AERMEC
air conditioning

Manuale installazione • Installation manual • Manuel d'installation
Installationsanleitung • Manual de instalación

VMF-ACS

AERMEC
COMPANY QUALITY SYSTEM
ICIM
ISO 9001:2000 - Cert. n° 0128/5
CISQ IQNet
AERMEC S.P.A.

CE

IT GB FR DE ES

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IVMFACSIJ. 1105 - 5784100_00

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VMF-DHW

SERIAL NUMBER	

CE DECLARATION OF CONFORMITY

We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:

NAME VMF-ACS

TYPE cabinet

To which this declaration refers, complies with the following harmonised standards:

IEC EN 60730-1 Safety standard.

IEC EN 61000-6-1
IEC EN 61000-6-3 Immunity and electromagnetic emissions for residential environments.

Thereby, compliant with the essential requirements of the following directives:

- LVD Directive: 2006/95/CE.
- Electromagnetic Compatibility Directive 2004/108/CE.

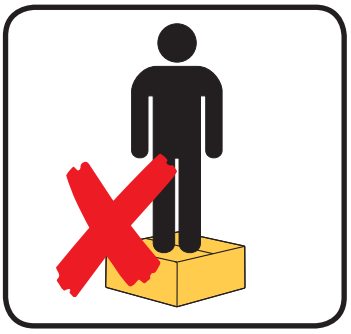
Bevilacqua 15/01/2008

Marketing Manager
Signature

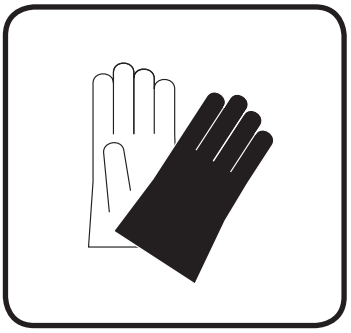
Precautions and Safety Standards

DO NOT wet the packaging

DO NOT walk on the packaging



Handle with care



Indications regarding waste disposal

Attention: this product contains electric and electronic appliances that cannot be disposed of through normal municipal collection channels. There are special collection centres for these products.

The electric and electronic appliances must be treated separately and in compliance with the laws in force in the country of use.
Batteries and accumulators present in the appliances must be disposed of separately according to the provisions of the municipality of use.

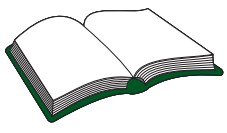
Safety symbols

Voltage hazard

Attention

Moving parts hazard

Notes concerning manuals



Keep the manuals in a dry place, in order to prevent deterioration, for at least 10 years for any further reference.

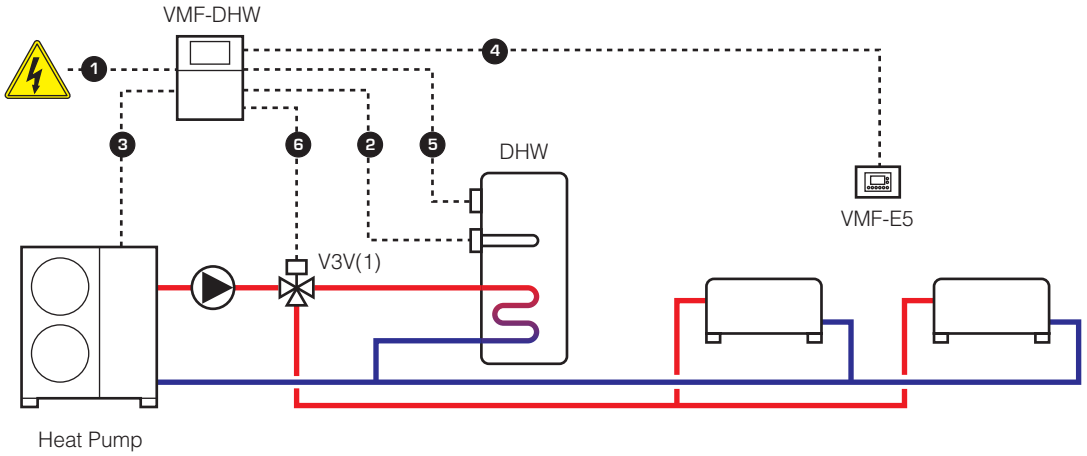
Read all of the information contained in this manual carefully and completely. Pay particular attention to the user regulations accompanied by "DANGER" or "ATTENTION" in so much as, if not complied with, the machine or objects may be damaged and/or persons injured. For the anomalies not contemplates by this manual, contact the area After-sales Service as soon as possible.
The apparatus must be installed in such a way that maintenance and/or repair operations are possible.

The appliance warranty does not cover the costs for ladders, scaffolding, or other elevation systems that may become necessary for carrying out servicing under warranty. AERMEC S.p.A. declines all responsibility for any damage due to improper use of the machine, partial or hasty reading of the information contained in this manual.

Type of plant with VMF-ACS control boards

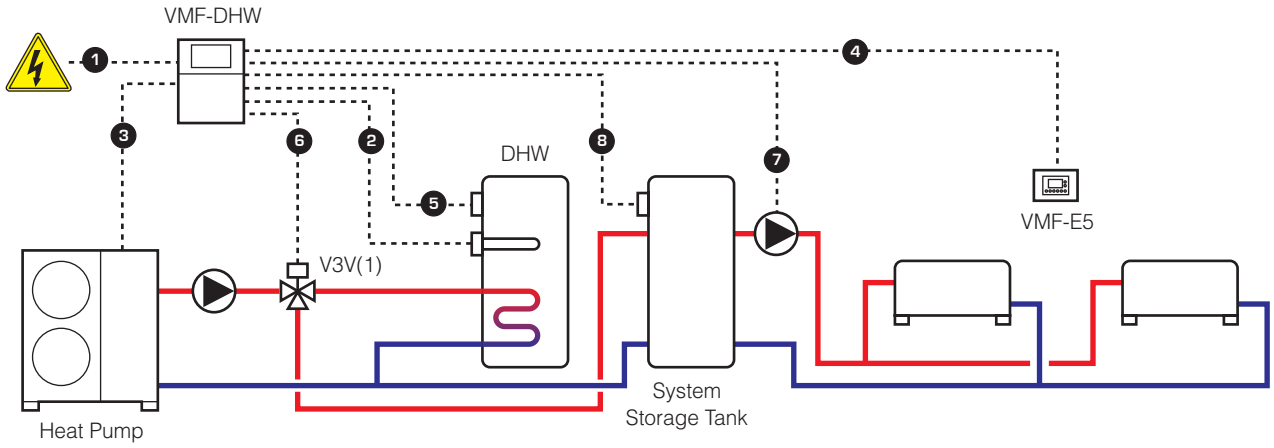
The VMF-ACS electric control board can be used in different types of system. Every system type envisions the use of different elements piloted from the electric control board. The connections between the VMF-ACS electric control board and any other system element, will be indicated with an unmistakable number. This number will be used in the following chapters to identify the specifications of the connection in question.

System type 1:



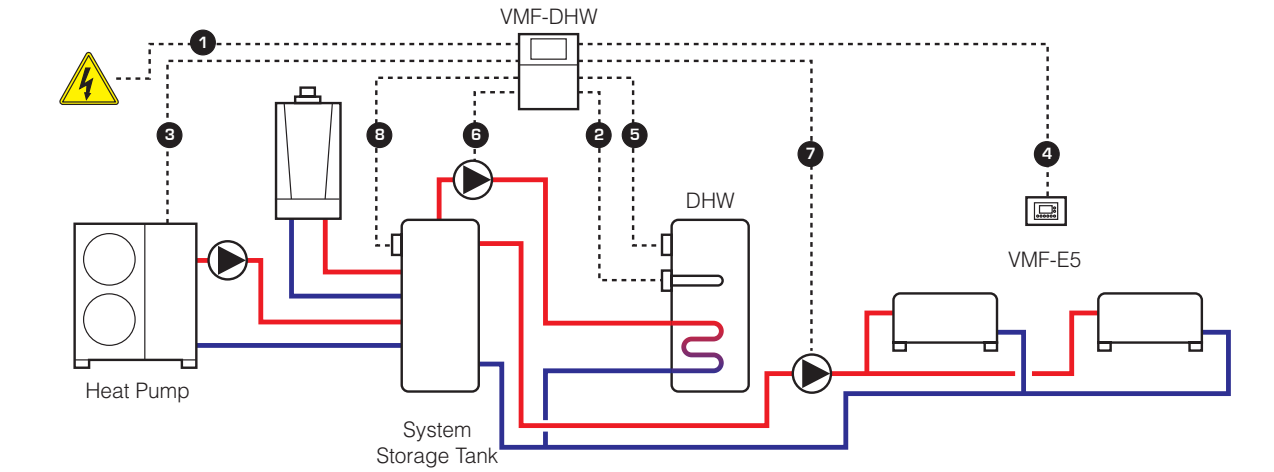
Connection	Reference chapters for realisation of the connections
1	VMF-ACS power supply
2	Connect the integrative electric resistance
3	RS485 serial connection
4	VMF-E5 serial connection
5	DHW probe connection
6	Connection V3V (1) or DHW pump

System type 2:



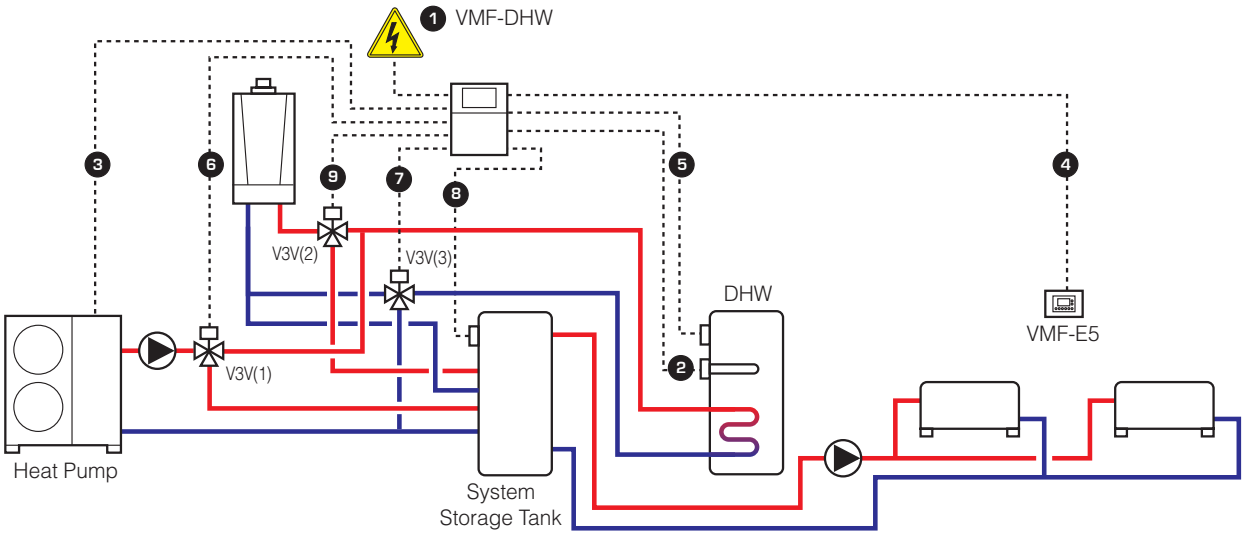
Connection	Reference chapters for realisation of the connections
1	VMF-ACS power supply
2	Connect the integrative electric resistance
3	RS485 serial connection
4	VMF-E5 serial connection
5	DHW probe connection
6	Connection V3V (1) or DHW pump
7	Boiler or V3V (3) or system pump connection
8	System storage tank probe connection

System type 3:



Connection	Reference chapters for realisation of the connections
1	VMF-ACS power supply
2	Connect the integrative electric resistance
3	RS485 serial connection
4	VMF-E5 serial connection
5	DHW probe connection
6	Connection V3V (1) or DHW pump
7	Boiler or V3V (3) or system pump connection
8	System storage tank probe connection

System type 4:

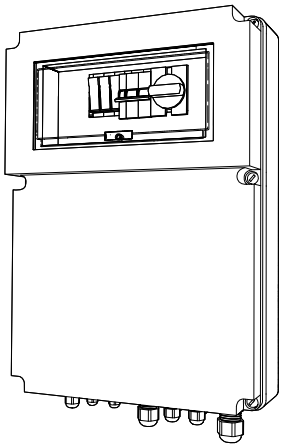


Connection	Reference chapters for realisation of the connections
1	VMF-ACS power supply
2	Connect the integrative electric resistance
3	RS485 serial connection
4	VMF-E5 serial connection
5	DHW probe connection
6	Connection V3V (1) or DHW pump
7	Boiler or V3V (3) or system pump connection
8	System storage tank probe connection
9	Multifunction output or V3V (2) connection

Fix the VMF-ACS control board

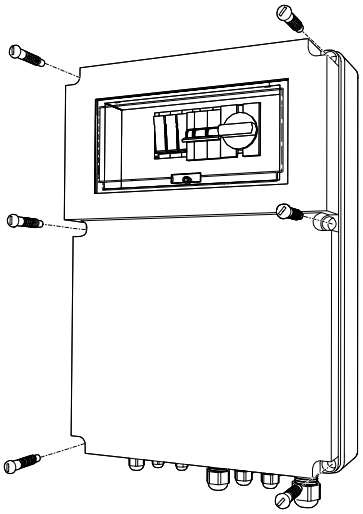
The VMF-ACS accessory is formed from several electric components, contained in an IP44 box suitable for indoor installation. The accessory must be fixed to the wall before making the connections, To do this, just open the electric box (as illustrated by the next sequence), drill and fix to the wall using suitable supports, NOT SUPPLIED.

A



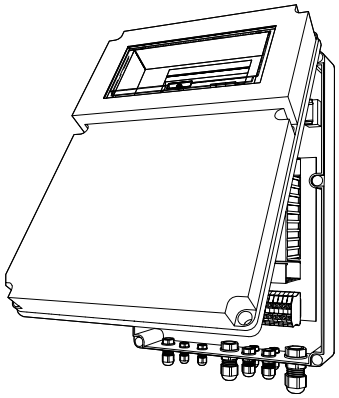
Remove the accessory from the packaging.

B



Using a flat screwdriver, remove the 6 screws that block the lid of the electric box.

C

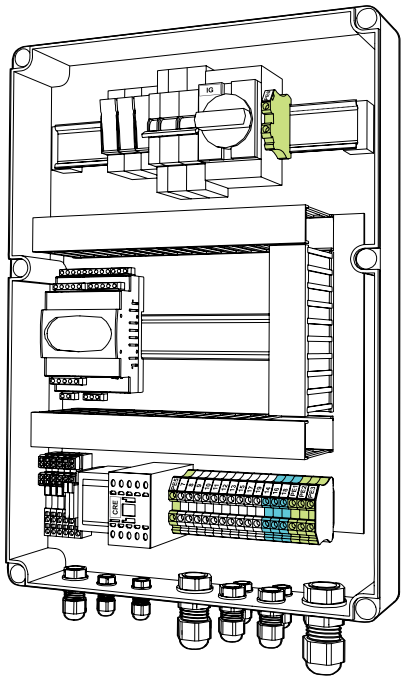


Lift the electric box lid.

D

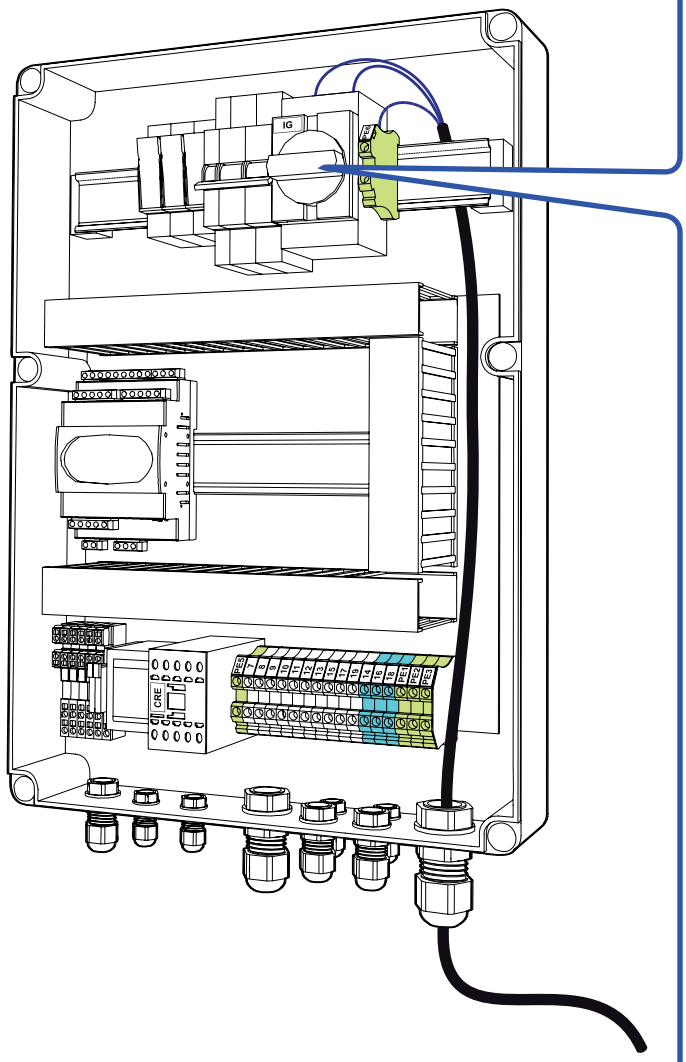
Recover the bag of components, the two temperature probes and the documents contained inside the control board. Successively, drill the box and fix it to the wall using the relevant plugs (NOT SUPPLIED).

After having fixed the electric box, make the electric connections suitable for the type of system to be realised. The following pages state all loads that can be connected to this accessory.

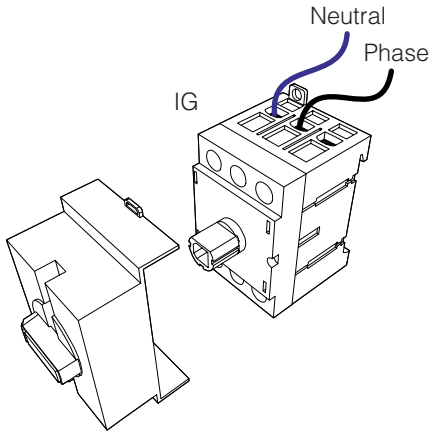


VMF-ACS power supply

1 VMF-ACS power supply connection:



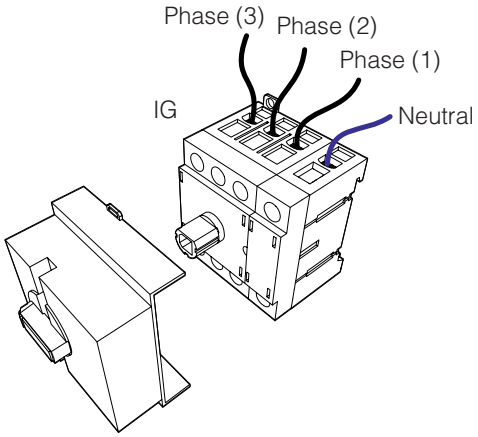
SINGLE-PHASE Models



WARNING:

The earth connection must be made at clamp PE6, assembled at the side of the master switch.

THREE-PHASE Models

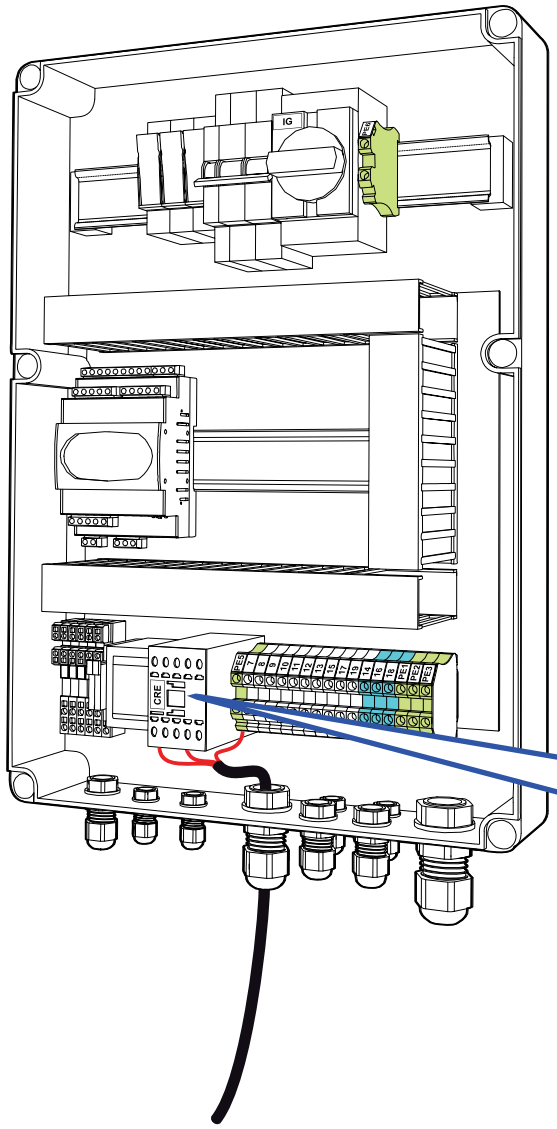


WARNING:

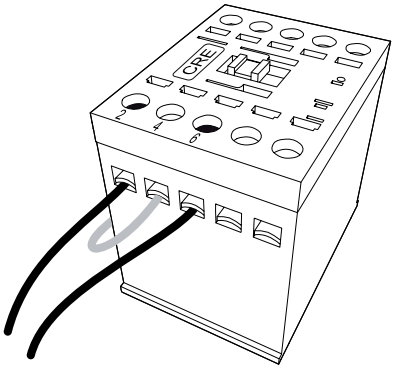
The earth connection must be made at clamp PE5, assembled at the side of the master switch.

Connect the integrative electric resistance

2 **Integrative electric resistance connection for domestic hot water production:**



SINGLE-PHASE Models

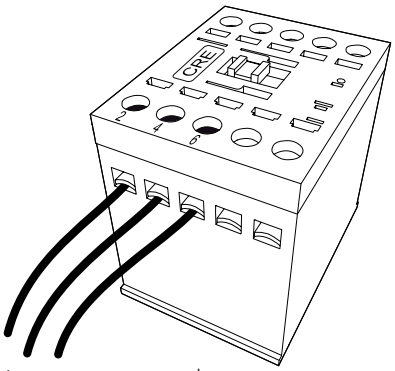


Resistance power supply (single phase)

WARNING:

The earth connection must be made at clamp PE5, assembled at the side of the CRE contactor.

THREE-PHASE Models



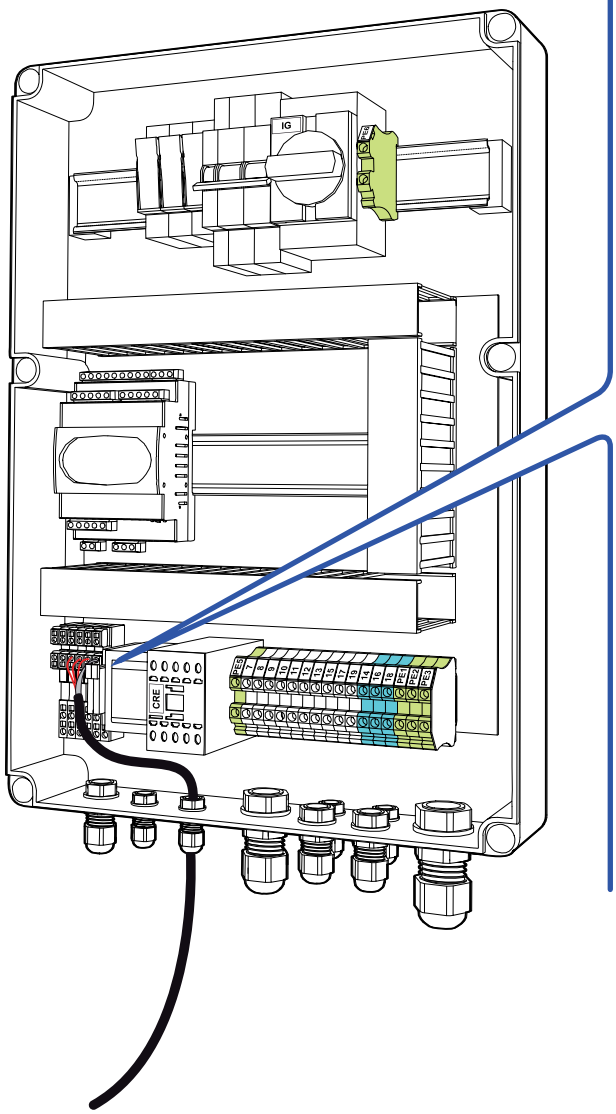
Resistance power supply (three-phase)

WARNING:

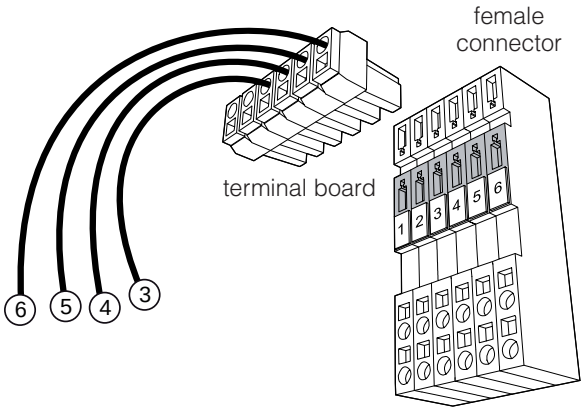
The earth connection must be made at clamp PE4, assembled at the side of the CRE contactor.

RS485 serial connection

③ Input serial connection:



This accessory communicates using MODBUS protocol, The following connections allow to connect the VMF-ACS electric control board to the system communication bus.



The terminal board is contained in a bag inside the electric control board. The installer must connect the cables necessary to this terminal board and then connect the terminal board at the lower entry of the female connector.

The clamps to be connected are:

③ = Serial communication (T-);

④ = Serial communication (T+);

⑤ = Serial communication (GND);

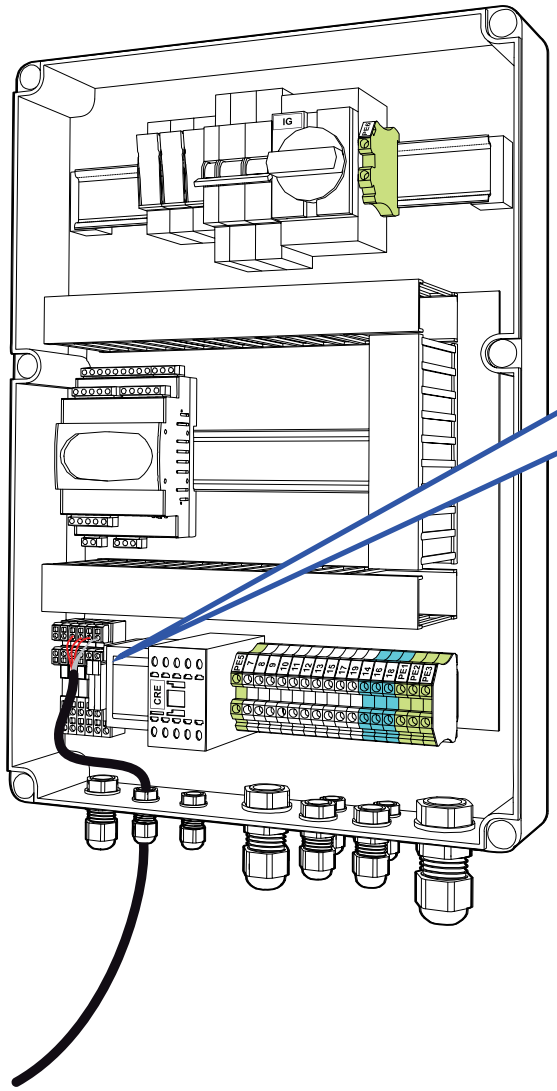
⑥ = Connection for shielding of the serial cable (*).

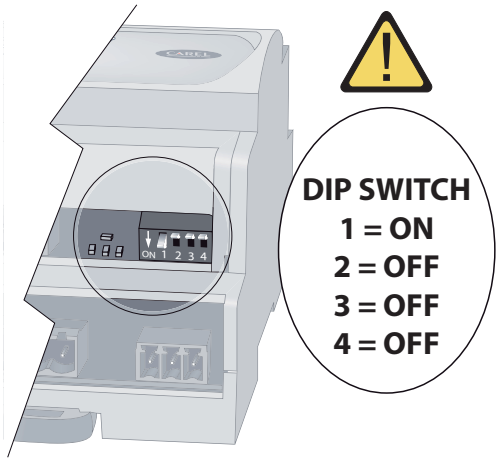
(*) The cable for this serial connection must have the following features:

- 3 pole cable plus shield;
- Minimum section: 0.34mm^2 (AWG 24);
- Maximum length: 600m.

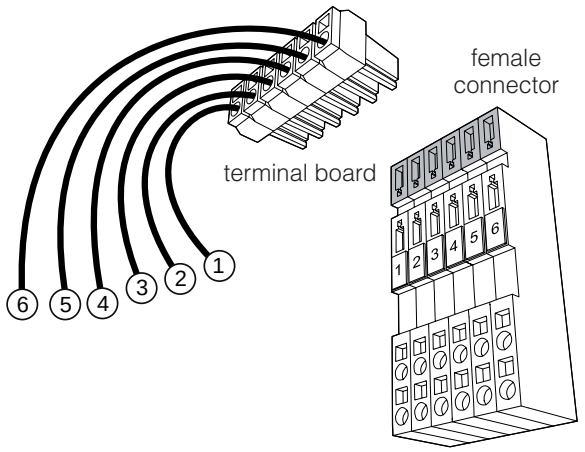
VMF-E5 serial connection

4 Input serial connection:





If the advanced VMF-E5 panel is to be connected, use the second terminal board supplied;



The terminal board is contained in a bag inside the electric control board. The installer must connect the cables necessary to this terminal board and then connect the terminal board at the upper entry of the female connector.

The clamps to be connected are:

① e ② = 0-24V power supply for the VMF-E5 panel (*);

③ = Serial communication (T-);

④ = Serial communication (T+);

⑤ = Serial communication (GND);

⑥ = Connection for shielding of the serial cable (**).

(*) the cable for powering the VMF-ER5 advanced panel must have the following features:

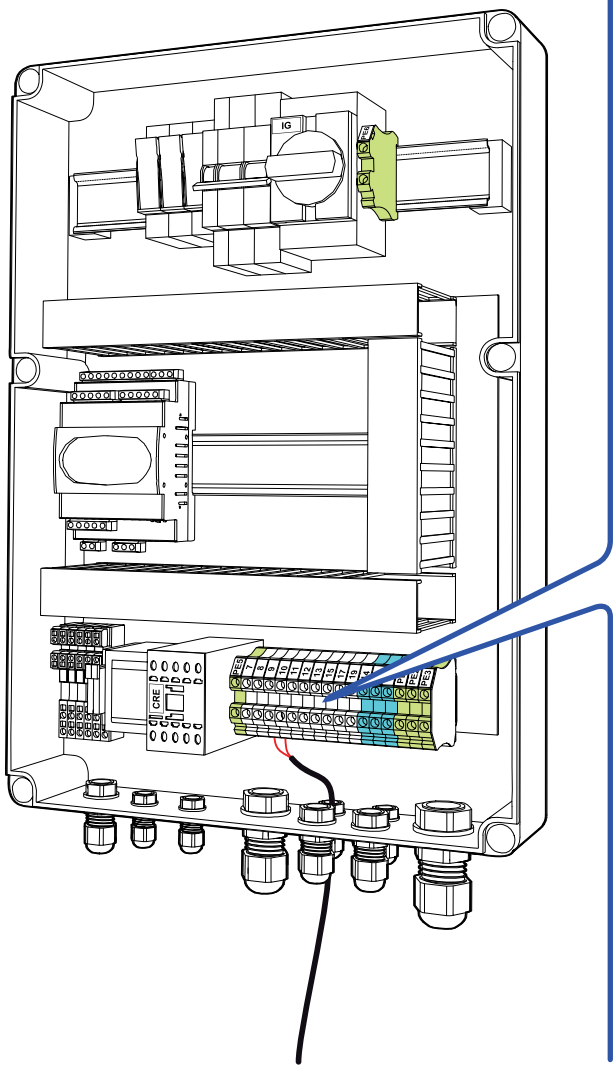
- 2 pole cable;
- Minimum section: 1mm^2
- Maximum length: 30m.

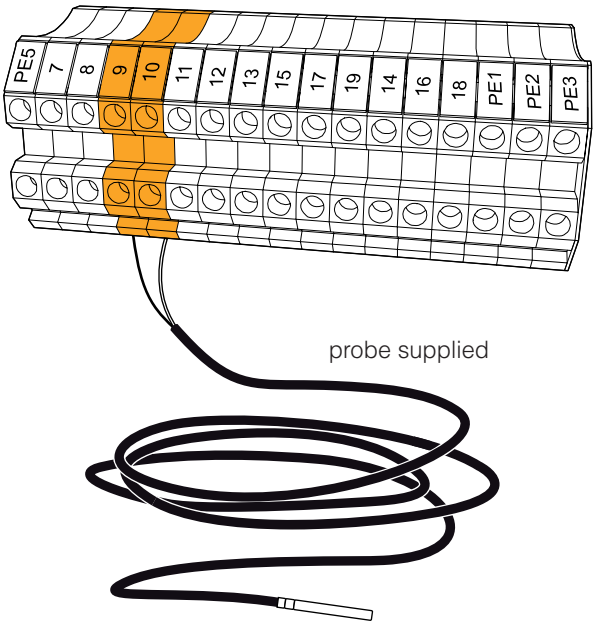
(**) The cable for this serial connection must have the following features:

- 3 pole cable plus shield;
- Minimum section: 0.34mm^2 (AWG 24);
- Maximum length: 600m.

DHW probe connection

5 **DHW probe connection:**





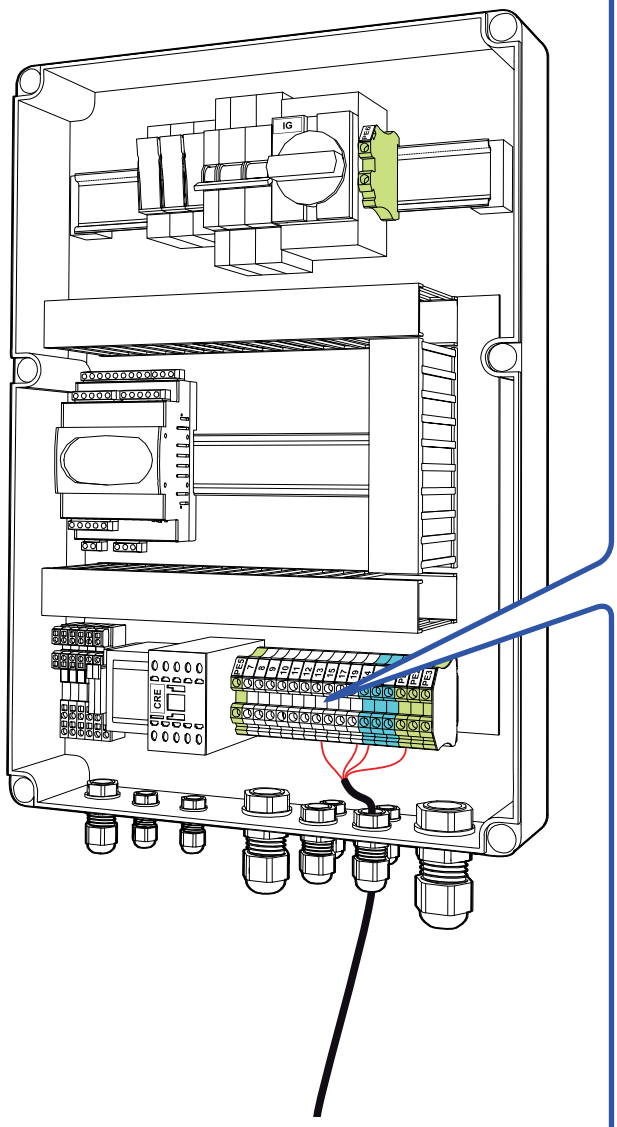
The VMF-ACS electric control board is supplied with two temperature probes. One of these probes is used to detect the temperature inside the DHW storage tank. The probe must be connected to clamps (9) and (10) as indicated in the figure above.
Before connecting the probe, insert the probe connection cable through one of the rear fairleads (easily recognisable as they have the smallest diameter). The probe must be positioned in the DHW storage tank via a relevant sump. For further information, refer to the storage tank documentation.

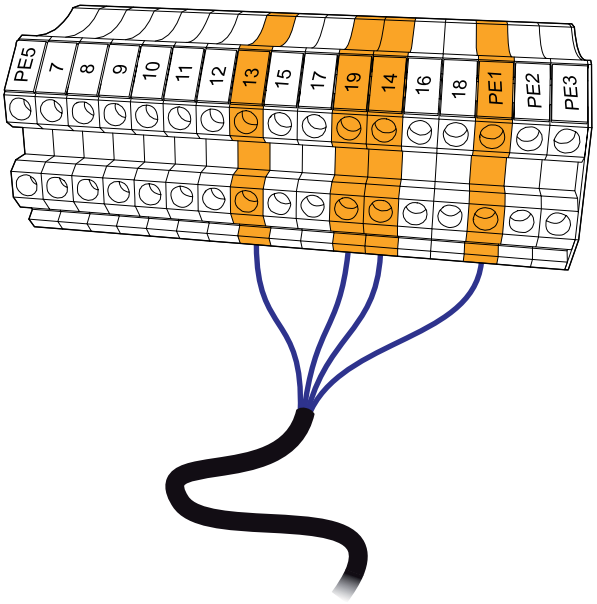
WARNING:

The length of the probe supplied is 16m.

Connection V3V(1) or DHW pump

6 **3-way diverter valve or DHW pump connection:**





The VMF-ACS electric control board manages switch-over between system and DHW production, operating on the load connected to the clamps(13), (14), (19) and relative earth clamp (PE1). These clamps are managed according to the following logic:

(13) = Normally open contact:
OPEN (production of water for the system);
CLOSED (production of DHW);
(14) = Common;
(19) = Normally closed contact, with logic:
OPEN (production of DHW);
CLOSED (production of water for the system).

Before connecting the load, insert the load connection cable through on of the front fairleads.

The cable for this connection must have the following features:

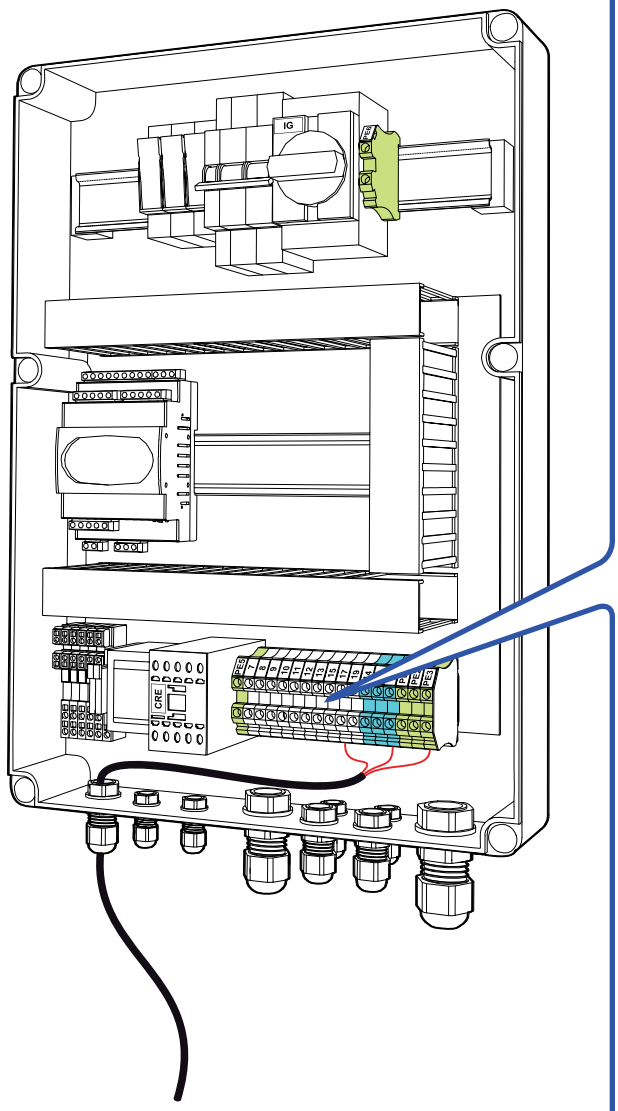
- 4 pole cable;
- Minimum section: 1.5mm^2;
- Maximum length: 30m.

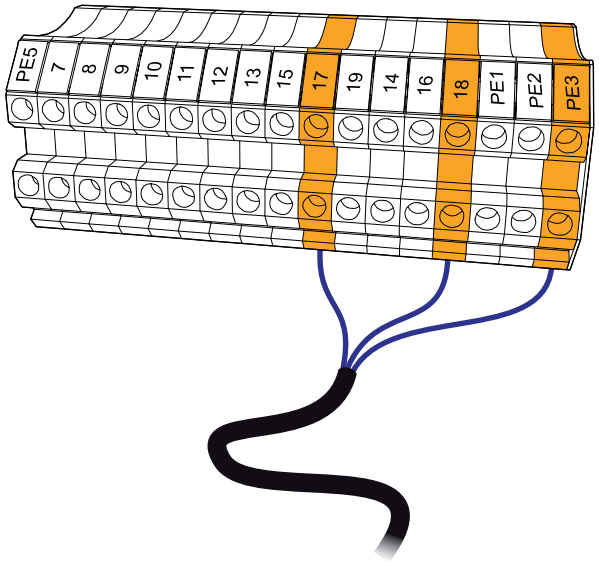
WARNING:

Electric limits of the clamps: MAX 230V~ 2A.

Boiler or V3V(3) or system pump connection

7 **Boiler control or 3-way diverter valve (3) or system pump connection:**





The VMF-ACS electric control board manages the replacement of the heat pump with a boiler or the activation of the system pump if a fan coil thermostat requests power. This control is present at clamps (17), (18)and the relative earth clamp (PE3). These clamps are managed according to the following logic:

(17) = Normally open contact;
OPEN (no fan coil thermostat requests HEATING);
CLOSED (at least one fan coil thermostat requests HEATING);
(18) = Common.

Before connecting the load, insert the load connection cable through on of the front fairleads.

The cable for this connection must have the following features:

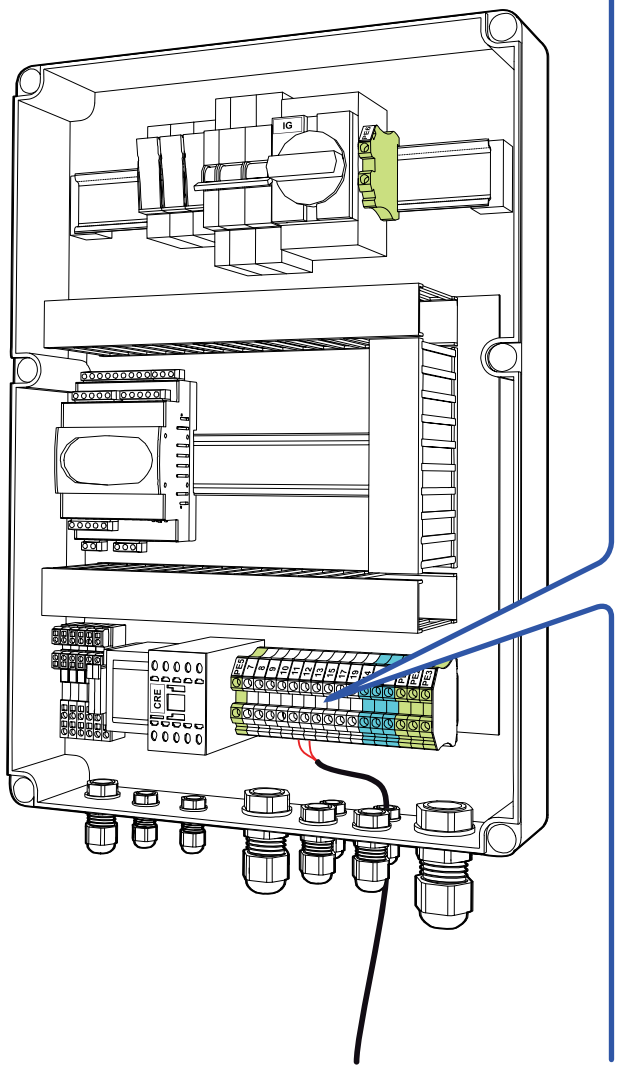
- 3 pole cable;
- Minimum section: 1.5mm^2;
- Maximum length: 30m.

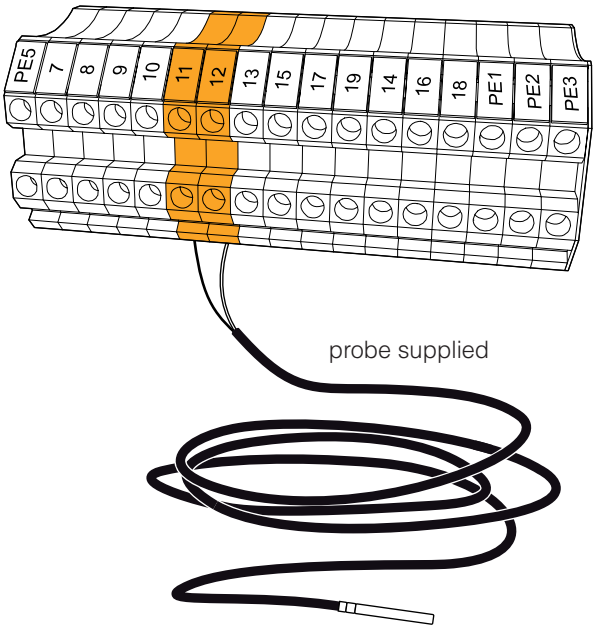
WARNING:

Electric limits of the clamps: MAX 230V~ 2A.

System storage tank probe connection

8 **System storage tank probe connection:**





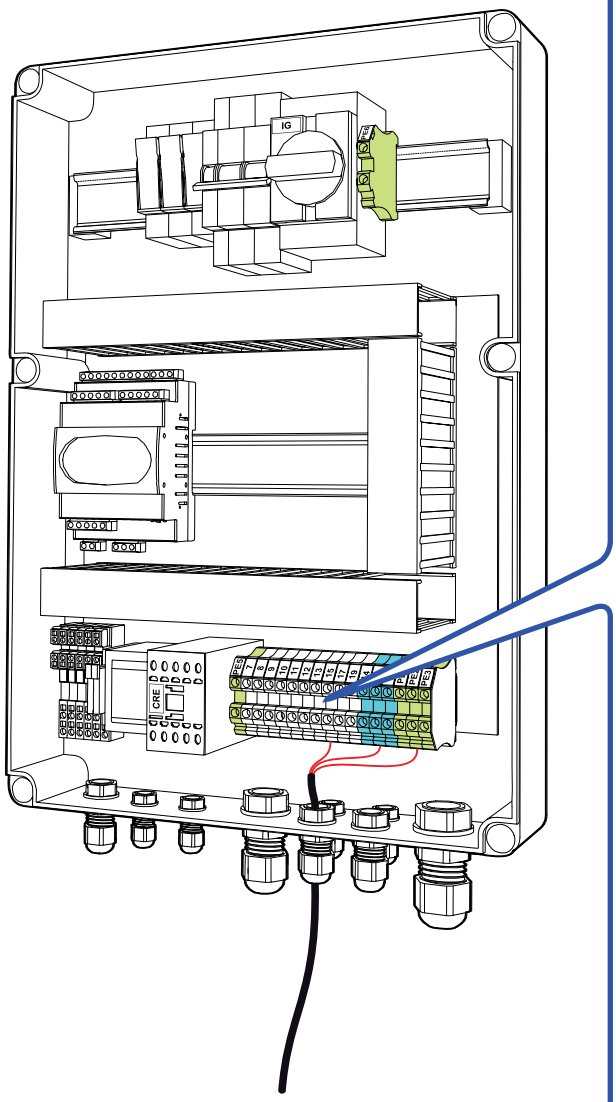
The VMF-ACS electric control board is supplied with two temperature probes. One of these probes is used to detect the temperature inside the storage tank (if envisioned). The probe must be connected to clamps (11) and (12) as indicated in the figure above.
Before connecting the probe, insert the probe connection cable through one of the rear fairleads (easily recognisable as they have the smallest diameter). The probe must be positioned in the DHW storage tank via a relevant sump. For further information, refer to the storage tank documentation.

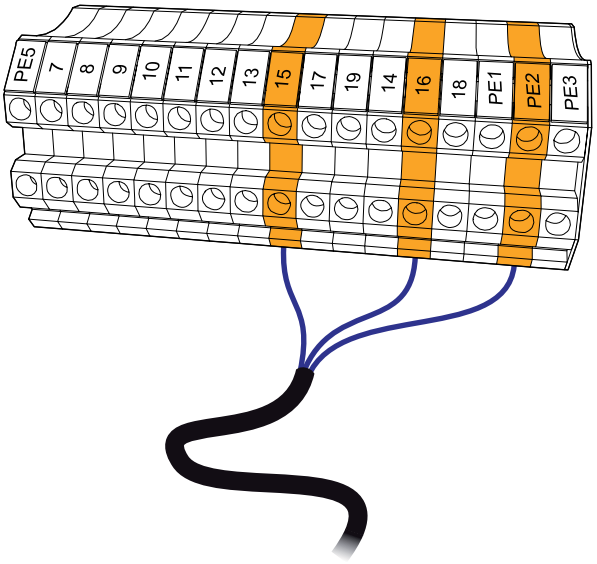
WARNING:

The length of the probe supplied is 16m.

Multifunction output or V3V(2) connection

9 **Multifunction output or second 3-way valve connection:**





Via suitable settings programmed in the system from the advanced VMF-E5 panel, one of the following functions can be assigned to the digital output (normally OPEN) connected to clamps (15), (16) and earth clamp (PE2):

- DHW ALARM PRESENCE: the contact closes in the presence of an alarm inherent the DHW.
- DHW RESISTANCE ON/OFF: the contact closed when the integration resistance present in the DHW storage tank is activated.
- DHW CYCLE ON/OFF: the contact remains closed during the entire period of time in which the system is producing DHW.
- ANTI-LEGIONELLA CYCLE ON/OFF: the contact remains closed during the entire time period of the anti-legionella cycle.
- FAN COILS THERMOSTATS ON/OFF: the contact closes if at least one thermostat of a fan coil requests to function.
- INTEGRATION RESISTANCE ON/OFF: the contact closes when the integration resistance/boiler is active.
- HEAT PUMP ALARM: the contact closes when the heat pump is in alarm conditions.

Before connecting the load, insert the load connection cable through on of the front fairleads.

The cable for this connection must have the following features:

- 3 pole cable;
- Minimum section: 1.5mm^2;
- Maximum length: 30m.

WARNING:

Electric limits of the clamps: MAX 230V~ 2A.

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