



KOOLANCE[®]
Superior Liquid Cooling Systems



PC4-1000 & RP-1000 Based Systems User's Manual

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Other Technology Pending U.S. & World-Wide Patents

This User Manual is updated regularly. Please be sure to check our support page for a newer version of this guide: www.koolance.com/support

GENERAL PRECAUTION

Please read this manual carefully before beginning the installation of your Koolance system. This manual assumes the user has basic experience in building and configuring computer systems. Information referring to traditional hardware assembly is intentionally brief.

ABOUT SIGNS

Throughout this document, critical information is highlighted in gray-colored boxes. The following symbols are intended to prevent you from any situation which may cause personal injury and/or damage to equipment:



WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in personal injury or be life-threatening.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in damage to equipment.



PROHIBITED: Indicates a prohibited action.

PROHIBITED USE

This product is designed, developed and manufactured as contemplated for general use, including without limitation: general office use, personal use and household use, but is not designed, developed and manufactured as contemplated for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could lead directly to death, personal injury, severe physical damage or other loss, including without limitation: nuclear power core control, airplane control, air traffic control, mass transport operation control, life support, or weapon launching control. If these products are used in such hazardous environments, Koolance Incorporated does not warrant them.

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WARNING: The Koolance liquid & coolant pack contain chemicals which may be harmful or fatal if swallowed. KEEP THIS AND ALL DANGEROUS CHEMICALS OUT OF THE REACH OF CHILDREN. If ingestion has occurred, seek medical attention immediately. Give two glasses of water. Do not induce vomiting. In the case of eye contact, flush eyes immediately with water for 15 minutes. Remove contact lenses. Call a physician if irritation persists. Some individuals may have an allergic skin reaction with the solution, although generally mild. Avoid contact as much as possible, and wash exposed area with soap and water for at least 15 minutes. If irritation persists, or if contact has been prolonged, get medical help. For further information, please visit our website at: www.koolance.com



CAUTION: Koolance Incorporated can not be held responsible for any damage to your system due to misconfiguration or incorrect installation. If there is any point of installation that you do not understand, please contact our Technical Support Staff at: tech@koolance.com, or visit our website at: www.koolance.com/support



CAUTION: Liquid cooling systems are not yet universally supported by hardware manufacturers. In some situations, adding liquid coolers and other components to computer hardware might void the manufacturer's original warranty. Installation of the device is ultimately done at the user's own risk. If you have any specific questions on warranty coverage, please contact your component or computer manufacturer.

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Required Tools

During installation, you may need the following tools:



flat-head screw driver



phillips-head screw driver



pliers



long-nose pliers



scissors



CHAPTER 1

Introduction

Congratulations on your purchase of a Koolance system!

As the most sophisticated product of its kind, Koolance offers many unique features found nowhere else in the realm of computer cooling. In addition, you can expect to enjoy all of the advantages that water-cooling technology brings with it.

Advantages of Water Cooling

Water transfers 30 times faster, and holds over 4 times more heat than air.

With this thermal conductivity and specific heat capacity, it's easy to see why liquid cooling is getting a lot of attention from hardware manufacturers.

Heat-producing devices in a typical computer are cooled by air. Generally, this involves mounting a heat sink and fan to each component. For example, heat generated from your CPU (or other heat source) is transferred into a metal heat sink, where a fan blows air across its wide surface area.

While altering a heat sink's size and makeup can improve the effectiveness, it is still limited because air absorbs and transfers heat very slowly. To help compensate for this, the fan is often run at a higher speed. Many people have therefore come to equate high performance with high noise. As systems continued to be upgraded, the required heat sinks simply got larger and louder.

Liquid cooling greatly reduces the noise issue. A larger amount of heat is withdrawn from the components more quickly, and less airflow is required to cool them.

The heat exchanger is also located remotely from heat-producing devices, so airflow can be controlled. This considerably reduces dust accumulation on sensitive hardware and can result in a **cleaner overall system**.

Advantages of Koolance Systems

Koolance was the first company to offer fully-integrated, consumer-level PC liquid cooling systems to the world-wide market. Our products are designed and **built to look and operate professionally**. You will not need power tools or a tape measure to install your Koolance system, and it should even be less difficult than assembling your own computer.

Koolance offers liquid coolers for every major hardware device. Providing enormous flexibility, you can customize your system to fit your specific needs—cool dual processors in a server, multiple hard drives in a RAID configuration, or add dual video cooling to a gaming rig.

Every Koolance system **includes built-in hardware safety features**. Our proprietary power control board constantly monitors liquid temperature, sounding an alarm if it should get too high, and even turning-off your computer if you are not there to do so.

But Koolance's innovations extend beyond just cooling features. Our **safe, patent-pending CPU Retention Clip** places even pressure across the CPU, protecting the chip and simplifying installation. There's even a ratcheting tension screw for precise contact pressure.

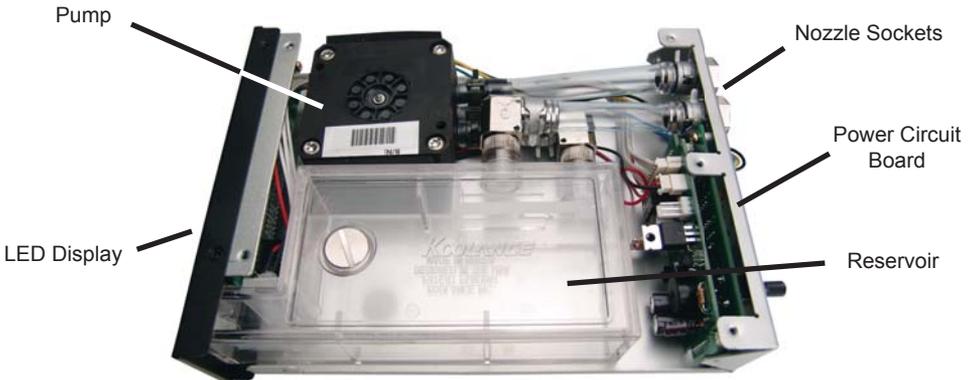
Finally, Koolance systems allow coolers to be **easily exchanged and upgraded** to address future hardware compatibility.

Component Diagram

Heat Exchanger and Fan Unit



Pump and Reservoir Unit



Radiator - The primary heat exchanger is located beneath the fan cooling module. This is the main cooling element, and provides high thermal dissipation in a relatively small area. Inside, an aluminum mesh (louver fin) is webbed between horizontal liquid paths.

Reservoir & Pump - The coolant tank is transparent for easy liquid-level monitoring through the front window. It is filled through a small metal plug on the top side.

Power Circuit Board - Behind the reservoir, the Power Circuit is responsible for a number of tasks, including: powering the pump, LED display, heat exchanger fans, and operating the audio alarm and shutdown modes.

LED Display Panel



CAUTION: PC4/RP-1000 systems allow full user control of hardware safety settings, such as audio alarm, shutdown, and pump speed. Please be sure to configure your LED Display Panel properly, or damage to your computer, data, and/or equipment could result.



Modes

The PC4/RP-1000 offers seven display options. All are reached by continually pressing the SET button:

1. Temperature sensor #1 is displayed
2. Temperature sensor #2 is displayed
3. Temperature sensor #3 is displayed
4. All temperature sensors are cycled automatically
5. Fan setting is displayed ("F" is shown as the mode)
6. Pump setting is displayed ("P" is shown as the mode)
7. All temperatures, fan, and pump settings are cycled automatically

Temperature Sensors

PC4/RP-1000 systems can monitor up to 3 temperature sensors (included). The first LED digit indicates which sensor channel is currently displayed in the temperature reading. To cycle through sensors, press SET.

Fan Speed

This option adjusts the radiator fan speed. Higher speeds can improve performance, but will produce more noise. There is 1 automatic and 10 manual fan settings (1-10). From the fan ("F") or any cycle mode, press the ▼ or ▲ buttons to adjust fan settings, or hold down an arrow to skip to the lowest or highest mode directly.

Automatic mode will adjust the fans for you based on temperature values from sensor #1. This mode is reached by lowering the fan setting to "0" (**Aut / A** will be displayed).

Pump Speed

There are 10 manual pump settings (1-10). From the pump ("P") mode, press

the ▼ or ▲ buttons to adjust pump settings, or hold down an arrow to skip to the lowest or highest mode directly. There is no automatic mode available for the pump setting.

Manual Mode	Auto Mode Temperature Range	Fan Power %	Pump Power %
1	0 - 35°C (32 - 95°F)	20	48
2	36 - 37°C (97 - 99°F)	24	52
3	38 - 39°C (100 - 102°F)	28	56
4	40 - 41°C (104 - 106°F)	36	60
5	42 - 43°C (108 - 109°F)	44	64
6	44 - 45°C (111 - 113°F)	52	68
7	46 - 47°C (115 - 117°F)	60	76
8	48 - 49°C (118 - 120°F)	72	84
9	50 - 51°C (122 - 124°F)	84	92
10	52 - 99°C (126 - 210°F)	100	100

Alarm & Shutdown Settings

By default, the Koolance audio alarm will sound if any sensor reaches 55°C (131°F). When the system alarm sounds, the appropriate LED temperature will flash in the display and the radiator fans and pump will increase to 100% power.

To change this setting for an individual sensor, choose the desired channel with SET, and press and hold ▼ + ▲ together for 3 seconds. The alarm temperature will begin flashing. You may change this value from 0°C (32°F) up to 99°C (210°F). The normal temperature reading will resume if you do not press any buttons for 4 seconds.

To reset all temperature alarms to their default (55°C / 131°F) setting, press and hold the °C/F button until “dEF” flashes in the display. NOTE: This will also reset the fan speed mode to “auto”, and pump power to 100%.

If any temperature sensor reaches 3°C (5°F) above the alarm temperature, the system will shutdown power to the computer via the Koolance “ATX pass-through” wire. With default alarm settings, this means the system will shutdown if any sensor reaches 58°C (136°F).



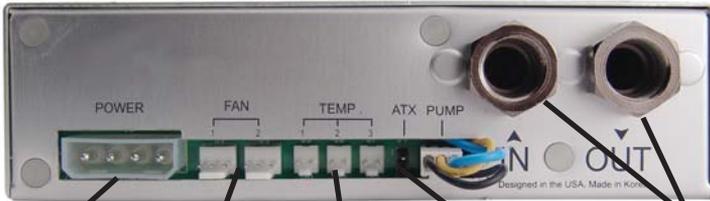
CAUTION: Generally, sensors report liquid temperature at the water block, which is typically 5-10°C (9-18°F) lower than the actual heat source. This difference must be considered if adjusting alarm/shutdown temperatures. Activating alarm/shutdown modes at too high of temperature can cause hardware damage. Please see the Koolance CPU water block user manual for information on attaching this sensor.

CHAPTER 2

Connecting PC4-1000 Systems

Reservoir & Pump Connections

The radiator fans, temperature sensors, and ATX pass-through wire should already be connected to your reservoir unit. If not, please connect them where indicated below. Also insert your desired Koolance inlet and outlet G 1/4 threaded nozzles.



POWER: Main cooling connection from power supply

FAN: Radiator fan connection, plus 1 optional plug

TEMP: Temperature sensors shown on the Koolance LED display

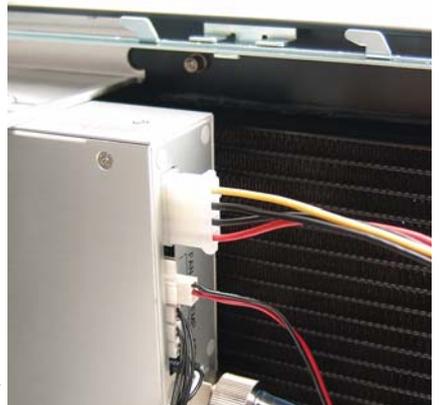
ATX: Pass-through lead for power shut-down feature

IN/OUT: Liquid nozzle sockets

Power Connection

You may begin the installation of your Koolance system by mounting a power supply in the chassis. With 3 radiator fans, the liquid cooling system requires approximately 26W (peak) from any standard ATX power supply.

Connect a 12 Volt 4-pin Molex plug from the power supply to the power connection on the rear of the reservoir bay unit. Without this important connection, the cooling system will NOT operate.



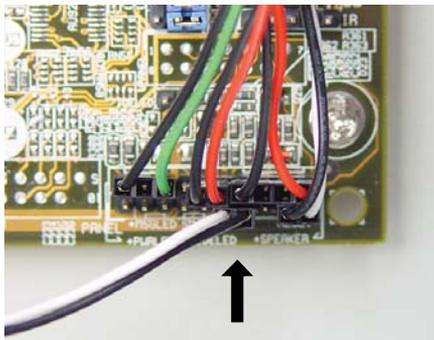
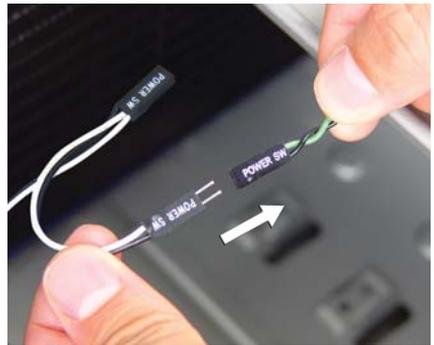


CAUTION: The Power Connection is vital to system operation. A 12V 4-pin plug from the power supply must remain connected to the cooling system at all times while the computer is in use.

ATX Power Switch

The ATX “pass through” lead is responsible for shutting off your computer if any temperature sensor reaches 3°C (5°F) above the preset alarm temperature (See *LED Display* for alarm configuration).

Connect the male ATX power lead from the PC4-1000 to the chassis main power switch.



During motherboard installation, connect the female ATX power lead from the PC4-1000 to the motherboard's power switch connection (often marked “PWRSW”, “PWSW”, or “PWB”).

This is the connection that would normally receive the chassis power switch lead directly.



CAUTION: The auto shutdown safety features of your PC4-1000 will not function properly without connecting the ATX power switch lead.

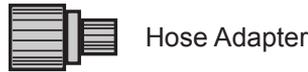
Cooler & Tubing Configuration

Depending on the cooling blocks (“coolers”) in your Koolance system and nozzle sizes (1/4”, 3/8”, etc.), they may be connected in series, parallel, or a mixture of both for best performance. Recommended configurations are illustrated below.

If you are comfortable experimenting with different tubing setups, there may be more optimal configurations for your particular system.

NOTE: For simplicity, tubing ID (internal diameter) will be listed in metric units. Please use these approximate conversions for Imperial sizes:

Metric	Imperial
6 mm	1/4 in.
10 mm	3/8 in.
13 mm	1/2 in.

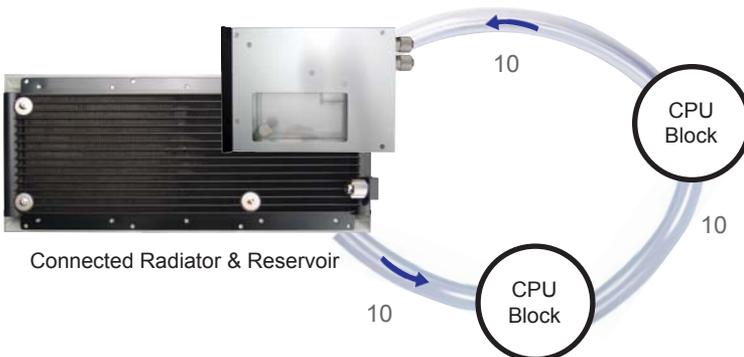


Series Systems

For systems with only CPU coolers, a simple series loop will provide the best performance.



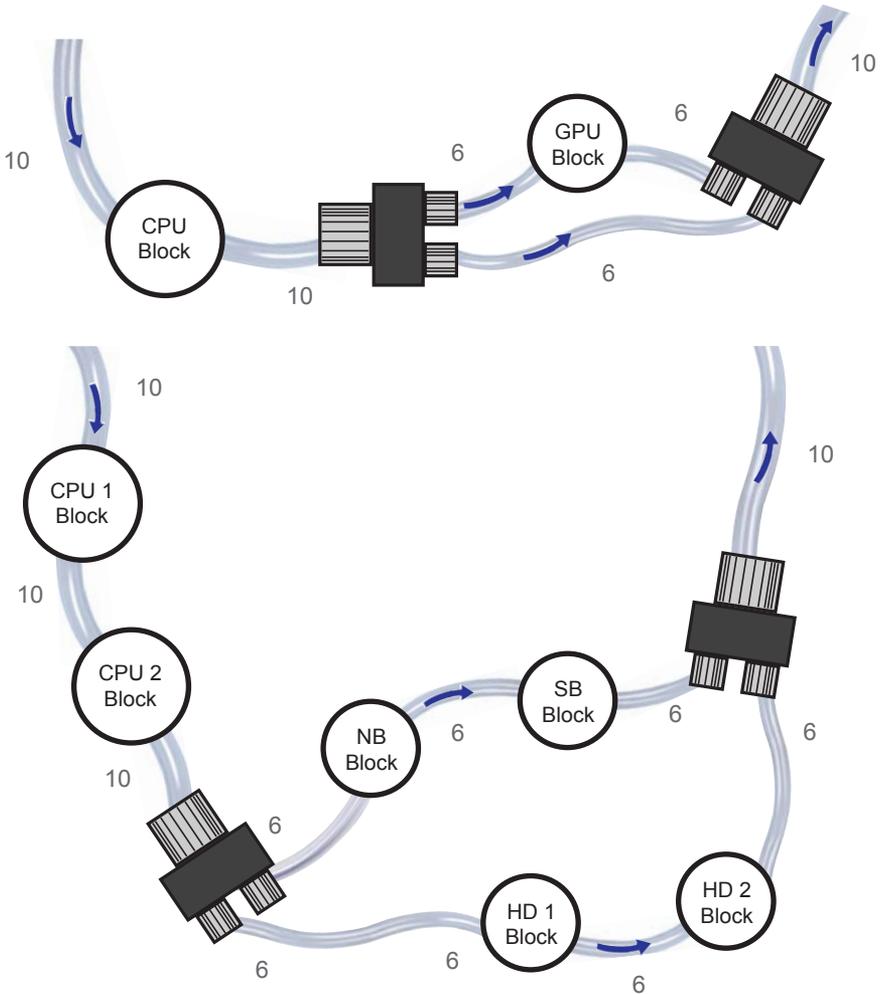
Connected Radiator & Reservoir



Connected Radiator & Reservoir

Parallel Systems

Koolance coolers which are 6mm (1/4") can still be effectively used in Exos-2 series systems. Using a parallel tubing configuration with hose splitters will help maintain coolant flow rate through these systems.



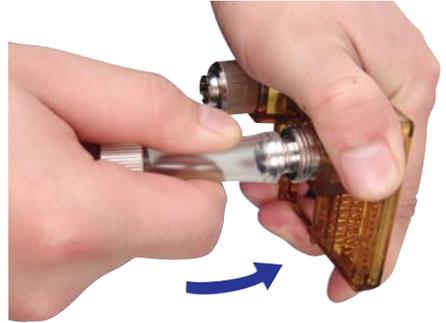
The maximum number of coolers allowed in a system will depend upon your specific thermal requirements and hose configuration. It is not uncommon to see five or more coolers in a Koolance system, but the limit is usually at what temperature you are comfortable with. Remember, liquid at higher temperatures is still considerably more effective at carrying heat than air at the same temperature.

Connecting Hoses

Each tubing connection uses a threaded compression fitting (“hose screw”) to keep it secure. To connect these components:



Thread a hose screw onto the tube end.



Squeeze the tube while pushing it firmly over the nozzle. Tubing should completely cover the nozzle.



Tighten the connection by sliding the compression fitting down over the nozzle and screwing it securely by hand.

Do not overtighten the nozzle fitting. Most connections are leak resistant even before the compression fitting is added.



If you are finding it difficult to connect smaller tubes, try temporarily stretching-out the tube end by inserting long-nose pliers. It can also help to wet the nozzle slightly before attaching the hose.



Disconnecting Hoses

Hoses are designed to snug firmly around the nozzle. If you need to remove a hose for any reason, it may not pull off easily, even after unscrewing the compression fitting.

Usually, a connection will come free by squeezing the hose *on top of* the nozzle and pulling away. Pulling in front of the nozzle will stretch the tubing and make it tighter.

If this fails, cutting a small incision lengthwise (parallel) along the nozzle will free it. If the nozzle is plastic, be especially careful when cutting a connection so as not to damage it.



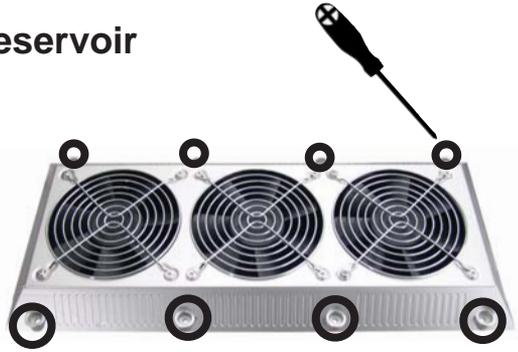
When a hose screw has been removed, it may have distorted the tubing beneath it. This last small portion should be trimmed to ensure a perfect fit with the next connection.

The tip should *a/ways* be re-cut if you needed to remove the tubing with an incision.

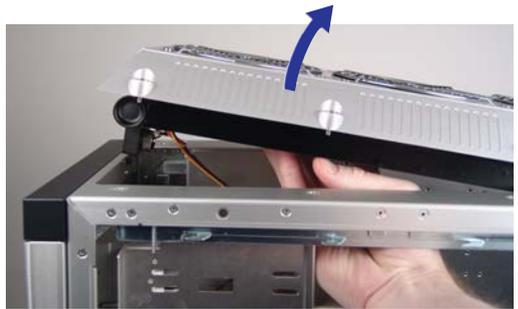
Tubing The Radiator & Reservoir

Nozzles and tubing must be installed onto both the Radiator and Reservoir/Pump unit.

To reach the Radiator nozzle sockets, it is generally easiest to remove the top assembly via its 8 screws.

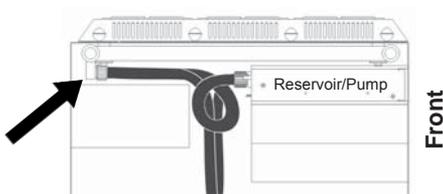


Then, push up gently on the radiator to access the nozzle sockets. Be careful not to damage the radiator fins.



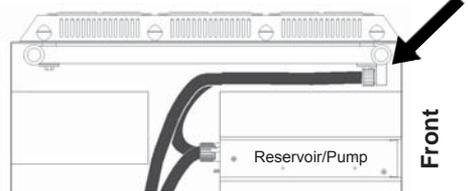
The radiator can be installed with either its nozzles facing: 1) the front or chassis, or 2) the back of the chassis. Each has stipulations.

1) Radiator Nozzles in Back



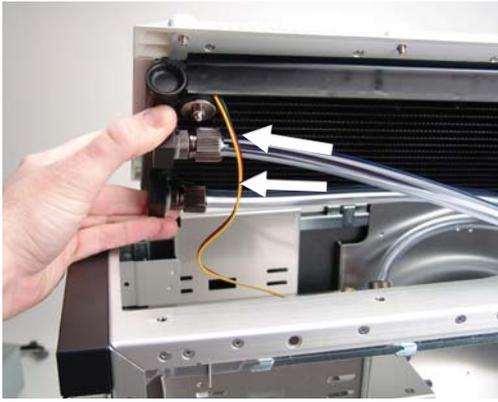
1) Nozzles in back require sufficient room above the power supply. In reverse style ATX chassis, the nozzles may interfere with the last slot(s) of a motherboard.

2) Radiator Nozzles in Front



2) Nozzles in front usually requires an additional 5.25" bay. If so, the Reservoir/Pump unit must be moved down into another drive bay.

NOTE: When necessary, Koolance offers various products to avoid chassis conflicts, such as the ENC-1020 "Riser". Please check the Koolance website for details.



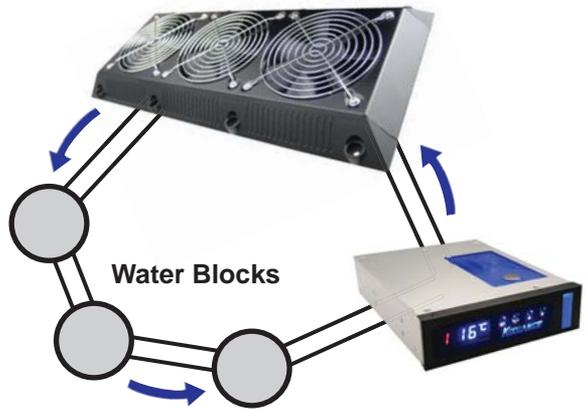
Firmly screw tighten the desired nozzles to the Radiator and Reservoir. (See “Connecting Hoses” for further details.)

Next, connect tubing from *either* nozzle of the Radiator to the “Outlet” of the Reservoir/Pump. (The Radiator does not have a coolant flow orientation.)

NOTE: Make sure to leave enough tubing between the Radiator and Reservoir/Pump Unit so it can be pulled out a little for filling. (Please see “Filling and Maintenance” for further details.)

Connect a segment of tubing to each of the remaining nozzles on the Radiator and Reservoir/Pump.

This is the loop that will eventually be connected to your water blocks.



Finally, connect the 3-pin Radiator fan plug to either connection labeled “Fan” on the Reservoir/Pump unit and replace the screws on the top fan unit.

Hose Lengths

Before installing your liquid coolers, appropriate lengths of tubing must be cut to connect each device. It may be easier to temporarily lay your motherboard and video card inside the case to better-estimate the required amounts.

Generally, the outlet of the radiator will connect with your CPU Cooler, but this is completely optional. The reservoir and pump unit may be located before or after the radiator, depending on the preferred arrangement of water blocks.



With one of the connected hoses, roughly estimate the length you will need to your first cooler, and cut it.

Cut the second hose with enough length to connect with the last cooler that will be in your system.

Using the leftover tubing, cut shorter pieces to link between each individual cooler and/or hose splitter.

NOTE: When filling the reservoir later, it will need to be pulled out from the front chassis drive bay by about 2.75" (7cm). **Be sure to leave enough tubing between the reservoir unit and connected cooler to do this.**



Continue connecting all of your coolers in the system until there are no longer any open tube ends.

Liquid Coolers

You should now install the liquid coolers (CPU, GPU, Hard Drive, etc.) to your hardware before continuing this User Manual. Please refer to your cooler kits' individual installation instructions, then continue on to the next section.

For temperature probe placement of sensor #1, please refer to the installation sheet included with your Koolance CPU Cooler.

CHAPTER 3

Filling & Maintenance



WARNING: The RP-1000's powerful single pump can not be run "dry" for any period of time. Never power-on the computer or cooling system without sufficient liquid in the reservoir. Dry-running (and thereby damaging the pump) is not covered under the Koolance product warranty.

Testing & Filling

Once all of the coolers have been connected, the system can be filled with coolant. The refill plug is located on top of the reservoir bay unit.

Free this component by removing its side drive screws. Slowly pull it out just enough to expose the refill plug (about 2.75", 7cm).

Depending on your chassis design, you may need to hold the bay unit with one hand to support it during the filling process.

Unscrew the small metal refill plug by hand. If it is too tight, use pliers to loosen it gently.

To avoid damaging the tank threading, never use tools to tighten the metal refill plug when screwing it back in.



WARNING: The liquid coolant is electrically conductive. Use caution when filling the system, and keep all liquids away from computer hardware and power cables. In case of emergency during installation, immediately unplug the computer's rear power supply cable. Dry the system thoroughly before proceeding.

Slowly fill the system using the supplied bottle and funnel. To maintain the product warranty, use only Koolance approved coolant.

Many alternative "liquid coolants" and additives can cause permanent damage to Koolance equipment and computer hardware.



Do not overfill the reservoir. It is recommended to keep paper towels on hand just in case. The liquid coolant should be filled up to about 6mm (1/4") from the reservoir's top. This small gap will catch air as it circulates through the system.



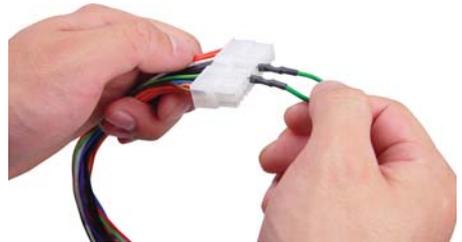
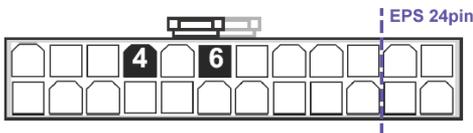
Replace the refill plug, slide the reservoir unit back into the drive bay, and mount it using the side screws.

The cooling system can be “jump-started” to assist in the circulation process without booting-up the computer. This will also allow you to check your hose connections and make sure there are no folds or blockages in the tubing.



CAUTION: Jumping the incorrect ATX power supply pins can cause permanent damage to the power supply.

Make sure the AC power cord is attached to the power supply. If the power supply has a rear switch, it must be in the ON (-) position. Using the ATX Jumper Wire, insert the metal prongs into pin numbers **4 and 6** on the motherboard ATX power supply connector (green and a black ground wire-- See *diagram*).



Allow the pump to run for about 1-5 minutes. When filtration has ended, the liquid “bubbling” noise should stop. The reservoir level may become significantly lower during this bleeding process. Before adding more liquid, remove the ATX Jumper Wire to turn off the pump. (In the future, if you begin to hear air bubbles rushing through the pump, it may indicate that more coolant needs to be added.)

That's it! Replace the ATX motherboard connection and boot-up the computer.

Adding Coolers & Maintenance

Under normal circumstances, the liquid coolant does not require replacement. However, if it becomes contaminated, unclear, or significantly changes color, it must be replaced. A Koolance “drain valve” (sold separately) is recommended to make that process easier.

If you are upgrading or removing a cooling block in your system, please follow the instructions below.



CAUTION: Any time a hose is disconnected with coolant still inside, leaking can occur. Before doing so, it is highly recommended to remove all computer hardware and the power supply. It can also be beneficial to keep a large towel directly beneath the work area (within the chassis) to absorb any free liquid.

A binder clamp (available at office supply stores) is helpful for keeping a hose folded while removing or adding coolers. Even so, pressure within the cooling system is such that liquid will not easily flow out unless relieved elsewhere-- for example, by opening the reservoir refill plug.

Bend the hose directly before and after the section to be worked on. Place a binder clamp on both bends, or tie them in this position to help avoid fluid loss. There *will* be some liquid exposed; do not operate on the cooling system in this manner near or above electronic hardware.



Radiator Performance

Over time, dust will accumulate on the radiator. While the cooling system may continue to operate in this condition, performance can decrease. To keep the system clean, check the radiator periodically (through the top fan grill) and use a can of electronics air cleaner if necessary.

Troubleshooting

We hope your Koolance system will provide you with years of reliable cooling performance. To help avoid unnecessary RMA issues, we have prepared this list of possible operational problems, and their most common solutions.

1. The pumps do not appear to be operating properly...

The pumps need to be “burped” during the initial bleeding process to avoid this situation. Reduce pump speed (but not low enough to stop the pumps).

While the pumps are running, gently tilt the system in various directions until coolant begins moving. The system unit may need to be completely inverted to properly burp the pumps.

2. My temperatures seem too high...

Verify that the liquid coolers are making sufficient contact with each component. Ensure thermal paste has been applied (but not excessively), that the CPU block’s protective bottom film has been removed, and the CPU tension screw and/or bracket are positioned correctly (see the CPU Cooler’s Instructions). Also check that there are no blocks, twists, or crimps in the tubing system.

Finally, a dusty Radiator can also result in higher temperatures. Please see *Draining and Maintenance* for more information.

3. When I adjust the temperature alarm settings, it skips number increments...

This is normal operation if your LED is set to display in Fahrenheit, because the temperature program is based on units Celsius. Some °C values convert to decimal temperatures in °F, or skip over them, and these can not be set by the program.

4. After the system has been on for awhile, the temperature alarm sounds...

Make sure the LED temperature is at or above your preset alarm temperature (default is 55°C, 131°F). If not, the audio alarm may be emanating from another location, such as your motherboard’s BIOS alarm. The Koolance LED temperature will flash whenever the cooling system alarm sounds.

If the alarm sounds within a few seconds after a cold boot-up, or the LED temperature does not reach the alarm preset, the control board/pump may

be malfunctioning. Please visit our support web page for more information.

Verify that the pump is operating (see Troubleshooting #1), and that liquid flow is present in the reservoir. Note that if the reservoir was over-filled during system assembly, this procedure is not possible since there will be no visible air gap.

5. My system has boot-up problems, or does not turn on...

The majority of these problems are not related to the Koolance case, but hardware or configuration issues. In a new system, a problem with the RAM, motherboard, power supply, video card, processor, or monitor can cause the system to appear not to boot-up properly.

If the Koolance radiator fans do not spin, or if the front LED Display Panel does not light-up, check to see that the rear power switch is illuminated and turned on.

If further problems persist, you are likely having a separate hardware issue that is unrelated to the Koolance system.

6. My system appears to be leaking fluid...

Since users are allowed to configure their own coolers and clamps, it is possible a connection was not properly sealed (however unlikely). If you can see liquid somewhere on the tubing, or at the bottom of the chassis, computer components may need to be removed for a system test (see *Testing & Filling*).

If liquid should get onto another computer component, shut down the system, and remove the component. In many cases, the hardware may be fine after allowing it to dry. However, the system should not be operated until you have discovered where the leak is coming from and can repair the problem. Should the leak be situated somewhere in which it can not be easily repaired, please contact our Technical Department for further diagnostic information.

7. My computer's BIOS gives me errors that there are no cooling fans attached...

Some motherboards will not boot, or may generate an error or alarm if no cooling fans are attached to the CPU or motherboard chipset power connectors. There is typically an option to disable these fan connections in BIOS, but you may have to boot-up with a fan attached initially to disable this setting. If the system is not booting due to this problem, clear the CMOS and try configuring BIOS again.

8. The LED Display Panel shows **5 - 0** or **5 - 5**...

5-0 ("S-O"): Sensor open. This indicates a temperature sensor cannot be detected for a given channel. If there is no sensor connected to a channel, this is its normal status.

5 - 5 ("S - S"): Sensor short. This indicates that the sensor may be faulty or electrically bypassed. If the sensor is listed with an "S-S" status, the cooling system alarm will sound. The sensor will need to be replaced. Please visit our support web page.

Limited Warranty

Koolance Incorporated (“Koolance”) warrants each new Koolance liquid-cooled system (“the system”), against defects in materials or workmanship for a period of one year from the date of purchase, and agrees to repair or replace any defective Koolance system without charge. Shipping costs are non-refundable.

This warranty is non-transferable. All warranty claims must be accompanied by the original proof of purchase.

THIS WARRANTY DOES NOT COVER DAMAGE RESULTING FROM ACCIDENT, MISUSE OR ABUSE, LACK OF REASONABLE CARE, SHIPPING DAMAGE, MODIFICATIONS, THE AFFIXING OF ANY ATTACHMENT NOT PROVIDED WITH THE PRODUCT, LOSS OF PARTS, OR OPERATING COMPONENTS AT SPEEDS OR FUNCTIONS OTHER THAN THOSE SPECIFIED BY THEIR MANUFACTURERS.

Use of unauthorized replacement parts or liquid additives will void this warranty. Koolance Incorporated will not pay for warranty service performed by a non-authorized repair or diagnostic service and will not reimburse the consumer for damage resulting from warranty service performed by a non-authorized repair service. No responsibility is assumed for any special incidental or consequential damages due to a defective Koolance product.

In order to obtain warranty service, contact our RMA department for information. The product must be shipped postage prepaid to an authorized Koolance service location. It is suggested that, for your protection, you return shipments of product by insured mail, insurance prepaid. Damage occurring during shipment is not covered by this warranty. Shipping costs are non-refundable. No other warranty, written or oral, is authorized by Koolance Incorporated.

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