AERMEC

la prima per il clima

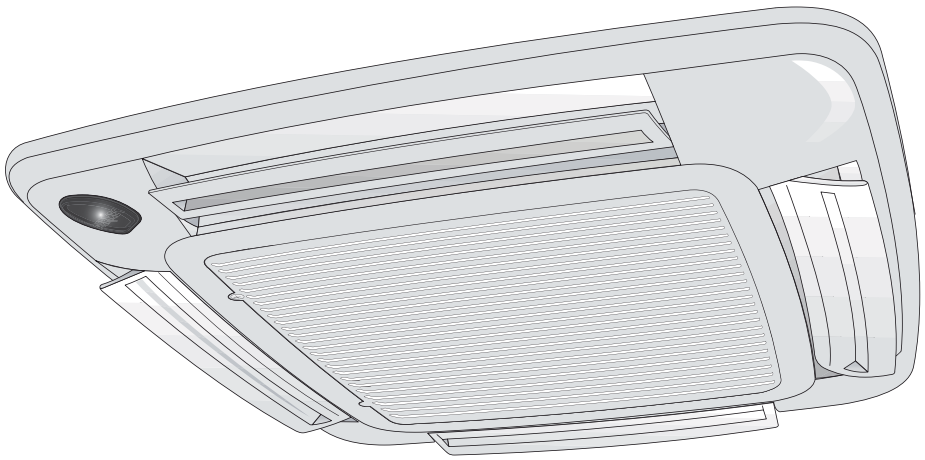
MANUALE D'USO E INSTALLAZIONE
USE AND INSTALLATION MANUAL
MANUEL D'UTILISATION ET D'INSTALLATION
BEDIENUNGS- UND INSTALLATIONSANLEITUNG
MANUAL DE USO E INSTALACIÓN

CORNICE DI MANDATA E D'ASPIRAZIONE INVERTER
DELIVERY AND INTAKE FRAME INVERTER
GRILLE DE SOUFFLAGE ET D'ASPIRATION INVERTER
AUSBLAS- UND ANSAUGGITTER INVERTER
PLAFON DE ENVÍO Y DE ASPIRACIÓN INVERTER

GLLI10N
GLLI20N

CE

AERMEC
COMPANY QUALITY SYSTEM
ICIM
ISO 9001:2008 - Cert. n° 0128
CISQ IQNet
AERMEC S.P.A.



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AGLLI10/20NFJ 07/11_4528572_00

OSSERVAZIONI

Conservare i manuali in luogo asciutto, per evitare il deterioramento, per almeno 10 anni per eventuali riferimenti futuri. **Leggere attentamente e completamente tutte le informazioni contenute in questo manuale. Prestare particolarmente attenzione alle norme d'uso accompagnate dalle scritte "PERICOLO" o "ATTENZIONE" in quanto, se non osservate, possono causare danno alla macchina e/o a persone e cose.**
Per anomalie non contemplate da questo manuale, interpellare tempestivamente il Servizio Assistenza di zona.
L'apparecchio deve essere installato in maniera tale da rendere possibili operazioni di manutenzione e/o riparazione.

La garanzia dell'apparecchio non copre in ogni caso i costi dovuti ad autoscale, ponteggi o altri sistemi di elevazione che si rendesero necessari per effettuare gli interventi in garanzia.
AERMEC S.p.A. declina ogni responsabilità per qualsiasi danno dovuto ad un uso improprio della macchina, ad una lettura parziale o superficiale delle informazioni contenute in questo manuale.
Alcune immagini potrebbero illustrare particolari forniti come accessori a pagamento.
Il numero di pagine di questo manuale è:

REMARKS

Store the manuals in a dry location to avoid deterioration, as they must be kept for at least 10 years for any future reference. **All the information in this manual must be carefully read and understood. Pay particular attention to the operating standards with "DANGER" or "WARNING" signals as failure to comply with them can cause damage to the machine and/or persons or objects.**
If any malfunctions are not included in this manual, contact the local After-sales Service immediately.

The apparatus must be installed in such a way that maintenance and/or repair operations are possible.
The apparatus's warranty does not in any case cover costs due to automatic ladders, scaffolding or other lifting systems necessary for carrying out repairs under guarantee.
AERMEC S.p.A. declines all responsibility for any damage whatsoever caused by improper use of the machine, and a partial or superficial acquaintance with the information contained in this manual.
The number of pages in this manual is :

REMARQUES

Conserver les manuels dans un endroit sec, afin d'éviter leur détérioration, pendant au moins 10 ans, pour toutes éventuelles consultations futures.
Lire attentivement et entièrement toutes les informations contenues dans ce manuel. Prêter une attention particulière aux normes d'utilisation signalées par les inscriptions "DANGER" ou "ATTENTION", car leur non observance pourrait causer un dommage à l'appareil et/ou aux personnes et objets.
Pour toute anomalie non mentionnée dans ce manuel, contacter aussitôt le service après-vente de votre secteur.

Lors de l'installation de l'appareil, il faut prévoir l'espace nécessaire pour les opérations d'entretien et/ou de réparation.
La garantie de l'appareil ne couvre pas les coûts dérivant de l'utilisation de voitures avec échelle mécanique, d'échafaudages ou d'autres systèmes de levée employés pour effectuer des interventions en garantie.
AERMEC S.p.A. décline toute responsabilité pour tout dommage dû à une utilisation impropre de l'appareil et à une lecture partielle ou superficielle des informations contenues dans ce manuel.
Ce manuel se compose de pages:

HINWEISE

Bewahren Sie die Gebrauchsanleitungen mindestens 10 Jahre für eventuelles zukünftiges Nachschlagen an einem trockenen Ort auf. **Alle in diesem Handbuch enthaltenen Informationen aufmerksam und vollständig lesen. Insbesondere auf die Benutzungsanweisungen mit den Hinweisen "VORSICHT" oder "ACHTUNG" achten, da deren Nichtbeachtung Schäden am Gerät bzw. Sach- und Personenschäden zur Folge haben kann.**
Bei Betriebsstörungen, die in dieser Gebrauchsanweisung nicht aufgeführt sind, wenden Sie sich umgehend an die zuständige Kundendienststelle.

Das Gerät so aufstellen, dass Instandhaltungs- und/oder Reparaturarbeiten durchgeführt werden können.
Die Garantie des Gerätes deckt in keinem Fall Kosten für Feuerwehrleitern, Gerüste oder andere Hebesysteme ab, die sich für die Garantiearbeiten als erforderlich erweisen sollten.
Die AERMEC S.p.A. übernimmt keine Haftung für Schäden aus dem unsachgemäßen Gebrauch des Gerätes und der teilweisen oder oberflächlichen Lektüre der in diesem Handbuch enthaltenen Informationen.
Die Seitenanzahl diese Handbuches ist: Nr. Seiten

OBSERVACIONES

Guarde los manuales en un lugar seco para evitar su deterioro, al menos durante 10 años, por si fuera posible consultarlos en el futuro.
Leer atenta y completamente todas las informaciones contenidas en este manual. Preste particular atención a las normas de uso acompañadas de las indicaciones "PELIGRO" o "ATENCIÓN" puesto que, si no se cumplen, pueden causar el deterioro de la máquina y/o daños personales y materiales.
En caso de anomalías no contempladas en este manual, contacte inmediatamente con el Servicio de Asistencia de su zona.
El aparato debe ser instalado de manera que haga posibles las operaciones de mantenimiento y/o reparación.
En cualquier caso, la garantía del aparato no cubre los costes derivados del uso de escaleras automáticas, andamios u otros sistemas de elevación necesarios para efectuar las intervenciones en garantía.
AERMEC S.p.A. declina cualquier responsabilidad por cualquier daño debido a un uso impropio de la máquina, o bien a una lectura parcial o superficial de las informaciones contenidas en este manual.
Número de páginas de este manual:

English

CONTENTS

WARNING: The suction and delivery grille GLLIN is an accessory that must be connected to the electronic cards applied to fan coils. Consult the manuals of the fan coils and cards (if they have been provided as an accessory), and apply all safety precautions indicated for the electronic cards.

WARNING: the fan coil is connected to the power supply and water circuit. Operations performed by unqualified personnel can lead to personal injury to the operator or damage to the unit and surrounding objects.

WARNING Components sensitive to static electricity may be destroyed by voltages notably lower than those at the human perception threshold. These voltages form when you touch a component or electric contact of a unit, without first discharging accumulated static electricity from your body. The damage caused to the unit by an overvoltage is not immediately evident - it only appears after a certain period of operation.

STATIC ELECTRICITY ACCUMULATION

Any person not connected in a conductive manner with the electronic potential of his surrounding environment can accumulate electrostatic charges.

STANDARD PROTECTION AGAINST ELECTROSTATIC CHARGES

Earthing quality

When working with units sensitive to electrostatic electricity, ensure that people, workplaces and unit casings are correctly earthed. This will prevent the formation of electrostatic charges.

Avoid direct contact

Only touch the element exposed to electrostatic risk when absolutely essential (e.g. for maintenance).

Touch the element without coming into contact with either the contact pins or the wire guides. If you follow this rule, the energy of the electrostatic charges cannot reach or damage the sensitive parts.

Before taking measurements on the unit, it is necessary to discharge all electrostatic charges from your body: to do this, just touch an earthed metal object. Only use earthed measuring instruments.

MALFUNCTIONING

In the case of malfunctioning remove the power to the unit then re-power it and start the apparatus up again. If the problem occurs again, call your areas After-Sales Service promptly.

DO NOT PULL THE WIRES

It is highly dangerous to pull, crush or tread on the electric cables, or to fix them with nails or drawing pins.

A damaged power cable can cause short circuits and injure people.

WARNING: Avoid any use of the device by children or incompetent persons without appropriate supervision; also note that the unit should not be used by children as a toy.

DESCRIPTION

GLLI10N (600x600)
GLLI20N (840x600)
Intake and delivery grille unit with "VMF System" advanced electronic thermostat.

The grille is part of the GLLI-N range grille unit (obligatory accessory).

The form and opening of the suction louvres were developed in order to have the best possible distribution of the air, both when functioning in winter as well as in summer.

Suction occurs through the central grille, and delivery through the manually adjustable, perimetric slots. In plastic, colour RAL 9010, it contains the air filter that can be easily removed for cleaning.

GLLI_N needs to be interfaced with an external control panel VMF-E4 (**NOT SUPPLIED**) if installed in a single "stand alone" FCLI unit or as a master unit of a fan coil slave network (max 5).If the GLLI_N is combined with a VMF-E4 control panel ("Master" configuration), the fan coil can be connected to a VMF-E5 central supervisor system.

The FCLI units are available in two basic sizes, called:

"Module 600" for units integrable in standard 600x600mm suspended ceiling panelling

"Module 840" for the more powerful versions (to be housed in a compartment measuring 840x840mm).

SUCTION AND DELIVERY GRILLE UNIT
(GLLIN range accessories)

The FCLI cassette-type fan coil is only complete when used with a grille of the GLLIN range - an obligatory accessory for the operation of the fan coil with the VMF system. The grille accessories of the GLLIN range not only offer suction with a filter and air delivery fins, but also include a special electric box.

The form and opening of the delivery fins were developed in order to have the best possible distribution of the air, both when functioning in winter as well as in summer.

Intake occurs through the central grille, and delivery through the adjustable, outer slots. In plastic, colour RAL 9010, it contains the air filter that can be easily removed for cleaning.

FILTERING SECTION

The air filter is inserted in the suction grille.

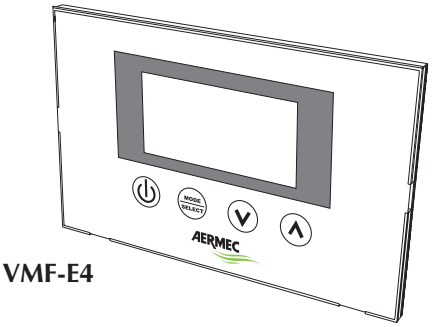
Mechanical air filter with ABS frame.

Filter in filtering class G1, self-extinguishing class V0 (UL94).

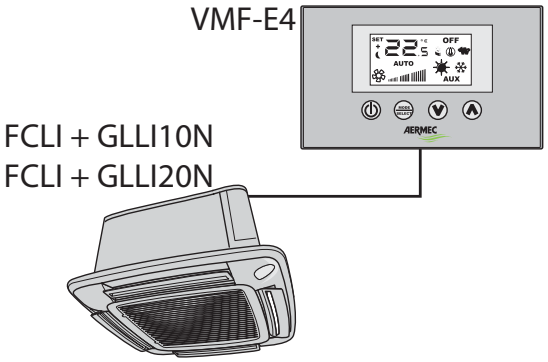
Easily removable and made from regenerable materials. May be cleaned by washing.

CONFIGURATION WITH THE VMF SYSTEM

VMF-E4 VMF SERIES THERMOSTAT CONTROL PANEL, WALL MOUNTING



VMF-E4



Wired control panel, user interface for thermostats incorporated in GLLI10N and GLLI20N grille units, and for all other VMF range thermostats.

The panel must be used with VMF range thermostats and operates a single or networked fan coil (see characteristics of the combined thermostat)

Wall mounting with connection cable.

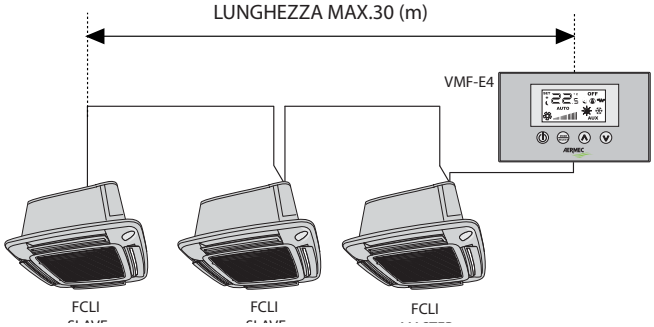
Digital display, "Touch" keyboard, only 11mm thick and mounted on the wall in Type 503 recessed electrical boxes and compatible with the Type 502 boxes, M20 (see installation manual).

The following can be selected from the control panel:
- Switching the device on and off
- The ventilation speed, in automatic or manual mode
- The room temperature
- The operating mode

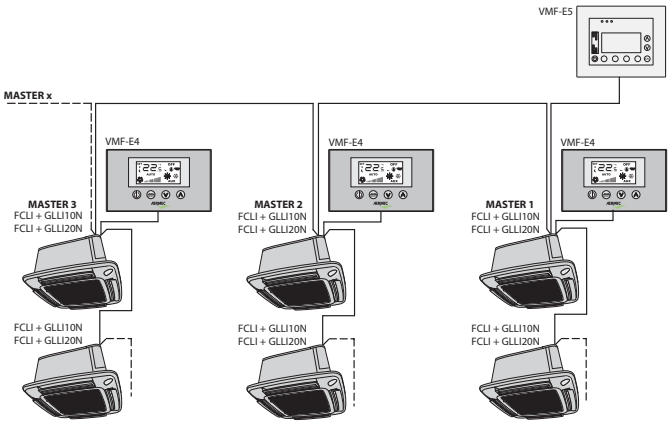
The digital display also shows:
- Thermostat On / Off
- The room temperature / set temperature
- The ventilation speed with 3 positions displayed by graduated bar
- The operating mode (Automatic / Heating / Cooling)
- The night-time comfort function (Sleep)
- Supervisor controlled operating mode (VMF-E5)

See the accessories manual for complete information on its features.

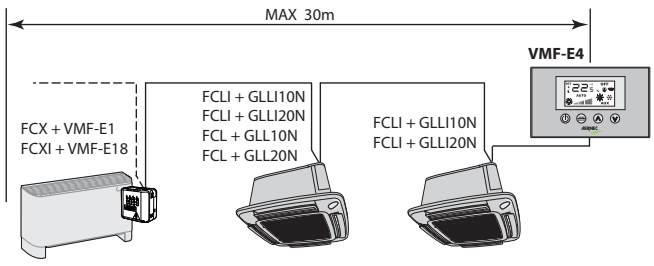
Example of a TTL local network consisting only of FCLIs



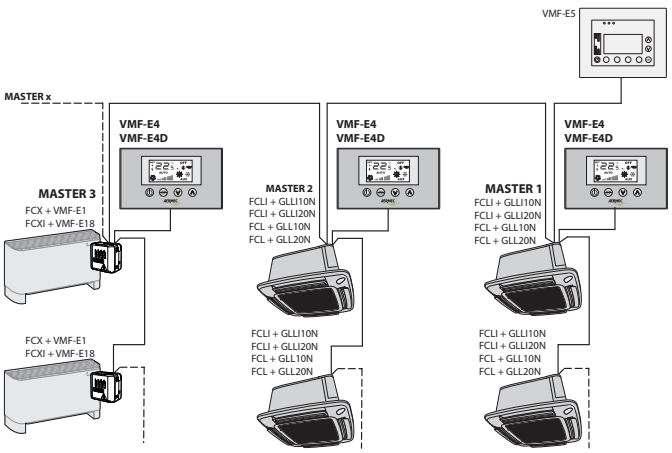
Example of a network with VMF-E5 supervisor consisting only of FCLIs



Example of a TTL local network consisting of mixed fan coils

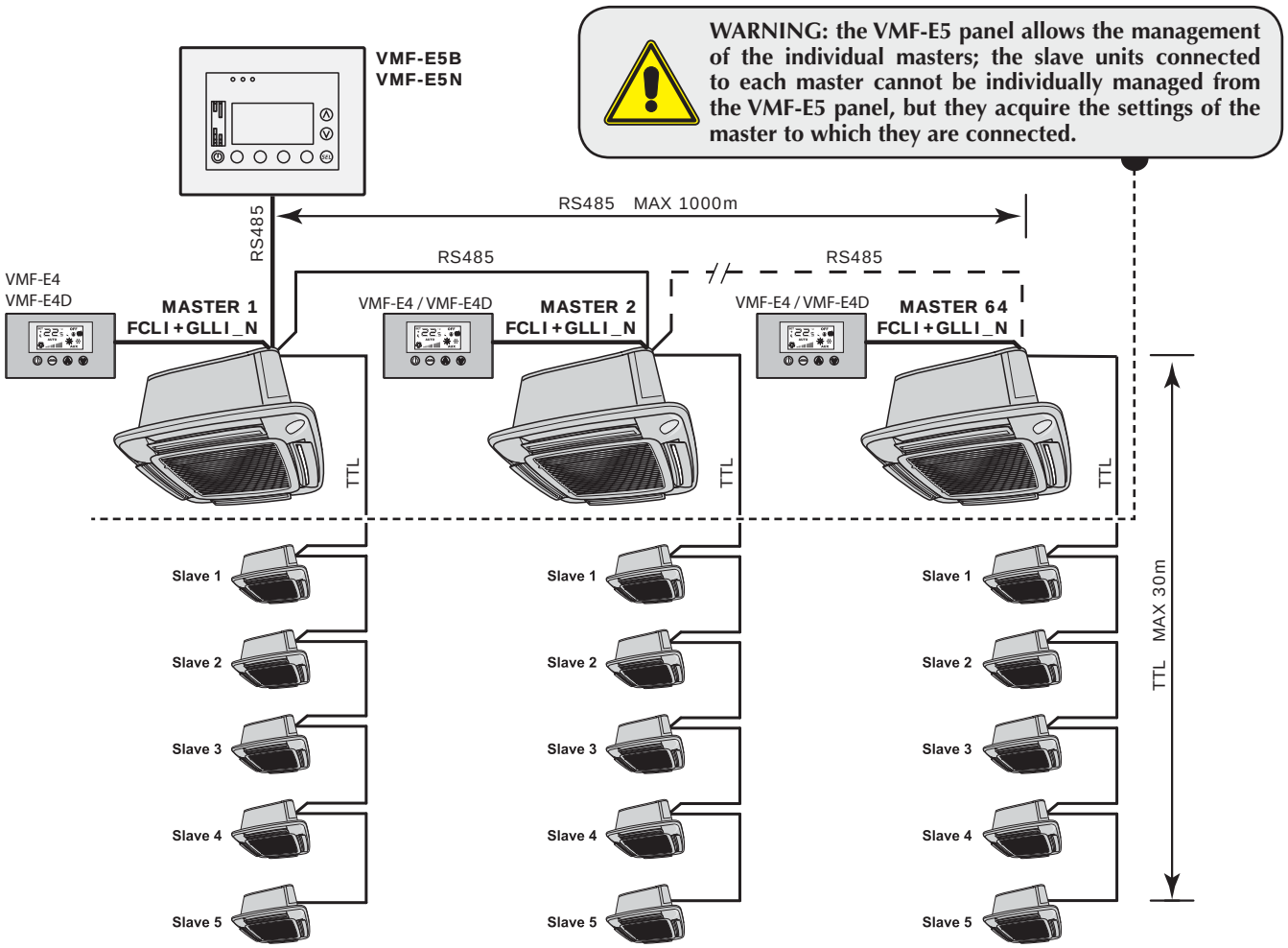


Example of a network with VMF-E5 supervisor consisting only of mixed fan coils



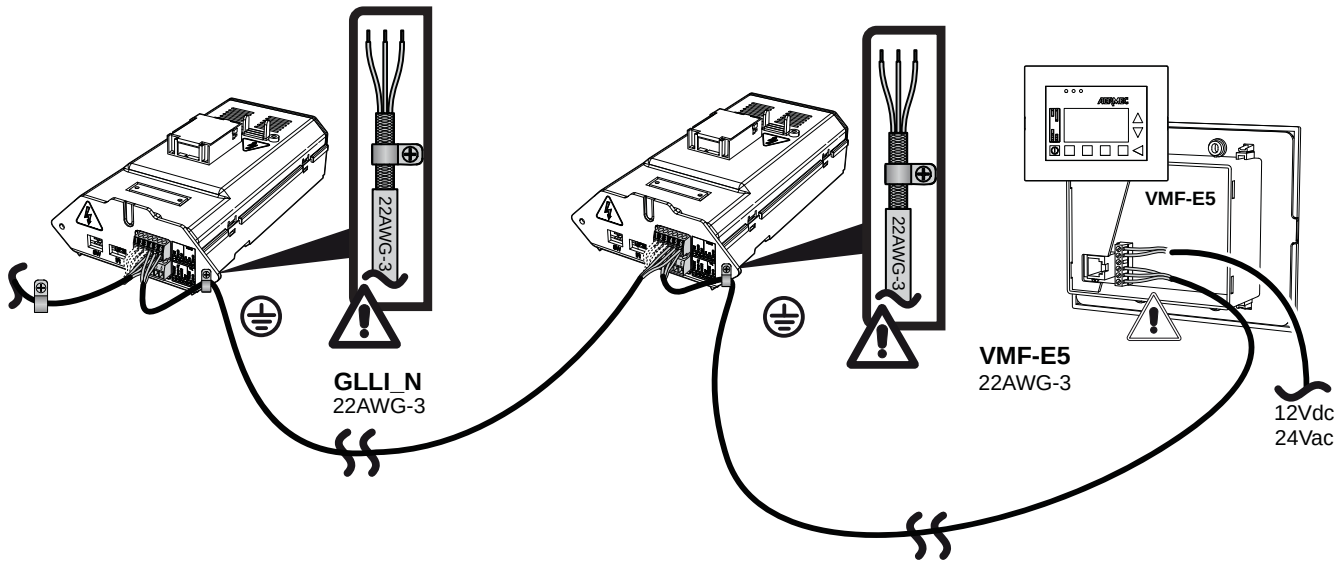
ACCESSORIES VMF SYSTEM SUPERVISION

VMF-E5B / E5N SYSTEM'S MAIN SUPERVISION INTERFACE



- Maximum number of MASTER fan coils = 64
- Maximum number of SLAVE fan coils that can be connected to each MASTER = 5

CONNECTION TO THE RS485 NETWORK



GLLI_N/VMF-E4 CONNECTION

Connect the VMF-E4 to the GLLI_N thermostat; this connection must be made using a 4-pole shielded cable (maximum length 30 meters); connect the terminals on the back of the VMF-E4 to the supplied control board, and complete the connection by inserting the connector plug in the dedicated terminal on the GLLI_N card (as shown).

Characteristics of the cable to be used for the connection:

- **EIB Bus cable, 4 poles + shield;**
- **Mutual max capacity 100nF/km (800Hz);**
- **Resistance max 130 ohm/km;**

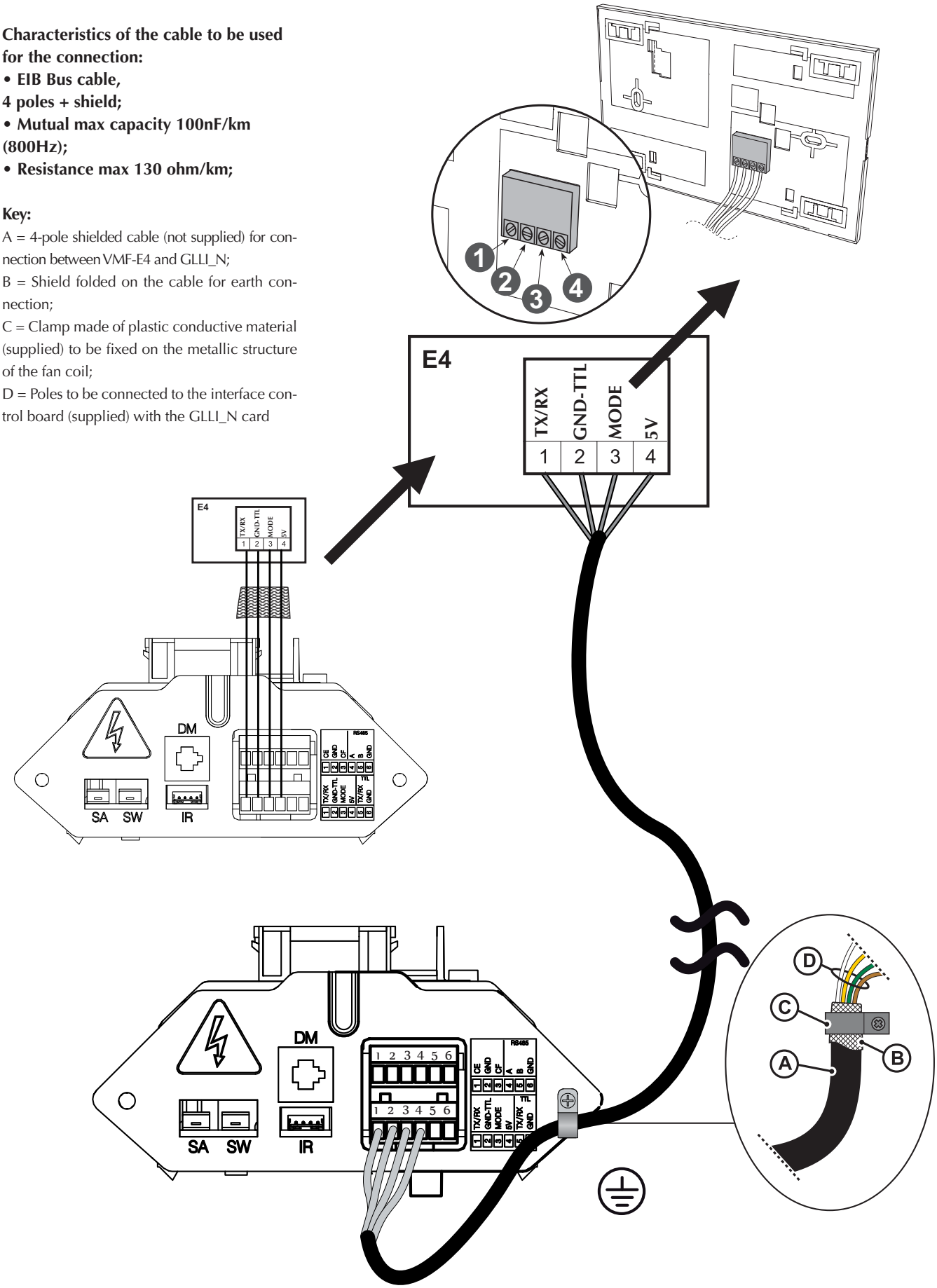
Key:

A = 4-pole shielded cable (not supplied) for connection between VMF-E4 and GLLI_N;

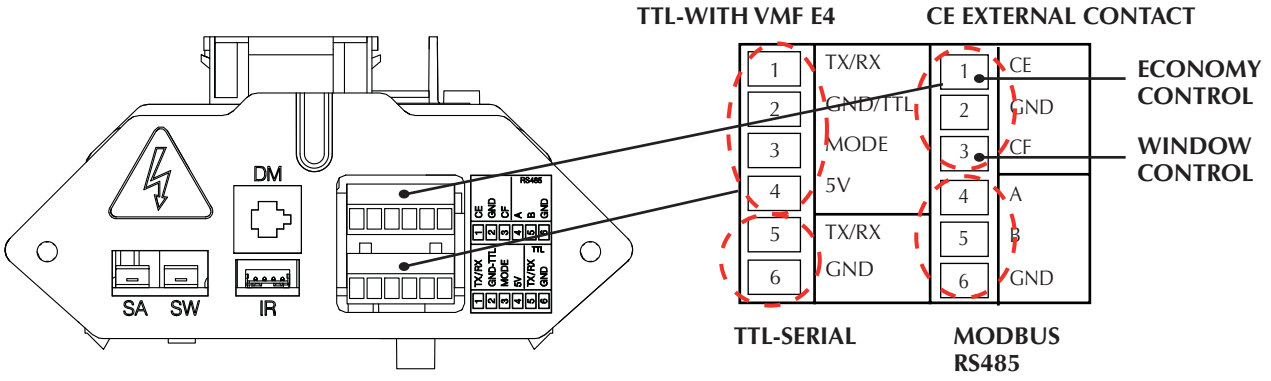
B = Shield folded on the cable for earth connection;

C = Clamp made of plastic conductive material (supplied) to be fixed on the metallic structure of the fan coil;

D = Poles to be connected to the interface control board (supplied) with the GLLI_N card

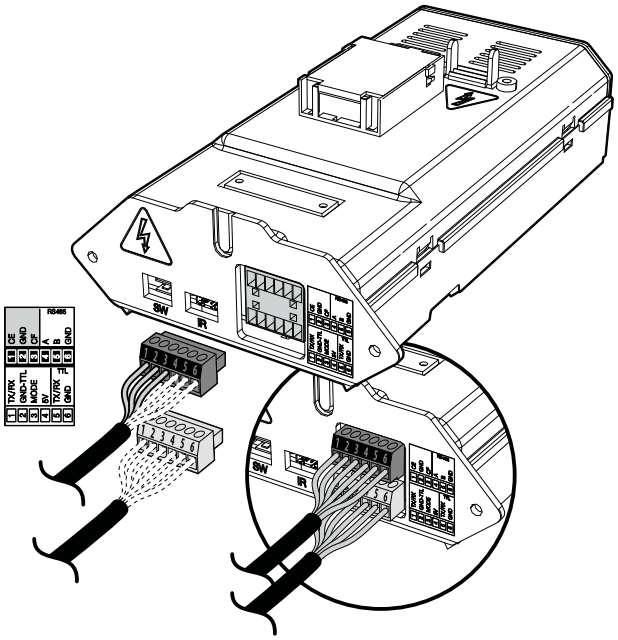


ELECTRONIC BOARD CONNECTION

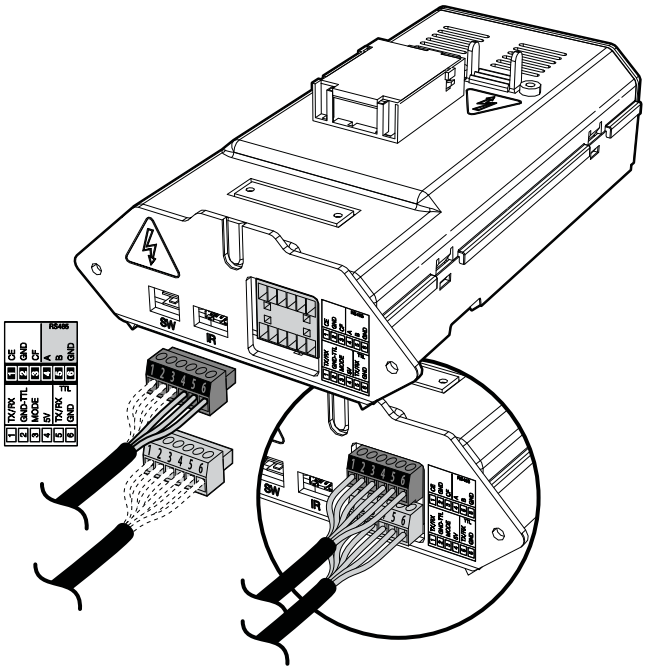


M26 CONTROL BOARD

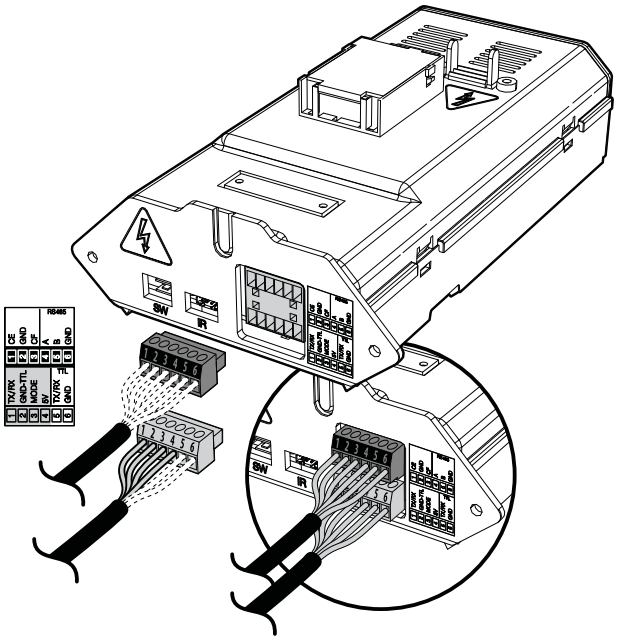
EXTERNAL CONTACT CONNECTION (ECONOMY CONTROL) (WINDOW CONTROL)



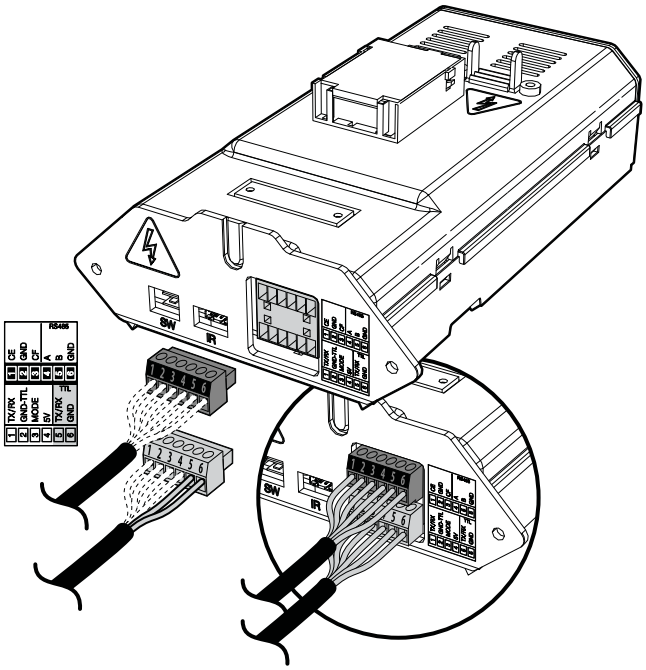
CONNECTION MODBUS RS485



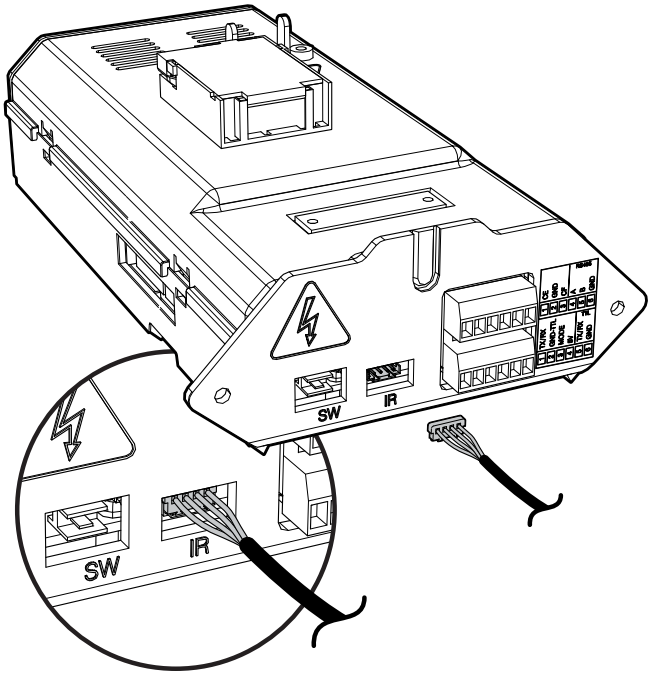
TTL NETWORK CONNECTION WITH VMF-E4



SERIAL TTL NETWORK CONNECTION

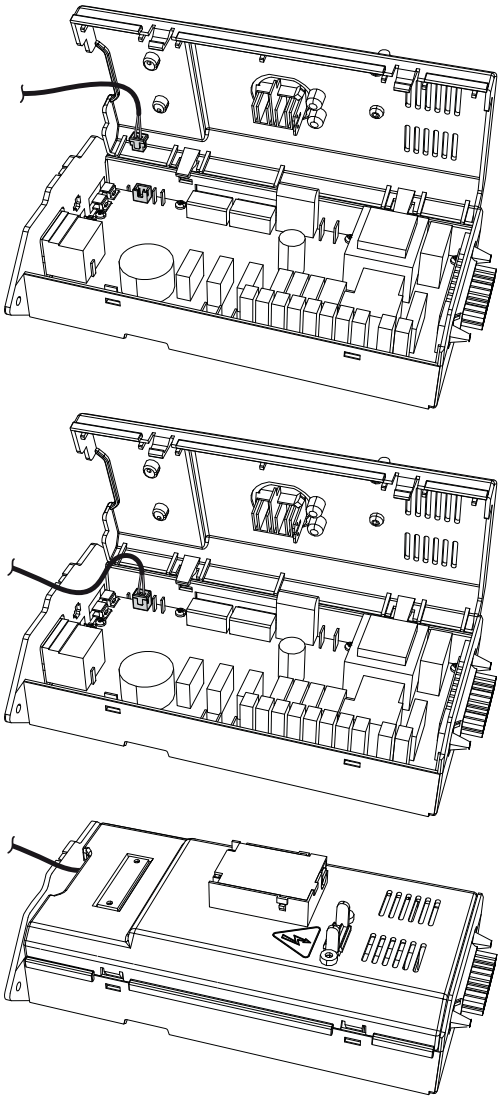


IR CONNECTION (THERMOSTAT RECEIVER)



⚠ The display card will physically connect to the GLLI_N control box through a 4-pole cable as shown above

4-PIPE PROBE CONNECTOR CONNECTION



CONNECTOR CONNECTION TO THE CONTROL BOARD

M2 L: power supply input of the Voltage card: 230 Vac, current 10 A

M1 N: power supply input of the Voltage card: 230 Vac, current 10 A

M3 GND: ground reference

M4 AUX/RE: electric resistor control output

Voltage:230 Vac, current 10 A

M5 Neutral reference for the AUX/RE and MA output Voltage: 230 Vac, current 7 A

M6 MA: fin motor control output Voltage: 230 Vac, current 5 A

M7 Y2: water valve control output Voltage: 230 Vac, current 5 A

M8 Y1: water valve control output Voltage: 230 Vac, current 5 A

M9 Neutral reference for output Y1, Y2 Voltage: 230 Vac, current 10 A

M10 Neutral reference for output V1, V2 V3 Voltage: 230 Vac, current 10 A

M11 V3: maximum speed output Voltage: 230 Vac, current 5 A

M12 V2: average speed output Voltage: 230 Vac, current 5 A

M13 V1: minimum speed output Voltage: 230 Vac, current 5 A

M14 Support input, not connected

M26 Service control board

M22 Control board for connection to the receiver

CN2 SW: water probe NTC 10Kohm

CN1 SA: air probe NTC 10Kohm

CN3 SC: auxiliary water probe NTC 10Kohm

M15, M16 SR: electric resistor temperature probe NTC 4Kohm 200°C

M17 Out 0-10V: Inverter reference Voltage: 10 Vdc, current 10 mA

M18 GND of the inverter reference Voltage: 10 Vdc, current 10 mA

M19 Out 0-10V Voltage: 10 Vdc, current 10 mA

M20 GND Voltage: 10 Vdc, current 10 mA

M21 Fault inverter reading input Voltage: 10 Vdc, current 10 mA

M25 Connector for expansions

M27,M28 CC: Condensate discharge motor fault input Voltage: 5 Vdc, current 0.5 mA

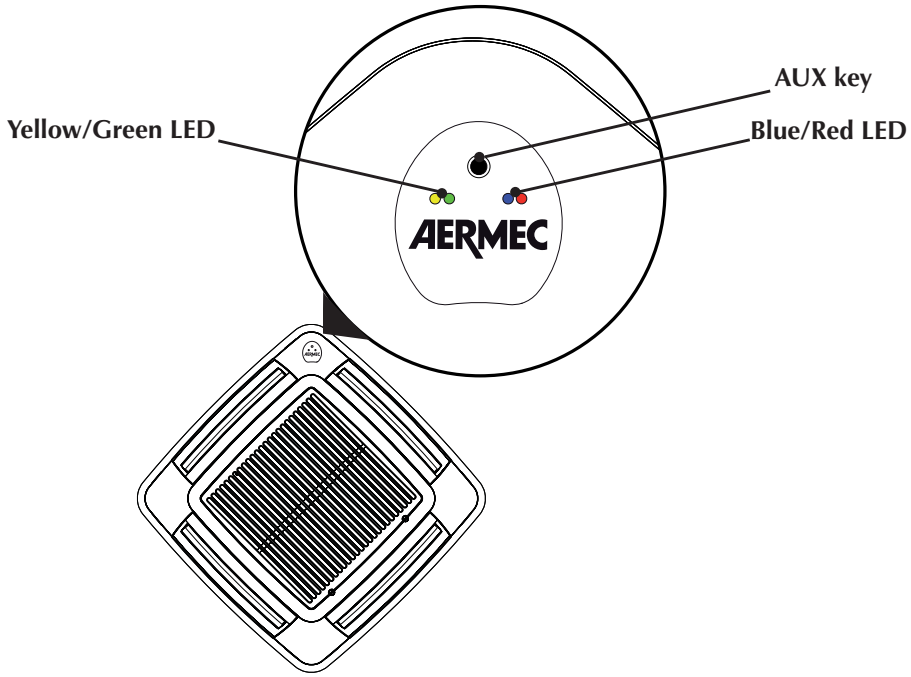
Pauses 2.: Resistor protection fuse Delayed 10A fuse

DISPLAY CARD OPERATION

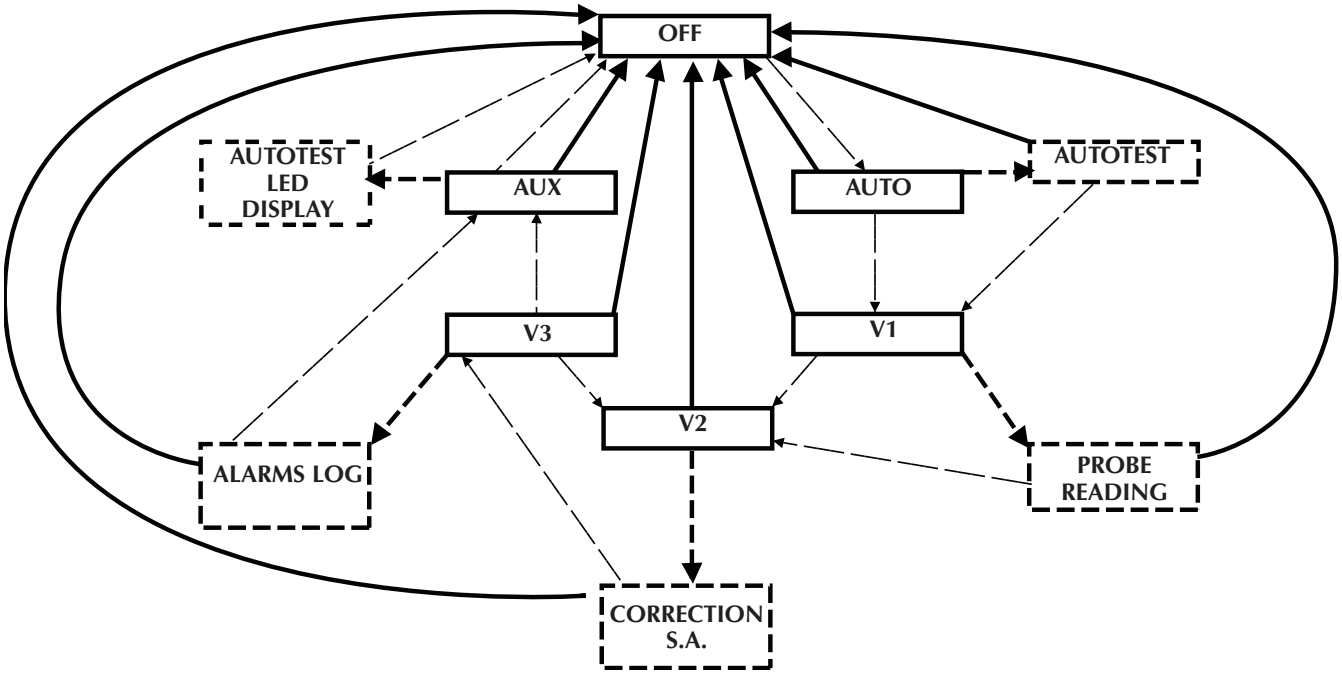
The thermostat can be coupled to a display card which must meet the following requirements:

• LED Interface to view the operating status of the fan coil (operating mode, alarms, probe read-code)
• Starting point of the special commands such as: correction of the probe reading, display of the data read by the probes, display of the alarm log, start of the Autotest procedure

The new display card must have a layout as shown in the following figures:



COMMANDS START PROCEDURE, FROM AUX KEY



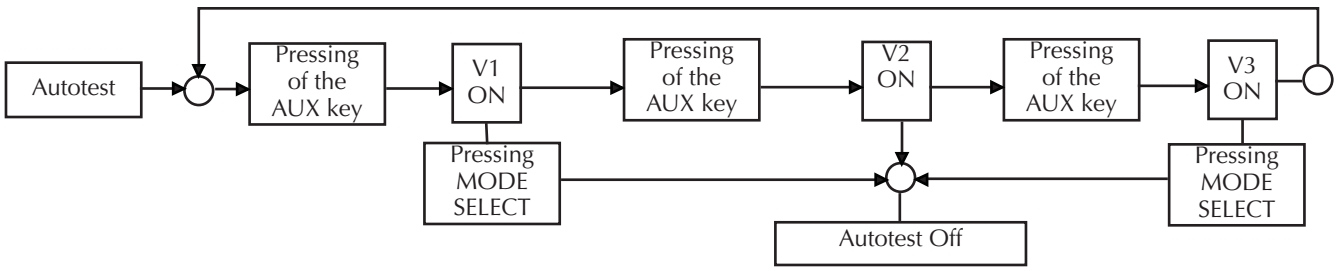
KEY

- Pressing MODE/SELECT key (see VMF-E4)
- Pressing AUX key
- Pressing OFF or MODE/SELECT key (see VMF-E4)

⚠ To exit the test/correction functions an ON/OFF command (via VMF-E4 panel) or a change mode command (AUTO, V1, V2, V3, AUX) must be given to the cassette.

AUTOTEST

The activation of the ventilation and the valve of the branch corresponding to the operating season, even in unsuitable water or environment temperature conditions, can be "forced" in the self-test mode so as to verify the correct functioning of the connections and the windings of the electric motor.



PROBE READING

Values of the temperature probes acquired by the electronic card can be viewed through the yellow and red LED. In this mode the card enters in the Probe Display mode. Initially the card displays the value of the Ambient probe SA.
Press the AUX key normally to view other probes. The number of flashes by the green LED indicates which probe is displayed (see table).

Green LED	Probe displayed
2	SW probe
3	Aux SW probe
4	SA probe
5	Resistor probe SR

ALARMS LOG

The receiver cyclically indicates the last 5 alarms occurred on the machine in the "alarms log" view mode:

• **yellow LED:** cyclically flashes 5 times, and then remains off for 5 seconds

• **red LED**: lights at the same time as the yellow LED thereby providing a specific code

ALARM	VISUALISATION
○ ○ ○ ○ ○	No alarm
○ ● ○ ○ ○ ○	Air probe faulty
○ ○ ● ○ ○ ○	Anti-freeze
○ ○ ● ○ ○ ○	Insufficient water
○ ○ ○ ● ○ ● ○	E4 interface not connected
○ ● ○ ○ ● ○ ○	Inverter fault
○ ○ ● ○ ● ○ ○	Resistor fault
○ ● ○ ● ○ ● ○ ○	condensate discharge
○ ○ ○ ○ ● ○	Motor fuse
○ ● ○ ○ ○ ● ○	Non-encoded signals
○ ○ ● ○ ○ ● ○	
○ ● ○ ● ○ ● ○ ● ○	

Key	
○	Yellow LED
●	Red LED

AMBIENT PROBE READING CORRECTION

For installations of cassette fan coils that use the ambient probe positioned in the LED box, the correction of the probe reading may be deemed necessary to improve the thermostat adjustment.
As for the other operations **the correction of the probe can only be performed if the fan coil is in standby**, the only difference is the selection of the correction that is linked to the season of the thermostat.

SEASON	TYPE OF PROBE CORRECTION
❄	Ambient probe temperature - Δ cold
☀	Ambient probe temperature + Δ hot

Parameters Δ cold and Δ hot can be different from one another and can take integer values between 0 and 6 [°C].
To set the Δ hot value for example, the fan coil should be set to “winter” mode, and in standby: after pressing the AUX key (see coding) the receiver goes into the "probe reading correction" mode displaying the amount of correction:

LED status	**Correction** Δ cold/ Δ hot [C°]
○ ○ ○ ○	0
○ ○ ○ ●	1
○ ○ ◑ ○	2
○ ○ ◑ ●	3
○ ⊗ ○ ○	4
○ ⊗ ○ ●	5
○ ⊗ ◑ ○	6

Key	
○	LED off
●	Red LED
◑	Blue LED
⊗	Green LED

VENTILATION CONTROL

Thermostat-controlled ventilation: The choice of the regulation according to thermostatically controlled ventilation (**dip3 OFF**) foresees the switching off of the ventilation when the setpoint is reached. (See the dip switch settings table).

Continuous ventilation: The continuous ventilation is selected **by means of dip3 that must be set to On**. In practice the continuous ventilation provides ventilation even with thermostat fulfilled at the speed chosen. This function is disabled if the machine has no shut-off valve (**dip1 OFF**). In these particular cases, the ventilation will always be managed with thermostatically controlled logic.
The following table shows the ventilation speed activated depending on the position of the selector:

Position	Operations
OFF	The thermostat is off. It may however start again in Heating mode if the room temperature falls below 7°C and the water temperature is suitable (anti-freeze function).
AUTO	On reaching the setpoint, the ventilation proceedes with the minimum continuous speed.
V1	In this position, the minimum ventilation speed V1 is always active regardless of thermostat requirements.
V2	In this position, the average ventilation speed V2 is always active regardless of thermostat requirements.
V3	In this position, the maximum ventilation speed V3 is always active regardless of thermostat requirements.
Aux	In this position, the minimum Aux ventilation speed is always active.

MINIMUM CONTINUOUS SPEED PARAMETERS

The "minimum continuous speed" is linked to the position of **dip switch 8** (see paragraph on dip-switch settings) in the table below.

Position	Continuous min. speed	Cassette type
ON	8% of the max inverter speed	600 x 600
OFF	12% of the max inverter speed	800 x 800

VALVE OPERATION

If a shut-off valve is present (**dip1 ON**), the position of the probe can be managed both upstream and downstream of the valve itself (in the standard position on the heat exchanger). The main difference between the two is in managing the ventilation in different ways. **If the water probe is upstream of the valve (dip2 ON) or is not present, a heat exchanger pre-heating function occurs and enables the fan 2'40" after the first opening of the valve.**
The valve in question (for the heat exchanger pre-heating function) is Y1 if this is a 2-pipe system (**dip5 Off**), whereas if it is a 4-pipe system it is Y2 (**dip5 On**).
The inhibition time of the fan is then automatically calculated and depends on how long the valve remains closed; in this way it could vary from a minimum of 0' 00" to a maximum of 2' 40". This ventilation enabling delay in relation to the opening of the valve is reset if the electric resistor is enabled, this is to ensure greater user safety.
Refer to the specific table for the specific parameters of the dip switches.

HOT/COLD MODE CHANGE OVER

WATER SIDE SEASON CHANGEOVER

If the thermostat is configured for use without a valve (**dip1 OFF**) or with a probe upstream of the valve (**dip2 ON**), then the water temperature detected is that available on the terminal, therefore the season is forced to Hot or Cold according to this temperature.
The thresholds of the season changeover are shown in the table below.
In this configuration, the indications of the left LED correspond to the active mode.
The ventilation is enabled only if the water temperature is suitable for the cooling mode or the heating mode. This allows on one side to avoid unwanted cold ventilation in the winter season, and on the other side to check the turning on and off of all terminals, according to the actual condition of the water available (centralized control of the On-Off and Hot-Cold commands).

COLD SEASON CHANGEOVER THRESHOLD	HOT SEASON CHANGEOVER THRESHOLD	DIP SWITCH MEANING
12 °C / **22**°C	**35** °C / **39** °C	Normal band (dip 4 off)
22°C / **25**°C	**31** °C / **35**°C	Reduced band (dip 4 on)

VENTILATION ENABLING

The normal band (hot enabled at 39° C, cold enabled at 17° C) or the reduced band (hot enabled at 35° C, cold enabled at 22° C) is selected based on the (**dip4)**.

SEASON CHANGEOVER BASED ON THE AIR

The season changeover of some systems is based on air temperature, these are:

- 2-pipe systems with the Water Probe downstream of the valve.
- All 2-pipe systems without water probe.
- All 4-pipe systems.

The season changeover occurs as follows:

- **Cold mode:** if the ambient temperature detected is below the setpoint of an interval equal to the dead band (2° C or 5° C) it switches to the hot mode.
- **Hot mode:** if the ambient temperature detected is above the setpoint of an interval equal to the dead band (2° C or 5° C) it switches to the cold mode.

⚠ **The dead band is decided through dip7 or rather if it has a dead band of 5° C (dip7 OFF) while if the dead band is 2° C (dip7 ON).**

ANTI-FREEZE PROTECTION

The anti-freeze protection allows you to check that the room temperature never falls to freezing values (even when the selector is in the OFF position). If the temperature drops below 7° C, the thermostat still operates in HEATING mode with SETPOINT at 12° C and ventilation in AUTO, if the temperature of the water permits so. In case of Water Probe not present or continuous ventilation, the fan is always enabled. If the valve is present and the water probe is upstream or the water probe is absent, the pre-heating of the heat exchanger is still executed.
The thermostat exits the Anti-freeze mode when the room temperature exceeds 9°C.

EXTERNAL CONTACT LOGIC

The thermostat also includes an external contact that allows to set it to OFF if it is closed (except if the thermostat is in anti-freeze mode or as a slave in the TTL network). This contact could be useful to manage inputs such as window contacts, faulty circulation pump, etc.

CE input status	Machine status
Closed	OFF
Open	ON

SLEEP FUNCTION

The Sleep function in the thermostat is available if the thermostat is interfaced with a presence sensor (with normally open logic) connected to its SP input. In practice the function consists in changing the regulation setpoint of the fan coil if the air-conditioned environment is not occupied; i.e. decreasing if operating hot, increasing if operating cold. This function aims at saving energy. In this specific case, if the thermostat card was connected to a presence sensor, the logic of the SP input occurs as follows:

SP input	Heating		Cooling	
	Dip 7 Off	Dip 7 On	Dip 7 Off	Dip 7 On
Open	$\Delta = 0$	$\Delta = 0$	$\Delta = 0$	$\Delta = 0$
Closed	$\Delta = 5°C$	$\Delta = 2°C$	$\Delta = -5°C$	$\Delta = -2°C$

The air side season changeover is inhibited when the SP input is kept closed; this function prevents incorrect status changes due to the change of the setpoint

COMFORT FUNCTION

The set point of centralized systems in which there are network connected fan coils, is decided by a central unit. The user may have the opportunity to increase or decrease the setpoint according to the table below.

Dead band [°C]	Deviation of the setpoint [°C]
2	+/- 3
5	+/- 6

DIP-SWITCH SETTING

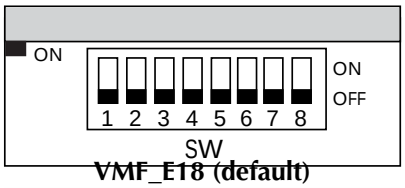
Turn off the power to the unit. This operation should be carried out in the installation phase, by suitably trained and qualified personnel only.
The dip-switches are on the electronic board.

****Warning**: if the thermostats are inserted in systems with Centralised Control or Supervisor (e.g. VMF-E5), it is necessary to set: Dip1=ON and Dip2=OFF. The setting takes priority over the presence of the valve and the position of the probe.

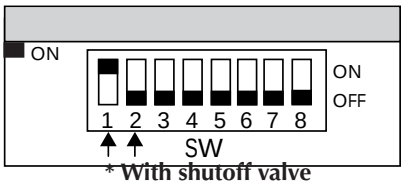
They can be used to obtain the following functions:

Position	Functions
Dip 1 (Default **OFF**)	**Check water valve / * Thermostat in centralised network (See table):**
OFF	No shut-off valve
ON	Shutoff valve present / * Thermostat in centralised network:
Dip 2 (Default **OFF**)	**Position water temperature probe / * Thermostat in centralised network (See table):**
OFF	Water temperature probe downstream from shutoff valve / *Thermostat in centralised network
ON	Water temperature probe upstream from shutoff valve
Dip 3 (Default **OFF**)	**Ventilation control:**
OFF	Thermostat-controlled ventilation
ON	Continuous ventilation
Dip 4 (Default **OFF**)	**Ventilation enabling:**
OFF	Enabling normal band
ON	Enabling reduced band
Dip 5 (Default **OFF**)	**Machine with two or four pipes**
OFF	2-pipe fan coils
ON	4-pipe fan coils
Dip 6 (Default **OFF**)	**the presence of the accessory**
OFF	Resistance to integration is not present
ON	Presence of resistance to integration
Dip 7 (Default **OFF**)	**Dead band**
OFF	Dead band 5° C
ON	Dead band 2° C
Dip 8 (Default **OFF**)	**Minimum speed:**
OFF	Inverter minimum speed 55 %, continuous minimum speed 34% (FCLI 8X/12x)
ON	Inverter minimum speed 40 %, continuous minimum speed 25% (FCLI 3X/4x/6x)

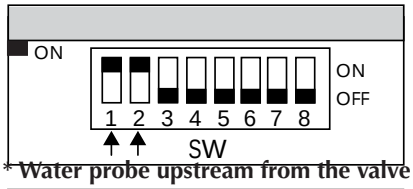
SOME EXAMPLES:



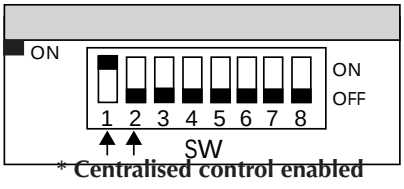
VMF_E18 (default)



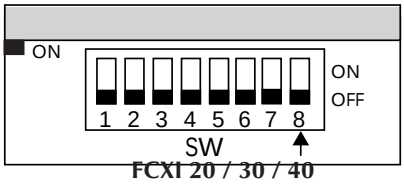
*** With shutoff valve**



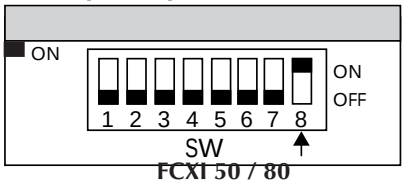
*** Water probe upstream from the valve**



*** Centralised control enabled**



FCXI 20 / 30 / 40



FCXI 50 / 80

ADDITIONAL CONTROLS

EMERGENCY FUNCTIONING

The two following failure cases are foreseen when the thermostat operates in the described manner.

NO WATER PROBE

- Ventilation is always active
- The season change is made on the basis of the difference between the setting made and the actual ambient temperature. If the ambient temperature exceeds by a value equal to the dead band, the Heating setpoint switches to the Cooling mode. If the ambient temperature drops by a value equal to the dead band below the Cooling setpoint, it switches to the Heating mode.
- The turning on/off of the resistance does not depend in this case on the temperature of the water but on the sheer demand for the thermostat operation

AMBIENT PROBE ABSENT (2 PIPES)

In this case the thermostat operates as follows:

- OFF - Aux Mode

  The valve is closed

  The fan is off
- AUTO, V1, V2, V3 mode:

  The valve is always open.

  Operating season always hot.
- The ventilation runs On-Off cycles. The duration of the ON cycle is proportional to the setpoint set in the VMF-E4 panel. The total duration of the ON-OFF cycle corresponds to 5’20’’. The following table gives duration examples of various ON and OFF cycles based on the position of the temperature selector:

VENTILATION CYCLES OF 2-PIPE SYSTEM WITHOUT AMBIENT PROBE

SetPoint	ON cycle duration	OFF cycle duration
Min value	Nil	5'20"
20 C°	2'20"	2'60"
Max value	5'20"	Nil

AMBIENT PROBE ABSENT (4 PIPES)

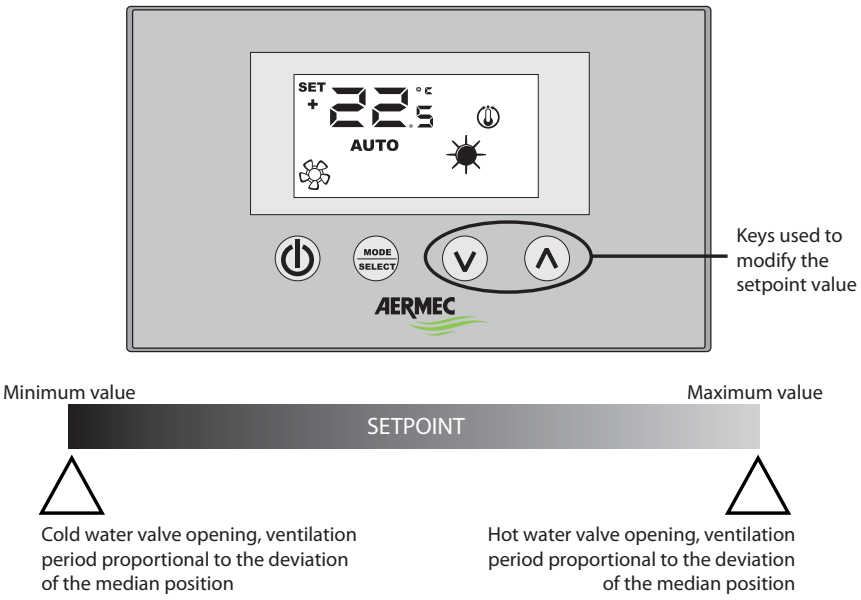
In this case the thermostat operates as follows:

- OFF - Aux Mode

  The valves are closed

  The fan is off
- AUTO, V1, V2, V3 mode:

  The operating season is decided according to the position of the temperature selector and it is activated by the respective valve as shown in the Figure



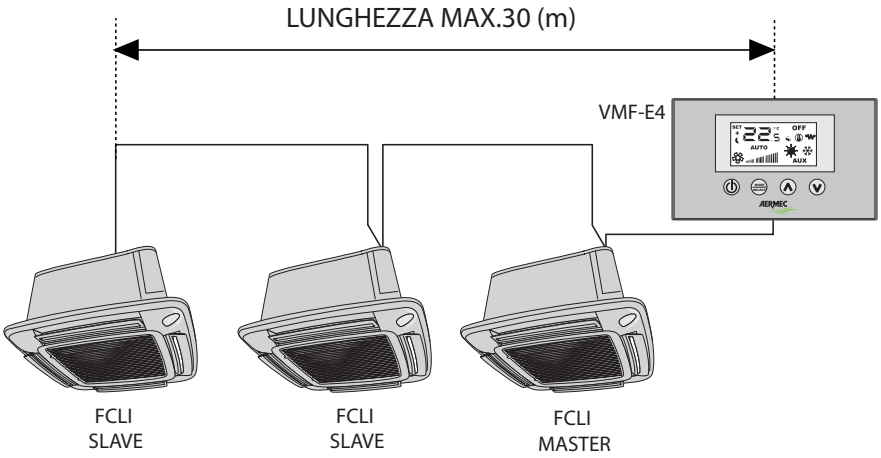
The ventilation in this case is always performed according to the ON-OFF cycles, however, increasing the ON phase from the central position. In this way the maximum ventilation can be required with the selector at the minimum position for cooling operation season and likewise there is maximum ventilation with the selector in the maximum position. For the heating operation season. The total duration of the ON-OFF cycle is again 5’20’’. The following table gives duration examples of various ON and OFF cycles based on the position of the temperature selector:

VENTILATION CYCLE OF THE 4-PIPE SYSTEM WITHOUT AMBIENT PROBE

Position	ON cycle duration	OFF cycle duration
Min value	5'20"	Nil
20 C°	Nil	5'20"
Max value	5'20"	Nil

CASSETTE LOCAL NETWORK

The VMF-FCL thermostat has been designed to communicate with all thermostats of the VMF family through a dedicated serial based on standard TTL logic and low throughput. This serial communication is essential for the exchange of information within small fan coil networks. This is in fact a network comprising no more than 6 thermostats with a maximum length of about 30 meters. It was designed, in fact, for small areas where the fan coils (more than one) need to be controlled from a single control point. More specifically, this network always contains a Master (to which a user interface VMF-E4 is connected) that controls the operation of the Slaves connected to it, according to the settings made on its user interface.



OPERATING PRINCIPLE

The fan coil master, or rather the one with the VMF-E4 user interface connected, cyclically transmits the following information subsequently setting them on the slave units.

- **Regulation Setpoint**
- **Operating mode (OFF, AUTO, V1, V2, V3, AUX) (on the On/Off machines)**
- **Operating season**

Therefore the slave fan coils can not operate (except in particular cases) according to settings different from those dictated by the master.

AMBIENT PROBE: the ambient control probe is not needed on slave fan coils because these can use the control probe of the master. However, if you want to avoid having micro-climates, it can be installed on the slaves that will then adjust with the respective probe. In particular cases where the ambient probe on the master is faulty, the slave without probe will operate in emergency mode (similar to the master), while the slaves with ambient probe will continue to operate normally.

WATER PROBE: the water temperature probe can be installed or not on the various fan coils of the TTL network. The fan coils with probe will use this for foreseen minimum and maximum values control, while the ventilation will always be enabled on the fan coils without water probe.

EXTERNAL CONTACT INPUT: this digital input is inhibited on all slave fan coils while it is enabled on the master only. If the master input is closed, all the slave fan coils of the zone are switched off.

PRESENCE SENSOR INPUT: the presence sensor digital input is only active on the master fan coil

ANTI-FREEZE FUNCTION: the anti-freeze mode is the only case in which a slave that is in this status can operate according to settings are not provided by the master.

TTL NETWORK MANAGEMENT

No Master-Slave communication: the slave fan coil cyclically await the zone settings from the master fan coil. If for some reason a slave fails to communicate with the master, it switches OFF (i.e. shutdown of all loads) after 10" from the last command successfully received.

No Master-User Interface communication: if at some point the master no longer communicates with the user interface, it switches OFF after 10" from the last command received from it. The master will also send the OFF command to all the slaves. The user interface also gives the visual alarm AL 1

TTL NETWORK CONSTRAINTS

The constraint concerns the management of the adjustment dead band; this should be set on the master fan coil being that it is ignored on the slaves because both the setpoint and the operating season of these depend on the master.

TTL NETWORK EMERGENCY FUNCTION

Master without Ambient Probe

The operating principle of the master thermostat in the event that it functions without ambient probe (or fault of its local probe) follows what described in the next paragraph.

Slave without Ambient Probe

The Slave thermostat cards enter into emergency mode not only if the local probe is faulty but also if the master one is faulty too. According to what previously mentioned, if the slave probe is faulty and the master probe is working properly, the slaves continue to operate using that one of the master. If the slaves begin to work in emergency mode, they will be operated at the speed selected in the user interface and the valve Y1 is opened (this applies for both 2-pipe and 4-pipe system). Furthermore, the slaves in emergency mode do not follow the logic of the ON-OFF cycles based on the position of the temperature selector but are always in the ON phase, therefore with ventilation always running.

TTL NETWORK ANTI-FREEZE PROTECTION

Master: As described in the ANTI-FREEZE PROTECTION paragraph, the thermostat foresees as standard the control of the ambient temperature to prevent this fall to freezing values. If the master has to operate in this condition, it will impose all slaves to operate in AUTO mode with setpoint at 12° C, even though these are operating according to normal conditions.

Slave: Whereas if it is one of the slaves operating according to the anti-freeze protection (despite the master is operating in normal mode), it will operate in AUTO mode with setpoint at 12° C. This is the only case in which the slave operates according to settings different to those dictated by the master.

INSTALLATION

ELECTRICAL WIRINGS

The unit must be connected directly to an electrical outlet or to an independent circuit.

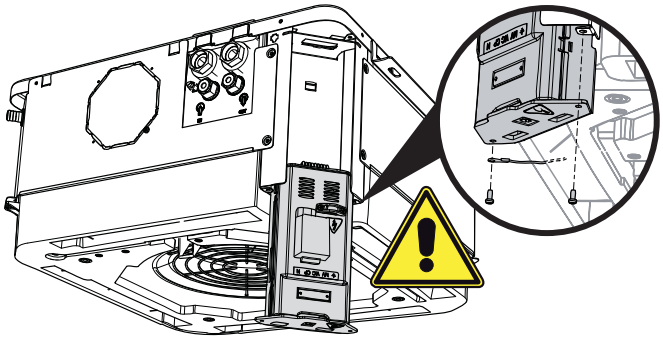
The FCLI cassette-type fan coils must be powered with a current of 230V ~50Hz with an earth connection; the line voltage must however remain within the tolerance of ±10% compared with the nominal value.

To protect the unit against short circuits, fit an omnipolar thermal trip max. 2A 250V (IG) to the power line with a minimum contact opening distance of 3 mm.

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.

For all the connections, follow the wiring diagrams supplied with the device and shown in this documentation.

The electric box is supplied with obligatory accessories (GLLI - GLLI_N).



WARNING: check that the power supply is disconnected before carrying out any procedures on the unit.

WARNING: before carrying out any work, put the proper individual protection devices on.

WARNING: the device must be installed in compliance with the national plant engineering rules.

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 (in this manual they will be indicated with the general term "persons with specific technical skills").

In the specific case of electrical wirings, the following must be checked:

- measurement of the electrical system insulation strength

- continuity test of the protection wires

WARNING: install a device, main switch, or electric plug so you can fully disconnect the device from the power supply.

The essential indications to install the device correctly are given here.

The completion of all the operations in accordance with the specific requirements is however left to the experience of the installation engineer.

See also the installation manual of the FCLI unit and the user's manual provided with the grille unit.

Generally the best position of the fins is that which allows the launch of the air adhering to the ceiling for the coined effect, during cold functioning.

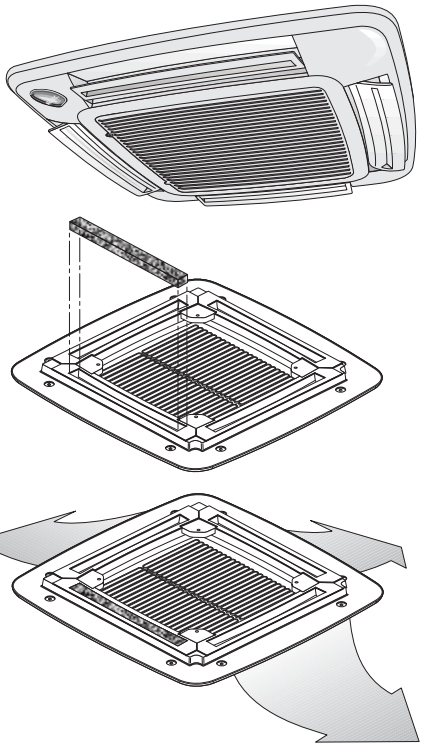
The opening positions are indicated on the side section of the deflectors (GLLI10N) for correct machine heating (20° opening) and cooling (10° opening) operation.

For units with GLLI20N grilles the deflector should be fully opened in the heating operation and it should be rotated halfway in the cooling operation.

Depending on the user's needs, the fins can be adjusted to the intermediate positions, or completely closed. Thanks to the special shapes of the fins, the machine can also function with the deflectors completely closed.

Do not install at a height above three metres.

The FCLI unit is prepared for connections with channelling for the fresh air and for the delivery of treated air to an adjacent room.



• INSTALLING NEAR A WALL

If the unit is to be installed near a wall, the corresponding delivery outlet can be closed using the gasket supplied.

FAILURE OF THE THERMOSTAT FUSES AND REPLACEMENT

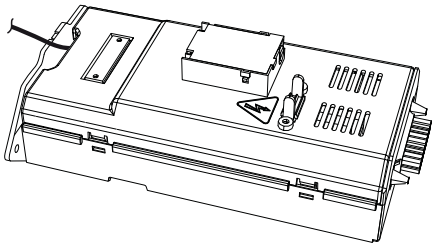
The installation and the electrical connections of the units and their accessories must only be carried out by people possessing the technical/professional requisites for system installation, transformation, extension and maintenance, and who are able to check these aspects for the purposes of safety and correct operation. They will be generically referred to in this manual as "Personnel with specific technical skills". Check that the power supply is disconnected before carrying out any procedures on the unit.

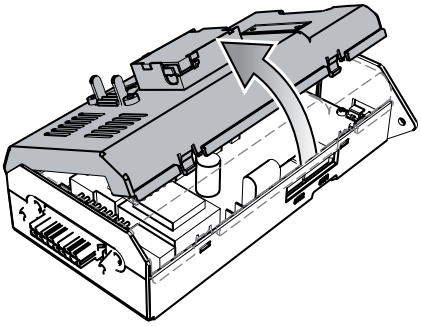
If the fuses are burnt and for possible replacement:

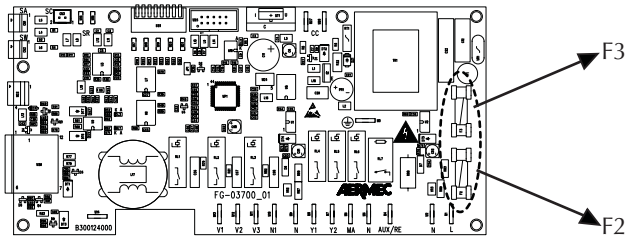
- Remove the delivery frame
- Extract the thermostat card
- Open the thermostat box
- Replace the faulty fuses

The fuses are 5 x 20 T series (delayed) from 2 A to 10 A

- **WARNING: for correct replacement, the 2 A fuse must be inserted in location F3, while the 10 A fuse must be inserted in F2, as shown in the image below.**





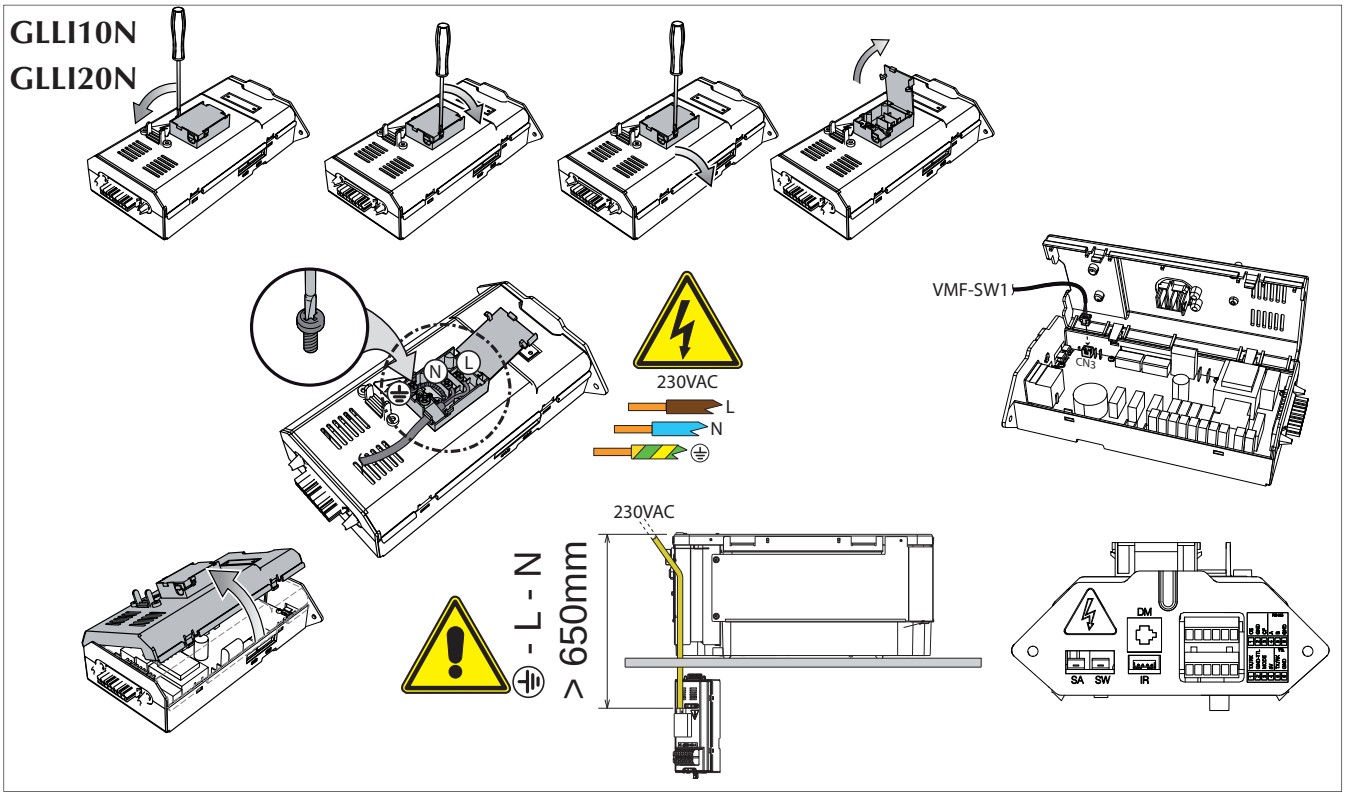


ELECTRICAL CONNECTIONS WITH GLLI10N AND GLLI20N ACCESSORIES

Before installing the electric box, the configuration of the electronic board dip-switches needs to be checked in order to adjust the board to the system.

Connect the VMF-E4 control panel, supervision network cable, TTL network cable, and probe and valve cables based on system requirements.

For the connections, refer to the wiring diagrams of the fan coil and connected accessories.



SCHEMI ELETTRICI • WIRING DIAGRAMS • SCHEMAS ELECTRIQUES • SCHALTPLÄNE • ESQUEMAS ELÉCTRICOS

LEGENDA • READING KEY • LEGENDE • LEGENDE • LEYENDA

AL• Supply
=Alimentatore
Power supply
Alimentation electrique
Spannung
Alimentador

AMP=Contatto allarme pompa scarico condensa
Contact alarm condensate pump discharge
Contact d'alarme de décharge de pompe condensat
Kontakt Alarm Kondensatpumpe Entlastung
Contacto de alarma de bomba de descarga de condensados

CE=Contatto esterno

CN= Connettore
Connector
Connecteur
Schütz
Conector

F =Fusibile • Fuse • Fusible
Sicherung • Fusible

IG=Interruttore generale
Main switch
Interupteur général
Hauptschalter
Interruptor general

M =Morsettiera
Terminal board
Boitier
Klemmleiste
Placa de bornes

MP= Pompa scarico condensa
Condensate drain pump
Pompe de vidange du condensat
Kondensatablass Pumpe
Bomba de desagüe de condensado

MV =Motore ventilatore • Fan motor
Moteur ventilateur • Ventilatormotor
Motor del ventilador

PE =Collegamento a terra
GND Earth connection
Mise à terre
Erdanschluss
Toma de tierra

SA = Sonda temperatura aria
Air temperature probe
Sonde temp. de l'air
Temperaturfühler
Sonda temperatura del aire

SW1 =Dip Switch

SW (CN2) = (SW4)
Sonda temperatura acqua
Water temperature probe
Sonde temp. eau
Wasserfühler
Sonda temperatura del agua

SW (CN3) = (VMF-SW1)
Sonda temperatura acqua (impianti 4 tubi)
Water temperature probe (4-pipe version)
Sonde temp. eau (systèmes à 4 tuyaux)
Wasserfühler (4-Leiter-Systemen)
Sonda temperatura del agua (instalaciones de 4 tubos)

VHL =Valvola
Valve
Vanne
Ventil
Válvula

= Componenti non forniti
Components not supplied
Composants non fournis
Nicht lieferbare Teile
Componentes no suministrados

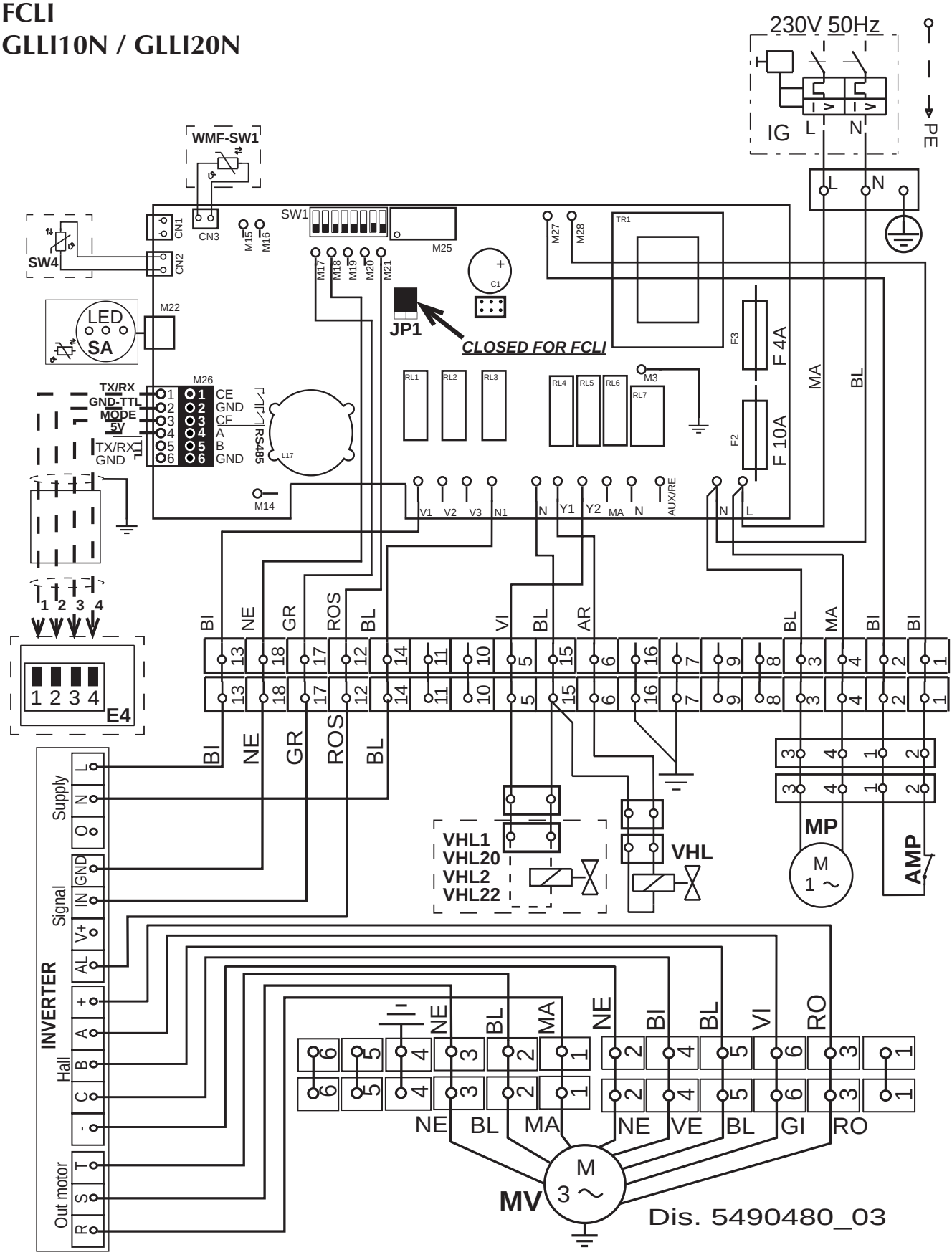
= Componenti forniti optional
Optional components
Composants en option
Optionsteile
Componentes opcionales

=Collegamenti da eseguire in loco
On-site wiring
Raccordements à effectuer in situ
Vor Ort auszuführende Anschlüsse
Cableado in situ

AR= Arancio • Orange • Orange • Orange • Naranja
BI =Bianco • White • Blanc • Weiss • Blanco
BL=Blu • Blue • Bleu • Blau • Azul
GR= Grigio • Grey • Gris • Gray • Gris
MA =Marrone • Brown • Marron • Braun • Marrón
NE= Nero • Black • Noir • Schwarz • Negro
RO= Rosso • Red • Rouge • Rot • Rojo
ROS =Rosa • Pink • Rose • Rosa • Rosa
VE=Verde • Green • Vert • Grün • Verde
VI =Viola • Violet • Violet • Violet • Violeta

Gli schemi elettrici sono soggetti ad un continuo aggiornamento, è obbligatorio quindi fare riferimento a quelli a bordo macchina.
All wiring diagrams are constantly updated. Please refer to the ones supplied with the unit.
Nos schémas électriques étant constamment mis à jour, il faut absolument se référer à ceux fournis à bord de nos appareils.
Die Schaltpläne werden ständig aktualisiert, deswegen muss man sich stets auf das mit dem Gerät gelieferte Schaltschema beziehen.
El cableado de las máquinas es sometido a actualizaciones constantes. Por favor, para cada unidad hagan referencia a los esquemas suministrados con la misma.

FCLI
GLLI10N / GLLI20N



Gli schemi elettrici sono soggetti ad un continuo aggiornamento, è obbligatorio quindi fare riferimento a quelli a bordo macchina.
All wiring diagrams are constantly updated. Please refer to the ones supplied with the unit.
Nos schémas électriques étant constamment mis à jour, il faut absolument se référer à ceux fournis à bord de nos appareils.
Die Schaltpläne werden ständig aktualisiert, deswegen muss man sich stets auf das mit dem Gerät gelieferte Schaltschema beziehen.
El cableado de las máquinas es sometido a actualizaciones constantes. Por favor, para cada unidad hagan referencia a los esquemas suministrados con la misma.

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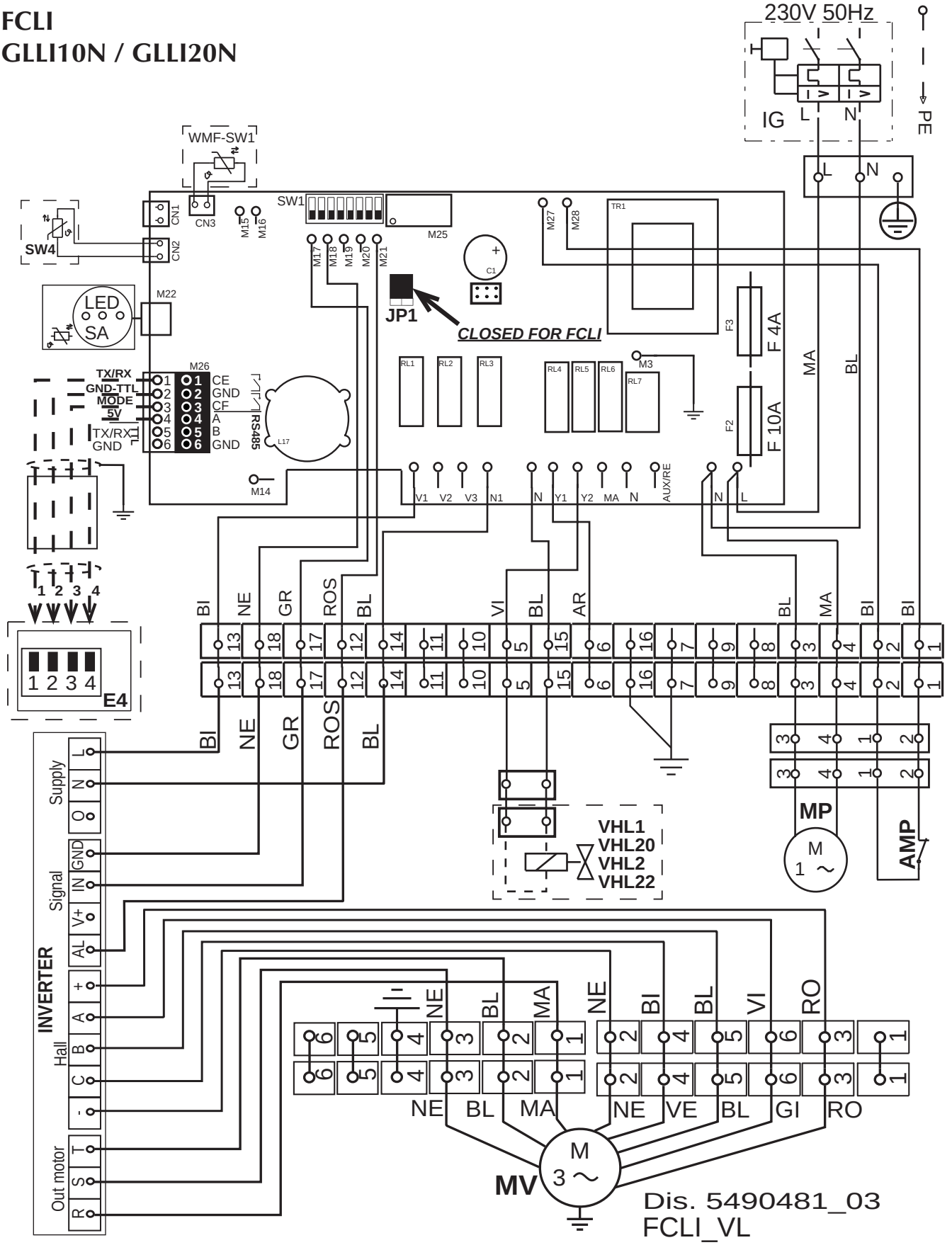

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