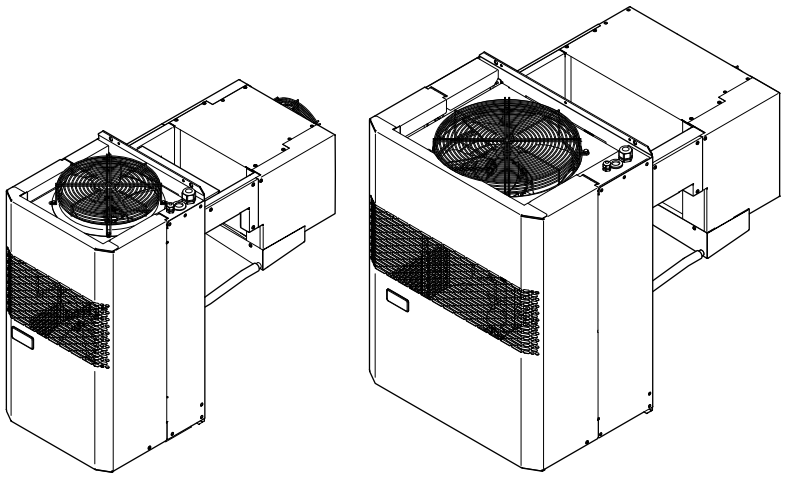
ZANOTTI

Installation manual

PS wall refrigeration monoblock



MPS1107YA11A
MPS1110YA11A
MPS3112YA11A
BPS3112YA11A
BPS3115YA11A
MPS3220YA11A
BPS3224YA11A
BPS3230YA11A

Installation manual
PS wall refrigeration monoblock

English

Table of contents

1 About this document

INFORMATION

Make sure that the user has the printed documentation and ask him/her to keep it for future reference.

Target audience

Authorised installers

Documentation set

This document is part of a documentation set. The complete set consists of:

- **Installation manual:**
  - Installation instructions
- **Operation manual:**
  - Format: Paper (in the box of the unit).

The original instructions are written in English. All other languages are translations of the original instructions.

Technical engineering data

- The **full set** of the latest technical data is available on the Daikin Business Portal (authentication required).
- A printed version of the declaration of conformity, the wiring- and piping diagrams is included with the unit.

2 General safety precautions

2.1 About the documentation

- The original instructions are written in English. All other languages are translations of the original instructions.
- The precautions described in this document cover very important topics, follow them carefully.
- The installation of the system, and all activities described in the installation manual must be performed by an authorised installer.

2.1.1 Meaning of warnings and symbols

The action-related warnings are there to warn you against residual risks and precede a dangerous action step.

DANGER

Indicates a situation that results in death or serious injury.

WARNING

Indicates a situation that could result in death or serious injury.

CAUTION

Indicates a situation that could result in minor or moderate injury.

NOTICE

Indicates a situation that could result in equipment or property damage.

INFORMATION

Indicates useful tips or additional information.

2.2 For the installer

2.2.1 General

If you are NOT sure how to install or operate the unit, contact your dealer.

WARNING

For storage:

- Isolate the unit from energy sources in order to prevent fire and explosion hazards.
- Position the unit so that there is sufficient space to move it safely.
- Use the proper handling and lifting equipment.
- Store the unit avoiding exposure to atmospheric agents, temperature and humidity conditions that can damage the packaging and the unit itself.
- Place the unit on a stable, solid supporting surface with characteristics so as to withstand the weight of the unit and the equipment involved.

WARNING

Keep any required ventilation openings clear of obstructions. This applies to the unit itself and to the structure in which it is built-in.

WARNING

Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

WARNING

Make sure installation, testing and applied materials comply with applicable legislation (on top of the instructions described in the Zanotti documentation).

WARNING

Do not use electrical appliances inside the food storage compartments (cold room), unless they are of the type recommended by the manufacturer.

WARNING

Do not damage the refrigerant circuit.

WARNING

This unit uses R290 as refrigerant (refrigerant of group A3). This is a flammable gas. Inhaling vapors can cause asphyxiation and affect the central nervous system. Direct contact with skin or eyes can lead to serious injuries and burns.

NOTICE

The unit is not suitable for working in salty environments. In such case, protect condenser and evaporator with appropriate means.

DANGER: RISK OF EXPLOSION

The unit is NOT suitable for working in explosive environments. Therefore the installation and use of the unit in an explosive-dangerous atmosphere is absolutely forbidden.

WARNING: FLAMMABLE MATERIAL

Fire hazard from flammable refrigerant. Take measures to prevent a dangerous, explosive atmosphere and keep ignition sources away.

WARNING

Improper installation or attachment of equipment or accessories could result in electrical shock, short-circuit, leaks, fire or other damage to the equipment. ONLY use accessories, optional equipment and spare parts made or approved by Zanotti.

CAUTION

Wear adequate personal protective equipment (protective gloves, safety glasses,…) when installing, maintaining or servicing the system.

WARNING

Tear apart and throw away plastic packaging bags so that nobody, especially NOT children, can play with them. **Possible consequence:** suffocation.

WARNING

Make sure that the forklift, or any other lifting device used, can bear the weight of the unit.

2.2.2 Refrigerant

The unit is factory charged with refrigerant, no additional charging of refrigerant is required.

DANGER

This unit uses R290 as refrigerant. Do NOT discharge refrigerant in the atmosphere, it must be recovered by specialised technicians using suitable equipment.

DANGER

Take sufficient precautions in case of refrigerant leakage. If refrigerant gas leaks, immediately switch off the power supply (for each unit) and ventilate the area. Possible risks:

- Carbon dioxide poisoning.
- Asphyxiation.
- Fire.

WARNING

- NEVER directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.
- Do NOT touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear proper gloves.

WARNING

- Do NOT pierce or burn refrigerant cycle parts.
- Do NOT use cleaning materials or means to accelerate the defrosting process other than those recommended by the manufacturer.
- Be aware that the refrigerant inside the system is odourless.

INFORMATION

R290 is denser than air, so in open air it sinks to floor level.

2.2.3 Electrical

DANGER: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Disconnect the power supply for more than 10 minutes, and measure the voltage at the power supply terminals of the compressor inverter before servicing. The voltage MUST be less than 50 V DC before you can touch electrical components.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.

WARNING

A magneto thermal circuit breaker, having a contact separation in all poles providing full disconnection under overvoltage category III condition, MUST be installed in the fixed wiring. In case of multiple units each unit must have its own circuit breaker.

Note that this magneto thermal circuit breaker should not be used to turn the unit on and off under normal operating conditions. For that, one should use the controller.

WARNING

- ONLY use copper wires.
- Make sure all the wiring work complies with the applicable legislation.
- All field wiring MUST be performed in accordance with the wiring diagram supplied with the product.
- NEVER squeeze bundled cables and make sure they do NOT come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to install the required magneto thermal circuit breakers. In case of multiple units each unit must have its own circuit breaker.
- Make sure to install an earth leakage protector. Failure to do so may cause electrical shock or fire. In case of multiple units each unit must have its own earth leakage protector.
- When installing the earth leakage protector, make sure it is compatible with the inverter (resistant to high frequency electric noise) to avoid unnecessary opening of the earth leakage protector.

WARNING

- After finishing the electrical work, confirm that each electrical component and terminal inside the electrical components box is connected securely.
- Make sure all covers are closed before starting up the unit.

WARNING

NEVER touch the person receiving an electrical shock, or you could suffer one too. Do NOT touch the person until you are sure power is turned off.

Electrical shocks always need emergency medical attention, even if the person seems to be fine.

CAUTION

- When connecting the power supply: connect the earth cable first, before making the current-carrying connections.
- When disconnecting the power supply: disconnect the current-carrying cables first, before separating the earth connection.
- The length of the conductors between the power supply stress relief and the terminal block itself MUST be as such that the current-carrying wires are tautened before the earth wire is in case the power supply is pulled loose from the stress relief.

DANGER

Tripping over loose wiring can tear it loose and cause electrocution and fire.

NOTICE

Precautions when laying power wiring:

- Do NOT connect wiring of different thicknesses to the power terminal block (slack in the power wiring may cause abnormal heat).
- When connecting wiring which is the same thickness, do as shown in the figure above.
- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal board.
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will damage the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.

Install power cables at least 1 meter away from televisions or radios to prevent interference. Depending on the radio waves, a distance of 1 meter may NOT be sufficient.

NOTICE

If there exists the possibility of reversed phase after a momentary black out and the power goes ON and OFF while the product is operating, attach a reversed phase protection circuit locally. Running the product in reversed phase can break the compressor and other parts.

2.3 Standards and regulations

INFORMATION

Equipment meets the requirement for commercial and light-industrial location when professionally installed and maintained.

Directive and regulations	Machinery Directive (MD) 2006/42/CE
Harmonised standards	EN 60335-1:2013-05, Household and similar electrical appliances - Safety –Part 1: General requirements.
	EN 60335-2-89: 2022, Household and similar electrical appliances - Safety - Part 2-89. Particular requirements for commercial refrigerating appliances and ice-makers with an incorporated or remote refrigerant unit or motor-compressor.
	EN 12100: 2010, basic terminology, principles and a methodology for achieving safety in the design of machinery.
	EN ISO 13857: 2020, Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs.
	EN ISO 13854: 2020, Minimum gaps relative to parts of the human body.
	EN 17432: 2021, Packaged refrigerating units for walk-in cold rooms - Classification, performance and energy consumption testing.
	EN 13215:2016+A1: 2020, Condensing units for refrigeration - Rating conditions, tolerances and presentation of manufacturer's performance data.

Directive and regulations	Machinery Directive (MD) 2006/42/CE
	EN 12900: 1999, Refrigerant compressors - Rating conditions, tolerances and presentation of manufacturer's performance data.

Directive and regulations	Electromagnetic Compatibility (EMC) 2014/30/EU
Harmonised standards	EN 61000-6-1: 2019, Generic standards - Immunity standard for residential, commercial and light-industrial environments.
	EN 61000-6-2: 2019, Generic standards - Immunity standard for industrial environments.
	EN 61000-6-3: 2021, Generic standards - Emission standard for equipment in residential environments.

Directive and regulations	RoHS 2011/65/EU
Harmonised standards	EN IEC 63000: 2019, Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Directive and regulations	Regulation (EC) No 1907/2006
Harmonised standards	Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

3 About the box

- At delivery, the unit MUST be checked for damage and completeness. Any damage or missing parts MUST be reported immediately to the claims agent of the carrier.
- Bring the packed unit as close as possible to its final installation position to prevent damage during transport.
- Prepare in advance the path along which you want to bring the unit to its final installation position.
- When handling the unit, take into account the following:

  Fragile.

  Keep the unit upright in order to avoid compressor damage.

- A forklift can be used for transport as long as the unit remains on its pallet.

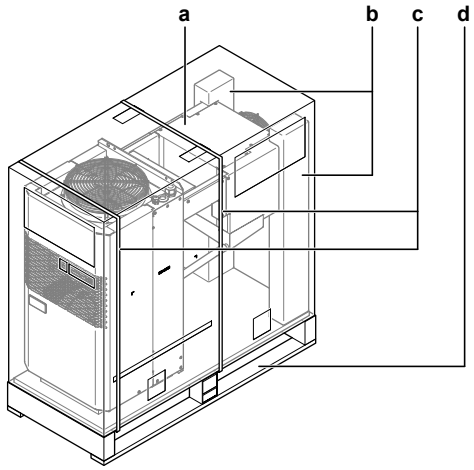
3.1 To unpack the unit

The packaging consists of:

- 4 screws for models MPS1107YA11A, MPS1110YA11A, MPS3112YA11A, BPS3112YA11A and BPS3115YA11A, that are to be used to fix the unit to the cold room wall.
- 6 screws for models MPS3220YA11A, BPS3224YA11A and BPS3230YA11A, that are to be used to fix the unit to the cold room wall.
- A wooden pallet (d) on which the unit is fixed in the upright position.

The unit is supported with two cardboard pillars (b) keep the evaporator (a) upright.

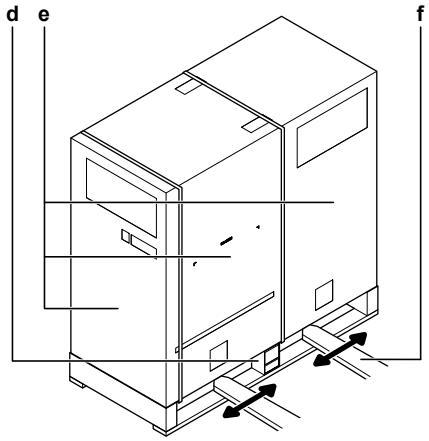
The cardboard protection (e) protects the unit and is secured by straps (c).



a Evaporator
b Cardboard pillars
c Straps
d Pallet

The pallet and unit are protected by a cardboard box (e). Parts of the pallet are intentionally covered to obtain optimal load balance when using a forklift (f).

1 Bring out the unit that is mounted on the pallet (d). Use a forklift or a transpallet (f).



d Pallet
e Cardboard box
f Forklift

WARNING

Make sure that the forklift, or any other lifting device used, can bear the weight of the unit.

INFORMATION

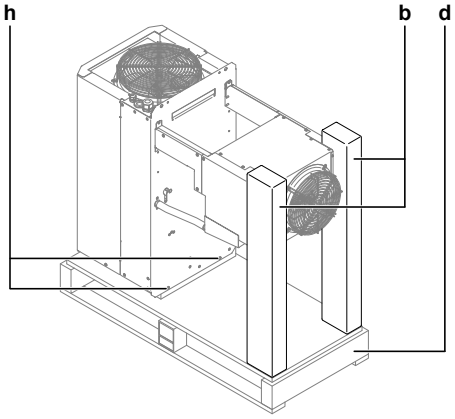
See "10 Technical data" [▸ 27] for the weight of the unit.

2 Cut the straps (c).

3 Remove the cardboard box (e).

WARNING

Tear apart and throw away plastic packaging bags so that nobody, especially NOT children, can play with them. **Possible consequence:** suffocation.



b Cardboard pillars
d Pallet
h Screws

4 Remove the screws (h) that are fixing the unit to the pallet (d).

4 About the unit and options

The MPS and BPS units are compact wall installed refrigeration indoor units for a small cold room. They optimise the use of space inside the cold room. They are managed by an electronic control unit that has already programmed operating parameters and allows the signalling of any anomalies.

The appliances can operate as coolers (+10°C to –5°C) if MT type (MPS units), or freezers (–15 to –25°C) if LT type (BPS units).

Multiple units can be combined within one cold room. Multiple units are operating according to the primary/secondary principle. (See "4.5 Combining multiple units" [▸ 8]).

INFORMATION

The A-weighted sound pressure level of the unit is less than 70 dBA.

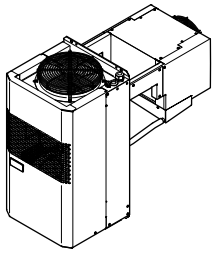
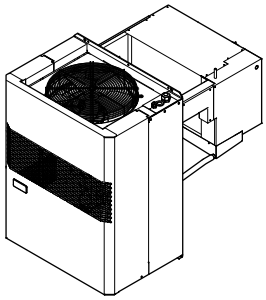
The measurement complies with UNI EN ISO 3746: 2010.

4.1 About the system

The MPS and BPS units are refrigeration indoor units which allow to refrigerate air through vaporising a liquid refrigerant (Hydrocarbon R290 type) at low pressure in a heat exchanger (evaporator). The resulting vapour is brought back to liquid state by mechanical compression at a higher pressure, followed by cooling in another heat exchanger (condenser).

Defrosting takes place automatically in pre-set cycles, by injecting hot gas; manual defrosting is also possible.

4.2 About the different models

MPS1107YA11A + MPS1110YA11A	MPS3112YA11A + BPS3112YA11A + BPS3115YA11A + MPS3220YA11A + BPS3224YA11A + BPS3230YA11A
	

In this document, the model MPS1110YA11A is shown as illustration in the instructions, unless there is a need to treat both models separately.

Product nomenclature

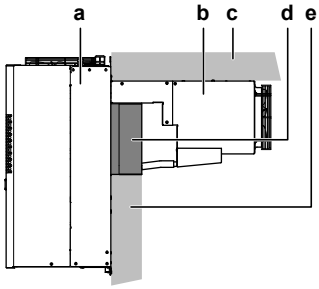
PS -WALL TYPE

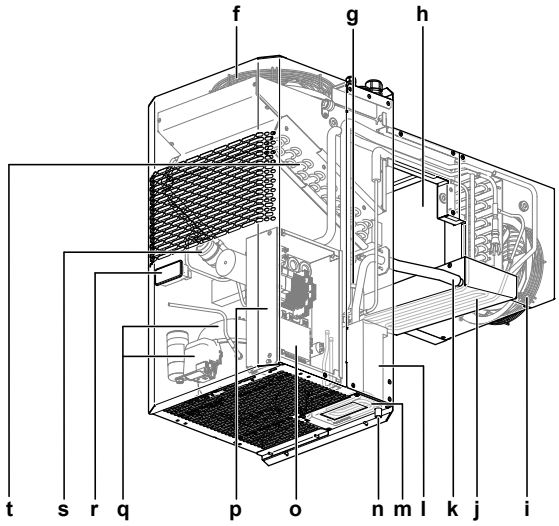
a	b	c	d	e	f	g	h	i	j
M	P	S	1	1	0	7	Y	A	1	1	A

a	Cold room working range ▪ M = +10°C/-5°C ▪ B = -15°C/-25°C
b	Series ▪ PS (New wall mounted R290 ON/OFF straddle-type monoblock)
c	Frame type ▪ 1 - 3
d	Number of refrigerating circuits ▪ 1 or 2
e	Model ID ▪ Capacity index
f	Refrigerant ▪ Y = R290
g	Supply voltage ▪ A = 230 V, 1P+N 50 Hz
h	Condensation type ▪ 1 = Air cooled, axial fan
i	Refrigeration system accessories ▪ 1 = Without crankcase heater, without condenser fan pressure switch
j	Evaporator characteristics ▪ A = Suitable for 100 mm and 150 mm insulating panel – Basic configuration

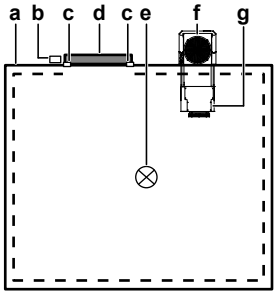
4.3 System layout

MPS1107YA11A + MPS1110YA11A + MPS3112YA11A + BPS3112YA11A + BPS3115YA11A



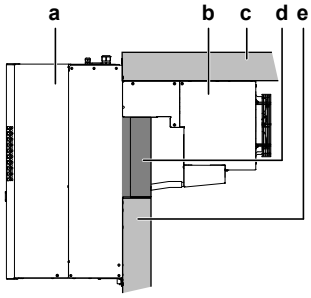


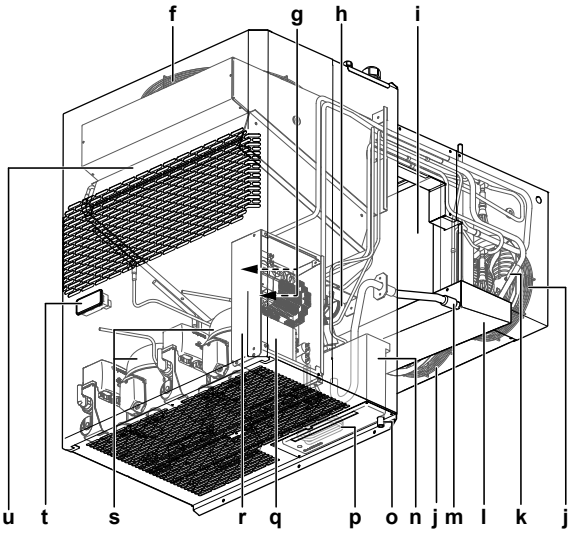
a Unit condenser
b Unit evaporator
c Cold room roof
d Insulation (accessory)
e Cold room wall
f Condenser fan
g High pressure switch
h Evaporator
i Evaporator fan
j Defrost coil (for drain pan)
k Drain pipe
l Water overflow tank
m Refrigerant pipes (hot)
n Drain connection
o Electronic controller with firewall
p Electrical box (with firewall)
q Compressor
r User interface
s Dryer
t Condenser



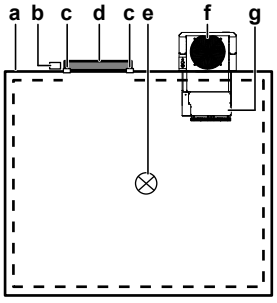
a Cold room
b Door microswitch (accessory)
c Door heater (accessory)
d Cold room door
e Cold room lamp (accessory)
f Unit condenser
g Unit evaporator

MPS3220YA11A + BPS3224YA11A + BPS3230YA11A





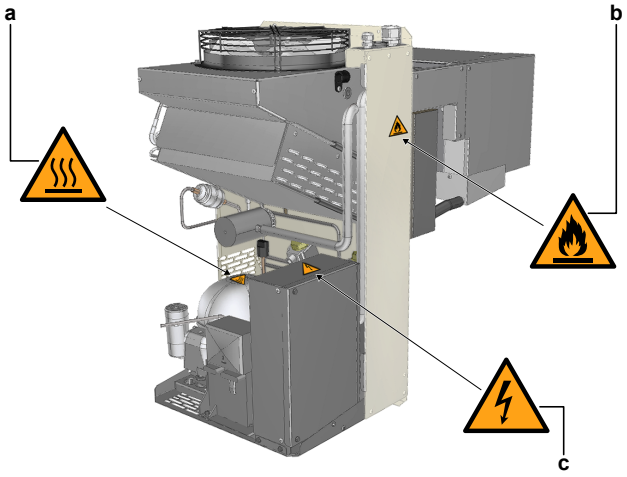
- **a** Unit condenser
- **b** Unit evaporator
- **c** Cold room roof
- **d** Insulation (accessory)
- **e** Cold room wall
- **f** Condenser fan
- **g** Electronic expansion valve (with firewall)
- **h** High pressure switch
- **i** Evaporator
- **j** Evaporator fan
- **k** Thermistor
- **l** Defrost coil (for drain pan)
- **m** Drain pipe
- **n** Water overflow tank
- **o** Drain connection
- **p** Refrigerant pipes (hot)
- **q** Inverter PCB with firewall
- **r** Electrical box (with firewall)
- **s** Compressor
- **t** User interface
- **u** Condenser



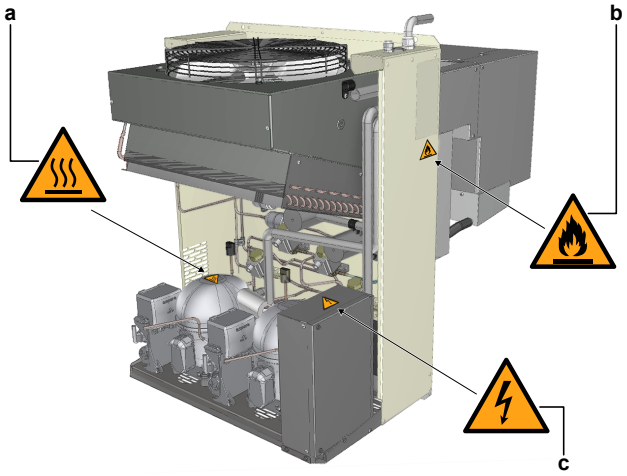
- **a** Cold room
- **b** Door microswitch (accessory)
- **c** Door heater (accessory)
- **d** Cold room door
- **e** Cold room lamp (accessory)
- **f** Unit condenser
- **g** Unit evaporator

4.4 Safety symbols location

MPS1107YA11A + MPS1110YA11A + MPS3112YA11A + BPS3112YA11A + BPS3115YA11A



MPS3220YA11A + BPS3224YA11A + BPS3230YA11A



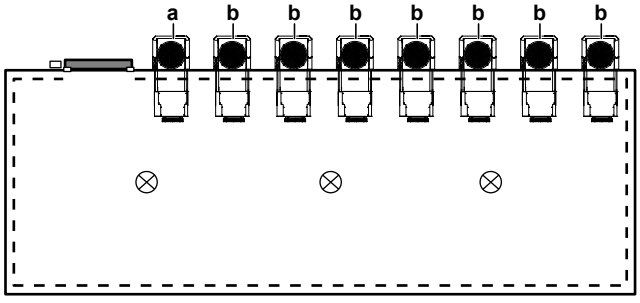
- **a** Thermal hazard
- **b** Flammable materials
- **c** Electrical hazard

4.5 Combining multiple units

When multiple units (maximum of 8) are combined within one cold room, they operate according to the primary/secondary principle.

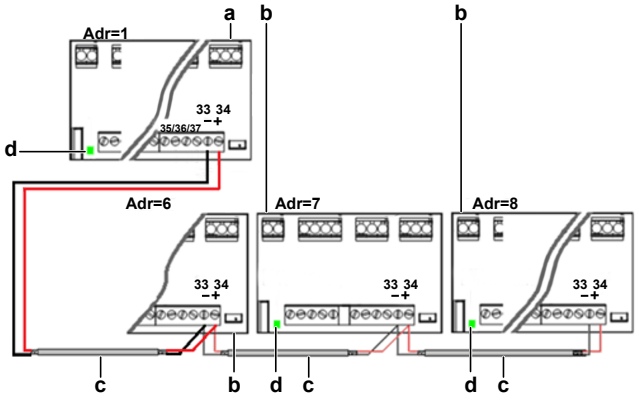
Advantages:

- Higher cooling capacity.
- Redundancy in case of unit breakdown.
- Better airflow.



- **a** Primary unit
- **b** Secondary unit

The main PCB allows easy parallel connection between one primary unit and the secondary units. This functionality can be considered as a unit standard feature.



a Primary unit
b Secondary unit
c Shielded cable
d LED (LAN connectivity)

The system can be connected to the network through the router (optional).

To install connections and set parameters, see "5.6.1 To install multiple units" [▸ 18].

Combining multiple units

To interconnect multiple units, a communication cable must be used. See "5.6.1 To install multiple units" [▸ 18].

4.6 Possible options for the unit

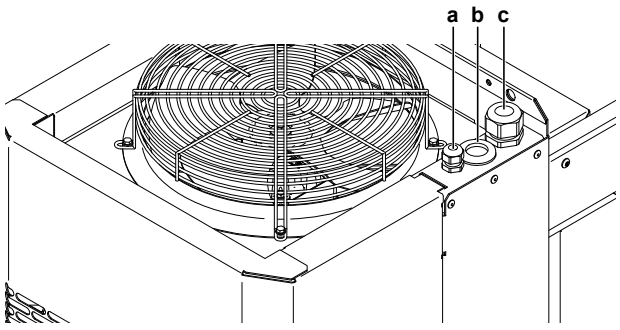
INFORMATION

Certain options may NOT be available in your country.

NOTICE

The use of accessories and/or options other than those approved by Zanotti may cause system malfunctions and automatically void the warranty, relieving the manufacturer from any damage caused to persons, animals and/or property.

Three cable glands (a, b and c) are provided to bring the option cables into the unit.

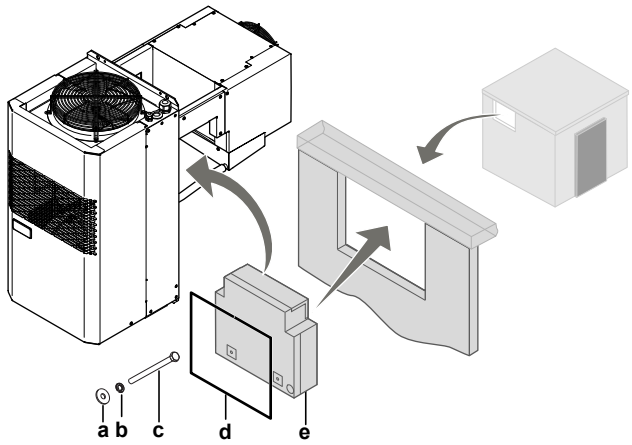


For MT units:
a Door switch, pre-wired (5 m)
b Optional
c Power supply, pre-wired (5 m)

For LT units:
a Door switch
b Power supply cable
c Door heater + optionals

Insulation pad

The insulation pad is mandatory for wall installation. See "5.4.2 To prepare the cold room" [▸ 12].



a Flat washer (×2)
b Spring washer (×2)
c Metric bolt M8 (×2)
d Self-adhesive gasket
e Insulation pad

- 1KGM032ACC: kit insulation panel 110 mm for MPS1107YA11A and MPS1110YA11A
- 1KGM033ACC: kit insulation panel 150 mm for MPS1107YA11A and MPS1110YA11A
- 1KGM025ACC: kit insulation panel 110 mm for MPS3220YA11A, BPS3224YA11A and BPS3230YA11A
- 1KGM026ACC: kit insulation panel 150 mm for MPS3220YA11A, BPS3224YA11A and BPS3230YA11A
- 1KGM027ACC: kit insulation panel 110 mm for MPS3112YA11A, BPS3112YA11A and BPS3115YA11A
- 1KGM028ACC: kit insulation panel 150 mm for MPS3112YA11A, BPS3112YA11A and BPS3115YA11A

Door switch (3MCT014ACC)

To reduce frost on the evaporator, the door switch (RDS) interrupts the unit operation when the cold room door is open. It also controls the cell light.

If the door remains open for longer than the value of parameter d2d, control resumes in any case. The light remains on, the buzzer and the alarm relay (if enabled) are activated, and the temperature alarms are enabled with delay dot. See "6.3 Parameters" [▸ 23].

The door switch is an accessory. See "5.7.1 To install the door switch" [▸ 18].

Door heater

For low temperature applications it is suggested to install a door heater. It prevents the door from freezing. The choice for the most appropriate door heater is left to the installer or cold room manufacturer. Sometimes the door heater is already included in the pre-fabricated door kit. See "5.7.3 To install the door heater" [▸ 19].

Cell light (1KIT862ACC)

The light is ON when the cold room door is open. It is controlled by the user interface. The cell light is an accessory. See "5.7.2 To install the cell light" [▸ 19].

Alarm (2KIT026ACC)

An alarm feature can be installed (light or sound). See "5.8 To connect an alarm signal" [▸ 20].

"Man in cold room" alarm (1KGM030ACC)

A "Man in cold room" emergency alarm can be connected thought the Normally Closed Contact of the audible-visual alarm kit (optional) on the cold room. See "5.7.4 To install the man in cold room alarm" [▸ 19].

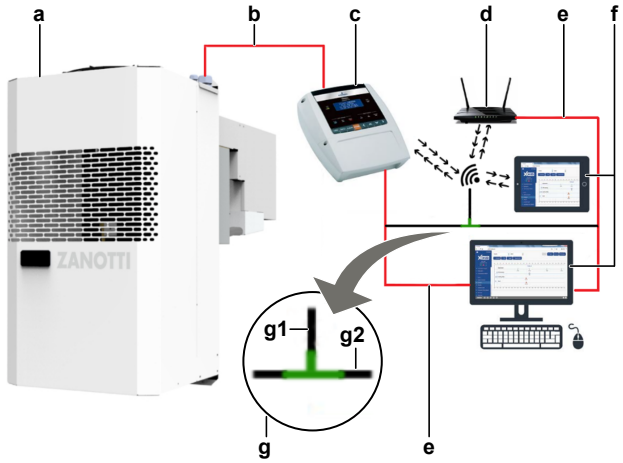
Remote panel (1KGM031ACC)

The remote panel allows remote control of the PS unit(s). See "5.10 To install the remote panel" [▸ 21].

Router (3UNM042ACC/3UNM043ACC/1KGM029ACC)

The unit (or multiple units) can be connected to the network through a router, available as an option. See "5.9 To connect a router" [▸ 21].

XWEB



a PS unit
b RS485 cable
c Gateway XWEB
d Router
e LAN – Ethernet cable
f Devices
g Choice between WiFi (g1) or LAN (g2) cable

5 Installation

5.1 General installation guidelines

INFORMATION

This manual only describes installation instructions specific to this unit. For carrying out mechanical work on the cold room, the instructions of the cold room manufacturer must always be followed.

INFORMATION

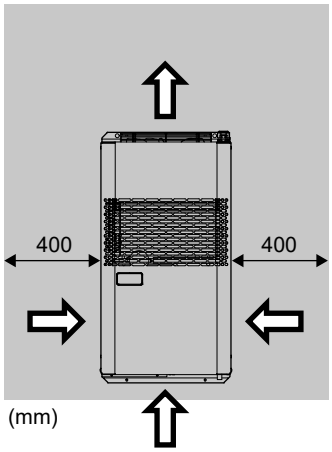
Make sure that the unit is not exposed to direct sunlight. Blocking sunlight increases the cooling effect.

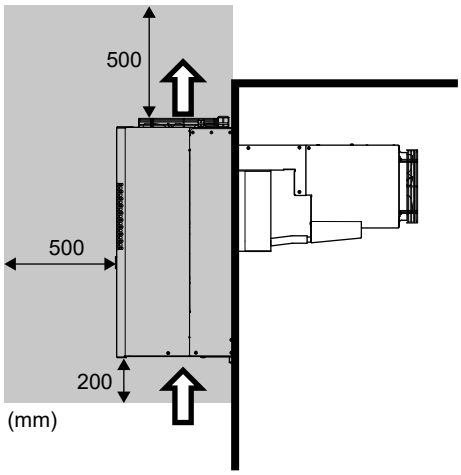
INFORMATION

Do not expose the unit to a saline environment (e.g. sea breeze atmosphere). This to prevent corrosion caused by high levels of salt in the air, which can shorten the life of the unit.

Make sure the space around the unit is adequate for servicing and the minimum space for air inlet and air outlet is available.

⇨ Air direction





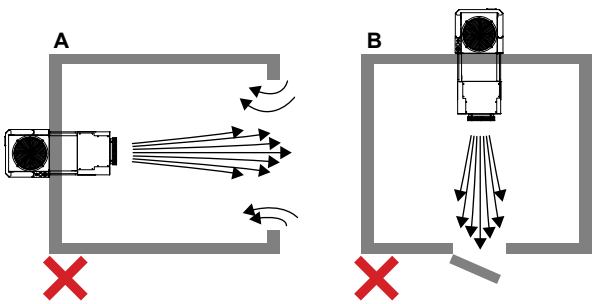
If outside air is sucked into the cold room, the temperature may rise, and condensation (and ice formation) may occur on the surface of the unit evaporator.

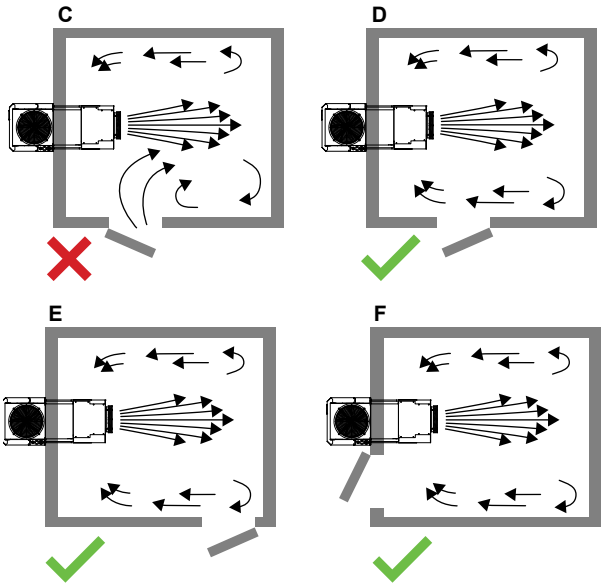
Therefore:

- Don't install the unit with openings right in front of it (A, B).
- Avoid a Venturi effect created by the airstream (C). Install the door-opening in the direction that minimises this effect (D).
- Install the unit as far away as possible from openings that allow outside air to enter, such as doors and pressure regulating valves (E, F).

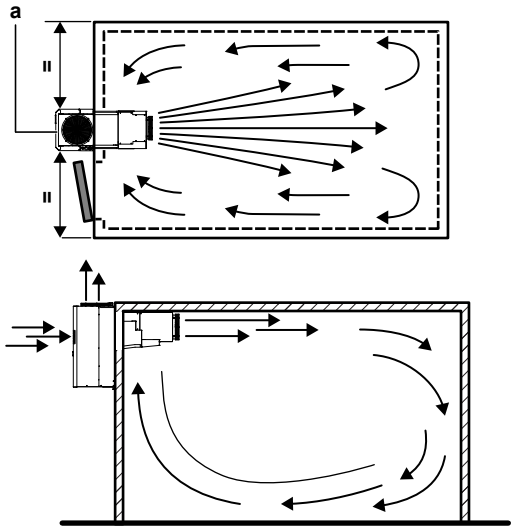
INFORMATION

Although it is advised to place the unit as far away from the door as possible, this is not mandatory. The presence of the door micro-switch, that interrupts operation when the door is open, limits the in- and outgoing airflow.





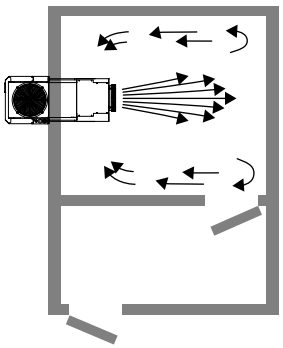
A typical installation is shown below. Installing the unit (a) in this way ensures efficient operation and good cold air circulation.



If possible, provide an anteroom in the cold room. This prevents the cold air from flowing out of the freezer.

It also prevents the inflow of moist containing outside air, causing condensation (and ice) on the surface of the unit evaporator.

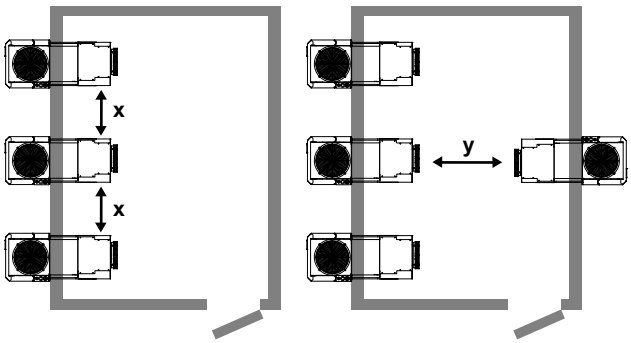
If an anteroom room is not provided, an air curtain or a vinyl curtain can be used to limit the inflow of outside air.



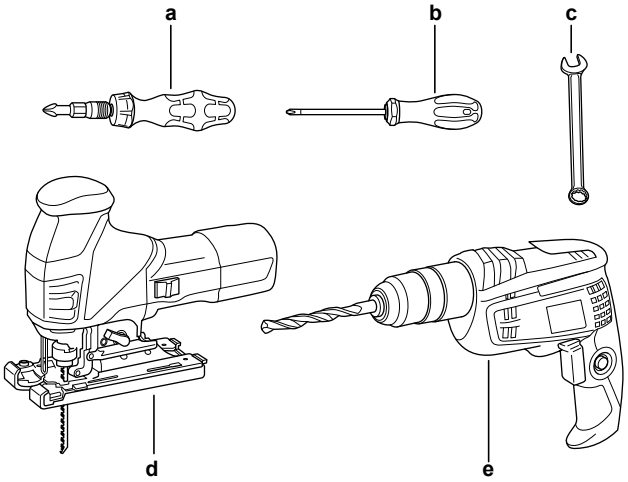
When installing multiple units in a cold room, install them so that they are not affected by the cold air flow between the units:

- Minimum distance "x" = 400 mm
- Minimum distance "y" = 8 m

If you have no choice but to install them face to face, keep sufficient distance or block the cold air flow with an air curtain.



5.2 Tools needed for installation



a Torque screwdriver with Phillips bits
b Phillips head screwdriver
c Metric spanner set (size 7)
d Saw
e Driller with Ø28 mm dril bit

INFORMATION

Choose the correct saw in function of the wall thickness of the cold room. Make sure the blade is long enough to cut through the entire wall panel.

CAUTION

Always wear adequate personal protective equipment (protective gloves, safety glasses,…).

5.3 Opening and closing the unit

5.3.1 To open the unit

DANGER: RISK OF ELECTROCUTION

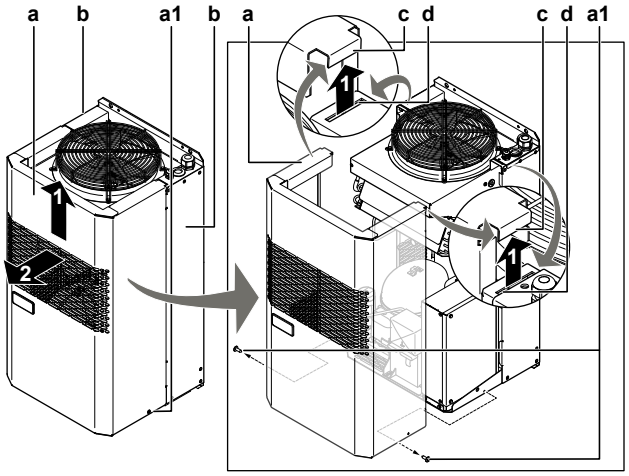
Do NOT leave the unit unattended when the service cover is removed.

To access the interior of the unit condenser, the front panel must be removed.

1. Remove the 2 screws (a1).
2. Remove the front panel (a) by lifting it, and then pulling it away from the unit. The panel is attached by hooks (c) on the front panel that lock into slots (d) on the side panels (b).

NOTICE

Disconnect the HMI connector when removing the front panel.

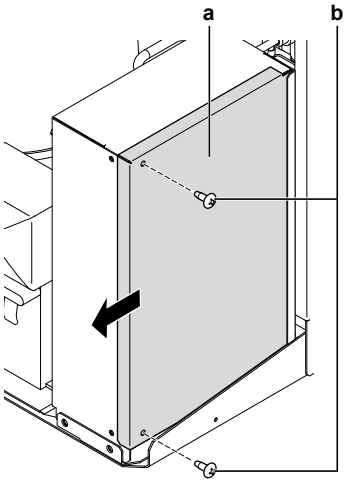


a Front panel
a1 Screw
b Side panel
c Hook
d Slot

5.3.2 To open the switchbox cover

The options alarm, LAN connection between multiple units and router are not pre-wired. To make these connections, the electrical switchbox must be removed.

1 Remove the fixation screws (b) completely.



2 Remove the cover (a) by sliding it sideways, and then pulling it away from the unit.

5.3.3 To close the unit

1 Reinstall the switchbox cover.

2 Reinstall the front panel.

5.4 Mounting the unit

5.4.1 Precautions when mounting the unit

INFORMATION

See the precautions and requirements in the "2 General safety precautions" [▸ 2] chapter.

5.4.2 To prepare the cold room

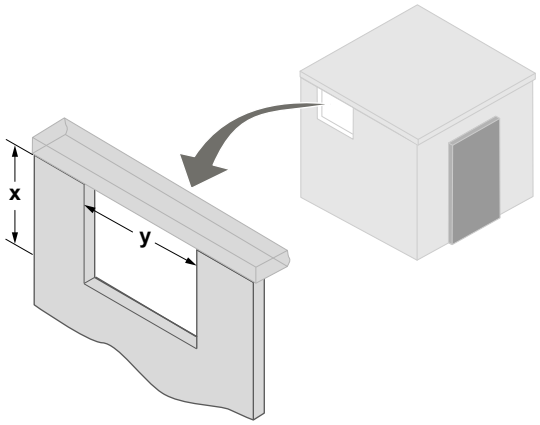
The surfaces of the cold room that contact the unit's mounting pads must be uni-planar to within 3 mm to prevent distortion of the unit and/or cold room.

There are two possible ways to mount the unit:

Wall mounting	▪ The optional pad is mandatory. ▪ The cold room roof can stay in place. See below for more information.
Saddle mounting	▪ The cold room roof must be removed. See below for more information.

To prepare the cold room for wall mounting

1 Make a cutout in the front wall of the cold room. The cutout (x,y) will accommodate the unit evaporator protrusion with the (optional) insulation pad.



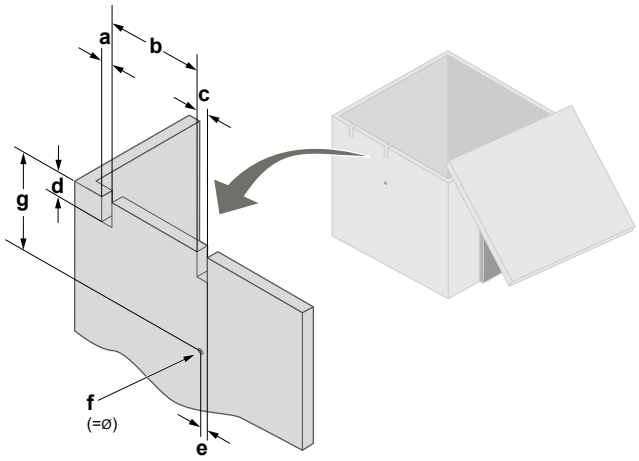
Model	x (mm)	y (mm)
MPS1107YA11A	335	375
MPS1110YA11A		
MPS3112YA11A	335	585
BPS3112YA11A		
BPS3115YA11A		
MPS3220YA11A	440	585
BPS3224YA11A		
BPS3230YA11A		

To prepare the cold room for saddle mounting

1 Remove the cold room roof.

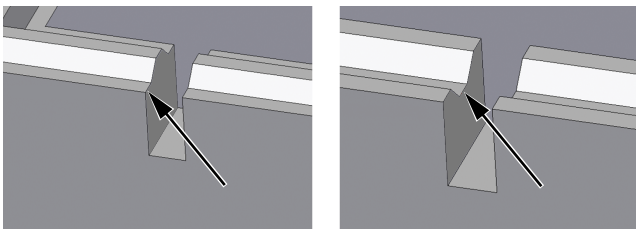
2 Make two cutouts (a, d) in the front of the cold room to accommodate the top frame stays of the unit.

3 Make a hole (f) in the front of the cold room to accommodate the evaporator drain pipe.

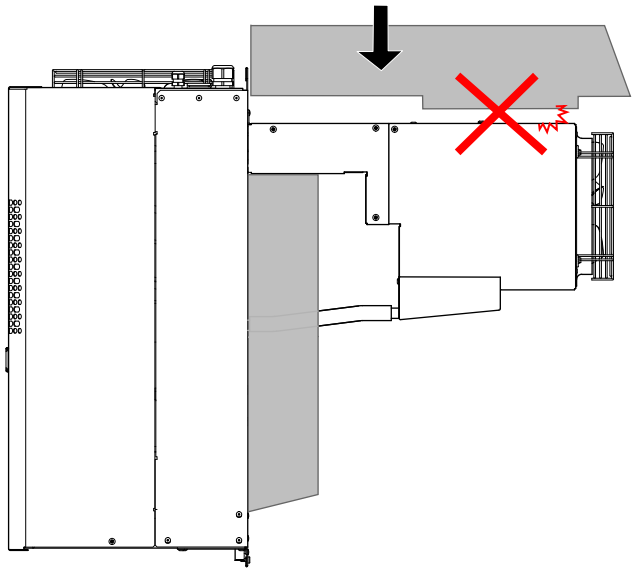


Model	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)
MPS1107YA11A	43	288	43	88	19	28	321
MPS1110YA11A							
MPS3112YA11A	40	470	60	145	19	28	320
BPS3112YA11A							
BPS3115YA11A							
MPS3220YA11A	40	470	60	145	19	28	420
BPS3224YA11A							
BPS3230YA11A							

Note: Depending on the cold room shape, the dimensions (c and d) must be measured from the lowest part of the wall. See examples in images below:



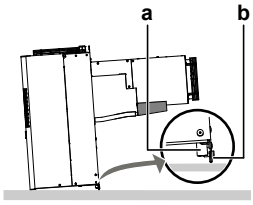
Note: Adapt the dimensions (c and d) if any part of the cold room roof is lower than the prescribed dimensions (c and d). Make sure that the cold room ceiling does NOT touch the top of the evaporator. This to avoid pressure on it, and possible damage.



5.4.3 To prepare the unit

CAUTION

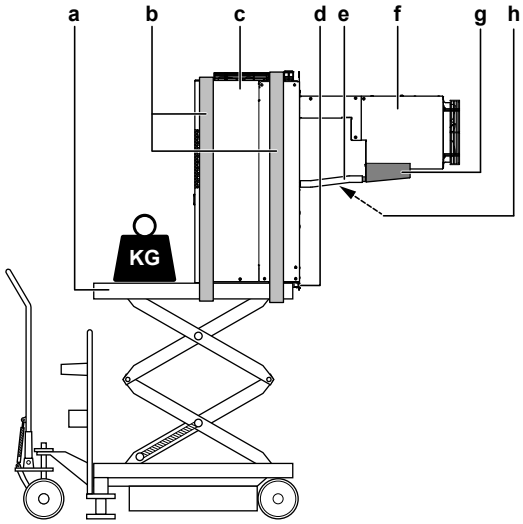
Be careful when putting the unit on the floor; the drain connection (a) and back plate (b) can easily be damaged.



CAUTION

Use a lifting table and straps that can bear the weight, if necessary balance it with additional weight. See "10 Technical data" [▸ 27] for the weight of the unit.

1 Position the unit on a lifting table (a) and secure it with straps (b). Be careful not to damage the drain pipe external connection (d).

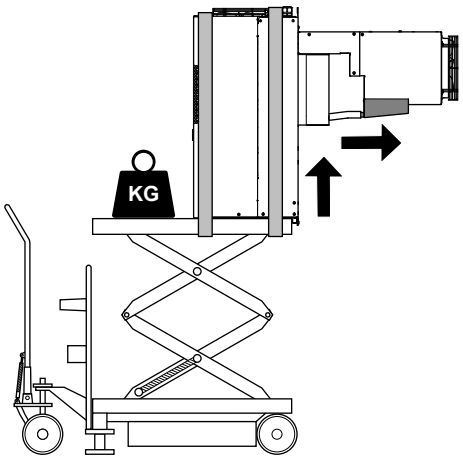


a Lifting table
b Strap
c Unit condenser
d Drain pipe external connection
e Drain pipe
f Unit evaporator
g Drain pan assembly
h Electric drain heater (inside the drain pan pipe)

In case of "wall mounting" method

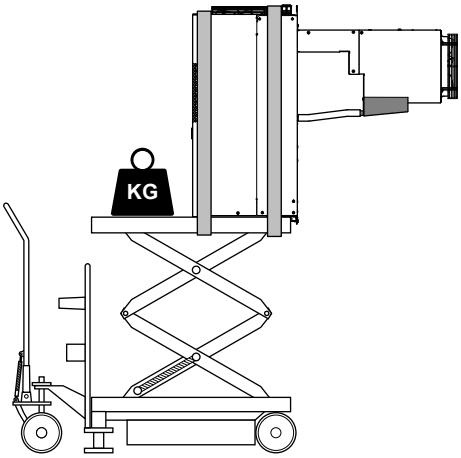
In case of wall mounting method (see "5.4.2 To prepare the cold room" [▸ 12]), the optional insulation pad must be installed on the unit. Refer to the installation instruction included in the insulation pad option.

The unit can now be positioned in front of the cold room wall for installation.



In case of "saddle mounting" method.

In case of saddle mounting method (see "5.4.2 To prepare the cold room" [▸ 12]), the unit can now be positioned in front of the cold room wall for installation.



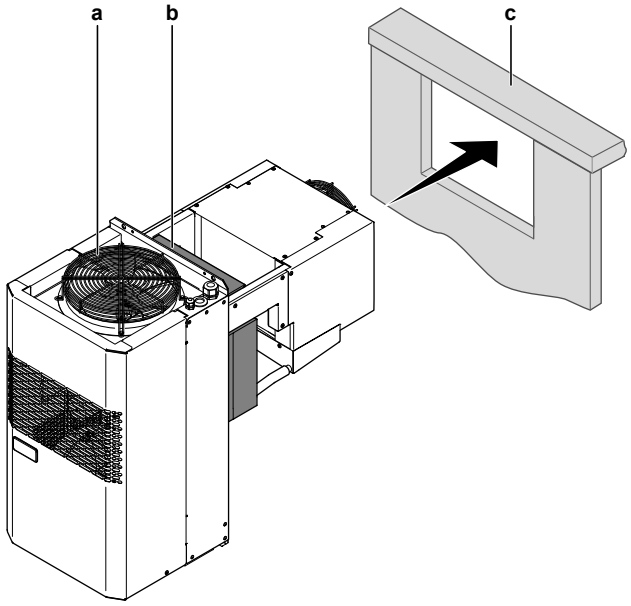
5.4.4 To mount the unit

INFORMATION

Use a lifting table and straps that can bear the weight, see "10 Technical data" [▸ 27] for the weight of the unit.

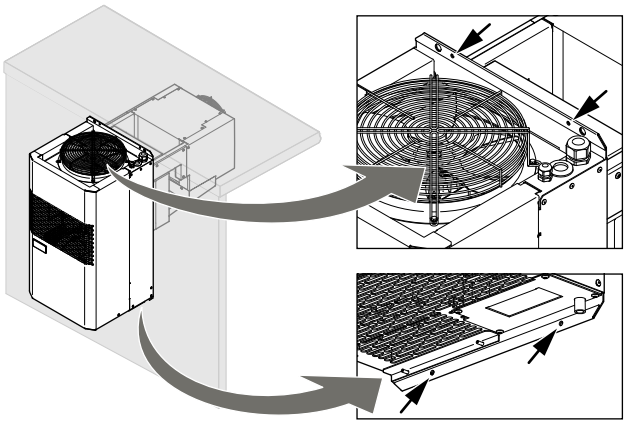
In case of "wall mounting" method

1. If not already done, position the unit on a lifting table and secure it with straps, see "5.4.3 To prepare the unit" [▸ 13].
2. Position the unit (a), with the insulation pad (b) in place, in front of the cold room cutout (c).
3. Slide the unit through the cutout.

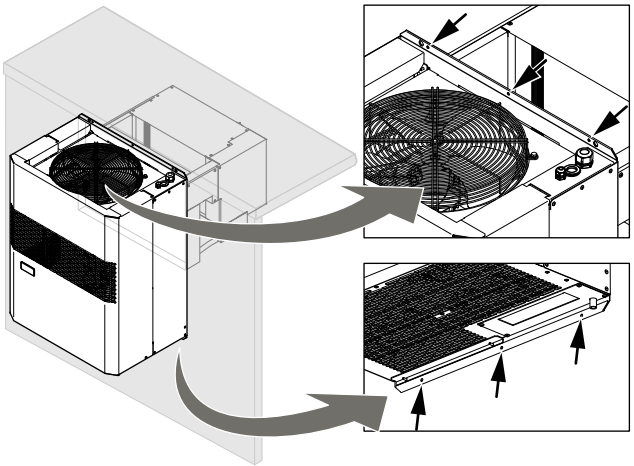


a Unit
b Insulation pad
c Cutout

4. With the unit in place, fix it with screws through the fixing holes:
   - Four screws for the MPS1107YA11A + MPS1110YA11A models.



   - Six screws for the MPS3112YA11A + MPS3220YA11A + BPS3112YA11A + BPS3115YA11A + BPS3224YA11A + BPS3230YA11A models.



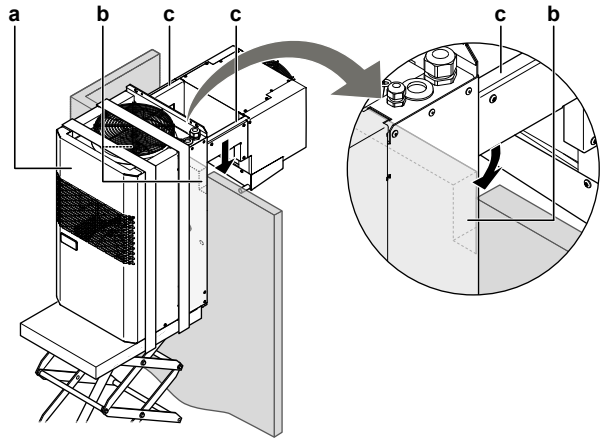
In case of "saddle mounting" method

1 If not already done, position the unit on a lifting table and secure it with straps, see "5.4.3 To prepare the unit" [▸ 13].

2 Remove the drain pan pipe.

3 Position the unit (a) with the stays (c) right above the cold room cutouts (b).

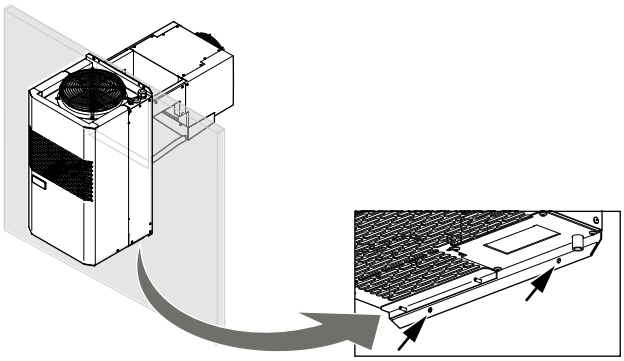
4 Lower the unit into the cutouts.



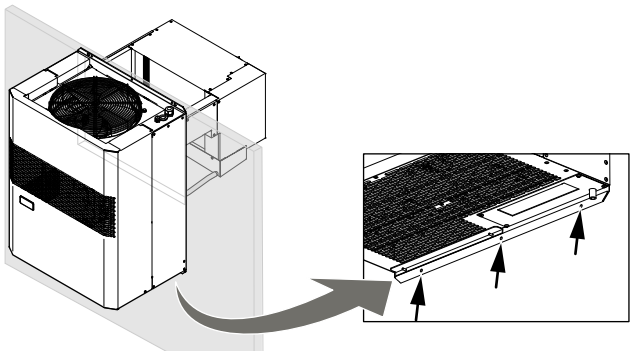
a Unit
b Cutout
c Evaporator stay

5 With the unit in place, fix it with screws through the bottom fixing holes and connect the drain pan pipe.

- Two screws for the MPS1107YA11A + MPS1110YA11A models.



- Three screws for the MPS3112YA11A + MPS3220YA11A + BPS3112YA11A + BPS3115YA11A + BPS3224YA11A + BPS3230YA11A models.



INFORMATION

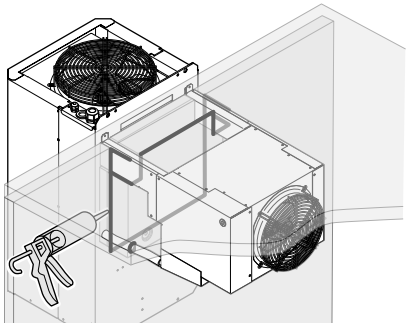
It is easier to first seal the unit now before installing the cold room roof.

The top screws will be installed after the unit is sealed and the roof is installed. See "5.4.5 To seal the unit" [▸ 15].

5.4.5 To seal the unit

In case of "wall mounting" method

1 Seal the space between the unit and insulation pad and the cold room wall with mastic. Make sure there are no gaps.

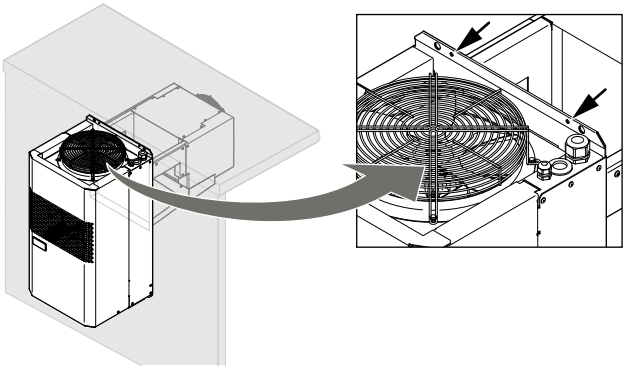


In case of "saddle mounting" method

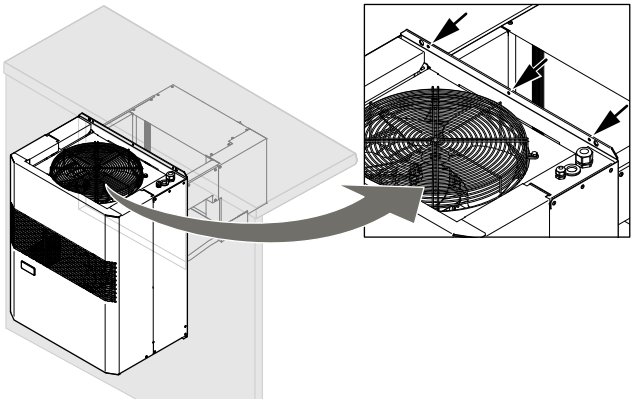
1 Reinstall the cold room roof.

2 Complete fixing the unit further with screws through the top fixing holes.

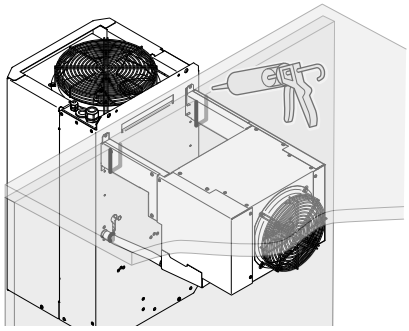
- Two screws for the MPS1107YA11A + MPS1110YA11A models.



- Three screws for the MPS3112YA11A + MPS3220YA11A + BPS3112YA11A + BPS3115YA11A + BPS3224YA11A + BPS3230YA11A models.



3 Seal the space between the unit's stays and drain pipe, and the cold room wall with mastic. Make sure there are no gaps.



5.4.6 To install the external drain pipe

Frost gradually builds-up on evaporator coils during operation. The unit uses a hot refrigerant to defrost the evaporator coils. Hot refrigerant gas passes through the evaporator coil and melts the frost. The melt water drips into the evaporator drain pan, where the drain pan defrost coil prevents re-icing.

It then flows via the drain pipe (a) to the overflow tank (c) in the condenser part of the unit.

Most of the time this water evaporates in the overflow tank (c) that has hot refrigerant pipes (d) going through it. This also works as a "water cooling system" for hot refrigerant at the same time.

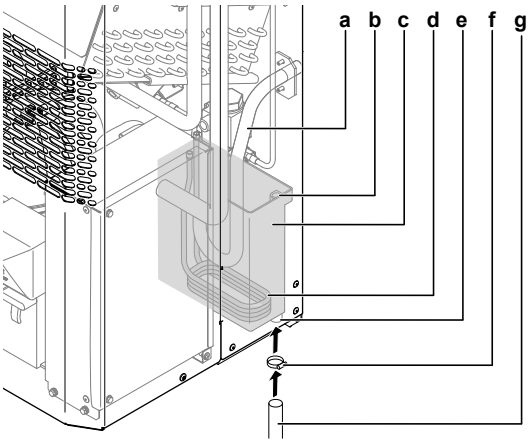
In case of an overflow, the external drain connection (e) must be connected to an external drain pipe or hose (g).

INFORMATION

Fresh meat, fish or vegetables produce a lot of humidity. Already frozen products produce little humidity.

INFORMATION

The internal drain pipe has a siphon, which ensures that warm air from the unit condenser cannot escape to the unit evaporator.



a Drain pipe (internal)
b Overflow opening
c Overflow tank
d Hot refrigerant pipes
e External drain connection (Ø 14 mm)
f Pipe clamp
g Drain pipe or hose (external)

1 Install a pipe clamp (f) over the drain pipe (or hose) (g).
2 Slide the drain pipe (g) with the pipe clamp (f) over the external drain pipe connection (e).
3 Tighten the pipe clamp (f).
4 Make sure condensation water can be evacuated properly through the drain pipe:
   - The drain pipe should run as straight as possible down the cold room wall, with no kinks or bends.
   - Secure with screws, tie wraps and clamps as required.

NOTICE

Incorrect connection of the drain hose might cause leaks, and damage the installation space and surroundings.

5.5 To connect the power supply

NOTICE

Before making the electrical connection, make sure that the voltage and frequency of the supply network correspond to what is stated on the unit's nameplate (attached on the unit side) and that the voltage is within ±10% of the rated value.

NOTICE

The maximum permissible system impedance Zmax= 0,0861 Ohm. Check with supply authority to determine that the equipment is connected only to a supply of that impedance or less.

CAUTION

- When connecting the power supply: connect the earth cable first, before making the current-carrying connections.

The supply cable has a ground, line and neutral conductor and is labelled W1S.

Preparation

1 It is MANDATORY to connect the power supply of the unit using a power plug and a corresponding interlock socket.

Note: The power plug must be acquired as a field supply part. The power plug MUST meet the following requirements:

Power plug (field supply)	
	220-240 V
Standard	IEC 60309-1
Number of poles	3 (1P+N+PE)

2 The power plug MUST be connected to a switched receptacle that only allows removal and insertion of the plug when the switch is OFF (='interlock socket'). This interlock socket must be visible and accessible from where the unit is installed.

WARNING

No service or installation activity may be performed without checking the status of the locking socket.

WARNING

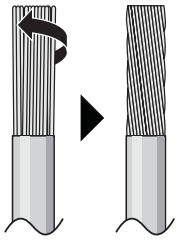
If the supply cord is damaged, it MUST be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Note: The interlock socket must be acquired as a field supply part. The socket MUST meet the following requirements:

Interlock socket (field supply)	
	220-240 V
Standard	IEC 60309-1
Number of poles	3 (1P+N+PE)
Installation height	0.6 m-1.9 m
Removal or insertion of the plug shall NOT be possible when power is ON.	

3 Strip insulation (20 mm) from the wires.

4 Slightly twist the end of the conductor to create a "solid-like" connection.



Installation

1 Insert the wires into the power plug terminals and secure them.

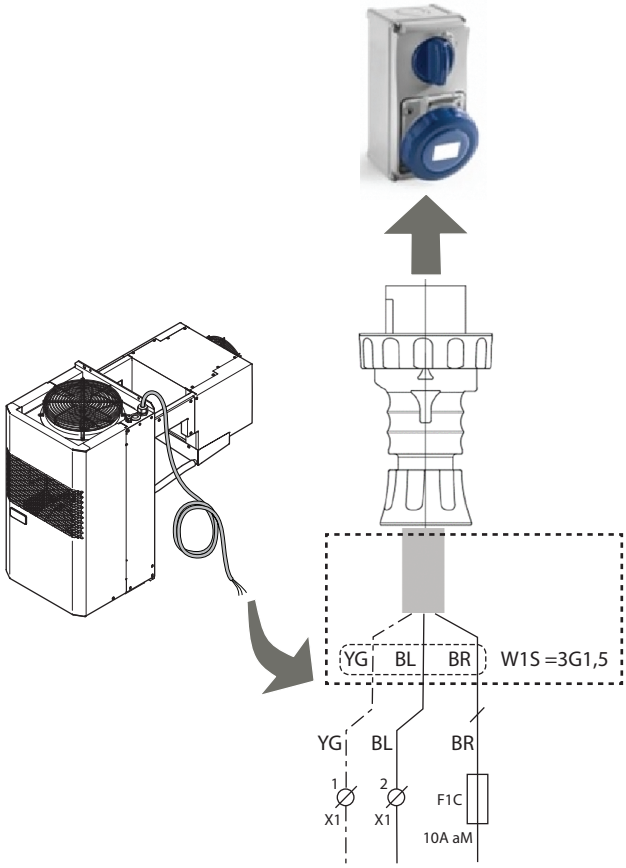
Note: The power supply cable of the unit is already installed.

W1S cable specifications Voltage 220-240 V		
Unit name	**Circuits**	**W1S cable type**
MPS1107YA11A + MPS1110YA11A	1	3G1.5
MPS3220YA11A + BPS3224YA11A + BPS3230YA11A	2	3G4
MPS3112YA11A + BPS3112YA11A + BPS3115YA11A	1	3G1.5

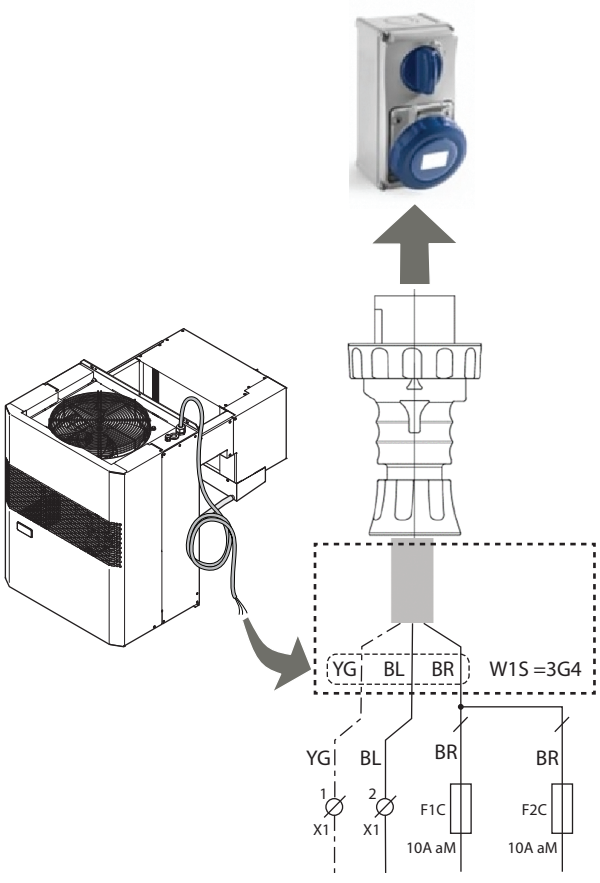
2 Connect the plug to the W1S cable. Follow the connections as specified in the table below.

Pinout	
W1S cable	**220-240 V**
Brown wire	L1
Blue wire	N
Green/yellow wire	⏚

For models MPS1107YA11A + MPS1110YA11A + MPS3112YA11A + BPS3112YA11A + BPS3115YA11A



For models MPS3220YA11A + BPS3224YA11A + BPS3230YA11A



NOTICE

Removal or insertion of the plug shall NOT be possible when power is ON.

3 Connect to the circuit breaker (Q1). The circuit breaker must be a single-phase circuit breaker.

INFORMATION

The circuit breaker has to be provided by the customer, and must comply with local directives, laws, regulations and/or codes.

CAUTION

Do NOT push or place redundant cable length into the unit.

WARNING

The appliance MUST be installed in accordance with national wiring regulations.

5.6 Installing multiple units

5.6.1 To install multiple units

To install each individual unit, see "5 Installation" [▶ 10].

NOTICE

Respect the minimum distance between units, see "5.1 General installation guidelines" [▶ 10].

5.6.2 To interconnect multiple units

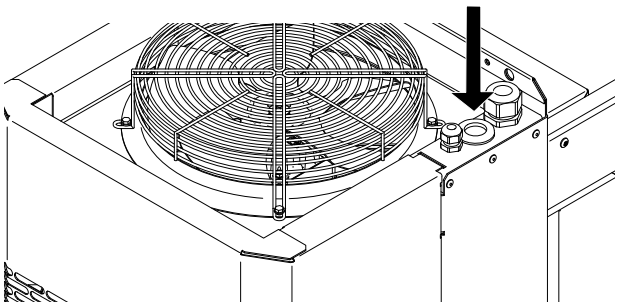
INFORMATION

All the unit displays must be connected to their main PCB controllers.

1 Open the unit condenser front plate and electrical box cover. See Opening and closing the unit.

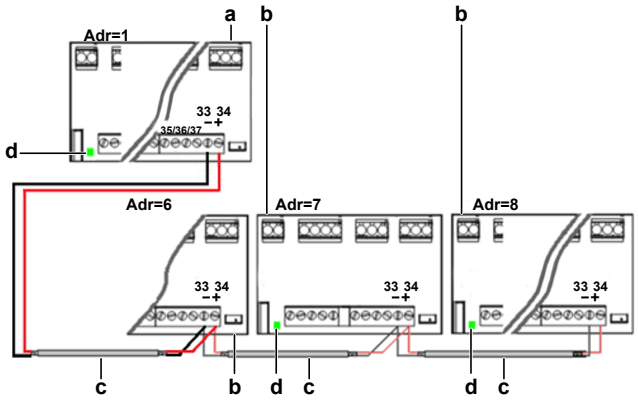
2 Connect a shielded cable (c) between terminals [33] [-] and [34] [+] for a maximum of 8 sections.

3 Guide the cable (c) towards the cable gland. One cable entree is provided to bring option cables into the unit. A cable gland can be installed on that location.



INFORMATION

The shielded cable has to be provided by the customer.



a Primary unit
b Secondary unit
c LAN cable
d LED (LAN connectivity)

CAUTION

Do NOT push or place redundant cable length into the unit.

5.7 Installing the options in the cold room

5.7.1 To install the door switch

The door switch interrupts the unit operation and controls the cell light (if installed) when the cold room door is opened.

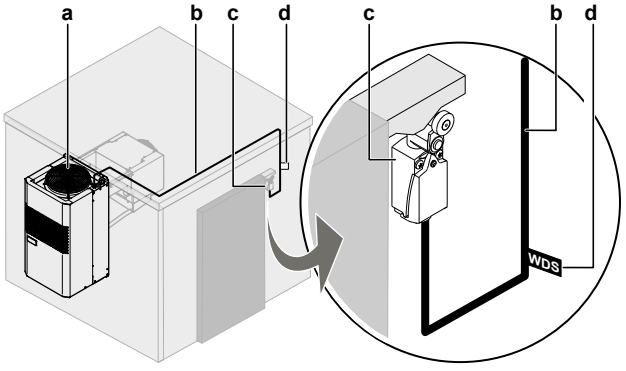
INFORMATION

When multiple units are installed, the door switches have to be connected in series to synchronize the function.

If the door remains open for longer than the value of parameter d2d, control resumes in any case. The light remains on, the buzzer and the alarm relay (if enabled) are activated, and the temperature alarms are enabled with delay dot. See "6.3 Parameters" [▶ 23].

INFORMATION

This manual only describes installation instructions specific to this unit. For carrying out mechanical work on the cold room, the instructions of the cold room manufacturer must always be followed.



a Unit condenser
b Door switch cable, pre-wired (5 m long)
c Door switch
d Label "WDS"

For more detailed installation instructions of this option, refer to the installation instruction included in the "Door switch kit" option.

1 Install the door switch (c) at the cold room door opening.

2 Guide the (5 m long) pre-wired door switch cable (b) coming out of the unit condenser side (a) over the roof of the cold room towards the door switch (c). The wire is labelled "WDS" (d).

NOTICE

Check the wire labels. The door heater wire is a live wire (220-240 V), while the microswitch wire is a signal wire. Swapping the wires will cause serious damage to the unit.

CAUTION

Do NOT push or place redundant cable length into the unit.

3 Fix the wiring (b) to the cold room as needed.

4 Connect the wiring (b) to the door switch (c).

The logic configuration can be modified through the HMI. The parameter is i2P.

INFORMATION

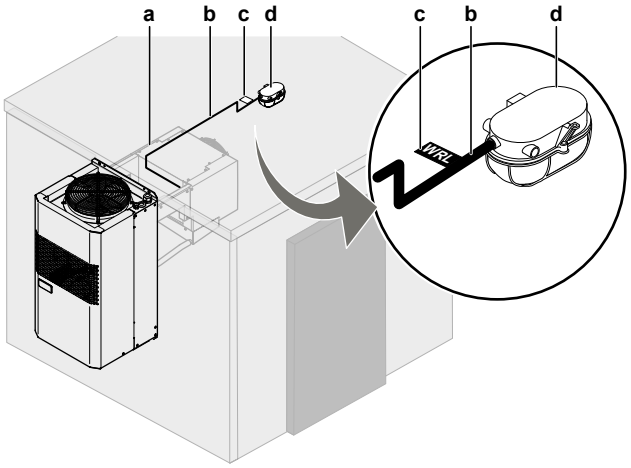
Changing this parameter may affect the proper operation of the unit.

5.7.2 To install the cell light

The cell light is controlled by the user interface. The user interface is triggered by the cold room door switch (see "5.7.1 To install the door switch" [▸ 18]). The light switches on when the cold room door is opened and switches off when the door is closed.

INFORMATION

This manual only describes installation instructions specific to this unit. For carrying out mechanical work on the cold room, the instructions of the cold room manufacturer must always be followed.



a Unit evaporator
b Wire, pre-wired (2 m long)
c Wire label "WRL"
d Cell light

For the installation of this option, refer to the installation instruction included in the "Cell light kit" option.

5.7.3 To install the door heater

For low temperature applications it is suggested to install a door heater. It prevents the door from freezing solid.

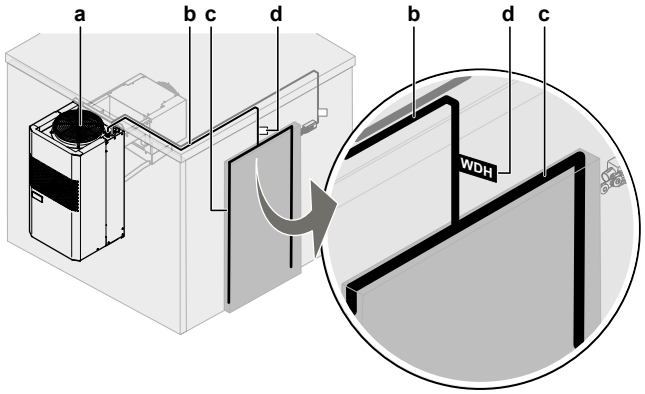
The choice for the most appropriate door heater is left to the installer or cold room manufacturer.

NOTICE

The door heater must be suitable for 220-240 V, and the total load of the control circuit must NOT exceed 2 A.

INFORMATION

This manual only describes installation instructions specific to this unit. For carrying out mechanical work on the cold room, the instructions of the cold room manufacturer must always be followed.



a Unit condenser
b Wire (5 m long)
c Door heater
d Wire Label "WDH"

1 Install the door heater (c) at the cold room door opening.

2 Guide the (5 m long) door heater wire (b) coming out of the unit condenser side (a) over the roof of the cold room towards the door heater (c). The wire is labelled "WDH" (d).

NOTICE

Check the wire labels. The door heater wire is a live wire (220-240 V), while the microswitch wire is a signal wire. Swapping the wires will cause serious damage to the unit.

CAUTION

- When connecting the power supply: connect the earth cable first, before making the current-carrying connections.

CAUTION

Do NOT push or place redundant cable length into the unit.

3 Fix the wiring (b) to the cold room as needed.

4 Connect the wiring (b) to the door heater (c).

5.7.4 To install the man in cold room alarm

The 'man in cold room alarm' is commanded by a push button (e) inside the cold room which can be activated in case a person is trapped inside the cold room.

The 'man in cold room alarm' interrupts the unit's (a) operation and activates an acoustic/luminous alarm (d) located outside the cold room.

INFORMATION

This manual only describes installation instructions specific to this unit. For carrying out mechanical work on the cold room, the instructions of the cold room manufacturer must always be followed.

INFORMATION

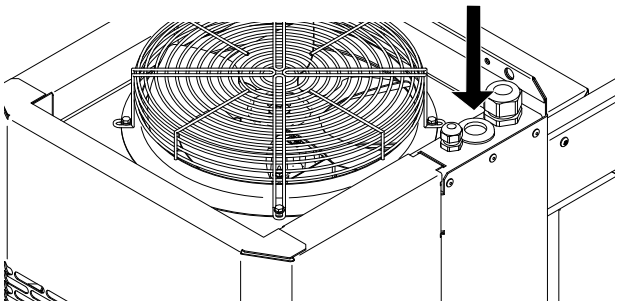
The system has been designed to function even in the event of a temporary mains power failure: in this event the system is powered by a buffer battery housed in the alarm control unit.

This option is not pre-wired, provide a connecting cable (2x1 mm²). The connection has to be made inside the unit condenser.

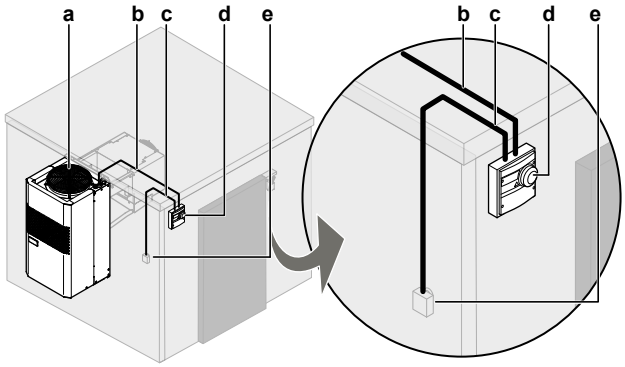
1 Install the man in cold room option **as shown in the related instruction manual**.

2 Connect the cable (b) on the M2 terminal block (alarms) of the alarm control unit (d).

3 Guide the cable (b) towards the cable gland. One cable entree is provided to bring option cables into the unit. A cable gland can be installed on that location.



4 Fix the cable (b) to the cold room as needed.

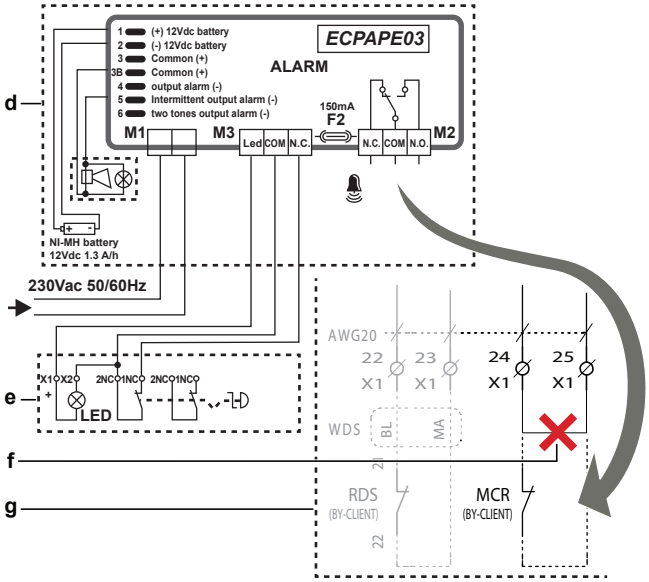


a Unit condenser
b Man in cold room alarm cable
c Push button cable
d Alarm control unit (outside the cold room)
e Emergency push button (inside the cold room)

5 Open the unit condenser front plate and electrical box (g) cover . See "5.3 Opening and closing the unit" [▸ 11].

6 Secure the cable into the cable gland.

7 Guide the cable inside the unit towards the electrical box (g). See "5.3.2 To open the switchbox cover" [▸ 12].



d Alarm control unit (outside the cold room)
e Emergency push button (inside the cold room)
f Electrical bridge (to be removed)
g Condenser unit electrical box

8 Remove the electrical bridge (f) between the connectors 24 and 25 of the cable terminal X1.

9 Connect the two leads of the cable (b) to the connectors 24 and 25 of the cable terminal X1.

5.8 To connect an alarm signal

This option is not pre-wired. The connection has to be made inside the unit condenser.

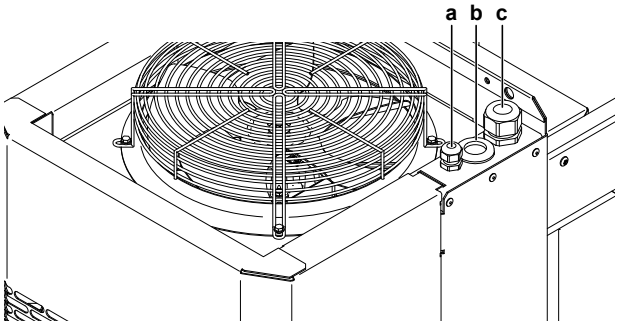
INFORMATION
The cable has to be provided by the customer.

1 Open the unit condenser front plate and electrical box cover. See Opening and closing the unit.

One cable entree (b) is provided to bring option cables into the unit. A cable gland can be installed on that location.

2 Guide the cable towards the cable gland, and into the unit. Secure the cable into the cable gland.

3 Fix the cable along its path outside the unit condenser as needed.



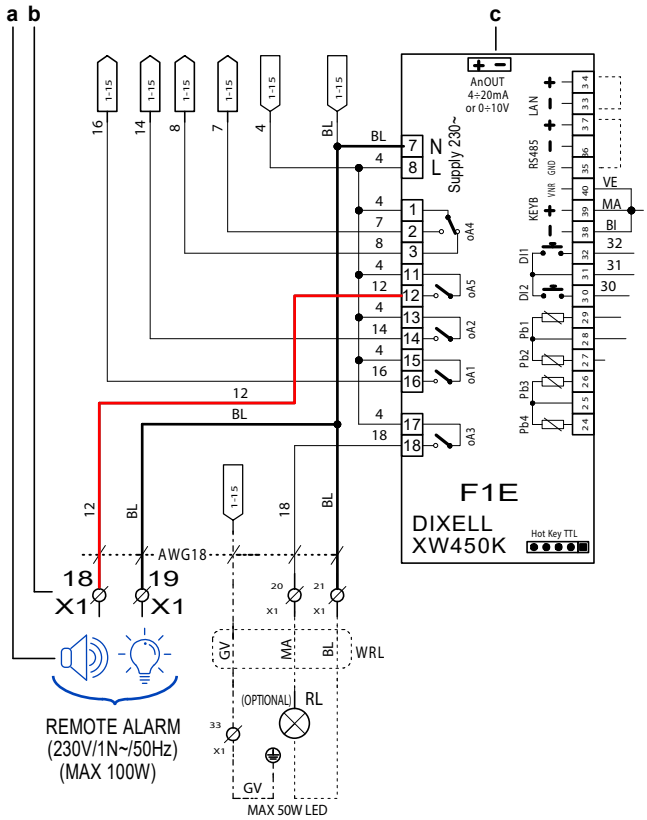
a Door switch, pre-wired (5 m)
b Options
c Power supply, pre-wired (5 m)

CAUTION
Do NOT push or place redundant cable length into the unit.

NOTICE
The alarm signal must be suitable for 220-240 V, and the total load of the control circuit must NOT exceed 2 A.

INFORMATION
Usually an alarm of 0.2 A is used, with maximum of 0.5 A.

4 Connect the alarm wiring to the X1 connector (230 V/1N/50 Hz), terminals 18 and 19.



a Alarm (light or sound)
b Connector X1
c Controller

5.9 To connect a router

INFORMATION

The instructions in this chapter are in addition to the installation instructions enclosed with the option itself.

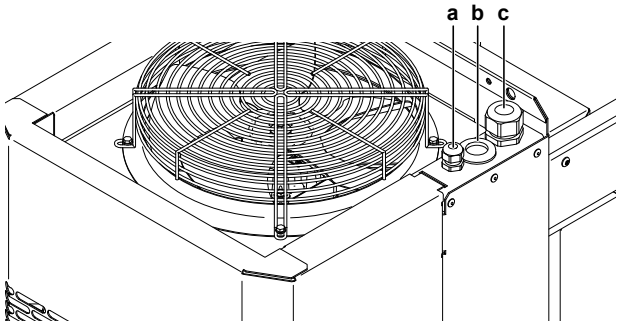
This option is not pre-wired. The connection has to be made inside the unit condenser by the customer with a shielded twisted cable, e.g. Belden® 8762 or 8772 or cat 5 cables.

1 Open the unit condenser front plate and electrical box cover. See Opening and closing the unit.

One cable entree (b) is provided to bring option cables into the unit. A cable gland can be installed on that location.

2 Guide the cable towards the cable gland, and into the unit. Secure the cable into the cable gland.

3 Fix the cable along its path outside the unit condenser as needed.



a Door switch, pre-wired (5 m)
b Options
c Power supply, pre-wired (5 m)

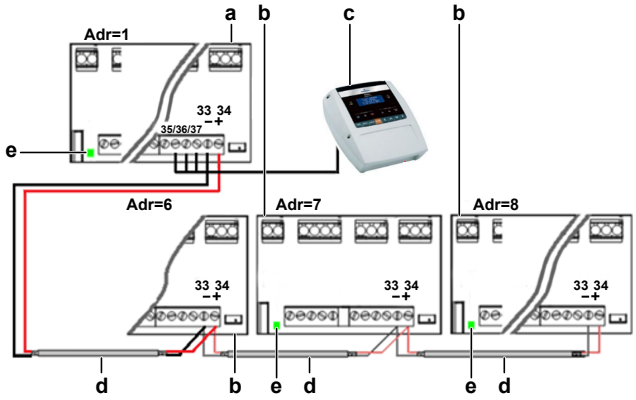
CAUTION

Do NOT push or place redundant cable length into the unit.

4 Connect the router (b) wiring to terminals[35] [gnd] [36] [-] and [37] [+].

- Use shielded twisted cable. For example Belden® 8762 or 8772 or cat 5 cables.
- Maximum distance 1Km.
- Only one device for each LAN has to be connected to the RS-485 connection.
- Don't connect the shield to the earth or to GND terminals of the device, avoid accidental contacts by using insulating tape.

The Adr parameter is the number to identify each electronic board. Address duplication is not permitted, in this case the synchronized defrost and the communication with monitoring system is not guaranteed (the Adr is also the ModBUS address).



a Primary unit
b Secondary unit
c Router gateway
d LAN cable
e LED (LAN connectivity)

5.10 To install the remote panel

The remote panel allows remote control of the PS unit(s). It must be connected to terminals 38, 39 and 40 of the control unit (F1E) inside the unit condenser.

INFORMATION

This manual only describes installation instructions specific to this unit. For carrying out mechanical work on the cold room, the instructions of the cold room manufacturer must always be followed.

For the installation of this option, refer to the installation instruction included in the "Remote panel kit" option.

6 Configuration

INFORMATION

Use only those combinations of controls and programs which are mentioned in the manufacturer's instruction manual.

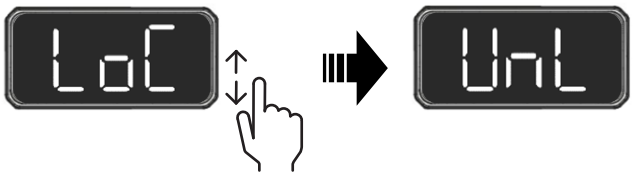
6.1 To unlock the user interface

To unlock the user interface

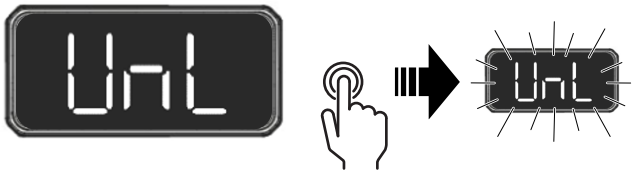
1 Vertically swipe from the home screen to unlock the HMI.

Result: The "Loc"(locked) screen appears.

2 Vertically swipe to change the screen to "UnL" (unlock)



3 Press the "UnL" (unlock) screen until it starts blinking.



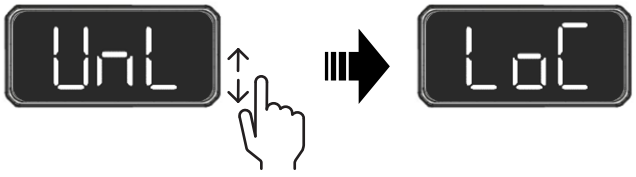
Result: The home screen appears and the HMI is unlocked.

To lock the user interface

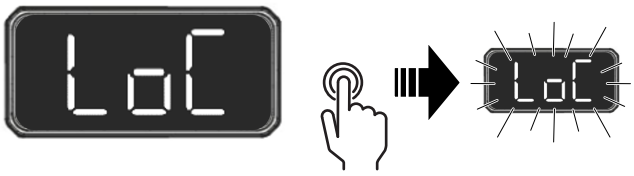
1 Vertically swipe from the home screen to lock the HMI.

Result: The "UnL" (unlocked) screen appears.

2 Vertically swipe to change the screen to "Loc" (lock)



3 Press the "Loc" (lock) screen until it starts blinking.

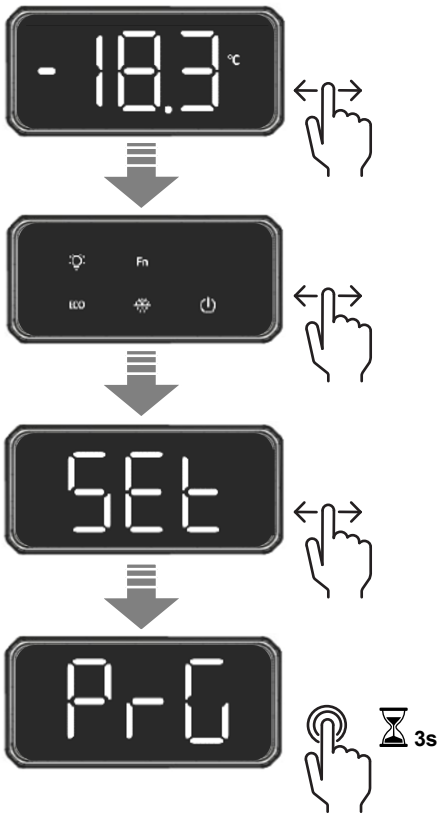


Result: The home screen appears and the HMI is locked.

6.2 To change the parameters

1 Navigate to the programming screen (PrG) by swiping horizontally through the screens.

2 On the programming screen (PrG), press anywhere on the screen and hold for 3 seconds to enter the programming menu.



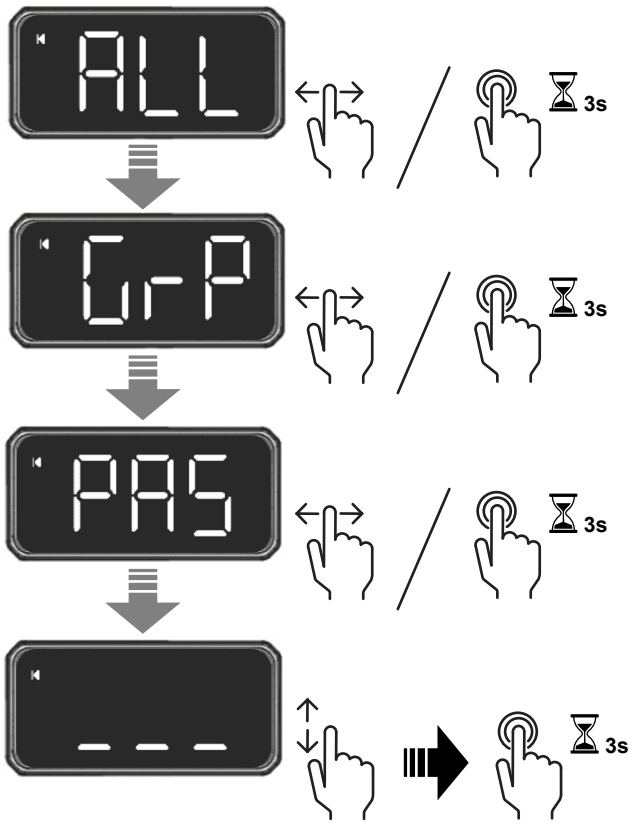
3 Navigate through the programming screen menu by swiping horizontally through the screens.

INFORMATION

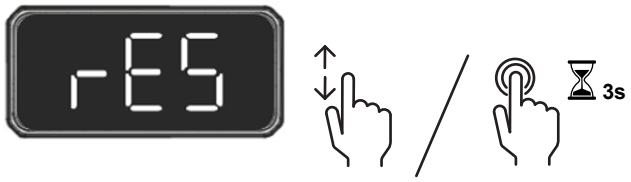
To access the service parameters, the password must be entered.

4 Press anywhere on one of the screens and hold for 3 seconds to enter one of the menus.

- ALL = Complete parameters list
- GrP = Parameter's groups
- PAS = Password
- _ _ _ = Parameter's name

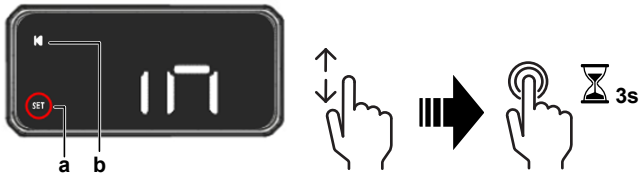


5 Vertically swipe through the menus to find the parameter that has to be changed (e.g. rES).



6 Press anywhere on the screen of the parameter that has to be changed (e.g. rES) and hold for 3 seconds.

Result: The parameter becomes editable (the "SET" (a) and "Return arrow" (b) indications light up).



7 Vertically swipe to change the parameter setting.

8 Press "SET" (a) on the screen and hold for 3 seconds to save the new setting.

9 Press the "return arrow" (b) on the screen and hold for 1 second to return to the previous menu.

6.3 Parameters

Name	Description	Default	Min.	Max.	Unit of measure	Menu
Adl	Serial address visualization	Read only	-	-	-	INF
Adr	RS-485 serial address (1÷247): Identifies the instrument address when connected to a ModBUS compatible monitoring system	1	1	247	-	COM
AHy	Differential for temperature alarm: (0.1°C ÷ 25.5°C / 1°F ÷ 45°F) Intervention differential for recovery of temperature alarm	2.0	0.1	25.5	°C	ALr
ALd	Temperature alarm delay: (0÷255 min) time interval between the detection of an alarm condition and the corresponding alarm signalling	0	0	255	min	ALr
ALL	Low temperature alarm setting: when Set-ALL is reached and after the ALd delay time, the LA alarm is enabled	5.0	0.0	50.0	°C	ALr
ALU	High temperature alarm setting: when Set+ALU is reached and after the ALd delay time the HA alarm is enabled	5.0	0.0	50.0	°C	ALr
AOP	Alarm relay polarity: cL = contact is powered in case of alarm condition; oP = contact is de-powered in case of alarm condition	cL	-	-	-	inP
b1F	Light Button enabled in stand-by (no, yes)	yes	-	-	-	UI
bAu	It sets the baud rate among: (9.6 = 9.6 bit/s; 19.2 = 19.2 bit/s; 38.4 = 38.4 bit/s; 57.6 = 57.6 bit/s; 115 = 115 bit/s)	9.6	-	-	-	COM
CCS	Set point for continuous cycle: it sets the set point used during the continuous cycle.	-3	-5.0 (MPS) / -25 (BPS)	10.0 (MPS) / -15 (BPS)	°C	rEG
CCt	Compressor ON time during continuous cycle: (0.0÷24.0h; resolution 10min) Allows to set the length of the continuous cycle. Can be used, for instance, when the room is filled with new products	00:00	00:00	24:00	Hrs (resolution 10 min)	rEG
d2d	Time delay for door open alarm: (0-255 min.)	15	0	255	Min	inP

Name	Description	Default	Min.	Max.	Unit of measure	Menu
dAO	Delay of temperature alarm at start-up: (0min÷23h 50min) time interval between the detection of the temperature alarm condition after the instrument power on and the alarm signalling.	06:00	00:00	24:00	Hrs (resolution 10 min)	ALr
dLy	Display delay: (0-24m; resolution 10s) when the temperature increases, the display is updated of 1°C/1°F after this time	00:00	-	-	min (resolution 10 s)	rEG
dot	Temperature alarm exclusion after door open: (0 ÷ 255 (min.)	15	0	255	min	ALr
dPo	First defrost after start-up: y = Immediately; n = after the IdF time	n	-	-	-	dEF
dP1	Cold room temperature probe visualization	Read only	-	-	-	INF
dP2	Defrost end temperature probe visualization	Read only	-	-	-	INF
dSd	Start defrost relay: this is useful when different defrost start times are necessary to avoid overloading of the plant	0	0	255	min	dEF
EdA	Alarm delay at the end of defrost: (0-255 min.) Time interval between the detection of the temperature alarm condition at the end of defrost and the alarm signalling	15	0	255	min	ALr
EMU	Previous versions emulation. It allows the controller to be used in a LAN of controllers with previous versions	-	-	-	-	INF
FdY	Firmware release date: day - Read Only - Official release date	Read only	-	-	-	INF
FMn	Firmware release date: month - Read Only - Official release date	Read only	-	-	-	INF
FYr	Firmware release date: year - Read Only - Official release date	Read only	-	-	-	INF
HES	Temperature increase during the Energy Saving cycle: (-30÷30°C / -54÷54°F) sets the increasing value of the set point during the Energy Saving cycle	0.0	-30.0	30.0	°C	ES
Hy	Differential: (0,1÷25,5°C; 1÷45°F): Intervention differential for set point, always positive. Compressor(s) turned on when the temperature reaches Set+Hy. Compressor(s) turned off when the temperature reaches Set.	2	0.1	25.5	°C	rEG
i2P	Door switch polarity	cL	-	-	-	inP
IdF	Interval between defrosts: (0÷120h) Determines the time interval between the beginning of two defrost cycles	4	0	255	Hrs	dEF
LdM	Restore factory setting	no	-	-	-	rEG
OF1	Cold room probe calibration	0.0	-12.0	12.0	°C	Prb
Par	Parity control (no; odd; EvE) no= no parity control; odd= odd parity control; EvE= even parity control	no	-	-	-	COM
Pr2	Access to the protected parameter list (read only)	Read only	-	-	-	INF
Ptb	Parameter table: (read only) it shows the original code of the Copeland Controls parameter map.	Read only	-	-	-	INF
rES	Resolution: (in = 1°C/1°F; dE= 0.1°C/0.1°F) allow decimal point display	dE	-	-	-	rEG
rEL	Release software: (read only) Software version of the microprocessor	Read only	-	-	-	INF
SC0	Lock on home screen (no, yes)	yes	-	-	-	UI
SC7	Menu scrolling locked (no, yes)	no	-	-	-	UI
Set	Temperature set point	0.0 (MPS) / -20 (BPS)	-5.0 (MPS) / -25 (BPS)	10.0 (MPS) / -15 (BPS)	°C	rEG
SrL	Software subrelease: (read only) for internal use	Read only	-	-	-	INF
tbA	Disabling alarm relay by pressing a key: (n; Y)	n	-	-	-	ALr
tMd	Time remaining before next defrost activation	Read only	-	-	-	INF
LMd	Defrost synchronisation: y = the section sends a command to start defrost to the other controllers, n = the section don't send a global defrost command	n	-	-	-	LAn
LSP	LAN set-point synchronisation: y = the set-point, when modified, is updated to the same value for all the other controller connected to the LAN; n = the set-point value is modified only in the local controller	y	-	-	-	LAn

Name	Description	Default	Min.	Max.	Unit of measure	Menu
LOF	LAN On/Off synchronisation this parameter states if the On/Off command will be shared through the LAN: y = the On/Off command is sent to all the other sections; n = the On/Off command acts only on the local section	n	-	-	-	LAn
LLi	LAN light synchronisation this parameter states if the light command of the section will act on all the other ones too: y = the light command is sent to all the other sections; n= the light command acts only in the local section	y	-	-	-	LAn
LES	LAN energy saving synchronisation this parameter states if the energy saving command of the section will act on all the other ones too: y = the Energy Saving command is sent to all the other sections; n = the Energy Saving command acts only in the local section	n	-	-	-	LAn
StM	Cooling request shared via LAN	n	-	-	-	LAn

To enable the continuous cycles mode

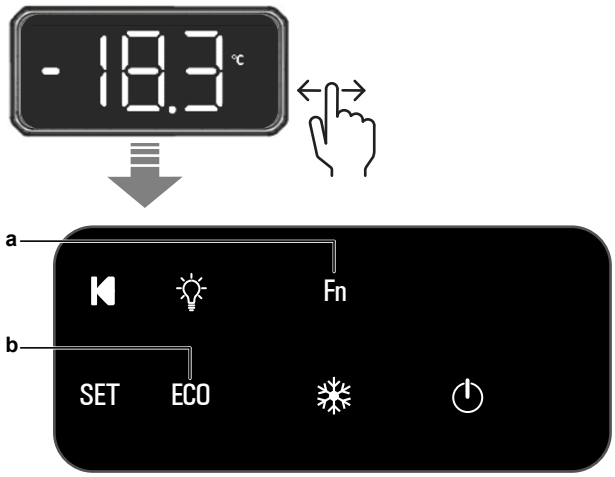
INFORMATION

Before enabling the continuous cycles mode, check and correctly set the parameters CCS and CCt (read the relevant description).

The set point changes according to the CCS setting, use this function carefully.

1 Navigate to the virtual keyboard screen.

2 Enable the continuous cycles mode by holding the Fn button (a) for 3 seconds.



When this mode is on, the unit will work with the CCS and CCt parameters on.

To enable the ECO mode

3 Navigate to the virtual keyboard screen.

4 Enable the ECO mode by holding the ECO button (b) for 3 seconds.

When this mode is on, the unit will work with the HES parameter on.

6.4 To restore the factory parameters

1 Navigate to the parameters groups (GrP) screen. See "6.2 To change the parameters" [▸ 22].

2 Vertically swipe to the LdM parameter, and set it as "YES".

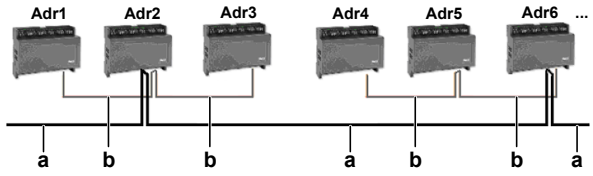
6.5 To set up for multiple units

6.5.1 To set the address of the units

Use the Adr parameter to set RS-485 serial address (1÷247).

The Adr parameter is the number to identify each electronic board when connected to a ModBUS compatible monitoring system. Address duplication is not permitted, in this case the synchronized defrost and the communication with monitoring system is not guaranteed.

Example:



a RS-485 shielded cable
b LAN cable

INFORMATION

The Adr parameter cannot be duplicated, because in that case the shared functions cannot be managed correctly.

1 Power on all controllers.

2 Connect one by one to each controller and change the serial address.

The list of the shared parameters is:

- Defrost,
- Setpoint,
- ON/OFF synchronisation,
- Light synchronisation,
- Energy saving synchronisation,
- Cooling request.

6.5.2 To set the shared functions for multiple units

INFORMATION

To change parameters related to this functionality, "Service" level access is required.

INFORMATION

If one of the secondary unit controllers is offline, the other controllers will keep all functions working, without taking care of the specific secondary unit controller that is no longer available (network regulation, network defrost, door,…).

Lights

Lights can be connected to all controllers in the network and the light status is always synchronised. Each controller will turn the lights on and off simultaneous -or not, depending on the LLi parameter setting.

- LLi to set LAN light synchronisation. This parameter states if the light command of the section will act on all the other ones too:
  - y = the light command is sent to all the other sections
  - n= the light command acts only in the local section

On/Off command

- LOF to set LAN if the On/Off command will be shared through the LAN:
  - y = the On/Off command is sent to all the other sections
  - n = the On/Off command acts only on the local section

Energy saving synchronisation

- LES to set LAN energy saving synchronisation. This parameter states if the energy saving command of the section will act on all the other ones too:
  - y = the Energy Saving command is sent to all the other sections
  - n = the Energy Saving command acts only in the local section

Network temperature regulation

- Depending on StM parameter setting:
  - y = a generic cooling request coming from LAN activates the cooling mode
  - n = cooling request is NOT shared via LAN

Synchronized defrost

It is possible to enable/disable this functionality for each controller separately.

Defrost can be synchronized between the primary unit controller and secondary unit controllers. It can be managed from any of the (LAN) connected unit's HMI.

All the units can start "defrost" in a synchronized way.

INFORMATION

The Adr parameter cannot be duplicated, because in that case the "defrost" cannot be managed correctly.

Use these parameters to set the synchronized defrost:

- LMd to set defrost synchronisation:
  - y = the section sends a command to start defrost to the other controllers
  - n = the section does not send a global defrost command
- IdF to set the interval between defrosts: (0÷255h) Determines the time interval between the beginning of two defrost cycles.
  The IdF timer is reinitialized after the defrost cycle and at every "power-on".
- dSd to delete the defrost start time of each unit.

Set point synchronisation

- LSP to set LAN set-point synchronisation:
  - y = the set-point, when modified, is updated to the same value for all the other controllers connected to the LAN
  - n = the set-point value is modified only in the local controller

6.6 About the alarms

When a malfunction is detected:

- The error code is shown on the display, alternating with the home screen. This allows immediate identification of the malfunction.
- The HMI buzzer is activated.
- The relay concerning the external alarm (optional) is powered.

Take into account that:

- If more than one warning/alarm occurs, they are displayed in sequence.
- Alarms and warnings are identified by error codes. To check and reset alarms (error codes), **see the operation manual**.

7 Commissioning

CAUTION

Preliminary electrical system checks such as earth continuity, polarity, resistance to earth and short circuit must be carried out by using a suitable test meter by a competent person.

WARNING

ONLY qualified persons should conduct commissioning.

Final checks for correct installation

☐	Check that there is no air gap between unit and cold room wall.
☐	Check the labels of the wires connected to the door micro switch and the door heater. The door heater wire is a live wire, while the micro switch wire is a signal wire. Swapping the wires will cause serious damage to the unit.
☐	Check that all covers are closed correctly.
☐	Check that the electrical wiring of the door micro switch, door heater and cold room lamp are properly fixed to the cold room panels.
☐	Check that all the electrical wiring work is correctly connected.
☐	Check that all cable glands are properly tightened.

DANGER

Tripping over loose wiring can tear it loose and cause electrocution and fire.

Final checks for correct setup

☐	Check that the programming logic is suitable to control the unit and the system in question.
☐	Check that the standard display (showing the setpoint) has been set on the user terminal.

Test run

☐	Connect the unit's electrical plug to the mains outlet.
☐	Turn on the unit.
☐	Set the cold room temperature.
☐	Check that the setpoint of the cold room temperature is reached.
☐	Start defrost mode.
☐	Check for water leaks.
☐	Defrost drain water.
☐	Check that no alarms occur on the user interface (see user manual).
☐	Switch off the unit.

WARNING

- NEVER directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.
- Do NOT touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear proper gloves.

8 Hand-over to the user

Once the test run is finished and the unit operates properly, make sure the following is clear for the user:

- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he/she can find the complete documentation at the URL mentioned earlier in this manual.
- Explain to the user how to properly operate the system and what to do in case of problems.

9 Disposal

Wooden, plastic and polystyrene packing must be disposed of according to the regulations in force in the country where the unit is used.

NOTICE

Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts MUST comply with applicable legislation.

Final disposal of the unit must be done by an authorised area technical assistance service, that has proper training, equipment and instructions for the dismantling. They are also responsible for reuse, recycling and recovery.

CAUTION

There are potential environmental hazards involved in dismantling the unit.

10 Technical data

- A **subset** of the latest technical data is available.
- The **full set** of the latest technical data is available.

10.1 Wiring diagram

- A printed version of the declaration of conformity, the wiring- and piping diagrams is included with the unit.

Wiring diagram legend

For applied parts and numbering, refer to the wiring diagram on the unit. Part numbering is by Arabic numbers in ascending order for each part and is represented in the overview below by "*" in the part code.

Symbol	Meaning	Symbol	Meaning
	Capacitor		Fuse
K12C	Coil relay		Pressure switch
C S M R	Compressor	RDS	Room door switch
KHP	Contact relay	RL	Room light
K12C	Contact relay	SV	Solenoid valve
	Electrical heater	TH	Thermistor
M	Fan motor		

- MPS1107YA11A + MPS1110YA11A + MPS3112YA11A + BPS3112YA11A + BPS3115YA11A

Symbol	Meaning
C1	Compressor
CF1	Condenser fan
CP1	Condenser fan 1 capacitor
CP3	Evaporator fan 1 capacitor
CP4	Evaporator fan 2 capacitor
C.S.R.	Compressor starting kit
DSV1	Defrost solenoid valve 1
EDH	Door heater
EF1	Evaporator fan 1
EF2	Evaporator fan 2
F1C	Compressor 1 fuse
F1A	Auxiliary fuse
F1E	Control unit
HMI	User interface
HPS/1	High pressure switch 1
K12C	Compressor 1 relay
KHP	High pressure switch relay
MCR	Man in cold room alarm
RSV1	Refrigerant solenoid valve 1
RDS	Room door switch
RL	Room light
TH1	Ambient probe
TH2	Defrost probe
TH3	Condenser probe
W1S	Supply cable
W1C	Compressor 1 cable
WRL	Room light cable
WDS	Door switch cable

- MPS3220YA11A + BPS3224YA11A + BPS3230YA11A

Symbol	Meaning
C1	Compressor 1
C2	Compressor 2
CF1	Condenser fan
CP1	Condenser fan 1 capacitor
CP3	Evaporator fan 1 capacitor
CP4	Evaporator fan 2 capacitor
C.S.R.	Compressor starting kit
DSV1	Defrost solenoid valve 1
DSV2	Defrost solenoid valve 2

Symbol	Meaning
EDH	Door heater
EF1	Evaporator fan 1
EF2	Evaporator fan 2
F1C	Compressor 1 fuse
F2C	Compressor 2 fuse
F1A	Auxiliary fuse
F1E	Control unit
HMI	User interface
HPS/1	High pressure switch 1
HPS/2	High pressure switch 2
K12C	Compressor 1 relay
KHP	High pressure switch relay
MCR	Man in cold room alarm
RSV1	Refrigerant solenoid valve 1
RSV2	Refrigerant solenoid valve 2
RDS	Room door switch
RL	Room light
TH1	Ambient probe
TH2	Defrost probe
TH3	Condenser probe
W1S	Supply cable
W1C	Compressor 1 cable
W2C	Compressor 2 cable
WRL	Room light cable
WDS	Door switch cable

Wiring diagram

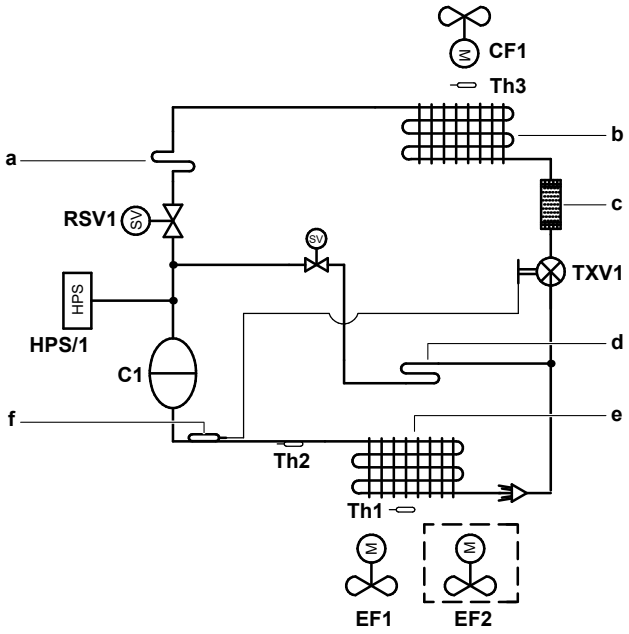
See the internal wiring diagram supplied with the unit. The wiring diagram is ALSO available on the Daikin Business Portal (authentication required).

10.2 Piping diagram

INFORMATION

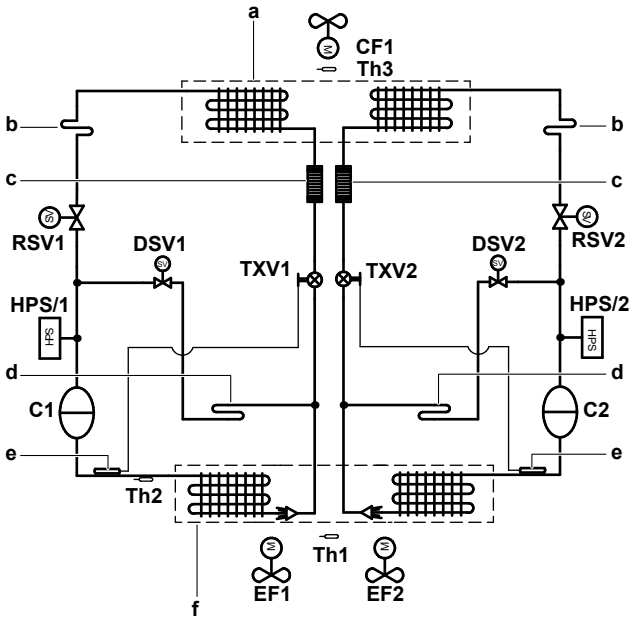
The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

MPS1107YA11A + MPS1110YA11A + MPS3112YA11A + BPS3112YA11A + BPS3115YA11A



a Condensate evaporation drain pan
b Condenser
c Drier filter
d Drain pan heater
e Evaporator
f Feeler bulb
C1 Compressor
CF1 Condenser fan
DSV1 Defrost solenoid valve
EF1 Evaporator fan
EF2 Evaporator fan (only for MPS3112YA11A + BPS3112YA11A + BPS3115YA11A
HPS/1 High pressure switch
RSV1 Refrigerant solenoid valve
Th1 Cold room temperature probe
Th2 Defrost temperature probe
Th3 Outside air temperature probe
TXV1 Thermostatic expansion valve

MPS3220YA11A + BPS3224YA11A + BPS3230YA11A



a Condenser
b Condensate evaporation drain pan
c Drier filter
d Drain pan heater
e Feeler bulb
f Evaporator
C1 Compressor

C2	Compressor
CF1	Condenser fan
DSV1	Defrost solenoid valve
DSV2	Defrost solenoid valve
EF1	Evaporator fan
EF2	Evaporator fan
HPS/1	High pressure switch
HPS/2	High pressure switch
RSV1	Refrigerant solenoid valve
RSV2	Refrigerant solenoid valve
Th1	Cold room temperature probe
Th2	Defrost temperature probe
Th3	Outside air temperature probe
TXV1	Thermostatic expansion valve
TXV2	Thermostatic expansion valve

10.3 Weight

Model	Type	Weight
MPS1107YA11A	A	52 kg
MPS1110YA11A		
MPS3112YA11A		
BPS3112YA11A		
BPS3115YA11A		
MPS3220YA11A	B	83.5 kg
BPS3224YA11A		
BPS3230YA11A		

WARNING

Make sure that the forklift, or any other lifting device used, can bear the weight of the unit.

11 Glossary

Accessories

Labels, manuals, information sheets and equipment that are delivered with the product and that need to be installed according to the instructions in the accompanying documentation.

Applicable legislation

All international, European, national and local directives, laws, regulations and/or codes that are relevant and applicable for a certain product or domain.

Authorised installer

Technical skilled person who is qualified to install the product.

Dealer

Sales distributor for the product.

Field supply

Equipment NOT made by Zanotti that can be combined with the product according to the instructions in the accompanying documentation.

Installation manual

Instruction manual specified for a certain product or application, explaining how to install, configure and maintain it.

Maintenance instructions

Instruction manual specified for a certain product or application, which explains (if relevant) how to install, configure, operate and/or maintain the product or application.

Operation manual

Instruction manual specified for a certain product or application, explaining how to operate it.

Optional equipment

Equipment made or approved by Zanotti that can be combined with the product according to the instructions in the accompanying documentation.

Service company

Qualified company which can perform or coordinate the required service to the product.

User

Person who is owner of the product and/or operates the product.

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