



Danfoss OP-MPLM, OP-MPPM Optyma Plus Inverter **Condensing Units Instruction Manual**

Home » Danfoss » Danfoss OP-MPLM, OP-MPPM Optyma Plus Inverter Condensing Units Instruction Manual



Contents

- 1 Danfoss OP-MPLM, OP-MPPM Optyma Plus Inverter Condensing
- 2 Product Usage Instructions
- 3 Introduction
- 4 Installation
- 5 Leak detection
- 6 Vacuum dehydration
- 7 Electrical connections
- 8 Safety
- 9 Filling the system
- 10 Setting the electronic controller
- 11 Verification before commissioning
- 12 Start-up
- 13 Check with the running unit
- 14 Emergency running without controller
- 15 Maintenance
- 16 Technical data
- 17 GA & PID Drawings
- 18 Wiring Diagram
- 19 Warranty
- **20 FAQ**
- 21 Documents / Resources
 - 21.1 References
- **22 Related Posts**



Danfoss OP-MPLM, OP-MPPM Optyma Plus Inverter Condensing Units



Specifications:

Product Name: OptymaTM Plus INVERTER Condensing Units OP-MPLM, OP-MPPM

• Manufacturer: Danfoss Year: 2018

• Model Numbers: OP-MPLM, OP-MPPM

• Gas Pressure: 2 bar(g)

Product Usage Instructions

Installation

Installation and servicing must be done by qualified personnel only. Follow provided instructions and refrigeration engineering practices.

Safety Precautions

- Disconnect AC mains and wait for at least 4 minutes to de-energize all electrical parts before servicing.
- Unit must only be used for its designed purpose and within its scope of application.
- Ensure compliance with safety regulations like EN378.
- · Avoid placing the unit in a flammable atmosphere.
- Position the unit to avoid blocking walking areas, doors, and windows.

Connection and Operation

- Do not connect the compressor directly to the network; use the original drive from Danfoss.
- For PED Cat I models, mount pressure relief valve on the refrigerant system during field installation.
- Recommended to install PRV inside the unit and release refrigerant to the atmosphere directly.

Maintenance and Service

- 1. Use safety devices like pressure switches and relief valves in compliance with regulations.
- 2. Check settings of high-pressure switches and relief valves to ensure they don't exceed maximum service pressure.
- 3. If the compressor doesn't start, check wiring conformity and voltage on terminals.
- Installation and servicing of the condensing units by qualified personnel only. Follow these instructions and sound refrigeration engineering practices relating to installation, commissioning, maintenance and service.
- This product is not subject to the UK PSTI regulation, as it is for supply to and use only by professionals with the necessary expertise and qualifications. Any misuse or improper handling may result in unintended consequences. By purchasing or using this product, you acknowledge and accept the professional-use-only nature of its application. Danfoss does not assume any liability for damages, injuries, or adverse consequences ("damage") resulting from the incorrect or improper use of the product and you agree to indemnify Danfoss for any such damage resulting from your incorrect or improper use of the product.
- This unit contains a frequency converter and EMI filter with capacitors. Disconnect the AC mains and wait for at least 4 min to de-energize all Electrical parts before opening the door for performing any service or repair work. Failure to wait the specific time after power has been removed could result in death or serious injury
- The condensing unit must only be used for its designed purpose(s) and within its scope of application.
 Refrigerant to be used as per specification with respect to the model.
- Under all circumstances, the EN378 (or other applicable local safety regulations) requirements must be fulfilled.
- The condensing unit is delivered under nitrogen gas pressure (2 bar(g)) and hence it cannot be connected as it is; refer to the "installation" section for further details.
- The condensing unit must be handled with caution in the vertical position (maximum offset from the vertical: 15°)
- The compressor of the condensing unit cannot be connected directly to the network in any case, only via original drive from Danfoss.
- For PED Cat I models: A pressure relief valve shall be mounted in the refrigerant system during field installation. PRV should be mounted on the receiver vessel.

Relevant Standards and Directive

- EN 378 -2:2016: Refrigerating Systems And Heat Pumps-Safety And Environmental Requirements.
- EN 60335-1: Household And Similar Electrical Appliances Safety –Part 1: General Requirements
- Low Voltage Directive no. 2014 / 35 / UE
- Machinery Directive no. 2006 / 42 / CE
- Pressure Equipment Directive (PED) no. 2014/68/EU
- RoHS Directive 2011/65/EU
- WEEE Directive 2012/19/EU (Other local applicable standards)

Introduction

These instructions pertain to Optyma™ Plus condensing units OP-MPLM, OP-MPPM used for refrigeration systems. They provide necessary information regarding safety and proper usage of this product.

The condensing unit includes the following:

- · Microchannel heat exchanger
- Variable speed scroll compressor
- · Receiver with stop valve
- · Oil separator
- Ball valves
- · Sight glass
- · High & low-pressure switches
- Filter drier
- · Electronic controller
- · Compressor drive with EMC filter
- Main circuit breaker (Main switch with overload protection)
- · Fan capacitors
- Compressor contactor
- Robust weatherproof housing
- · Components connected are equipped with Schrader port

Handling and storage

- It is recommended not to open the packaging before the unit is at the final place for installation.
- Handle the unit with care. The packaging allows for the use of a forklift or pallet jack. Use appropriate and safe
 lifting equipment.
- Store and transport the unit in an upright position.
- Store the unit between -35°C and 50°C.
- Don't expose the packaging to rain or a corrosive atmosphere.
- After unpacking, check that the unit is complete and undamaged.

Installation precautions

- · Never place the unit in a flammable atmosphere
- Place the unit in such a way that it is not blocking or hindering walking areas, doors, windows or similar.
- Ensure adequate space around the unit for air circulation and to open doors. Refer to picture 1 for minimal
 values of distance to walls.
- Avoid installing the unit in locations that are daily exposed to direct sunshine for longer periods.
- Avoid installing the unit in aggressive and dusty environments.
- Ensure a foundation with horizontal surface (less than 3° slope), is strong and stable enough to carry the entire unit weight and to eliminate vibrations and interference.
- The unit ambient temperature may not exceed 50°C during off-cycle.
- Ensure that the power supply corresponds to the unit characteristics (see nameplate).
- When installing units for HFC refrigerants, use equipment specifically reserved for HFC refrigerants which was never used for CFC or HCFC refrigerants.
- Use clean and dehydrated refrigeration-grade copper tubes and silver alloy brazing material.
- Use clean and dehydrated system components.

• The suction piping connected to the compressor must be flexible in 3 dimensions to dampen vibrations.

Furthermore, piping has to be done in such a way that oil return for the compressor is ensured and the risk of liquid slug over in the compressor is eliminated.

PRV Valve for cat I models (Not factory mounted)

- For Optyma™ Plus INVERTER, Condensing units that fall in PED cat I, PRV shall be fitted (See Technical data for PED category in Annex A).
- PRV to be fitted on the liquid receiver at 3/8» NPT Connection. (Refer to Coolselector2 for PRV spare part code). Use Locatite 554 for PRV fitment.
- **Torque**: 40Nm (Don't exceed given torque)



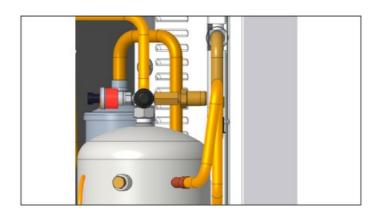
- Installer need to take care of where to blow the leaked refrigerant. Danfoss recommended to blow the refrigerant away form the condensing unit.
- Recommended to change PRV when after discharge, Changing refrigerant
- Don't remove the seal and attempt to reset the valve.
- Valves must be installed vertically or Horizontally, but ensure PRV to be fitted above system's liquid level.
- Ensure refrigerant is released safely to the atmosphere directly.
- Incase of hazard, additional spare kit has been designed in order to collect the released refrigerant. Kit should be installation with proper piping routing for the discharge of refrigerant safely. (See picture below)



- PRV should not be installed on service valve.
- Replace PRV after clean out of system or bared out.
- No Detachable joints and valves should not accessible to public. All brazing joints should comply with EN 14276-2 and other permanent joints should comply with EN-16084.

PRV Valve for cat II models (Factory mounted)

For Optyma™ Plus INVERTER, condensing units OPMPPM065 which falls in PED cat II, PRV is fitted on receiver rotolock valve from factory.



Installation

- The installation in which the condensing unit is installed must comply to EC Pressure directive (PED) no. 2014/68/EU. The condensing unit itself is not a "unit" in the scope this directive.
- It is recommended to install the unit on rubber grommets or vibration dampers (not supplied).
- It is not possible to stack unit on top of each other

Unit	Maximum stacking			
Housing 3 (Code no. 114X43)	0			

- Slowly release the nitrogen-holding charge through the Schrader port.
- Connect the unit to the system as soon as possible to avoid oil contamination from ambient moisture.
- · Avoid material entering into the system while cutting tubes. Never drill holes where burrs cannot be removed.
- Braze with great care using state-of-the-art techniques and vent piping with nitrogen gas flow.
- Connect the required safety and control devices. When the Schrader port is used for this, remove the internal valve.
- It is recommended to insulate the suction pipe up to the compressor inlet with 19 mm thick insulation.
- Copper piping material should comply with EN12735-1. All pipe joints should comply with EN14276-2
- At field installation, support to added according to size and weight. Recommended maximum spacing for pipe support as per EN12735-1 & EN12735-2
- Connecting pipes shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts.

Leak detection

Never pressurize the circuit with oxygen or dry air. This could cause fire or explosion.

- Do not use dye for leak detection
- Perform a leak detection test on the complete system
- The maximum test pressure is 32 bar.
- When a leak is discovered, repair the leak and repeat the leak detection.

Vacuum dehydration

- Never use the compressor to evacuate the system.
- · Connect a vacuum pump to both the LP & HP sides.

- Pull down the system under a vacuum of 500 µm Hg (0.67 mbar) absolute.
- Do not use a megohmmeter nor apply power to the compressor while it is under vacuum as this may cause internal damage.

Electrical connections

- Switch off and isolate the main power supply.
- Ensure that power supply can not be switched on during installation.
- All electrical components must be selected as per local standards and unit requirements.
- Refer to wiring diagram for electrical connection details.
- Ensure that the power supply corresponds to the unit characteristics and that the power supply is stable (nominal voltage ±10% and nominal frequency ±2,5 Hz)
- Dimension the power supply cables according to unit data for voltage and current.
- Protect the power supply and ensure correct earthing.
- The earth leakage current exceeds 3.5 mA. DC current can be supplied to the protective conductor. Where a
 residual current device (RCD) is used for protection in case of direct or indirect contact, only an RCD of Type B
 is allowed on the supply side of this product.
- Make the power supply according to local standards and legal requirements.
- For IT power supply systems open the RFI switch by removing the RFI screw on the left side of the frequency converter (see Quick Guide MG- 18Mxxx).
- The unit is equipped with an electronic controller. Refer to manual 118U3808 for details.
- The unit is equipped with a main switch with overload protection. The overload protection is factory preset but it is recommended to check the value before taking the unit in operation. The value for the overload protection can be found in the wiring diagram in the front door of the unit.
- The unit is equipped with high and low-pressure switches, which directly cut the power supply to the compressor in case of activation. Parameters for high and low-pressure cutouts are preset in the controller, adapted to the compressor installed in the unit.
- The Unit is equipped with a compressor drive for speed regulation. It is mandatory to connect compressor via it's drive as it is shown on the WD of this instruction. Correct phase sequence for compressor rotation direction shall be observed.
- correct compressor supply phase sequence is assured from the frequency converter and factory wiring
- · connections from frequency converter to compressor terminals are shown in the wiring diagram

Safety

- The electrical box door should be in closed condition before connecting to power supply.
- The discharge tube temperature will go upto 125°C during unit running conditions.
- Recommended to install PRV inside unit and release of refrigerant should routed to the atmosphere directly.
- The fusible Plug is not installed in unit, it is replaced with adapter blanking plug. The unit has liquid receiver with an Adapter Plug with 3/8" NPT connection. installer/end user can select various options as mentioned in EN378-2: 2016

- The unit/installation into which the condensing unit is mounted/integrated, must be in accordance with the PED.
- · Beware of extremely hot and cold components.
- Beware of moving components. Power supply should be disconnected while servicing.
- Compressors are not equipped with an internal motor protector. motor protection is provided by the variable speed drive. all parameters are factory preset in order to guaranty locked rotor or overload current protection.
- You need to set corresponding to your installation proper refrigerant (o30), Pump Down cut-out (c33) and evaporating pressure setting (R23).
- No valves and detachable joints shall be located in areas accessible to the general public except when they comply with EN 16084
- Refrigerant piping shall be protected or enclosed to avoid damage.
- Field piping should be installed such that it will be free from corrosive or salty environment to avoid corrosion in copper /Aluminum piping.
- In case of fire incidence, pressure increases due to increasing in temperature at the receiver. Hence it is very important to install the PRV.

Filling the system

- Never start the compressor under vacuum. Keep the compressor switched off.
- Use only the refrigerant for which the unit is designed for.
- Fill the refrigerant in the liquid phase into the condenser or liquid receiver. Ensure a slow charging of the system to 4 – 5 bar.
- The remaining charge is done until the installation has reached a level of stable nominal condition during operation.
- The charge must be as closed as possible to the nominal system charge to avoid low-pressure operation and excessive superheat. For VLZ028-044, the refrigerant charge limit is 3.6kg. Above this limit; protect the compressor against liquid flood-back with a pump-down cycle not lower than 2.3 bar (g) for R448A/R449A/ 2.3 bar(g) for R407F / 2.3 bar(g) for R407A / 2.3 bar(g) for R404A / or a suction line accumulator.
- Never leave the filling cylinder connected to the circuit.
- Suction, Liquid valves, and Receiver Rotolock valves as Schrader port for service operation like Gas Charging, and pressure measurement.

Setting the electronic controller

- The unit is equipped with an electronic controller which is factory-programmed with parameters for use with the actual unit. Refer to manual 158381 for details.
- By default, the electronic controller display shows the temperature value for the suction pressure in °C. To show
 the temperature value for the condensing pressure, push the lower button (picture 2). The electronic controller
 is factory preset for operation with refrigerant R449A. If another refrigerant is used, the refrigerant setting must
 be changed. Parameter r12 must be set to 0 before (software main switch= oFF).
- Push the upper button for a couple of seconds. The first parameter code appears.
- Push the upper or lower button to find parameter code o30.
- Push the middle button until the value for this parameter is shown.
- Push the upper or lower button to select the new value: 17 = R507A, 19 = R404A, 21=R407A, 37=R407F,
 40= R448A, 41= R449A.

- R407A and R407F are not applicable to the OP-MPPM065 model.
- Push the middle button to confirm the selected value.
- Go back to parameter r12 and change it to 1.
- If necessary change also parameter r23 to desired suction pressure (°C/°F).
- Change parameter c33 for pump down value according to your needs.
- Push the middle button, default maximum discharge temperature is 125°C
- If customer want to increase the valve, push the upper button to select the new value: 130 push the middle button to confirm the selected value.
- Maximum allowable discharge temperature (r84) should not exceed 130 °C

Verification before commissioning

- Use safety devices such as safety pressure switch and mechanical relief valve in compliance with both
 generally and locally applicable regulations and safety standards. Ensure that they are operational and properly
 set. Check that the settings of high-pressure switches and relief valves don't exceed the maximum service
 pressure of any system component.
- Verify that all electrical connections are properly fastened and in compliance with local regulations.
- The crankcase heater must be energized at least 12 hours before initial start-up and start-up after prolonged shutdown to remove refrigerant in liquid phase from the compressor. Remove the DI1 plug from the controller to avoid the compressor start and turn ON the main switch during this period.
- The unit is equipped with a main switch with overload protection. Overload protection is preset from factory, but it is recommended to check the value before taking the unit in operation. The overload protection value can be found in the wiring diagram in the unit front door.
- Suction, Liquid valves and Receiver Rotolock valves as Schrader port for service operations like Gas Charging, and pressure measurement.

Start-up

- Never start the unit when no refrigerant is charged.
- All service valves must be in the open position.
- Check compliance between unit and power supply.
- Check that the crankcase heater is working.
- Check that the fan can rotate freely.
- Balance the HP/LP pressure.
- Energize the unit. It must start promptly. If the compressor does not start, check wiring conformity and voltage on terminals.
- Reverse rotation of the 3-phase compressor will be detected from the controller and can be detected by
 following phenomena; the compressor doesn't build up pressure, it has an abnormally high sound level and
 abnormally low power consumption. In such case, shut down the unit immediately and connect the phases to
 their proper terminals.
- If the rotation direction is correct the low-pressure indication on the controller (or low-pressure gauge) shall show a declining pressure and the high-pressure indication (or high-pressure gauge) shall show an increasing pressure.

Check with the running unit

- Check the fan rotation direction. Air must flow from the condenser towards the fan.
- Check current draw and voltage.
 Check suction superheat to reduce risk of slugging.
- The optimum compressor suction superheat is around 6K. The maximum allowed superheat is 30K. Observe the oil level at start and during operation to confirm that the oil level remains visible. Excess foaming in oil sight glass indicates refrigerant on the sump.
- Monitor the oil sight glass for 1 hour after system equilibrium to ensure proper oil return to the compressor. This
 oil check has to be done over the speed range to guarantee:
 - a good oil return at low speed with minimum gas velocity.
 - a good oil management at high speed with maximum oil carryover.
- In installations with good oil return and line runs up to 15 m (49 feet), no additional oil is required.
- If installation lines exceed 15 m (49 feet), additional oil may be needed. 1 or 2% of the total system refrigerant charge (in kg) can be used to roughly determine the required oil top-up quantity (in liters) but in any case, the oil charge has to be adjusted based on the oil level in the compressor sight glass.
- When the compressor is running under stabilized conditions, the oil level must be visible in the sight glass.
- The oil level can also be checked a few minutes after the compressor stops, the level must be between 1/4 and 3/4 of sight glass.
- · Respect the operating limits.
- Check all tubes for abnormal vibration. Movements in excess of 1.5 mm require corrective measures such as tube brackets.
- When needed, additional refrigerant in liquid phase may be added in the low-pressure side as far as possible from the compressor. The compressor must be operating during this process.
- Do not overcharge the system.
- Never release refrigerant to the atmosphere.
- Before leaving the installation site, carry out a general installation inspection regarding cleanliness, noise and leak detection.
- Record type and amount of refrigerant charge as well as operating conditions as a reference for future
 inspections. Compressor failure to build up pressure: Check all bypass valves in the system to ensure that none
 of these have been opened. Also, check that all solenoid valves are in their proper position.
- Abnormal running noise: Ensure the absence of any liquid flood-back to the compressor by means of
 measuring the return gas superheat and compressor sump temperature. The sump should be at least 6K above
 the saturated suction temperature under steady-state operating conditions.
- The high-pressure switch trips out: Check condenser operations (condenser cleanliness, fan operation, water flow, and water pressure valve, water filter, etc.). If all these are OK, the problem may be due to either refrigerant overcharging or the presence of a noncondensable (e.g. air, moisture) in the circuit.
- The low-pressure switch trips out: Check evaporator operations (coil cleanliness, fan operations, water flow, water filter, etc.), liquid refrigerant flow and pressure drops (solenoid valve, filter dryer, expansion valve, etc.), and refrigerant charge.
- Low refrigerant charge: The correct refrigerant charge is given by the liquid sight glass indication, the condenser delta T in relation to the refrigerant pressure tables (pressure-temperature), the superheat and the subcooling, etc. (if additional charge is deemed necessary, refer to section 9).

Emergency running without controller

- This modification may be done by authorized electricians only. Country legislations have to be followed.
- Disconnect the condensing unit from the power supply (turn the hardware main switch off)

In case of a controller failure, the condensing unit can still be operated when the controller standard wiring (WD1 and WD2) is modified into temporary wiring (WD3 and WD4 respectively) as described below.

- Contact of Room Thermostat must be possible to switch 250VAC.
- For OP-MPPM028-035-044 models

Remove wire 22 (safety input DI3) and wire 6 (fan supply) and put them together. A fan pressure switch (e.g. KP5) or a fan speed controller (e.g. XGE) can be connected in series to wire 6

- OP-MPPM065 model
 - Remove wire from controller terminal 22 (safety input) and controller terminal 16 (fan relay) and put them together
 - Remove the wire from terminal 4 to controller terminal 55. Remove the wire from terminal 5 to controller terminal 54. Connect Terminal 4 and Terminal 5
 - Remove the wire from terminal 5 to the EC-Fan Gnd terminal. Connect Terminal 5 to EC-Fan 10VDC terminal
- Remove wire 10 (drive start) and wire 24 (room thermostat) and put them together
- Remove wire 11 (drive start) and wire 25 (room thermostat) and put them together
- Remove wire 53 and 55 from drive terminals and connect a 10kOhm potentiometer as below:
 - wire 1 to drive terminal 55
 - wire 2 to drive terminal 53
 - wire 3 to drive terminal 50
- Turn the knob of the potentiometer to middle position, which corresponds to approximately compressor speed 50rps
- Remove wire 14 (crankcase heater) and connect it to the compressor contactor terminal 22.
- Remove wire 12 (supply crankcase heater), extend this wire by using an 250 Vac 10mm² terminal bridge and 1,0mm² brown cable and connect it to compressor contactor terminal 21
- Remove the large terminal block from the controller terminals 10 to 19.
- Connect the condensing unit to power supply (turn the hardware main switch on).
- Adjust the potentiometer to get the desired speed.
- Replace the controller as soon as possible.

Maintenance

- Always switch of the unit at main switch and wait 4 minutes (capacitor discharge time) before opening the fan
 door (s) to avoid electric shock. Even when main switch is OFF voltage is available on the income terminals of
 the main switch and this should be considered during maintenance and service.
- Internal pressure and surface temperature are dangerous and may cause permanent injury. Maintenance
 operators and installers require appropriate skills and tools. Tubing temperature may exceed 100°C and can
 cause severe burns.
- Ensure that periodic service inspections to ensure system reliability and as required by local regulations are

performed.

To prevent system-related problems, the following periodic maintenance is recommended:

- Verify that safety devices are operational and properly set.
- Ensure that the system is leak-tight.
- · Check the compressor current draw.
- Confirm that the system is operating in a way consistent with previous maintenance records and ambient conditions
- Check that all electrical connections are still adequately fastened.
- Keep the unit clean and verify the absence of rust and oxidation on the unit components, tubes and electrical connections.

The condenser must be checked at least once a year for clogging and be cleaned if deemed necessary. Access to the internal side of the condenser takes place through the fan door. Microchannel coils tend to accumulate dirt on the surface rather than inside, which makes them easier to clean than fin-and-tube coils.

- Switch off the unit at the main switch before opening the fan door.
- Remove surface dirt, leaves, fibers, etc. with a vacuum cleaner, equipped with a brush or other soft attachment.
 Alternatively, blow compressed air through the coil from the inside out, and brush with a soft bristle. Do not use a wire brush.

Do not impact or scrape the coil with the vacuum tube or air nozzle. If the refrigerant system has been opened, the system has to be flushed with dry air or nitrogen to remove moisture and a new filter drier has to be installed. If evacuation of refrigerant has to be done, it shall be done in such a way that no refrigerant can escape to the environment.

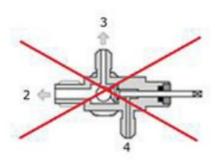


Fig A: Fully opened condition, Port 2 and 3 is fully opened and port 4 is fully closed

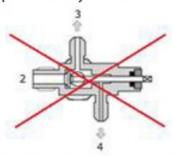


Fig B: Fully closed condition, Port 3 and 4 is partially open and port 2 is fully closed

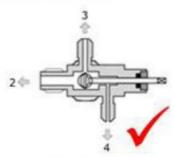


Fig C: Partially Opened Condition (5.5 turns clock wise from fully opened condition. Port 2, 3, 4 is fully opened).

Technical data

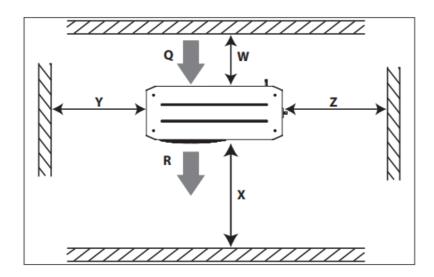
Nameplate



For exact values please refer nameplate in unit

- 1. A: Model
- 2. B: Code number
- 3. C: Serial Number and bar code
- 4. D: EAN number
- 5. E: Refrigerant
- 6. F: PED Category
- 7. G: Application, Ingress Protection
- 8. H: Maximum Allowable Pressure (HP side)
- 9. I: Maximum Allowable Pressure (LP side)
- 10. J: Test Pressure
- 11. K: Maximum allowable Design Temperature

Minimum mounting distances

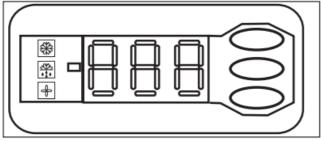


Picture 1: Minimum mounting distances

Q: Air in	R:	Air	out

Unit	W	X	Y	Z	
	[mm]	[mm]	[mm]	[mm]	
Housing 3 (code no. 114X43)	250	760	581	581	

Electronic controller display



Picture 2: Electronic controller display



Compressor running



Crankcase heater on



Fan running



Temperature value for suction pressure. Push lower button to switch to temperature value for condensing pressure

Normal wiring Picture: Temporary wiring

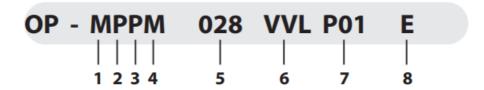






Picture 4: Temporary wiring

Designation system for the Optyma™ Plus range



1	Application M = MBP L = LBP
2	Package Condensing unit family: P = Optyma™ Plus INVERTER
3	Refrigerant P = R448A/R449A, R407A/F, R404A/R507*
4	Condenser M = Microchannel heat condenser
5	Swept volume Displacement in cm ³ : Example 034 = 34 cm ³
6	Compressor platform VVL = Scroll compressor with Inverter
7	Version P01: Optyma™ Plus INVERTER
8	Voltage code E = 400V/3-phase/50Hz compressor & 230V/1-phase fan

^{*}R407A and R407F not applicable for OP-MPPM065 models

Optyma™ Plus INVERTER	(P01)					
IP level	IP54					
Compressor technology	Scroll with Inverter					
Control box (pre-wired E-panel)	yes					
Microchannel condenser	yes					
Fan speed controller*	yes					
Main switch (circuit breaker)	yes					
Supply monitoring relay	-					
Filter drier (flare connections)	yes					
Sight glass	yes					
Crankcase heater	yes					
HP/LP adjustable pressostat	Electronic					
Fail safe mini-pressostat	Mechanical					
Access door(s)	yes					
Acoustic insulation	yes					
Condensing unit electronic controller	yes					
Network connectivity	yes					
Stack mounting	-					
Discharge gas thermostat	yes					
HP/LP Alarm	yes					
Liquid injection kit, phase loss/sequence protection	-					
Pressure Relief Valve (Provision)**	Yes					

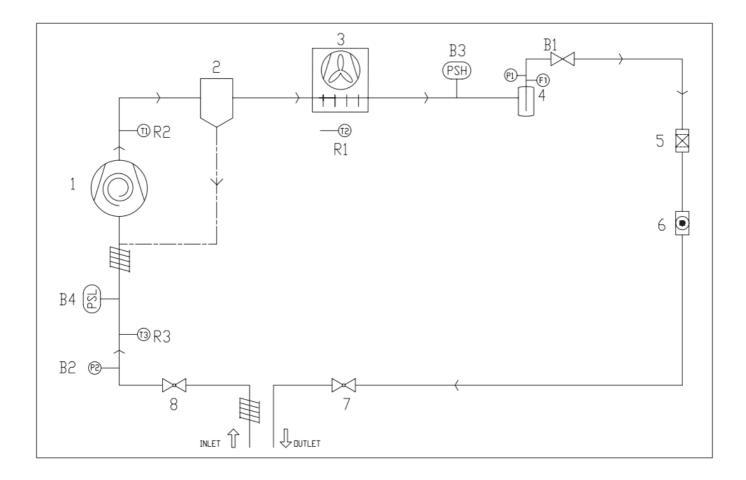
Technical data

Application	Code	Model	Model Compressor Electrical Refrigerant Receiver PED category		PS	Suction Valve	Liquid Valve	Housing	Unit Dimension (mm)		ions			
''				Code		(L)	category	bar	Inch	Inch		L	W	Н
MBP	114X4302	OP-MPPM028VVLP01E	VLZ028TGA	Е	P	6.2	1	32	3/4"	5/8"	H <u>3</u>	1441	965	531
MBP	114X4316	OP-MPPM035VVLP01E	VLZ035TGA	Е	Р	6.2	1	32	3/4"	5/8"	H3	1441	965	531
MBP	114X4334	OP-MPPM044VVLP01E	VLZ044TGA	Е	Р	6.2	- 1	32	3/4"	5/8"	H3	1441	965	531
MBP	114X4317	OP-MPPM065VVLP01E	VLZ065TGD	Е	Р	10	II	32	7/8"	5/8"	H3+	1441	631	965

^{*}PED Category for Group 2 fluid

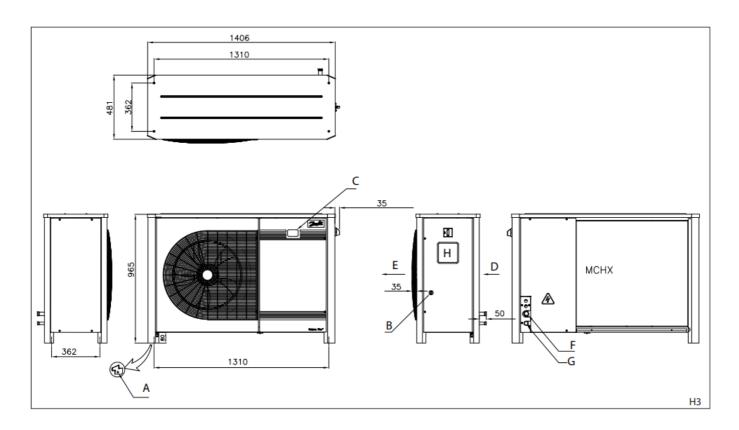
GA & PID Drawings

P01 Models

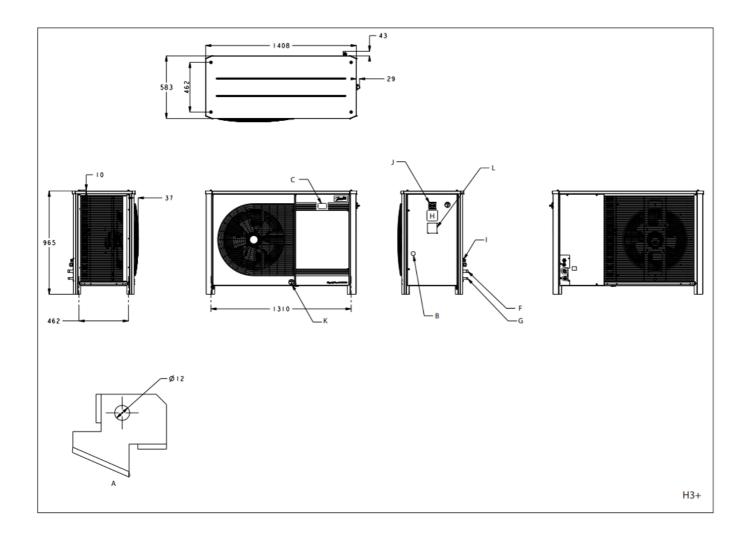


- 1 Compressor
- 2 Oil Seperator
- 3 Micro Channel Heat Exchanger with axial fan
- 4 Refrigerant receiver with rotalock valve
- 5 Filter Drier
- 6 Sight Glass
- 7 Liquid Ball Valve and Schrader valve
- 8 Suction Ball Valve and Schrader valve
- B1 Condensing Pressure Transducer (P1)
- B2 Suction Pressure Transducer (P2)
- B3 High Pressure cartridge Switch (auto-reset)(PSH)
- B4 Low Pressure cartridge Switch (auto-reset) (PSL)
- F1 Pressure Relief Valve (PED category II models only)
- R1 Ambient Temperature sensor (T2)
- R2 Discharge Temperature Sensor (T1)
- R3 Suction Temperature Sensor (T3) Insulation

OP-MPLM028-035-044, OP-MPPM028-035-044



OP-MPPM065

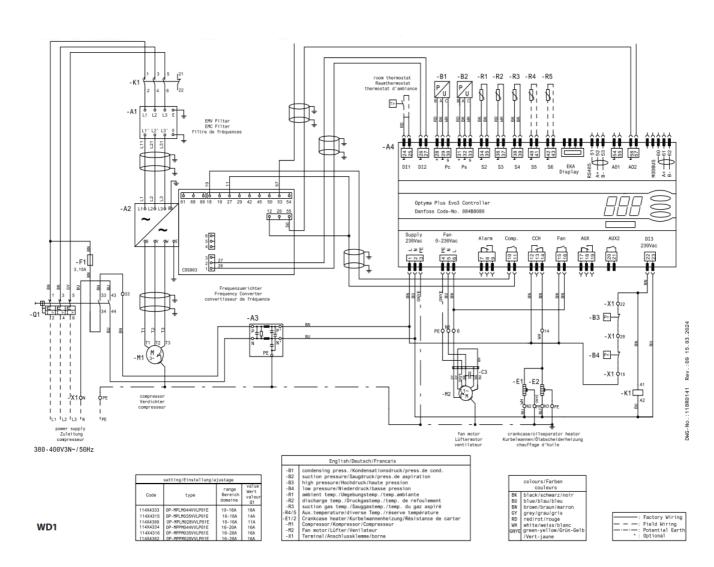


- A Ø12 Hole for Mounting
- B Sight Glass
- C Controller Display

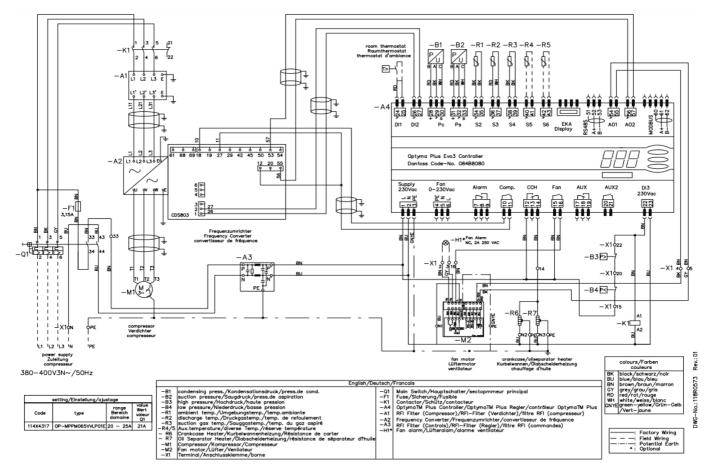
- D Air in
- E Air out
- F Suction Port
- · G Liquid Port
- H Nameplate
- I Cable entry ports
- J Isolator switch
- K Door safety label
- · L QR code label

Wiring Diagram

OP-MPLM028-035-044, OP-MPPM028-035-044

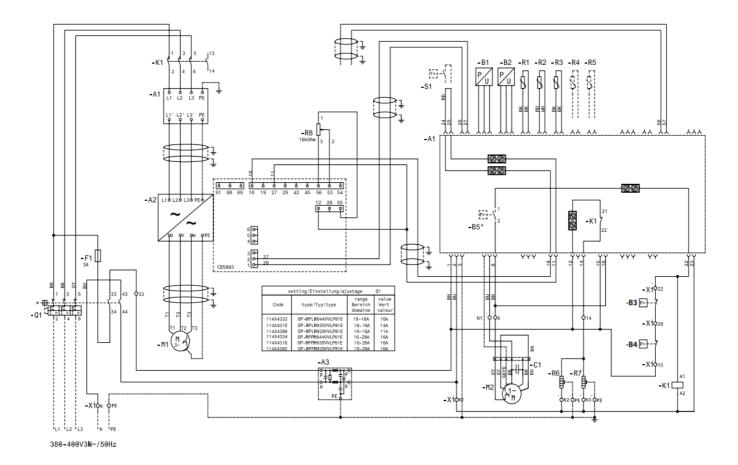


OP-MPPM065



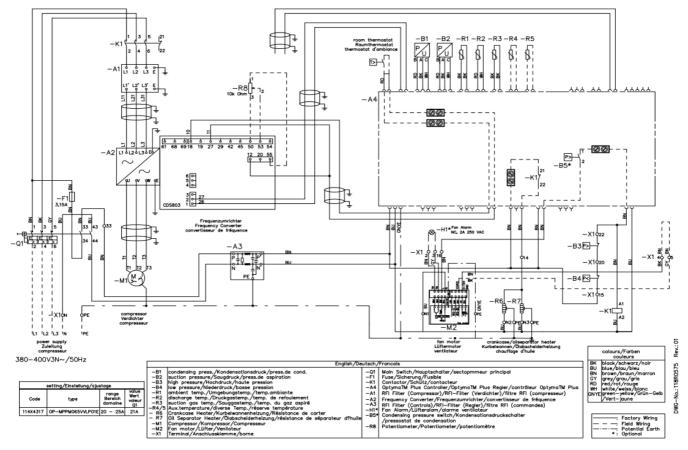
WD2

OP-MPLM028-035-044, OP-MPPM028-035-044**



WD3

OP-MPPM065



WD4

- A1: RFI Filter (Compressor)
- A2: Frequency Converter
- A3: RFI Filter (Controls)
- A4 : Optyma™ Plus Controller
- B1: Condensing Pressure Transducer
- B2: Suction Pressure Transducer
- B3: High Pressure Switch
- B4: Low Pressure Switch
- B5: Fan Speed Controller / Pressure Switch
- C1: Run Capacitor (Fan)
- F1: Fuse (Control Circuit)
- K1 : Contactor
- M1 : Compressor
- M2: Fan Motor
- Q1: Main Switch
- R1: Ambient Temp. Sensor
- R2: Discharge Temp. Sensor
- R3: Suction Temp. Sensor
- R4, R5: Auxiliary Temp. Sensor (optional)
- R6: Crankcase Heater
- R7: Oil Separator Heater
- R8: Compressor Speed Potentiometer

• S1: Room Thermostat (optional)

• X1 : Terminal

Emergency Wiring

• **Supply**: Supply

• Fan: Fan

· Alarm: Alarm

Comp.: CompressorCCH: Crankcase Heater

• Aux: Auxiliary

Warranty

Always transmit the model number and serial number with any claim filed regarding this product.

The product warranty may be void in the following cases:

- · Absence of nameplate.
- External modifications; in particular, drilling, welding, broken feet and shock marks.
- · Compressor opened or returned unsealed.
- Rust, water or leak detection dye inside the compressor.
- Use of a refrigerant or lubricant not approved by Danfoss.
- Any deviation from recommended instructions pertaining to installation, application or maintenance.
- Use in mobile applications.
- Use in the explosive atmospheric environment.
- No model number or serial number was transmitted with the warranty claim.

Disposal

Danfoss recommends that condensing units and oil should be recycled by a suitable company at its site.

Danfoss A/S

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Any information, including, but not limited to information on the selection of the product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals catalogues descriptions, advertisements, etc., and whether made available in writing, orally, electronically, online or via download, shall be considered informative and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogs, brochures, videos, and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to the form, fit, or function of the product.

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FAQ

Q: Can I connect the compressor directly to the network?

A: No, the compressor must only be connected via the original drive from Danfoss.

Q: How should I handle refrigerant release?

A: It is recommended to install a pressure relief valve (PRV) inside the unit and release refrigerant directly to the atmosphere.

Documents / Resources



<u>Danfoss OP-MPLM, OP-MPPM Optyma Plus Inverter Condensing Units</u> [pdf] Instruction Manual

OP-MPLM, OP-MPPM, OP-MPLM OP-MPPM Optyma Plus Inverter Condensing Units, OP-MPL M OP-MPPM, Optyma Plus Inverter Condensing Units, Plus Inverter Condensing Units, Inverter Condensing Units, Condensing Units, Units

References

User Manual

Manuals+, Privacy Policy

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