



Providing sustainable energy solutions worldwide

Installation and Maintenance Manual

CTC EcoPart XL

Model 424-434

Removing the cooling module



1. Disconnect the cooling module's power cable connector and hoses.



2. Attach the two carrying handles to the bottom of the cooling module.



3. Unscrew the cooling module's screws.



4. Pull the cooling module by first lifting the front edge slightly with the carrying handles.



5. Lift the cooling module using the carrying handles and shoulder straps.



6. Lift the cooling module into the product using the carrying handles and shoulder straps. Remove the carrying handles and reconnect the power cable, hoses and screws.

CTC EcoPart XL

Model 424-434

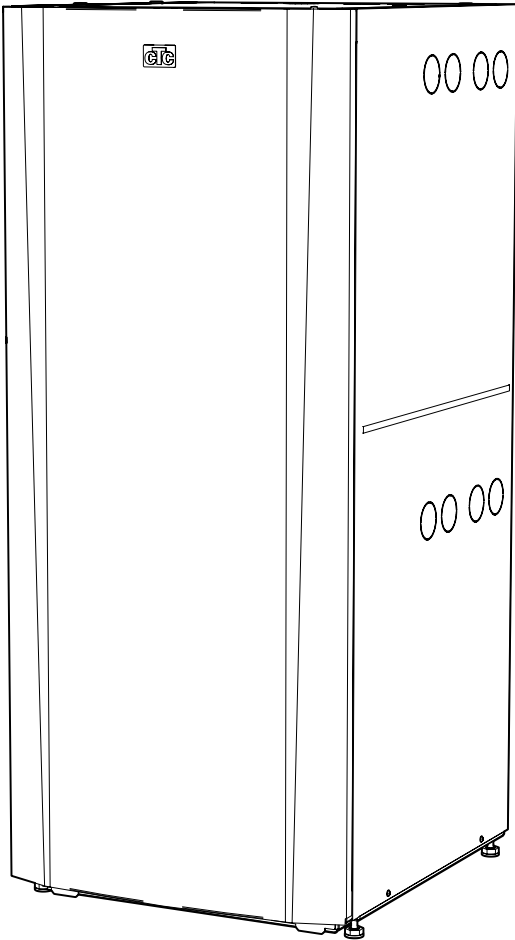


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Your own reminder

Fill in the information below. It may come in useful if anything should happen.

Product:	Serial number:
Pipe installation carried out by:	Name:
Date:	Tel. no.:
Electrical installation carried out by:	Name:
Date:	Tel. no.:

Enertech AB is not liable for any misprints and reserves the right to make changes.

Congratulations on your new purchase!



The complete heat pump for bedrock, ground or lake heat sources

The CTC EcoPart XL is a heat pump that takes heat from bedrock, ground or lake heat sources and supplies it to the existing heating system in the house.

The heat pump can be connected to a CTC EcoZenith or to the existing boiler via the CTC EcoLogic control system; doing this allows the CTC EcoPart XL to be fully utilised before the regular heating system is switched on to help heat the house.

The CTC EcoPart XL is designed to operate with high efficiency and a low noise level.

Keep this manual containing the installation and maintenance instructions. If you look after it properly, you will be able to enjoy using your CTC EcoPart XL for many years. This manual provides all the information you will need.

The CTC EcoPart XL is available in three different versions:

CTC EcoPart XL

Standard brine pumps
No charge pumps

CTC EcoPart XL LEP (low energy pump)

Low energy brine pumps
No factory-fitted charge pumps

CTC EcoPart XL 4xLEP (low energy pump)

Low energy brine pumps
Low energy charge pumps

Check list

The check list must always be completed by the installer

- If a service is needed, you may be required to provide this document
- The installation must always follow the instructions provided in the installation and maintenance manual
- The installation shall be carried out in accordance with all current and relevant building, water and electrical standards and accredited organizations recommendations

After installation, the system must be inspected and functional checks performed as indicated below:

Pipe installation

- The heat pump is filled, positioned and adjusted in the correct manner according to the instructions
- The heat pump is positioned so that it can be serviced
- Capacity of the charge/radiator pump (depending on system type) for the flow required
- Open radiator valves (depending on system type) and other relevant valves
- Tightness test
- The system has been bled
- Check the requisite safety valves operate properly
- Requisite waste pipes connected to floor drain (depending on system type)

Electrical installation

- Power switch
- Cable connections are tight
- Requisite sensors fitted
- Accessories

Customer information (adapted to the installation in question)

- Start-up done with customer/installer
- Menus/control for selected system
- Installation and maintenance manual supplied to customer
- Check and filling, heating system
- Information on fine adjustments
- Alarm information
- Functional test of safety valves fitted
- Warranty and insurance
- Information on how to report a fault

Date / Customer

Date / Installer

Don't forget!

Double check the following points at the time of delivery and installation:

- The product must be transported and stored upright.
- Remove the packaging and check before installation that the product has not been damaged in transit. Report any transport damage to the carrier.
- Place the product on a firm surface, preferably made of concrete.
If the product will be standing on a soft carpet, soft pads must be placed under the adjustable feet.
- Remember to leave a service area of at least 1 metre in front of the product.
- The product must not be placed below floor level either.
- Avoid placing the product in rooms with thin walls, as people in the adjoining room may be disturbed by the compressor and vibrations.
- Ensure that the dimensions of pipes used between the heat pump and the heating system are adequate.
- Ensure that the circulating pump that pumps water to the heat pump has sufficient capacity.

Safety precautions

The following safety precautions must be observed when handling, installing and using the product:

- Turn off the safety (power) switch before doing any work on the product.
- The product should not be flushed with water.
- When handling the product with a lifting eye or similar device, ensure that the lifting equipment, eyebolts and other parts are not damaged. Never stand under the hoisted product.
- Never jeopardise safety by removing bolted covers, hoods or other parts.
- Never jeopardise safety by deactivating safety equipment.
- Any work on the product's cooling system may only be performed by a qualified professional.
- This product is intended exclusively for indoor installation.



If these instructions are not followed during installation, operation and maintenance, Enertech's obligation under the applicable warranty terms is not binding.

1. Technical data

1.1 Table 400 V 3N ~

Electrical data		EcoPart 424	EcoPart 434
Rated power	kW	10.1	14.8
Rated current	A	18.2	23.0
IP class		IPX1	

Operational data for heat pump		EcoPart 424	EcoPart 434
Output from compressor ¹⁾ @ -5/45	kW	2 x 9.88	2 x 14.05
COP ¹⁾ @ -5/45	-	3.24	3.19
Output from compressor ¹⁾ @ 0/35 0/45 0/55	kW	2 x 11.75 2 x 11.24 2 x 10.97	2 x 16.24 2 x 16.14 2 x 15.87
COP ¹⁾ @ 0/35 0/45 0/55	-	4.54 3.64 2.95	4.36 3.61 3.07
Output from compressor ¹⁾ @ 5/35 5/45 5/55	kW	2 x 13.53 2 x 12.95 2 x 12.57	2 x 19.25 2 x 18.42 2 x 18.16
COP ¹⁾ @ 5/35 5/45 5/55	-	5.13 4.11 3.28	5.02 4.05 3.38
Max. operating current Compressor	A	18.3	23.0
Sound power according to EN 12102	dB(A)	53	57.6

¹⁾ EN14511:2007, inclusive:

Heating medium pump (EP406/408 - Stratos Tec 25/6 and EP410/412 - Stratos Tec 25/7)

Brine system pump (EP406/410 - Wilo Stratos Para 25/8 and EP412 - Wilo Stratos Para 25/12)

Heating system		EcoPart 424	EcoPart 434
Max temperature heating medium (TS)	°C	110	
Heating medium system min flow ²⁾	l/s	2 x 0.28	2 x 0.40
Kvs value $\Delta t = 10$ K, at min flow		2 x 5.5 (3.5 kPa)	2 x 5.9 (6 kPa)
Heating medium system nominal flow ³⁾	l/s	2 x 0.56	2 x 0.81

²⁾ At $\Delta t = 10$ K and 0/35 °C heat pump operation.

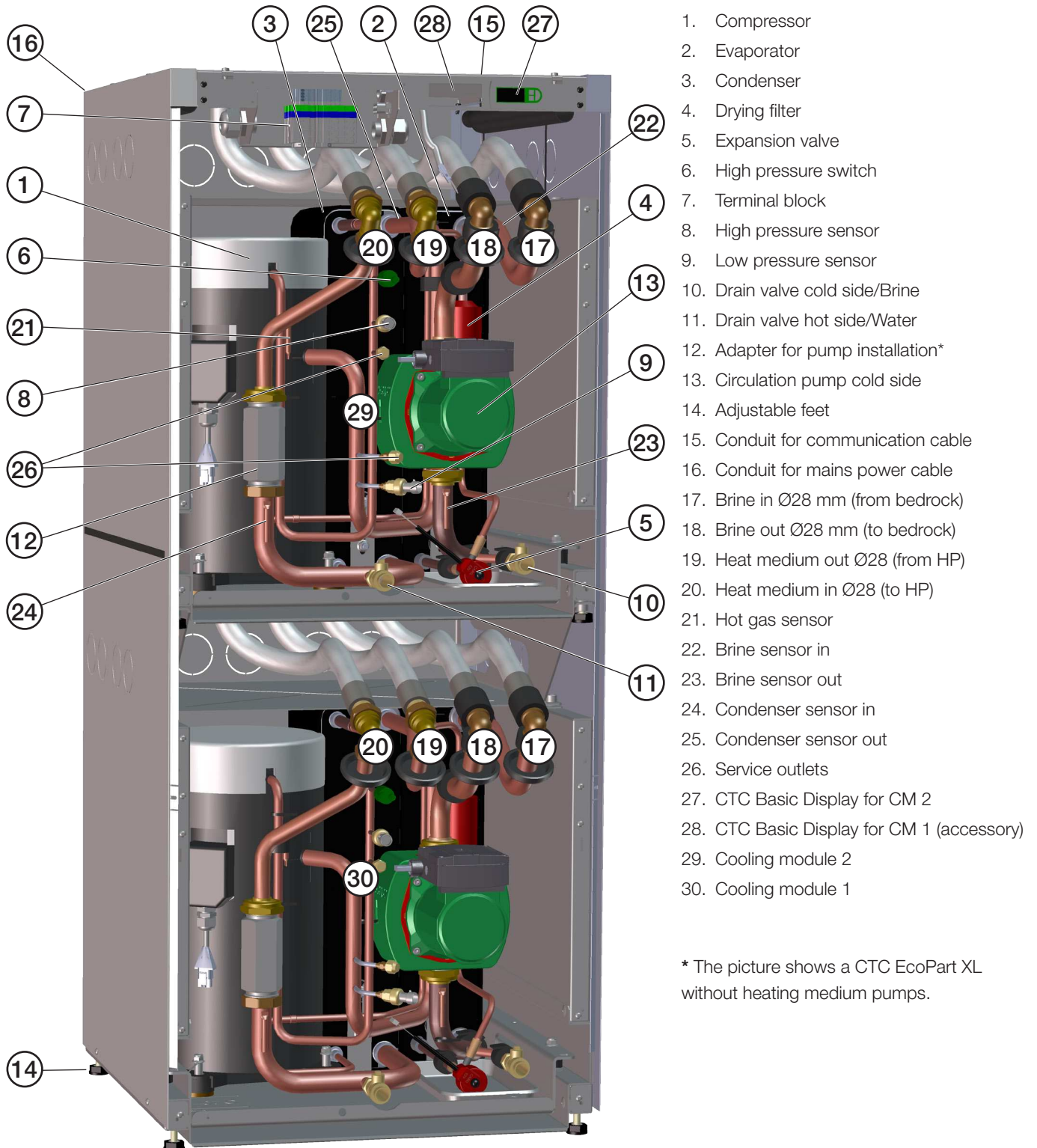
³⁾ At $\Delta t = 5$ K and 0/35 °C heat pump operation.

Brine system		EcoPart 424	EcoPart 434
Water volume (V)	l	4.07 x 2	
Brine system min./max. temp. (TS)	°C	-5/20	
Brine system min./max. pressure (PS)	bar	0.2/3.0	
Brine system min. flow, $\Delta t = 5$ K	l/s	2 x 0.44	2 x 0.63
Brine system nominal flow, $\Delta t = 3$ K	l/s	2 x 0.73	2 x 1.05
Kvs value $\Delta t = 3$ K, at nominal flow		2 x 6.4 (17 kPa)	2 x 7.7 (24 kPa)
Brine system pump, standard		TOP-S 25/10	
Brine system pump speed adjustment		3	
Brine system pump LEP*		Stratos Para 25/12	
Brine system pump LEP* speed		adjust to $\Delta t = 2-4$ K	
Pump capacity		see diagram in the Pipe installation chapter	

* Low Energy Pump

Other data		EcoPart 424	EcoPart 434
Refrigerant quantity (R407C)	kg	2 x 2.5	2 x 2.9
Interrupt value switch HP	MPa	3.1 (31 bar)	
Weight	kg	315	332
Width x Height x Depth	mm	596 x 1424 x 670	

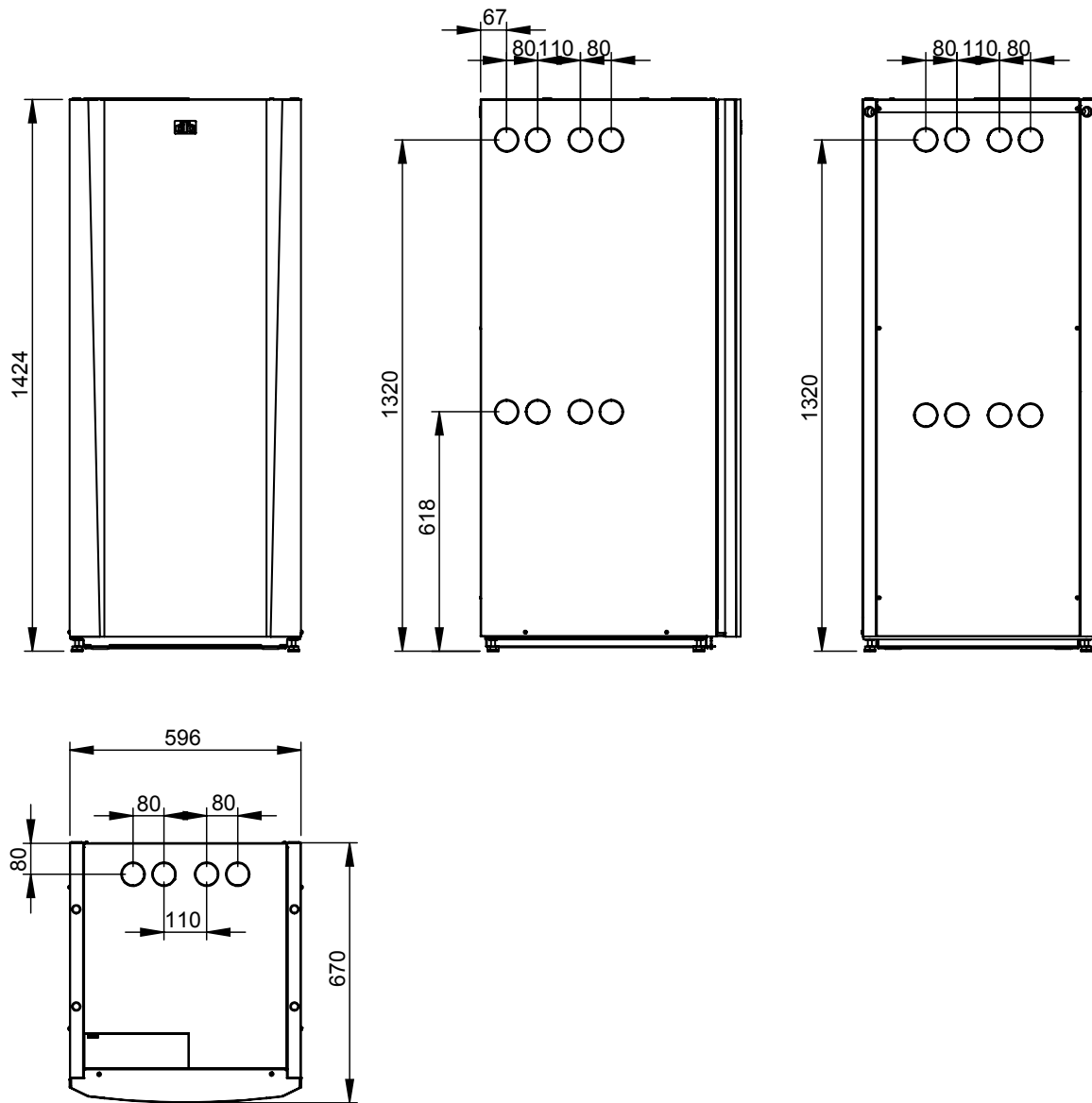
1.2 Component locations



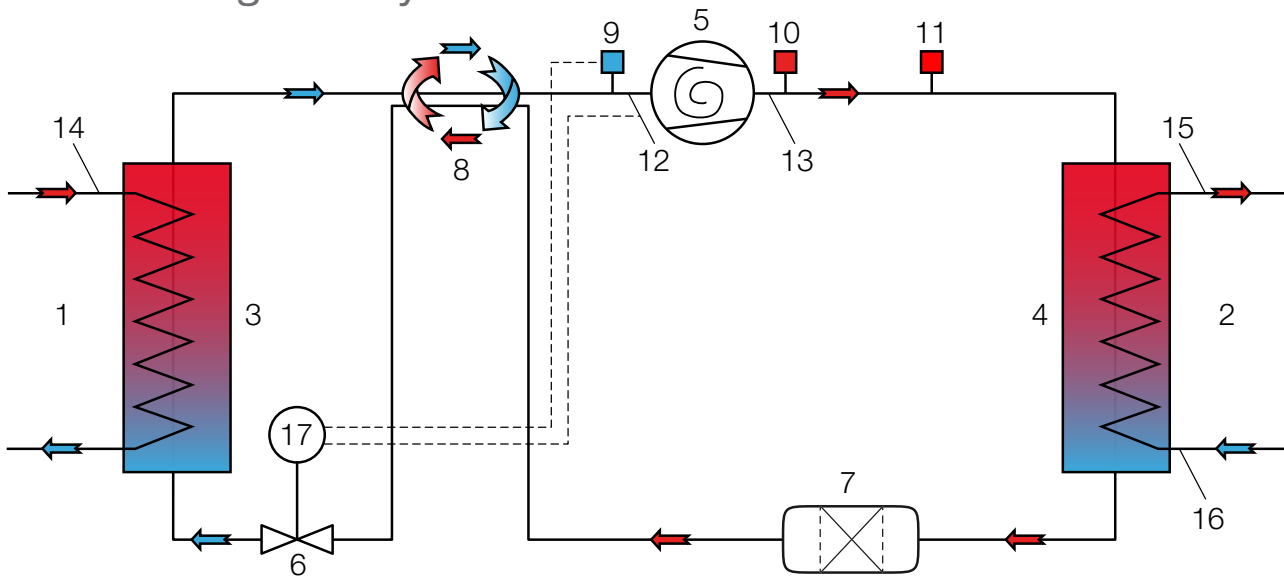
1. Compressor
2. Evaporator
3. Condenser
4. Drying filter
5. Expansion valve
6. High pressure switch
7. Terminal block
8. High pressure sensor
9. Low pressure sensor
10. Drain valve cold side/Brine
11. Drain valve hot side/Water
12. Adapter for pump installation*
13. Circulation pump cold side
14. Adjustable feet
15. Conduit for communication cable
16. Conduit for mains power cable
17. Brine in Ø28 mm (from bedrock)
18. Brine out Ø28 mm (to bedrock)
19. Heat medium out Ø28 (from HP)
20. Heat medium in Ø28 (to HP)
21. Hot gas sensor
22. Brine sensor in
23. Brine sensor out
24. Condenser sensor in
25. Condenser sensor out
26. Service outlets
27. CTC Basic Display for CM 2
28. CTC Basic Display for CM 1 (accessory)
29. Cooling module 2
30. Cooling module 1

* The picture shows a CTC EcoPart XL without heating medium pumps.

1.3 Dimensional drawing



1.4 Refrigerant system



- | | | |
|---------------------------------|--------------------------|-----------------------------|
| 1. Brine (heat source) | 7. Drying filter | 13. T hot gas |
| 2. Water | 8. Refrigerant exchanger | 14. T brine |
| 3. Evaporator | 9. Low pressure sensor | 15. T water out |
| 4. Condenser | 10. High pressure sensor | 16. T water in |
| 5. Compressor | 11. High pressure switch | 17. Expansion valve control |
| 6. Expansion valve (electronic) | 12. T suction gas | |

1.5 Operating range

The operating range of the heat pump is defined by the test standard EN 14511 and is given by the flow and return temperatures. The CTC EcoPart monitors the operating range continuously through pressure sensors. In many cases, the CTC EcoPart can achieve a higher flow temperature than that indicated by the operating range.

Operating range (flow/return in °C) according to EN 14511

-5/25

-5/61

+20/25

+20/59

2. Operation and maintenance

When the installer has installed your new heat pump, you should check together with the installer that the system is in perfect operating condition. Let the installer show you where the power switch, controls and fuses are so that you know how the system works and how it should be maintained. Bleed the radiators (depending on system type) after about three days of operation and top up with water if necessary.

2.1 Periodic maintenance

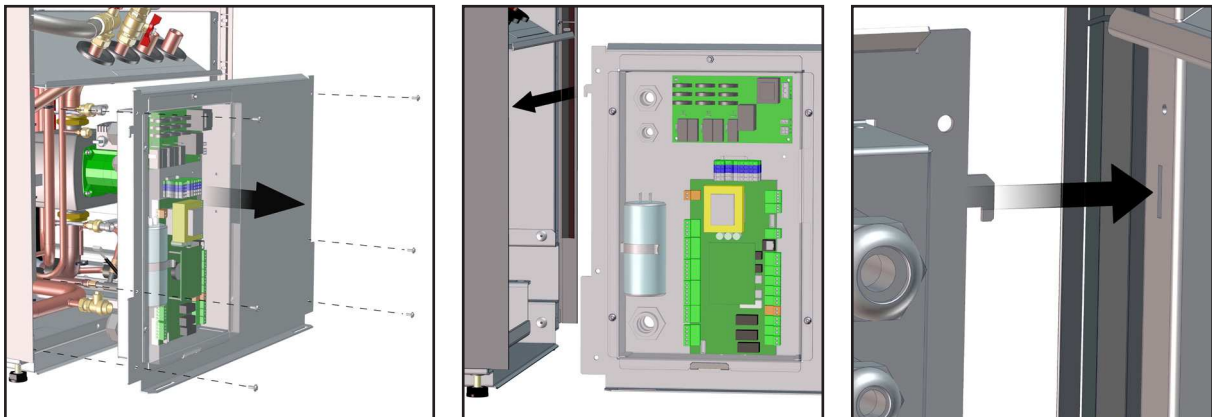
After three weeks of operation, then every three months in the first year. Then once a year:

- Check that the installation is free of leaks.
- Check that the product and the system are free of air; bleed if necessary, see the section Connecting the brine system.
- Check that the brine system is still pressurised and the fluid level in the brine vessel is adequate/correct.

2.2 Operational stoppages

The heat pump is turned off with the power switch. If there is a risk of the water freezing, drain out all the water from the CTC EcoPart XL.

2.3 Service mode



3. Troubleshooting/appropriate action

The CTC EcoPart XL is designed to provide reliable operation and a high level of comfort, as well as having a long service life. Here are some tips that may be helpful and guide you in the event of an operational malfunction.

If a fault occurs, you should always contact the installer who carried out the installation. If the installer believes the malfunction is due to a material or design fault, then they will contact Enertech AB to check and rectify the fault. Always quote the product's serial number.

3.1 Air problems

If you hear a rasping sound from the heat pump, check that it has been bled properly. Top up with water if necessary, so that the correct pressure is achieved. If this noise happens again, get a professional to investigate the cause.

3.2 Alarms

Any alarms and information texts from the CTC EcoPart XL are displayed on the product used to control it or on the CTC Basic Display; for this reason you should consult the appropriate manual for alarm codes.

4. Installation

This chapter is aimed at anyone responsible for one or more of the installations required to ensure that the product works in the way the property owner would like.

Take your time going through the functions and settings with the property owner and answer any questions they may have. Both you and the pump benefit from a user who fully understands how the system operates and should be maintained.

The installation shall be carried out in accordance with current standards within the relevant country, see building, water and electrical, regulations and governing bodies for the installation of renewable technologies within your region. The product must be connected to an expansion vessel in an open or closed system. **Do not forget to flush the radiator systems clean before connection.** Apply all the installation settings based on the description in the chapter called First start.

The heat pump operates with a flow/return temperature across the condenser of up to 65/58°C.

Transportation

Transport the product to the installation site before removing the packaging. Handle the product using one of the following methods:


- Forklift truck
- Lifting straps around the pallet. **Note:** Can only be used with the packaging on.

Removal of packaging

Take off the packaging when the heat pump is next to its installation site. Check that the product has not been damaged in transit. Report any transport damage to the carrier. Also check that the delivery is complete according to the list below.

Scope of delivery:

- 1 x CTC EcoPart XL heat pump
- 1 x safety valve (1/2" 3 bar)
- 4 x check valves (1 1/4")
- 4 x dirt filters (1 1/4")
- 4 x rubber grommets (D=60)
- 4 x edge mouldings (186 mm)
- Additional cable for CTC Basic Display (cooling module 1)

 The product must be stored and transported upright.

4.1 Connection

Connection can be on the right, left, top and rear of the heat pump. Cut away the cover plate on the side where the hoses are to be connected. When a hole has been made in the side plate, carry out the installation as follows:

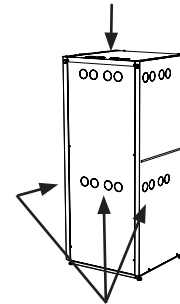
1. Place the protective edging provided around the edge of the hole in the insulation plate in order to protect the hoses. If necessary, adjust the length of the edging so that it fits in the hole.
2. Pass the hoses through the hole in the side cover plate and connect them. Ensure that the insulation covers all parts of the brine connection to prevent ice and condensation forming.
3. Then install the collector system.

It is also possible to connect the flow on one side and the return on the other. See Measurement information for measurements and dimensions. The dimension of the pipe between the heat pump and brine loop must not be less than $\varnothing 35$ mm.

4.1.1 Heating medium side

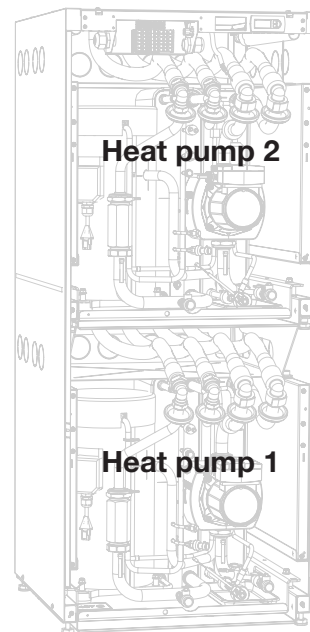
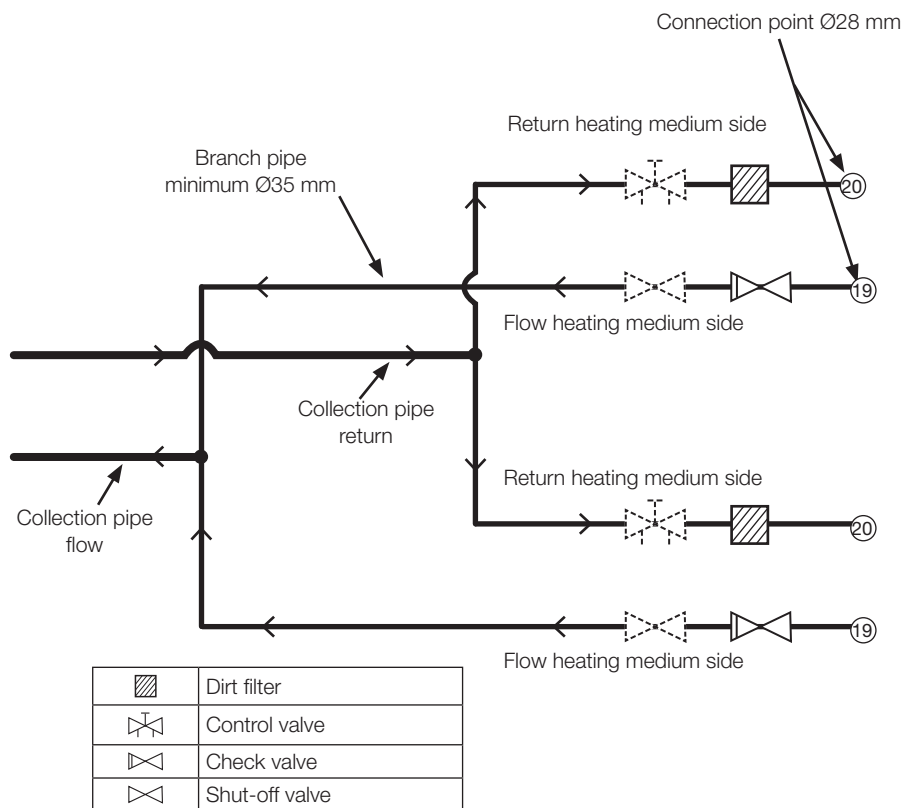
The heat pump is connected with at least $\varnothing 35$ mm and can then be taken into a collection pipe. The check valve and dirt filter are 1¼". The collection pipe is dimensioned according to the installation in question.

Route the pipes so that there is no other highest point where air can accumulate and prevent circulation. If this is unavoidable, provide this highest point with an automatic bleeder.



! When the lower cooling module is connected on the side, the rim must be insulated with the rubber strip to prevent it rubbing against the hose.

! It is very important that the branch pipes are exactly the same length when they go into the collection pipe.



4.1.2 Charge pumps

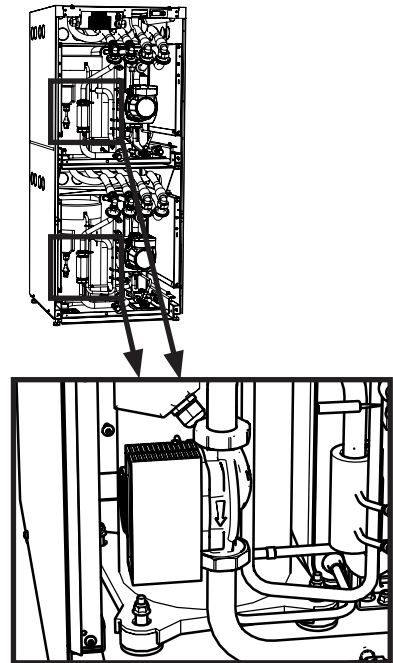
The CTC EcoPart XL is available in three different versions:

- CTC EcoPart XL
Standard brine pumps
No charge pumps
- CTC EcoPart XL LEP (low energy pump)
Low energy brine pumps
No factory-fitted charge pumps
- CTC EcoPart XL 4xLEP (low energy pump)
Low energy brine pumps
Low energy charge pumps

The selection of charge pump depends on the type of system. To ensure proper operation, the flows in the heating medium circuit should not be lower than the values in the table under Technical data. Ensure that the circulating pump fitted is large enough, so that there is sufficient flow through the heat pump. If the flow is too low, there is a risk that the high pressure switch will be triggered.

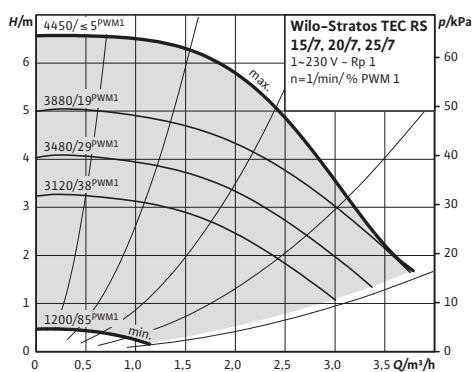
The charge pump can be connected either to the CTC EcoPart XL (provided it is installed internally) or to the product used to control it. For internal installation one of the following is normally selected:

- CTC EcoPart 424 Stratos Tec 25/7 CTC item no.: 58 50 33 301
- CTC EcoPart 434 Grundfos UPM GEO 25-85 CTC item no.: 58 59 33 301



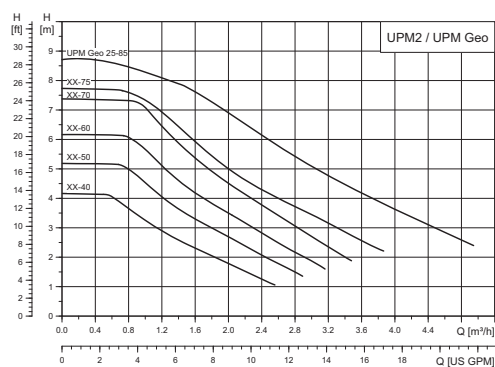
Wilco Stratos Tec 25/7

(Only CTC EcoPart 424 4xLEP)



Grundfos UPM GEO 25-85

(Only CTC EcoPart 434 4xLEP)



4.1.3 Control/power supply

CTC EcoLogic Pro

Up to 10 heat pumps can be connected to a CTC EcoLogic Pro, i.e. five EcoPart XL units. The charge pumps in heat pumps 1 and 2 can then be connected to the CTC EcoLogic Pro. A charge pump for heat pumps 3–10 must be installed and connected to the CTC EcoPart XL.

CTC EcoZenith v3

The PWM pump is connected to the CTC EcoPart XL and controlled by the heat pump. If a 0–10 V pump from CTC or a non-speed-controlled pump is used, see the manual for a CTC EcoZenith.

Standalone mode

The charge pump is connected to the CTC EcoPart XL and controlled using the CTC Basic Display.

4.2 Connecting the brine system

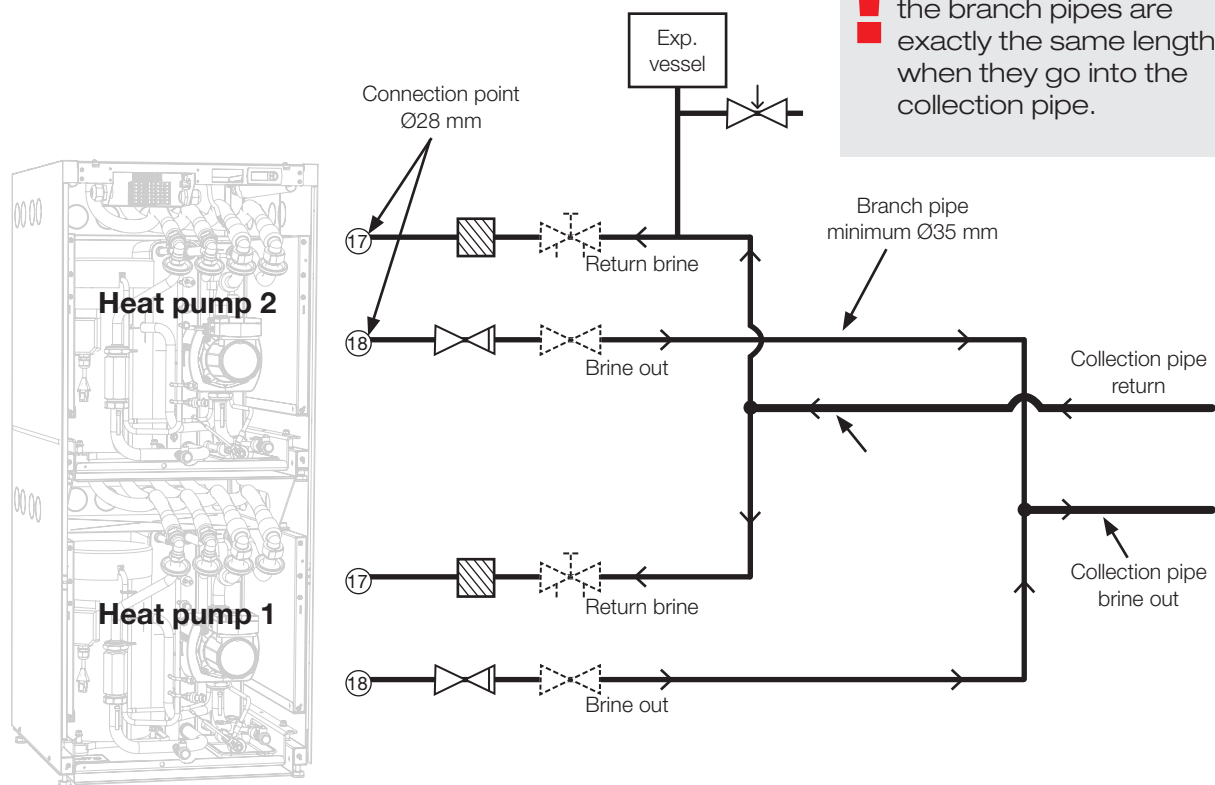
The installation and connection of the brine system, i.e. collector to bedrock or ground, shall be carried out by a qualified professional in accordance with current regulations.

Take all precautions to ensure that no debris gets into the collector hoses, which must be flushed clean before being connected. Always leave the cover plugs in place during any work.

The temperature of the brine system can fall below 0°C. This is why it is important not to use water-based lubricants etc. during installation. It is also important for all parts to be insulated against condensation to prevent ice forming.

! We recommend that you follow the installation instructions from the local heat pump association.

! It is very important that the branch pipes are exactly the same length when they go into the collection pipe.

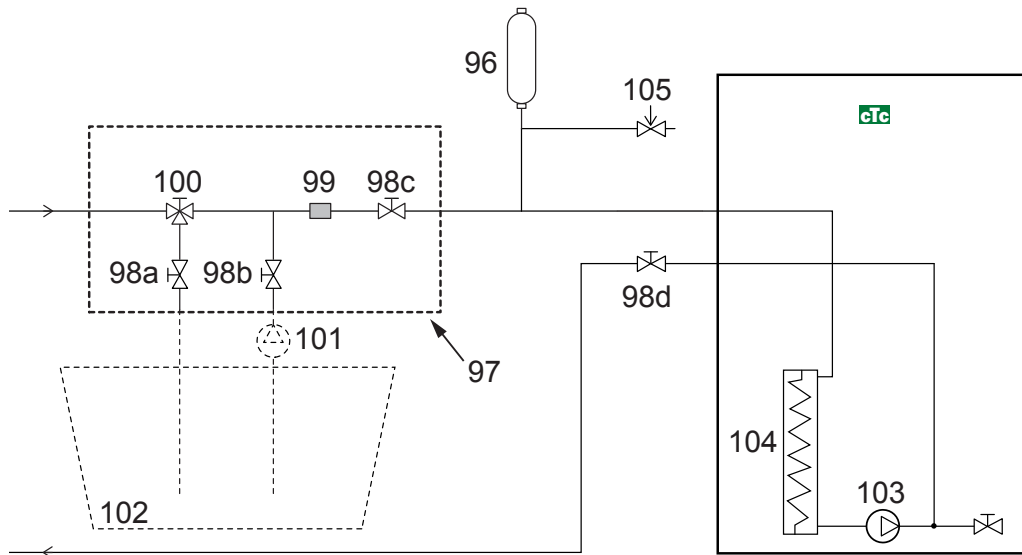


	Dirt filter
	Control valve
	Check valve
	Shut-off valve

Schematic diagram, filling

The filling equipment is represented by the parts drawn with dashed lines. Note: It must be possible to bleed the collector pipes wherever air pockets can form. Always check the filter (99) when filling and bleeding the brine system.

! The mixing vessel and pump should be a good size.



96	Level/expansion vessel	101	External filling pump
97	Filling kit	102	Mixing vessel
98	Shut-off valve	103	Brine/refrigerant pump
99	CTC filter	104	Evaporator
100	3-way valve	105	3 bar safety valve

Valves

To make it easier to service the cooling unit, shut-off valves must be fitted to both the incoming and outgoing connections. Fit bifurcated valves so that you can fill and bleed the collector loop later on.

Bleeding

The collector loop should not contain any air. Even very small amounts of residual air can jeopardise the heat pump's operation. See Filling and bleeding below.

Insulation against condensation

All pipes in the brine system must be insulated against condensation, otherwise heavy ice and condensation may form.

Topping up and bleeding

Mix water and antifreeze solution in an open vessel. Connect the hoses to the shut-off valves (98a and 98b) as shown in the diagram. Connect a powerful external pump (101) for filling and bleeding. Then reset the three-way valve (100) and open the valves (98a and 98b) so that the brine passes through the mixing vessel (102). Also make sure that the valve (98d) is open.

For brine pump start-up, see the relevant manual for the EcoPart control system.

Allow the brine to circulate in the system for a long period of time until it is completely free of air. There may still be pockets of air even if no air comes out with the fluid. Reset the three-way valve (100) so that any remaining air can come out.

Bleed the level vessel (96) by loosening the plug at the top of the level vessel. Now close the valve (98a) while the filling pump is still running. The filling pump (101) now pressurises the system. Also close the valve (98b) and turn off the filling pump.

If the level in the level vessel is too low, close the valves (98c and 98d).

Unscrew the plug and fill the vessel to about 2/3 full. Screw the plug back in and open the valves (98c and 98d).

Checking the brine system after installation

After a few days, you should check the fluid level in the vessel. Top up if necessary and then close the valves (98c and 98d) when filling.

Expansion vessel

The vessel should be fitted to the incoming pipe from the bedrock or ground source, at the system's highest point. Remember that the vessel can produce condensate. Fit the safety valve (105) as shown in the schematic diagram and fit a suitable plug to the top of the vessel.

If the vessel cannot be fitted at the highest point, a closed expansion vessel must be fitted.

Filling kit with dirt filter


Arrows on the valve housing indicate the direction of flow. When cleaning the filter, close the valves (98c and 100). Unscrew the filter cap and flush the filter clean. When refitting, the pin under the filter holder should be pushed into the designated hole in the filter housing. Top up with a little brine, if necessary, before fitting the cap.


After a short period of operation, the filter should be checked and cleaned.

Brine

The brine circulates in a closed system. The fluid consists of water and antifreeze solution. Ethanol is recommended, e.g. Svedol or Brineol. The alcohol is mixed to a concentration slightly lower than 30%, which is equivalent to fire risk class 2b and a freezing point of approx. -15°C.

You should allow for approx. 1 litre of ready-mixed brine per meter of collector hose, i.e. approx. 0.3 litres of antifreeze solution will be needed per metre of hose, for a hose diameter of 40 mm.

 Check the dirt filter once bleeding is complete.

 The fluid must be mixed thoroughly before the heat pump is started.

Air pockets

To avoid air pockets, make sure that the collector hoses constantly rise towards the heat pump. If this cannot be done, it must be possible to bleed the system at the high points. The filling pump usually manages smaller local height discrepancies.

Checking brine difference

When the heat pump is running, regularly check that the temperature difference between the incoming and outgoing brine temperature is not too high. If the difference is quite high, one of the reasons for this may be air in the system or a blocked filter. If this is the case, the heat pump triggers the alarm for this.

The factory setting for the alarm is 7 °C, but 9 °C is permitted for the first 72 hours that the compressor is in operation, as microbubbles in the system can reduce brine flow.

Brine pump, standard

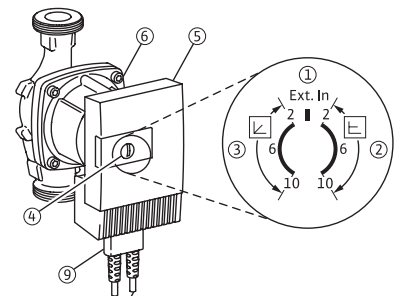
The brine pump has three speeds. A different speed can be set depending on the length of the brine hose being used. With ground source heat, for example, the hose is longer than for geothermal (bedrock) heat, which can therefore mean a greater need for a higher speed. The speed of the brine pump is set so that the difference in temperature between brine in and brine out is approx.: 3 °C.

Brine pump – low energy pump (LEP)

The brine pump can be set to two different control settings: pressure-regulated speed or constant speed. Since the brine system has a fixed pressure drop, constant speed must be set. See the diagram showing setting of the brine pump. The pump setting is affected by the pressure drop in the circuit. For this reason, the setting should be reviewed at each installation. In general, constant operating pressure (option 2) must be selected. Try different settings to find one that is suitable.

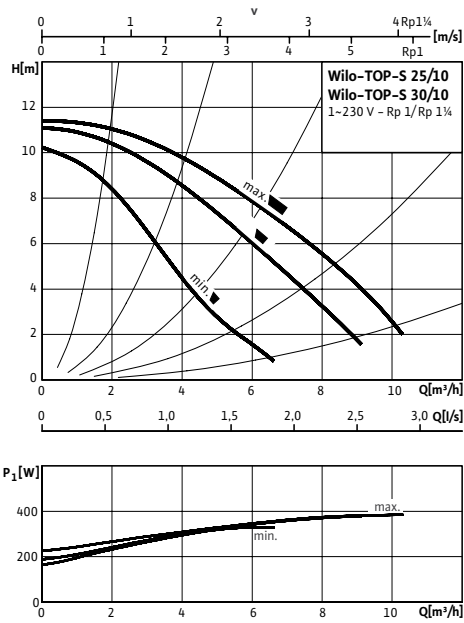
To attain good system performance, the pump must be adjusted. Try to achieve a temperature difference of approx. 2–4 K.

Set the red button to setup option 2. Adjust so that the correct temperature difference is obtained.



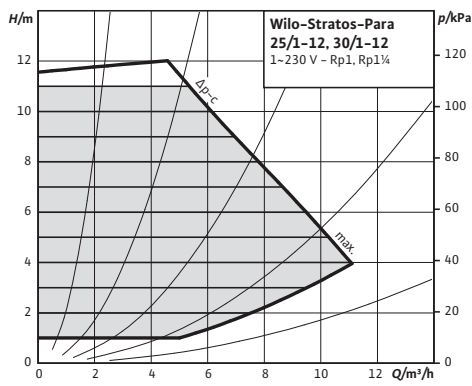
4.2.1 Pump curves, brine

Standard pump TOP-S 25/10

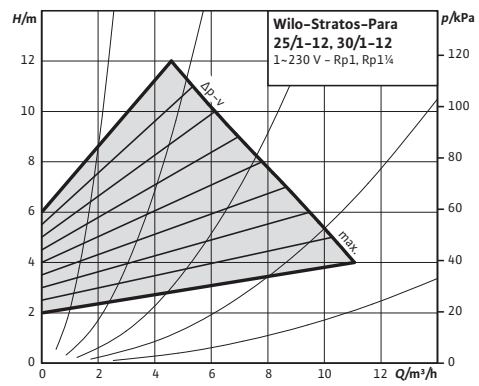


Low energy pump (LEP) Wilo-Stratos PARA 25/12

Δp -c (constant)



Δp -v (variable)



5. Electrical installation

Installation and switching in the heat pump shall be carried out by a qualified electrician. All wiring should follow current regulations.

The communication cable used is an LiYCY (TP), which is a 4-conductor shielded cable, where the communication conductors are twisted pairs.

Using another cable will mean that the colours of the conductors may not match, so you need to check that the colours of the conductors from unit 1 are connected to the same colours on unit 2.

Power supply

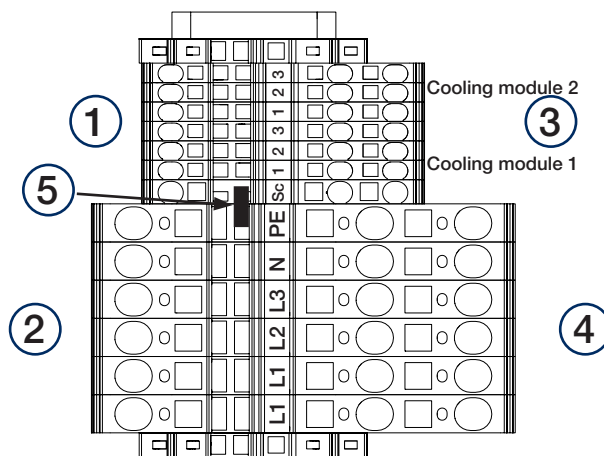
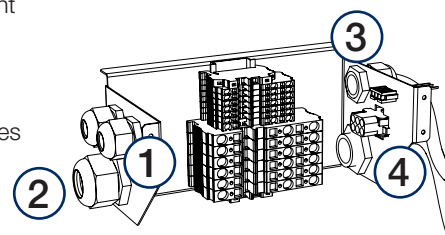
The CTC EcoPart XL must be connected to 400 V 3N ~ 50 Hz and protective earth. The minimum group fuse size is shown in the rated current column under Technical data.

Safety switch

The installation shall be preceded by an all-pole safety switch which ensures disconnection from all electrical power sources.

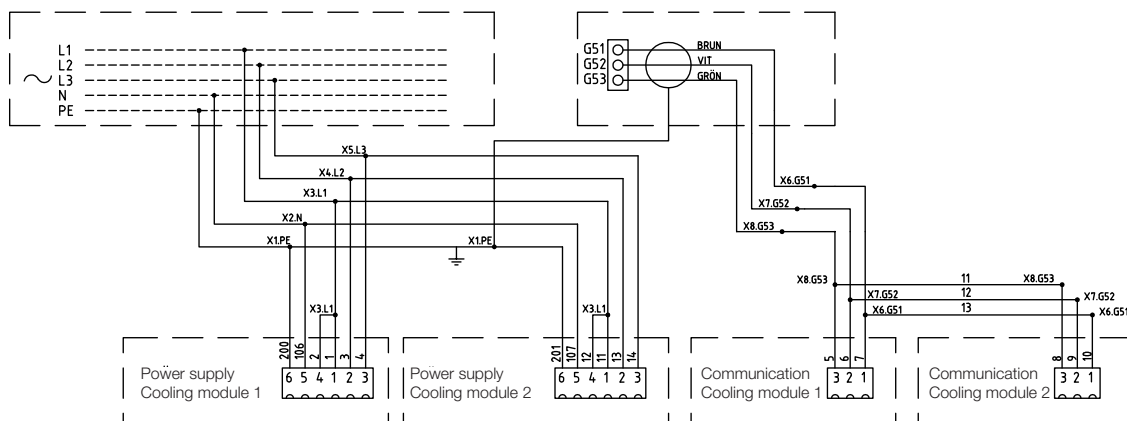
Connection

The connection to the CTC EcoPart XL is made with a 5-conductor cable that supplies the heat pump with electric power.



1. Incoming control signal
2. Incoming electrical supply
3. Internal control signal
4. Internal connection 3x400 V
5. Jumper for shielding

Wiring diagram, connection

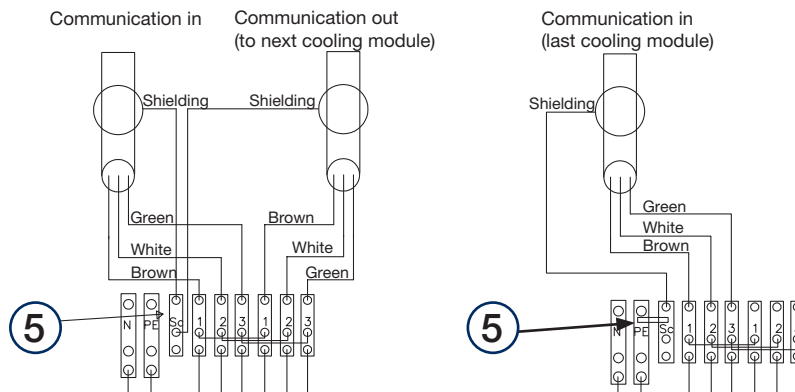
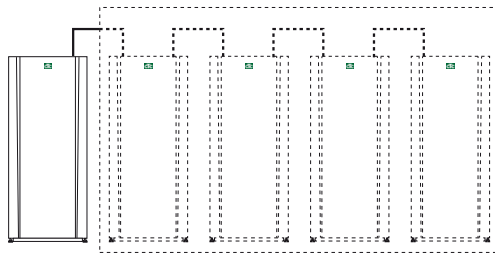


5.1 Series connection of heat pumps

When connected in series, the shielding of the communication cable on the last heat pump shall be connected to earth (see Shielded communication) and the heat pump shall also be terminated (see Terminated position).

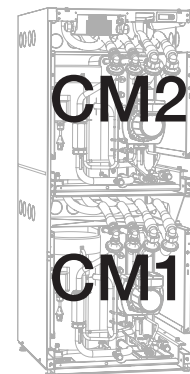
5.1.1 Shielded communication

The jumper (5) located between position PE on the control terminal block and position Sc on the mains terminal block must be removed from all heat pumps except the last one in the connection chain, and the shielding for the cable that is redirected to the next heat pump must be connected to the same terminal block as the incoming shielding.



5.1.2 Terminated position

The last heat pump (the cooling module) connected in series must be terminated. The top cooling module (CM2) is pre-terminated at the factory – ON, but not cooling module 1 (CM1) – OFF. Cooling module 1 may not be terminated since this interrupts the communication. Ensure that DIP switch 2 is in the ON position on the cooling module that is to be terminated.



5.2 Alarm output

The EcoPart is equipped with a potential-free alarm output that is activated if any alarm is active in the heat pump. This output can be connected to a maximum load of 1 A 250 V AC. An external fuse should also be used. A cable approved for 230 V AC must be used to connect this output, irrespective of the load connected. For information on connection, see the wiring diagram.

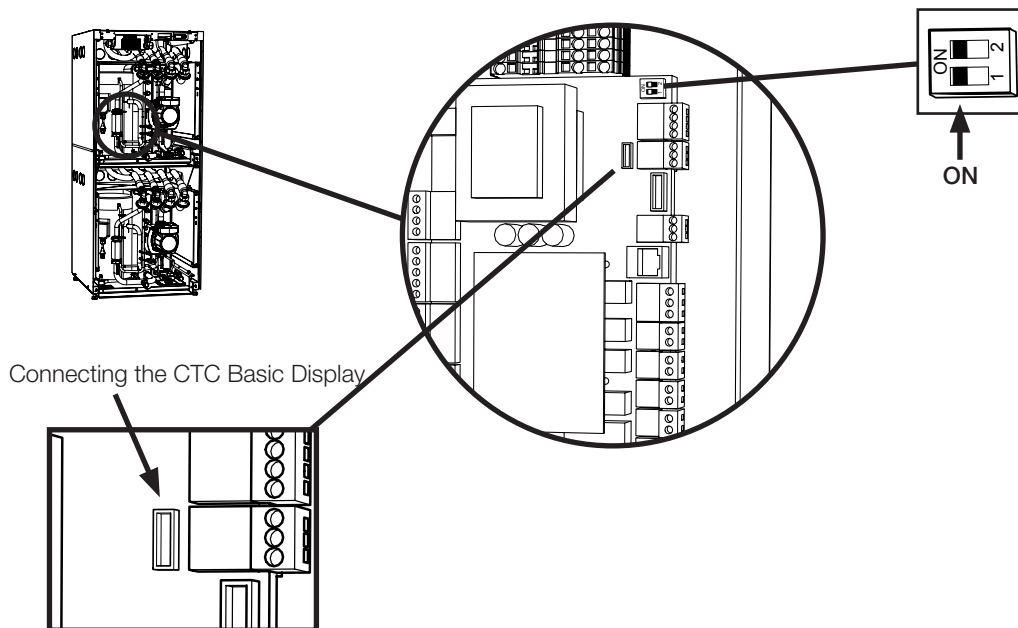
5.3 CTC Basic Display

The heat pump can be run without a parent system (standalone) by using the CTC Basic Display. The CTC EcoPart can then be controlled with a fixed return temperature or with thermostat control. See the manual for the CTC Basic Display for more information.

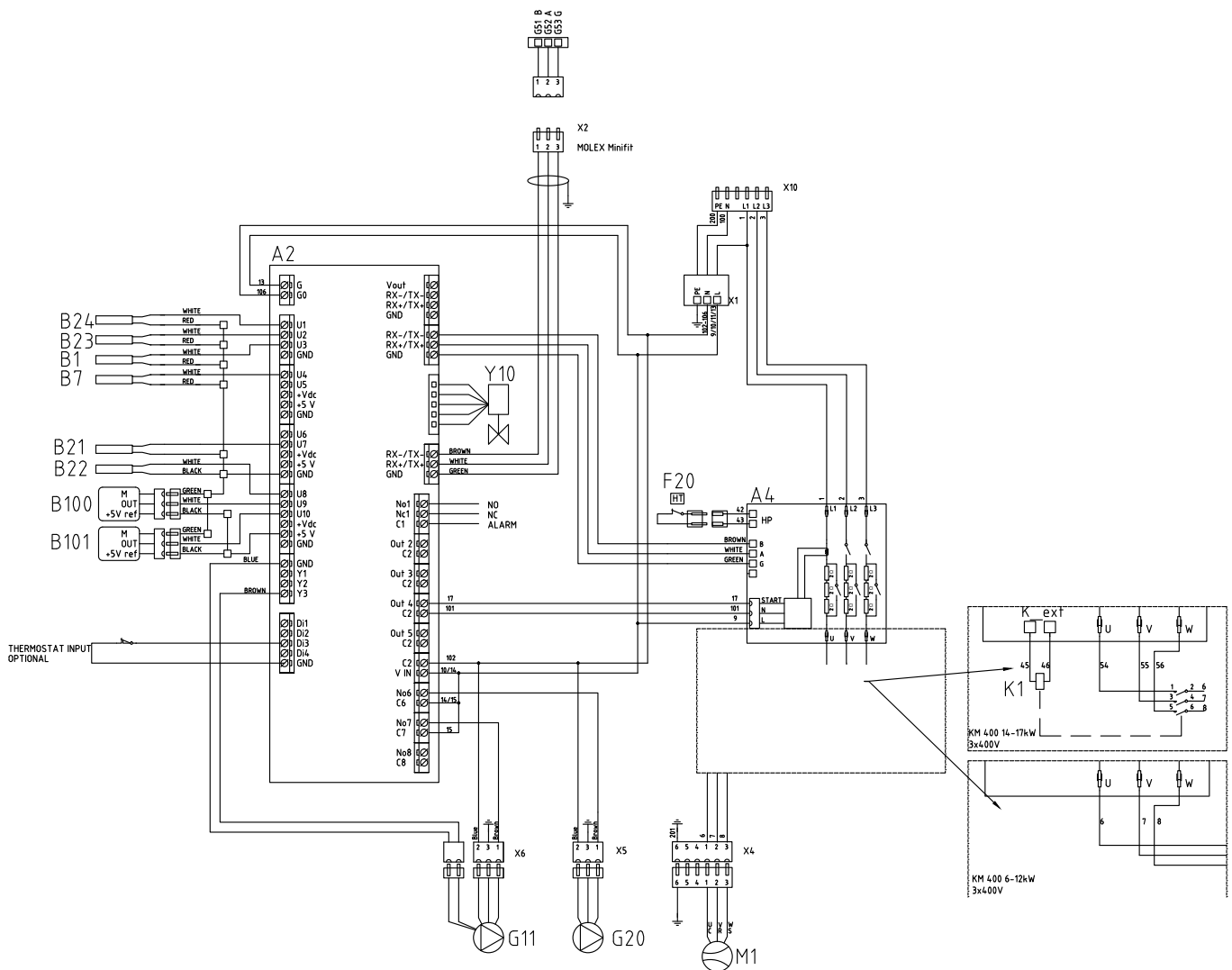
The CTC EcoPart XL is installed with a CTC Basic Display as standard. It is pre-connected to cooling module 2 at the factory. Switching is required to control cooling module 1; use the cable supplied. To activate the CTC Basic Display on cooling module 1, it must be connected as shown below, and a DIP switch set to the ON position.



CTC Basic Display



5.4 Wiring diagram 400V 3N~



Components

A2	Relay/main PCB	C1	Capacitor compressor (1-phase)
A4	PCB white softstarter, motor protection and contactor function	F20	Highpressure switch
B1	Primary flow sensor 1	G11	Charge pump (accessory)
B7	Return sensor	G20	Brine pump
B21	Hotgas sensor	K1	Contactor 1
B22	Suctiongas sensor	K10	Relay (1-phase)
B23	Brine sensor in	M1	Compressor
B24	Brine sensor out	Y10	Expansion valve
B100	Highpressure sensor		
B101	Lowpressure sensor		

6. Connecting the control system

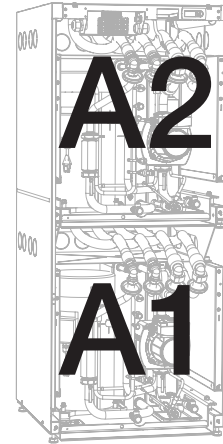
6.1 General

All CTC EcoPart XL units are pre-addressed to A1 (bottom) and A2 (top) at the factory.

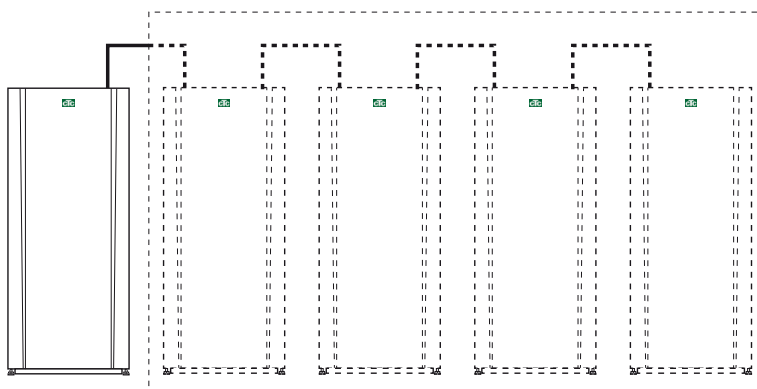
The CTC Basic Display is connected to the top cooling module A2.

To change the address of a cooling module (e.g. from A2 to A3), it is sufficient to switch over the CTC Basic Display to the relevant cooling module, and then change. For more information, see the manual for the CTC Basic Display.

When connecting products with different control systems (V3/V4), the CTC Converter accessory is needed to interpret the signals between the products. For connection information, see the manual for the CTC Converter.

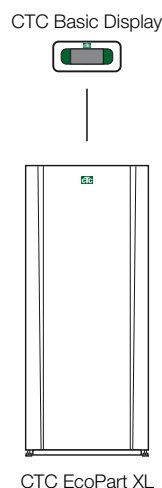


The EcoPart XL is pre-addressed as above at the factory.



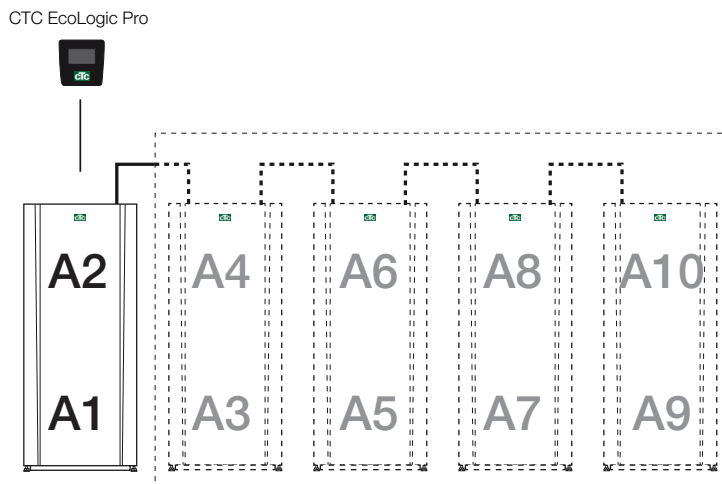
6.2 Connection option 1 – Standalone

The CTC EcoPart XL can be run on the basis of an existing boiler via the CTC Basic Display. This can be done using a fixed return temperature (fixed condensing) or using thermostat control. Read more about this in the manual for the CTC Basic Display.

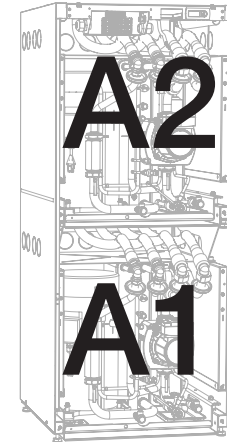


6.3 Connection option 2 – CTC EcoLogic Pro

When a CTC EcoLogic Pro is connected, up to five CTC EcoPart XL units can be connected to it. For different connection options, see the manual for the CTC EcoLogic Pro.



The EcoPart XL is pre-addressed to A2 and A1 at the factory. The heat pumps can be addressed as in the example above by using the CTC Basic Display.



The EcoPart XL is pre-addressed as above at the factory.

! When connected in series, the last heat pump must be set to the terminated position. Read more about this in the chapter Electrical installation under Terminated position.

6.4 Connection option 3 – CTC EcoZenith I 550

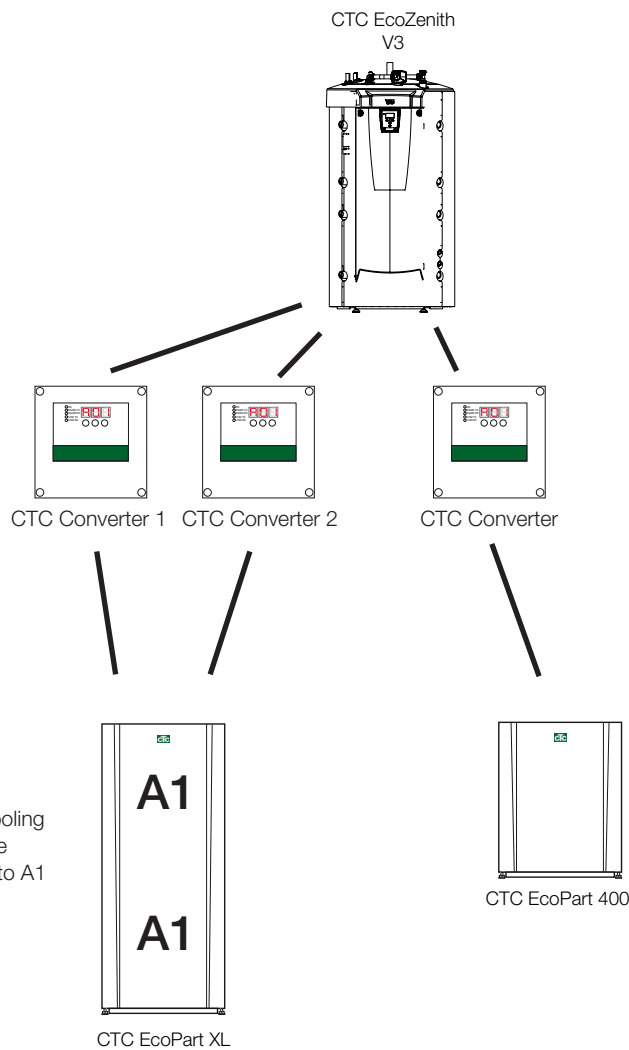
CTC EcoZenith I 550

The CTC EcoZenith version 3 is available in two different versions: an earlier variant with only one communication port and a later one with three communication ports. The later one will have a serial number starting from:

Serial no.	Item no.	Model
7250-1222-0139	583700001	CTC EcoZenith I 550 3x400 V
7250-1222-0169	584892001	CTC EcoZenith I 550 3x230 V
7250-1222-0172	584890001	CTC EcoZenith I 550 BBR
7250-1222-0172	584893001	CTC EcoZenith I 550 1x230 V

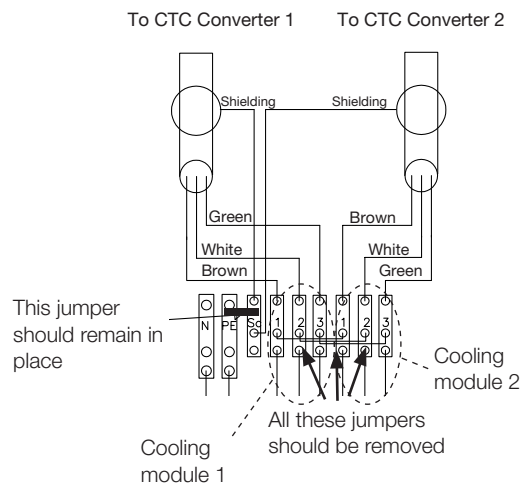
For the later variant, a CTC Converter is needed for each version 4 heat pump (cooling module). See the manual for the CTC Converter for connection information.

! Version 3 (V3) relates to models produced from 2006 onwards.



Both the cooling modules are addressed to A1

Switching in CTC EcoPart XL



7. First start

1. Check that the Heat Pump system is full of water and has been bled.
2. Check that all connections are tight.
3. Check that sensors and the radiator pump etc. are connected to the power source.
4. Power up the pump by turning on the safety switch (the main switch).

When the system has heated up, check that all connections are tight, the various systems have been bled, heat is coming out into the system and hot water is coming out of the taps.



Enertech Group

Försäkran om överensstämmelse
Déclaration de conformité
Declaration of conformity
Konformitätserklärung

Enertech AB
Box 313
S-341 26 LJUNGBY

försäkrar under eget ansvar att produkten
confirme sous sa responsabilité exclusive que le produit,
declare under our sole responsibility that the product,
erklären in alleiniger Verantwortung, dass das Produkt,

CTC EcoPart 406 / 408 / 410 / 412 / 414 / 417 / 424 / 434

som omfattas av denna försäkran är i överensstämmelse med följande direktiv,
auquel cette déclaration se rapporte est en conformité avec les exigences des normes suivantes,
to which this declaration relates is in conformity with requirements of the following directive,
auf das sich diese Erklärung bezieht, konform ist mit den Anforderungen der Richtlinie,

EC directive on:
Pressure Equipment Directive (PED) 97/23/EC, Modul A
Electromagnetic Compatibility (EMC) 2004/108/EC
Low Voltage Directive (LVD) 97/23/EC

Överensstämmelsen är kontrollerad i enlighet med följande EN-standarder,
La conformité a été contrôlée conformément aux normes EN,
The conformity was checked in accordance with the following EN-standards,
Die Konformität wurde überprüft nach den EN-normen,

EMC

Emission: EN55014-1:2007 EN61000-3-2:2006 -A1:2009 -A2:2009 EN61000-3-3:2008

Immunity: EN55014-2:1997 -A1:2001 -A2:2008 EN61000-4-3 -4 -5 -6 -11^{*)}

^{*)} Maximum permissible system impedance : $Z_{sys1}(d_{max}) = 0.349\Omega$

LVD

SS-EN 60 335-1

SS-EN 60 335-2-40

Ljungby 2012-05-07

Lars Nordh

R&D Manager

