
Electronic Cooling Pump Series DDC



Please read this manual carefully before attempting to install, operate or maintain the product described. Failure to comply with the information provided in this manual could result in personal injury and/or property damage. Retain this manual for future reference.

INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.

Description

Laing centrifugal pumps are designed for circulation and transfer of a variety of fluids compatible with their materials of construction limited to maximum fluid temperatures and maximum line pressures as indicated below. Unique leakproof integrated motor/pump design eliminates the need for conventional mechanical seals or other shaft sealing devices. They are self lubricating and require no external lubrication.

Application

The Laing DDC pump is primarily used for the circulation of cooling liquid in liquid cooled computers.

Specifications

- The Laing DDC pumps are spherical motor pumps, which provide very quiet operation and long life.
- The motor is electronically commutated and the pumps consequently have a high efficiency.
- The electronic commutation creates a sine wave voltage, practically eliminating commutation noises.
- The DDC pump is supplied with and without mounting feet and either 3/8" hose barb or 1/4" male thread connections.

Dimensions

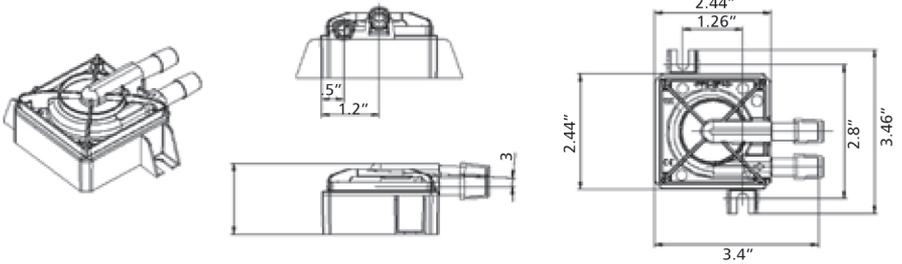


Figure 1 - Model DDC-3.1 TPMP

Installation

The pump is ideally installed in the cooling loop before the air cooled heat exchanger. In this way, the waste heat of the pump itself is added to the cooling loop downstream of the CPU.

- An expansion tank needs to be mounted on the suction side of the pump. The expansion tank must be sized such that there is always sufficient liquid in the system.
- The pump must be mounted below the level of an open expansion tank.
- Ideally the pump should be placed at the lowest point of the system.
- The pump is mounted on a flat surface. Avoid bending the pump by over tightening of the screws.

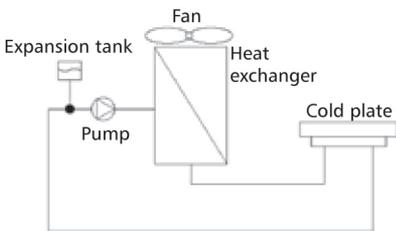


Figure 2 - DDC pump system typical schematic diagram

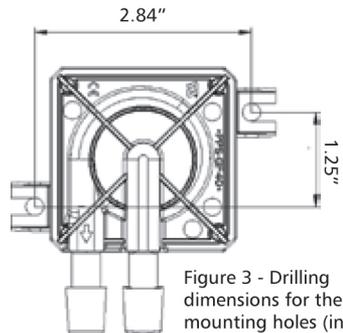


Figure 3 - Drilling dimensions for the mounting holes (inches)

Installation Position

The pump can be mounted either to a wall or on the bottom of the computer. The pump must not be mounted with the motor pointing up and it must not be installed pumping downwards (Pump can be mounted through bottom plate with two 4mm x 10mm screws).

Electrical Connection

- The DDC pump runs on 12 Volt DC. If you install a pump without connector, make sure to observe the correct polarity.
- Model DDC - 3.1 TPMP pump is equipped with a connector for the power supply.
- The fan connector of the model DDC - 3.1 TPMP can be plugged into a fan receptacle on the motherboard to enable monitoring of the pump rpm.

Start-up

- The cooling loop must be fully operational before starting the computer because the CPU otherwise can overheat in a very short time and can suffer damage.
- Before starting up the pump make sure that the loop is completely filled.
- Start the pump
- If you can hear an audible noise, air is left in the pump. Switching the pump on and off several times can accelerate the purging of this air. Disconnect the power plug and reconnect it after approx. 2 seconds.
- While purging the air observe the liquid level in the expansion tank. If the liquid in the expansion tank is exhausted, air will be sucked back into the loop continuously.
- If the system does not run quiet after several minutes of purging stop the pump and re-fill the system.
- Avoid running the pump dry for prolonged periods since this will damage the bearing.

Maintenance

- The pump does not require any maintenance. There are no user replaceable parts in the pump.
- It is important for trouble free operation of the pump that there is always enough liquid in the pump, since dry run damages the bearing and leads to reduced flow or interruption of the pumping operation.
- Air in the system will cause audible noise and therefore can be easily detected.
- If there are foreign particles or deposits in the system, please follow the instructions listed in the troubleshooting section.

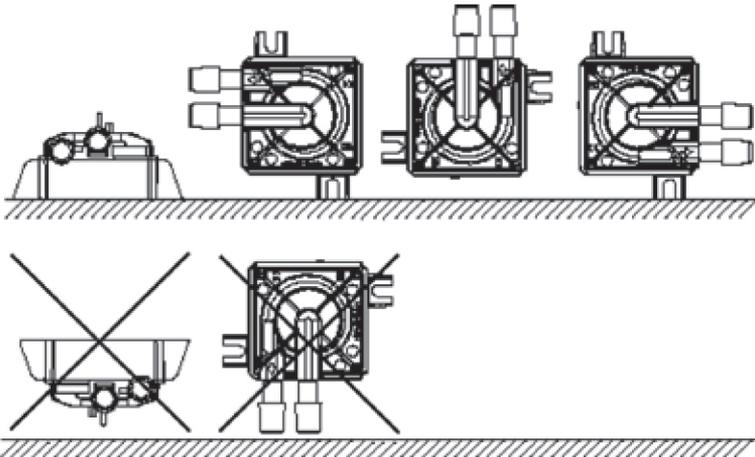


Figure 4 - Model DDC - 3.1 TPMP possible mounting positions

Troubleshooting Chart

Symptom	Possible Causes	Corrective Action
Pump does not run	<ol style="list-style-type: none"> 1.Bad power supply 2.Air lock 3.Debris in pump 	<ol style="list-style-type: none"> 1.Repair or replace power supply 2.Bleed lines of air 3.Drain system, remove pump and open pump by removing the four housing screws on the bottom of the pump. Remove pump housing and pull out the rotor. Clean rotor and stator with a clean cloth and purge all dirt from pump housing.
Pump making noise	Damaged rotor	Replace pump

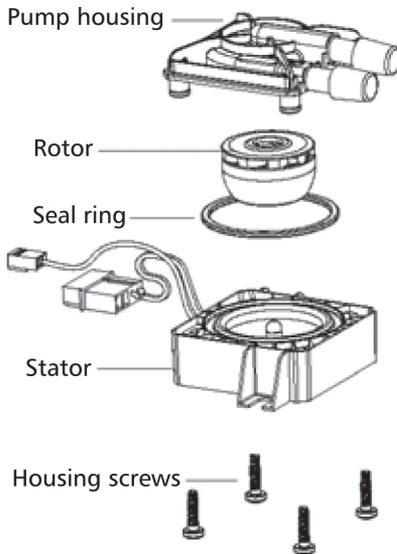


Fig 5 - Model DDC - 3.1 TPMP

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