temperature has been reached), the logic does not take into account the cooling or the heating of the water in the coil (that will be in line with the ambient temperature) until the valve is opened again.

Auto functioning (from the remote control)

In this functioning mode the user does not set the temperature; the fan of the indoor unit functions in Automatic mode.
By activating the "AUTO" mode on the remote control, the temperature SET disappears and the fan works in automatic mode. The machine reads the ambient probe SA (always in continuation, even in heating mode, despite the activation of thermostat-controlled operation) and it decides whether to function in "HEATING, or "COOLING" mode (according to the enclosed diagram) on the basis of the ambient temperature and sets a T_L operating setting as shown in the chart.



It is possible to correct the fixed machine operation setting by ±5°C from the remote control.
In automatic mode the machine reselects the function after each start from standby mode.

Managing the timer (from the remote control)

Functioning with the programmer timer makes it possible to set the delay on the start up and stop of the machine from a minimum of 0.5 to a maximum of 12 hours.
The absence of mains voltage causes this function to be interrupted. Any timer settings will be reset.

Full power (from the remote control)

The full power command (only present on the Sharp A698JBEZ range of remote controls) produces the following behaviour:

Heating mode	Cooling mode
+ Fan speed forced to maximum + Setting forced to 32°C (the algorithm relating to thermostat-controlled ventilation is respected if envisaged by the dip-switches)	+ Fan speed forced to maximum + Setting forced to 18°C

Autostart function

If there is a restart after a loss of voltage and in start ups after the first powering, the machine will be returned to the state it was in thanks to a permanent memory.

Autotest

This section shows the two autotest procedures: from infrared receiver and wired panel.
It is possible to activate the autotest mode by powering the machine, keeping the AUX key pressed down for about 5 seconds. In this case, the board makes two beeps by means of the buzzer, and is positioned at step 0. With reference to the table, each time the AUX key is pressed again it is necessary to follow the indications given in the “OPERATION” column and check that the LED and the relay outputs correspond with the data in the table

Step	***TEST***	***OPERATION***	***LED***	***FCL LOADS***	***ACTIVE RELAYS***
0	Dip-switch SW1-SW2	Wait for version visualisation (if envisaged by the software)	(*)	OFF	OFF
1	Presence of SA probe - Indicated loads	Wait for the red LED to switch on	RED	V3 Y2	O3 O4 O7
2	Presence of SW probe - Indicated loads	Wait for the yellow and blue LEDs to switch on	YELLOW AND BLUE	V1 Y1	O1 O6
3	Presence of SW/SR2 probe - Indicated loads	Wait for the red LED to switch on	RED	V2 Y2	O2 O4
4	Presence of SAE probe - Indicated loads	Wait for the yellow LED to switch on	YELLOW	V3	O3
5	Trimmer PT1 precision - Indicated loads	Turn the PT1 trimmer to the central position until the red LED switches on	RED	V3 Y2 MA Y1 RE	O3 O4 O5 O6 O7 O8
6	- Receiver circuit - Indicated loads	Set ON from remote control (the board emits a beep)	YELLOW	V1	O1
7	- Eeprom - Indicated loads	Wait for the LED to turn red	RED	V2	O2
8	- External contact OPEN - Indicated loads	Open External Contact (C1 input)	YELLOW	V3	O3
9	- External contact CLOSED - Indicated loads	Close External Contact (C1 input)	RED	Y2	O4
10	- Contact AL1 open - Indicated loads	Open contact AL1 (C1 input)	YELLOW	MA	O5
11	- Contact AL1 closed - Indicated loads	Close contact AL1 (C1 input)	RED	V1	O1

Note: (*) Displays the Software version.

Table

Alarm management

The management of the alarm situations will be as follows:
When an anomaly arises the machine will be put in stop status (Pre-alarm) and the anomaly is counted. There are two possible situations at this point:

- the pre-alarm remains for a time in excess of the maximum value (Time-out): in this case the alarm is taken to the Alarm state definitively.
- the pre-alarm disappears. In this case the machine can start up again, respecting the compressor safety times. If however the number of pre-alarms counted exceeds the maximum number allowed then, in this case too, the machine will be taken into the definitive alarm state.

The number of pre-alarms that cut in is continuously decreased at regular time intervals for each alarm.

Alarm	Maximum number of pre-alarms	Pre-alarm decrease time	Time-out
Ambient probe	4	1 h	1 min
Water probe	4	1 h	1 min
External air probe	4	1 h	1 min
Coil overheating	4	1 h	20 mins
External contact	3	30 mins	10 seconds
Condensate discharge pump	1	30 mins	10 seconds
Electric heater overheating	3	5 mins	3 minutes 30 seconds
General alarm (contact)	3	30 mins	10 seconds

Once in alarm mode, the machine turns off and the red and yellow LEDs indicate the type of alarm.
If the machine is in pre-alarm or alarm mode, it is still possible to display the type of anomaly by setting OFF from the remote control, then pressing the AUX key for 5s. To exit this mode, just set ON from the remote control.
To reset the active alarms it is necessary to power down the machine.

Alarm display

The alarm display uses special sequences of the yellow and red LEDs.
This visualisation is automatically activated (in place of the normal visualisation regarding general machine status) every time an alarm cuts in and requires a manual reset.

Alarm log display

It is also possible to display the last anomalies that arose and were automatically reset.
For all the receivers, the procedure is as follows:
place the machine in standby and press the AUX key for at least 5 seconds (a triple beep indicates that this function is being used). From this moment on the display will be a coding of the anomalies identical to the one used with the alarms. To end this visualisation it is necessary to turn on the machine with an ON command.
The alarm coding is the following:

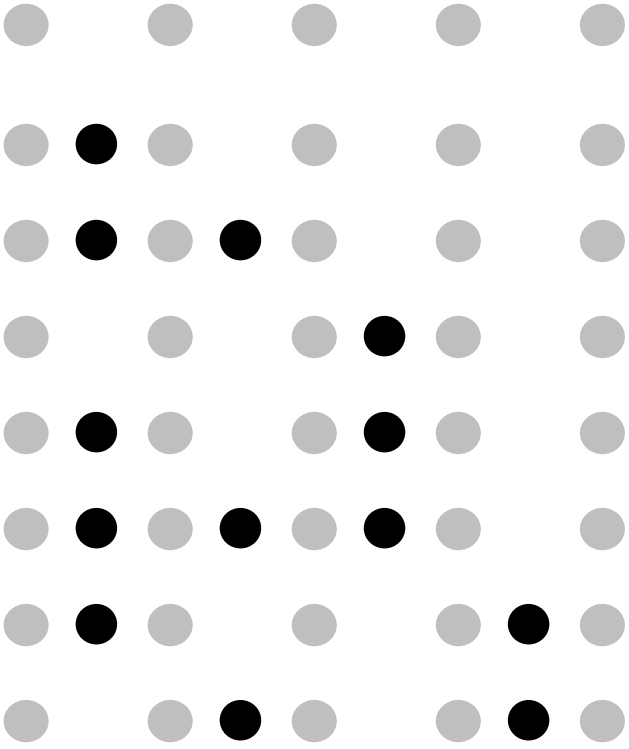
- yellow LED: cyclically it flashes 5 times and then stays off for five seconds
- red LED: comes on at the same time as the yellow LED (4-LED receiver) thereby providing a specific code

FCL alarm coding

● = Red LED

<Tab/>= Yellow LED

ALARM DISPLAY



No alarm

Ambient probe

Water probe

Electric heater probe

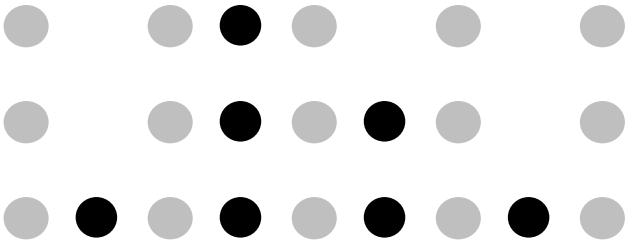
Coil overheating

External contact/Condensate discharge

AL1 Contact

Electric heater overheating

Other alarms



Defrost probe (ECL)

Anti-freeze (only for heating (ECL))

Serial alarm (only with wired panel (ECL)

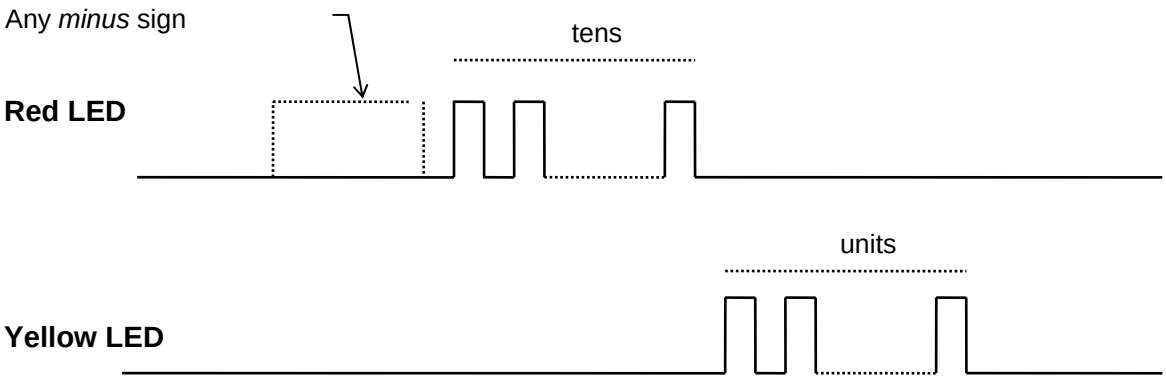
Probe display (with infrared receiver)

It is possible to display the values of the temperature probes captured by the electronic board. To do this it is necessary to follow the following procedure:

- set OFF from the remote control (or by pressing the AUX key).
- press the AUX key for 5s. (At this point, the board makes a triple beep to indicate that the *Alarm display* mode is being used).
- press the AUX key again for 5s. In this way, the board activates the *Probe display*mode. The board initially makes a beep and displays the value of the SA ambient probe. To display the other probes, press the AUX key in the normal way; the number of beeps indicates which probe is being shown:

Beeps	Probe displayed
1	Ambient probe SA
2	Coil probe SD
3	Water probe SW
4	Electric heater probe SR

The value of the probe displayed is expressed by means of a cyclical sequence of brief LED flashes. The red LED indicates tens and the yellow LED indicates units. For negative values, the sequence is preceded by a long flash (around 3 seconds) of the red LED.
In the case of an absent probe, a long flash (around 3 seconds) of the yellow LED is displayed.
The value of the electric heater probe is not expressed in degrees but as a value between 0-255.



Reference standards

The following standards have been complied with:

Safety	CEI EN 60335-1
	CEI EN 60335-2-40
<Tab/>Electromagnetic compatibility	CEI EN 50081-1
	CEI EN 50082-1


AERMEC
COMPANY QUALITY SYSTEM
ICIM
ISO 9001 - Cert. n°0128/1
CISQ
IQNet
AERMEC S.P.A.