Installation Guide

Cooling module passive, PT1000, PT1000 230V & Legend

Passive PT1000 (Atlas & Calibra) Passive PT1000 230V (Calibra RXT) & Passive (Legend)

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Thermia AB is not liable or bound by warranty if these instructions are not adhered to during installation or service.

The English language is used for the original instructions.
Other languages are a translation of the original instructions.
(Directive 2006/42/EC)

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1 Important information/Safety instructions

1.1 General safety precautions

Warning 	This appliance can be used by children aged 8 years and above, and by persons with reduced physical, sensory or mental capabilities or lack of experience or knowledge, provided that they are supervised or have been instructed in the safe use of the appliance and understand the hazards involved. Children must not clean or carry out user maintenance on the appliance except under adult supervision.
Warning 	Ensure that children do not play with the product.
Warning 	The installation must only be carried out by a qualified installation engineer, following applicable rules and regulations in addition to these installation instructions.
Caution 	Only spare parts approved by Thermia AB may be used for this appliance.
Caution 	Condensate insulation is required.
Caution 	Ensure that any condensate dripping from the unit cannot damage the property.
	To prevent leaks ensure that there are no stresses in the connecting pipes!
	It is important that the heating and brine circuits are completely bled after installation.
	Bleed valves must be installed where necessary.

1.2 About the document

This manual is only intended for professional and trained installers and electricians with prior experience in installing heat pumps & accessories. Industrial standards, common branch practice and local regulations must always be followed, even if not explicitly stated in this document.

2 Installation

2.1 Installation

PT1000 model:
In order to be able to use the Cooling module for Calibra, EM3 is required to be installed in the heat pump. The supported heat pumps are Calibra and Atlas. Genesis software version 7.00 or later is required.

Atlas can use distribution circuit 1, Input/Output used for cooling and will then not require EM3 .

PT1000 230V model:

Calibra RXT can use distribution circuit 1 on the BM-card and EM4 will not be required.

Legend model:
When using the cooling module with the Legend heat pump, the expansion card for the 920/921 controller is required to be installed in the heat pump.

2.1.1 Dimensions and connections

The cooling module can be mounted vertically or horizontally on the wall, in any way except upside down. The central distance between the holes is 307mm and 302.5mm for vertical respectively horizontal installation. Pipe connections are displayed in figure 1 and table 1.

Table 1, Position	Name
A	Brine line out Ø28
B	Brine line in Ø28
C	Cooling return line Ø22
D	Cooling supply line Ø22

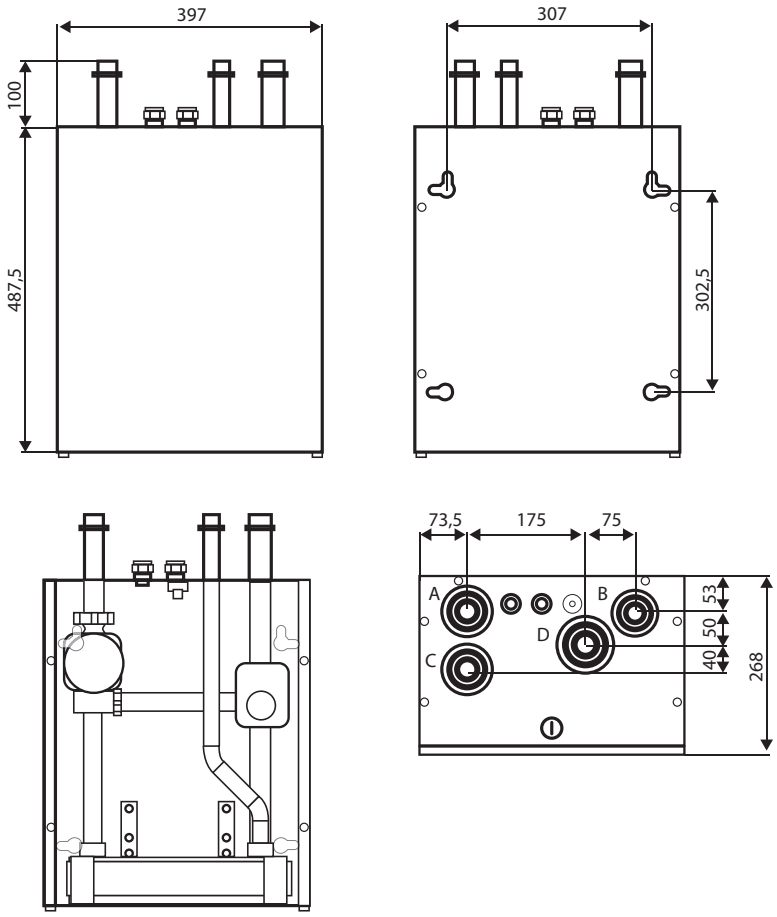


Fig. 1: Functional dimensions and pipe connections.

In figure 2 and table 2 the installations is displayed, with the cooling circuit on a separate system. In figure 3 the system is displayed with the cooling and heating circuit integrated on the same distribution system.

Table 2, Position	Name
1	Cooling module
2	Cooling circuit
3	Heat pump
4	Ground source
5	Combined cooling/heat circuit
6	Sensor, factory fitted in Cooling Module

Cooling module attached to ground source with separated cooling circuit. To avoid problems with air in the system, it is recommended to keep the brine circuit pressurised, in most applications.

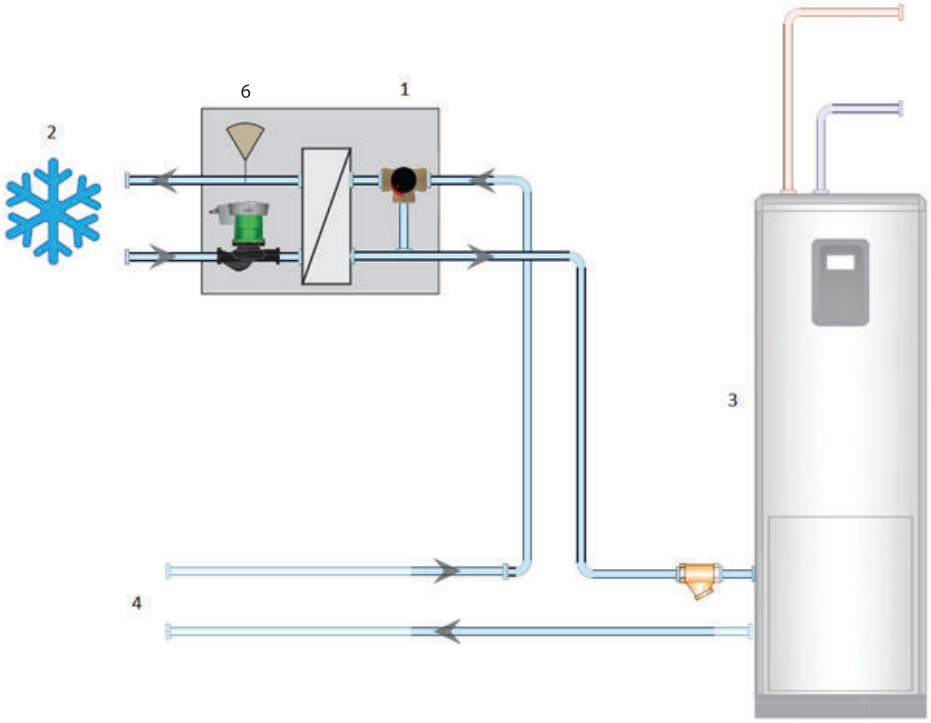


Fig. 2: Cooling module attached to ground source with separated cooling circuit.

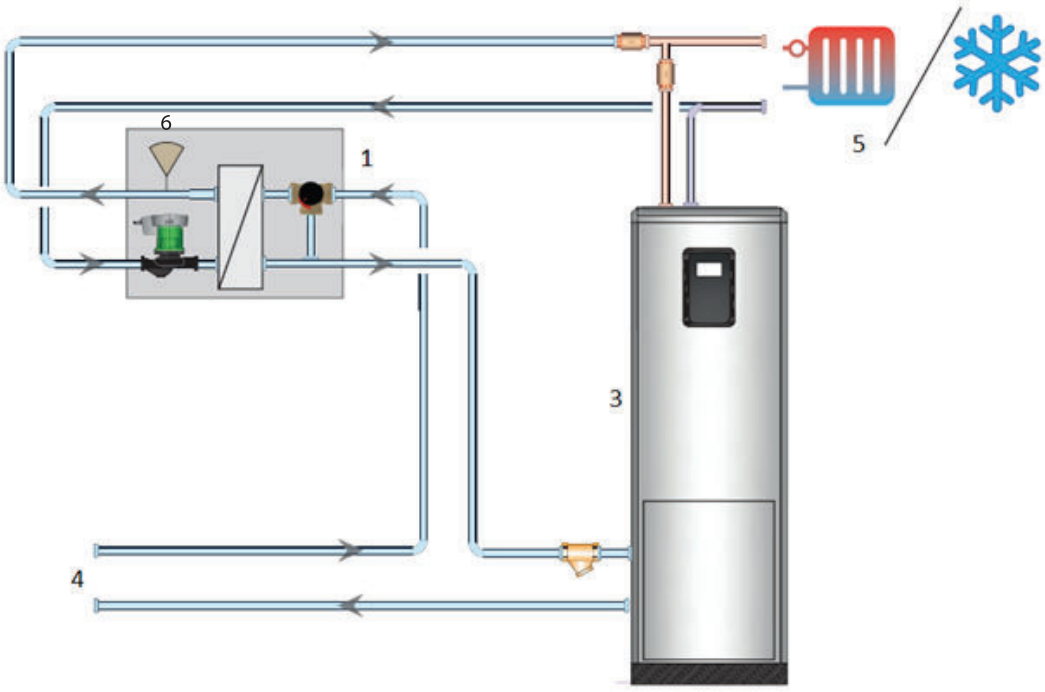


Fig. 3: Cooling module attached to ground source with combined cooling and heat circuit.

3 Electrical installation

3.1 Electrical installation for Calibra, Atlas

PT1000 model

Cooling module with EM3 (required for Calibra, optional for Atlas)

In figure 4 the electrical connections to EM3 is showed. For full description see EM3 documentation.

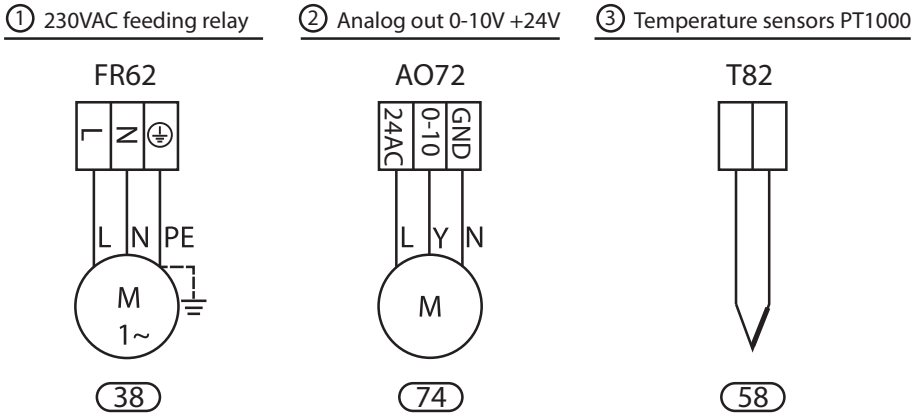


Fig. 4: Electrical connections to EM3 card.

1. 230VAC feeding relay (38), circulation pump, cooling circuit
2. Analog out 0-10V (74), shunt cooling
3. Temperature sensors PT1000 (58), sensor, cooling circuit

Commissioning after installation with EM3:0

1. Login: Press padlock, 607080 and confirm
2. Go to SETTINGS/INSTALLATION and activate cooling on EM3:0
3. Go to SETTINGS/COOLING and turn on Passive cooling function
4. Make desired settings, for example:
   A) Seasonal cooling temp = what outdoor temperature the seasonal cooling integral shall count on B) Desired cooling temp = set target for the regulation of cooling supply line
5. Restart heat pump and check functionality

PT1000 model

Cooling module without EM3 (Atlas only)

Position numbers you see in this documentation are for cooling function only (position numbers on the printed electrical sheet attached to the electrical cabinet in the heat pump are for heating).

The heat pump model Atlas can also use built in connections for distribution circuit 1 and then, do not require EM3.

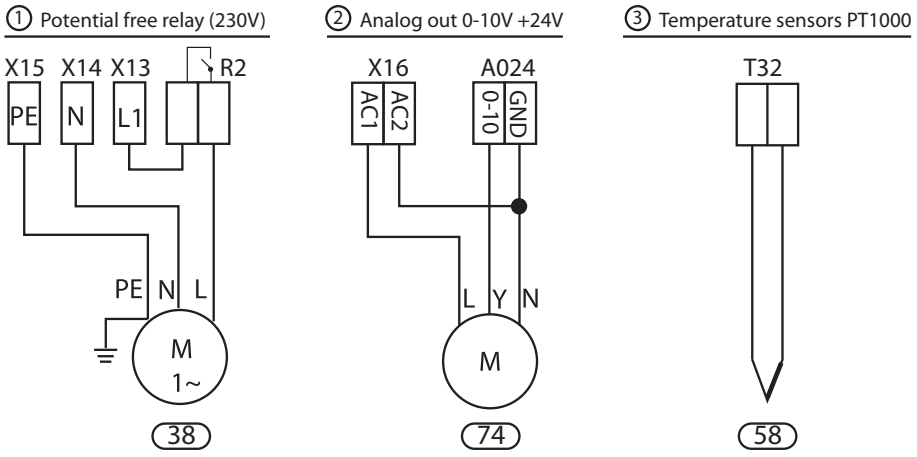


Fig. 5: Electrical connections to BM card (Atlas only).

1. Potential free relay (230V) (38), circulation pump, cooling circuit
2. Analog out 0-10V (74), shunt cooling
3. Temperature sensors PT1000 (58), sensor, cooling circuit

Commissioning after installation for Atlas without EM3

1. Login: Press padlock, 607080 and confirm
2. Go to SETTINGS/INSTALLATION and activate cooling on BM
3. Go to SETTINGS/COOLING and turn on Passive cooling function
4. Make desired settings, for example:
   A) Seasonal cooling temp = what outdoor temperature the seasonal cooling integral shall count on B) Desired cooling temp = set target for the regulation of cooling supply line
5. Restart heat pump and check functionality

3.2 Electric installation for Legend

Legend model

Cooling module with Expansion card for 920/921 controller (Thermia Legend), with software 1.51 or later

Connect according to picture below.

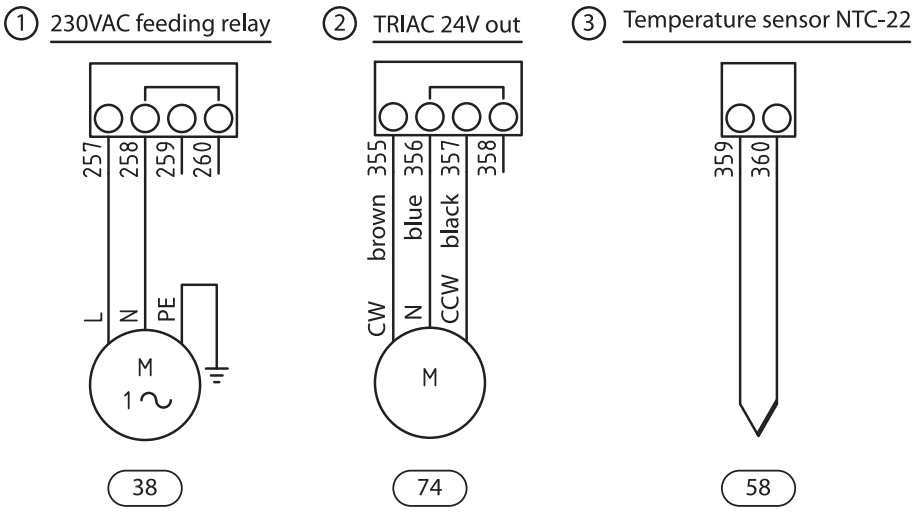


Fig. 6: Electrical connections to Expansion card 920/921 controller (Thermia Legend only)

1. 230VAC feeding relay (38), circulation pump, cooling circuit
2. TRIAC 24V out (74), shunt cooling
3. Temperature sensor NTC-22 (58), sensor, cooling circuit

Commissioning after installation with Expansion card for 920/921 controller (Thermia Legend)

Connect the sensor, shunt motor and circulation pump according to the electrical instructions. Set the desired temperature on the cooling system using the menu option: SERVICE -> HEAT PUMP -> SHUNT COOLING.

The function for passive cooling is activated via menu option: SERVICE -> INSTALLATION -> SYSTEM -> COOLING -> PASSIVE COOLING, where EXTERNAL is selected if an externally mounted passive cooling module is installed.

Passive cooling without room sensor

Set the desired temperature on the cooling system using the menu option: SERVICE -> HEAT PUMP -> SHUNT COOLING. The value for the parameter SERVICE -> INSTALLATION -> SYSTEM -> COOLING -> ROOM SENSOR is set to OFF.

Cooling starts on outdoor temperature setting, COOL.MODE ACTIVE.

Passive cooling with room sensor

The value for the parameter SERVICE -> INSTALLATION -> SYSTEM -> COOLING -> ROOM SENSOR is set to ON.

With a room sensor, passive cooling starts if the room temperature is 2°C above the desired room temperature and stops at 1°C above the desired room temperature, provided that the outdoor temperature is above the setting for COOL.MODE ACTIVE.

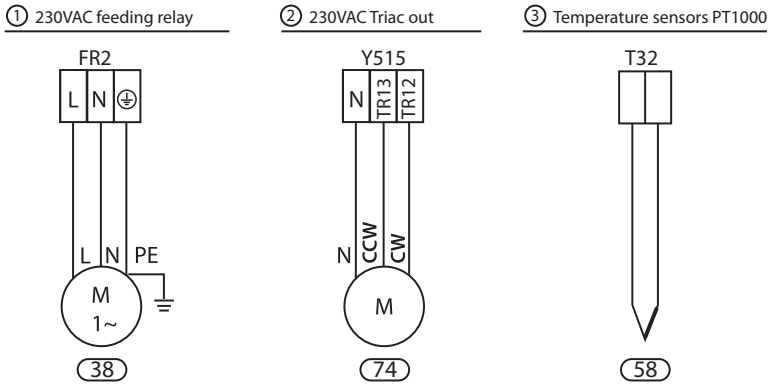
3.3 Electrical installation for Calibra RXT

PT1000 230V model

Cooling module Calibra RXT

Position numbers you see in this documentation are for cooling function only (position numbers on the printed electrical sheet attached to the electrical cabinet in the heat pump are for heating).

The heat pump model Calibra RXT use built in connections for distribution circuit 1.



1. 230VAC feeding relay (38), circulation pump, cooling circuit
2. 230VAC Triac out (74), shunt cooling
3. Temperature sensors PT1000 (58), sensor, cooling circuit

Commissioning after installation for Calibra RXT

1. Login: Press padlock, 607080 and confirm
2. Go to SETTINGS/INSTALLATION and activate cooling on BM
3. Go to SETTINGS/COOLING and turn on Passive cooling function
4. Make desired settings, for example:
   A) Seasonal cooling temp = what outdoor temperature the seasonal cooling integral shall count on B) Desired cooling temp = set target for the regulation of cooling supply line
5. Restart heat pump and check functionality

4 Circulation pump and Shunt valve settings

4.1 Circulation pump and Shunt valve settings

The circulation pump is self-controlled. By pressing the green push button on the circulation pump the operating mode is changed between Δp-v, Δp-c and constant speed.

Do **not** adjust the min valve opening for the shunt valve. It will allow brine to flow thru the heat exchanger during heating period and cause risk of freezing.

4.2 Shunt valve settings

Service Information:

The shunt motor 086L6382 (Atlas/Calibra) have the following DIP switch settings when delivered, and if replaced due to failure make sure these are correct:

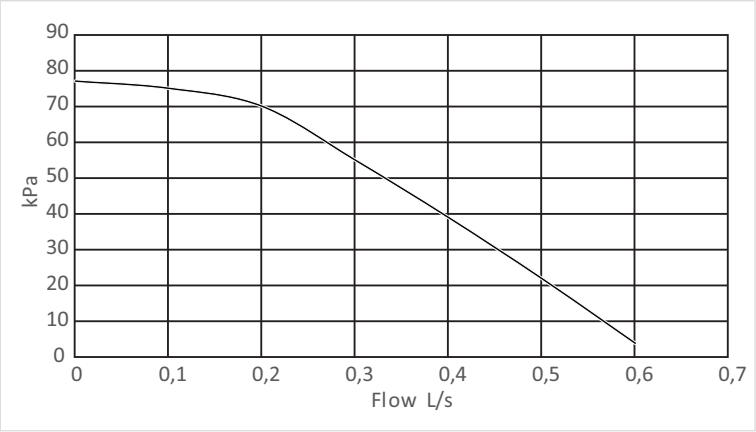
1. 45s (on)
2. CW (off)
3. 0-10V (off)
4. 0-10V (off)

The shunt motor 086U5269 (Legend) and 086L3146 (Calibra RXT) has no DIP switch.

5 External available pressure drop and Internal pressure drop

5.1 External available pressure at Circulation pump constant speed III (Max)

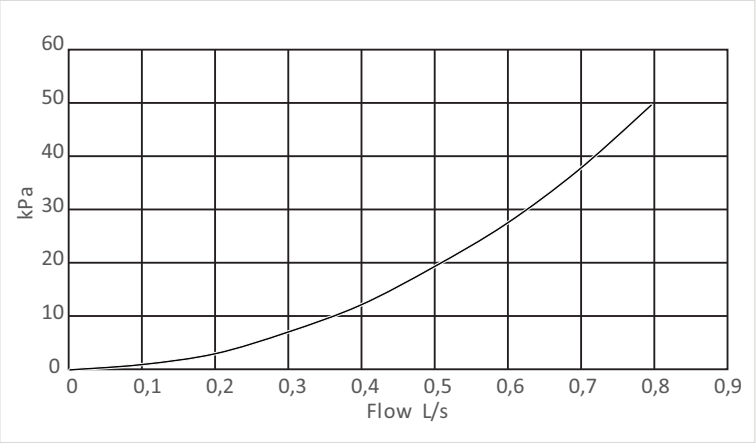
Water side of cooling module



Water side of Cooling module	
Flow, L/s	External ΔP, kPa
0	77
0,1	75
0,2	70
0,3	55
0,4	39
0,5	22
0,6	4

5.2 Internal pressure drop

Internal pressure drop over cooling module (brine side) under passive cooling mode.



Brine side Cooling module	
Flow, L/s	Internal ΔP, kPa
0	0
0,1	1
0,2	3
0,3	7
0,4	12
0,5	19
0,6	27
0,7	37
0,8	49

Thermia AB
Box 950
SE 671 29 ARVIKA
Phone +46 570 81300
E-mail: info@thermia.com
Internet: www.thermia.com

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