

# **KOOLANCE**<sup>®</sup>

*Superior Liquid Cooling Systems*



## **PSU-1000ATX-12N**

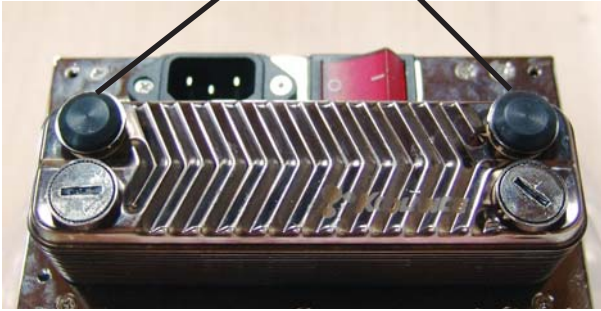
### **User's Manual**

**English v1.0**

Protected by U.S. Patents 6,313,990; 6,664,627; 7,167,366; 7,295,436  
Other Technology Pending U.S. & World-Wide Patents

Your Koolance PSU-1000ATX-12N power supply may arrive with rubber inserts to protect the top nozzle connections during shipping. These should be removed before inserting your desired nozzles.

*Protective Nozzle Inserts (Remove)*



**DO NOT ATTEMPT TO OPEN THE BOTTOM NOZZLE SOCKETS!**  
Doing so will release the internal coolant and void the product warranty.

If shutting-down the power supply using the rear illuminated power switch, it may become necessary to reset the unit before it can be powered-up again.

To do this, turn the AC power switch to the “Off” position. Then, unplug the main AC power cable from the PSU-1000ATX-12N. Wait approximately 20-30 seconds until the green “DC” indicator light stops blinking. Then reconnect the AC cable and move the power switch to the “On” position.



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 Please be sure to check our support page for a newer version of this guide: [www.koolance.com/support](http://www.koolance.com/support)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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## COPYRIGHT

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**WARNING:** Never open the power supply, expose the internal liquid coolant, or remove the internal liquid coolant. If liquid is removed, the power supply will be permanently damaged. All warranties are voided upon opening the product or removing its liquid.

First aid measures are not anticipated if coolant ingestion has occurred. If irritation has occurred with eye or skin contact, flush with water for 15 minutes. Remove contact lenses. Call a physician if any irritation persists. For further information, please visit our website at: [www.koolance.com](http://www.koolance.com)



**CAUTION:** The PSU-1000ATX-12N power supply is not a self-dissipating product and must be connected to an existing liquid cooling system (not included). The power supply will overheat and may become permanently damaged if operated without proper cooling.



**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](mailto:tech@koolance.com)., or visit our website at: [www.koolance.com/support](http://www.koolance.com/support)



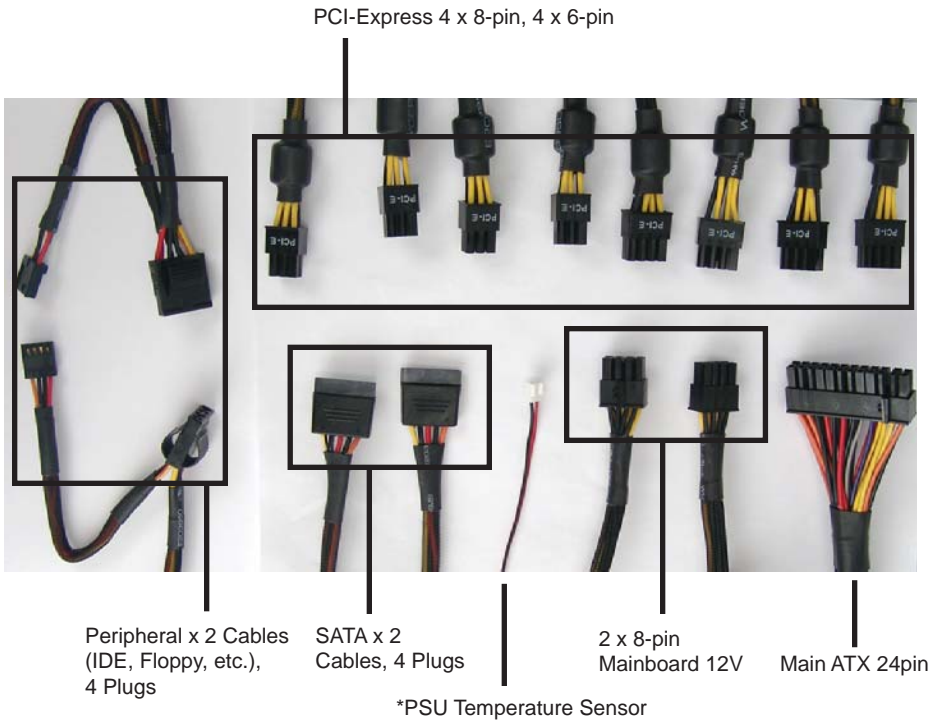
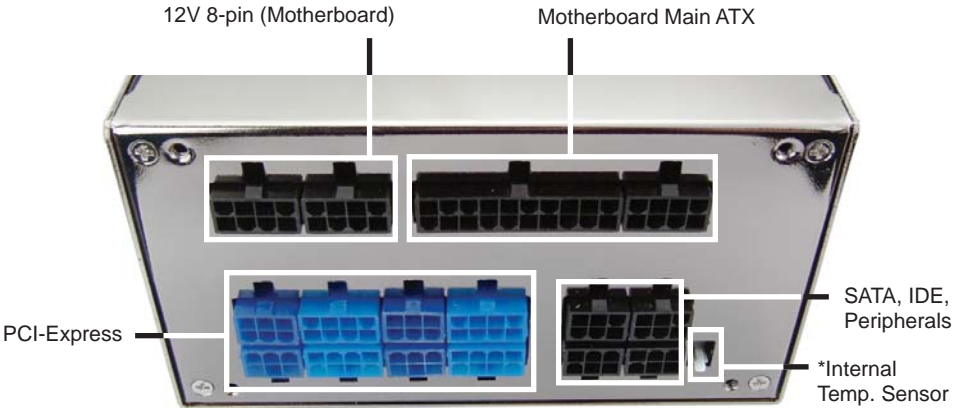
**CAUTION:** Liquid cooling systems are not yet universally supported by hardware manufacturers. In some situations, adding liquid coolers and other components to computer hardware might void the manufacturer's original warranty. Installation of the device is ultimately done at the user's own risk. If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

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Web: [www.koolance.com](http://www.koolance.com)

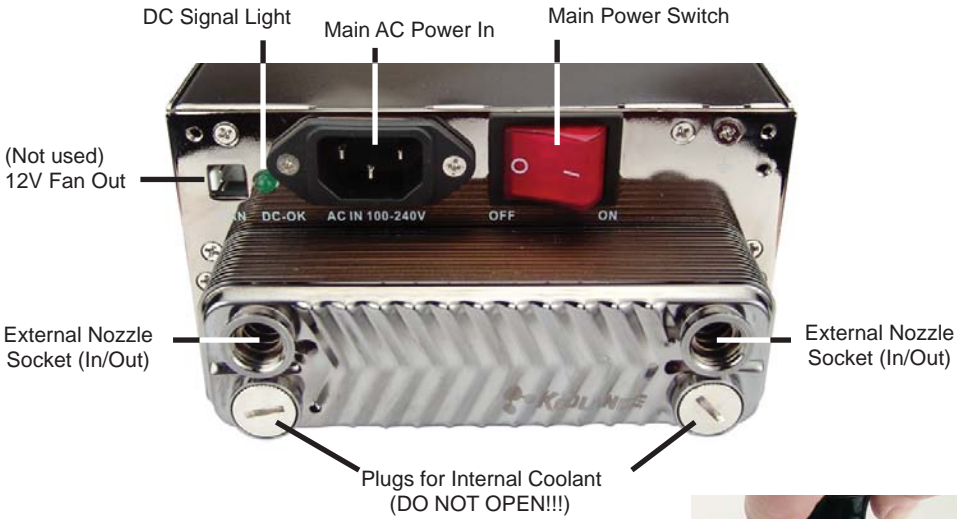
# Internal Connections

The modular connections must match their appropriate plug on the PSU (power supply unit). Pay careful attention to the direction of each plug and notch while inserting, as some are upside-down. Never force a plug into the PSU.



\*Internal PSU coolant temp. sensor is compatible with Koolance systems only (PC3/Exos 2 and later).

# External Connections



**CAUTION:** The bottom (internal) coolant socket plugs must remain closed at all times. Otherwise, the sealed internal fluid will leak. This liquid is not inexpensive and evaporates very quickly. Tampering or opening the bottom (internal) coolant plugs will void the product warranty.



## How the PSU-1000ATX-12N is Cooled

The PSU-1000ATX-12N power supply is not a self-dissipating product and must be connected to an existing liquid cooling system (not included). The power supply will overheat and may become permanently damaged if operated without proper cooling.

A special, colorless, non-electrically-conductive internal coolant is used inside the PSU-1000ATX-12N. This liquid does not leave the power supply. External coolant is supplied through the unit's rear external nozzles. Coolant supplied to these nozzles

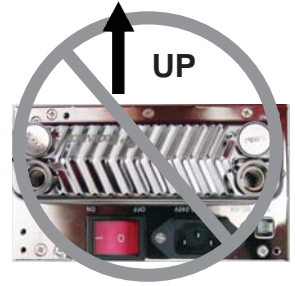


**CAUTION:** The PSU-1000ATX-12N power supply is not a self-dissipating product and must be connected to an existing liquid cooling system (not included). The power supply will overheat and may become permanently damaged if operated without proper cooling.

# Preparation for Installation



**CAUTION:** The PSU-1000ATX-12N must be mounted in one of the “CORRECT” orientations illustrated below. Other directions will not allow the pump to circulate coolant properly, or coolant will not fully submerge internal heat sources.



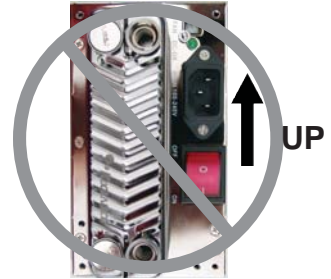
**INCORRECT** Direction



**CORRECT** PSU Direction



**CORRECT** Direction

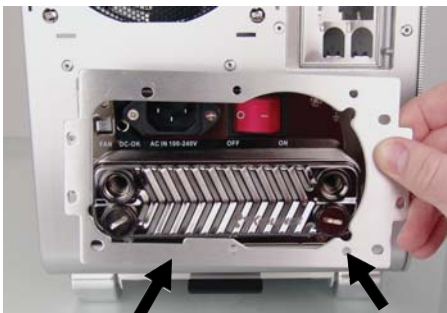


**INCORRECT** Direction

If your chassis has a rear PSU mounting plate, this may need slight modification to allow the PSU-1000ATX-12N rear heat exchanger to fit properly.

Koolance systems which are physically compatible with the PSU-1000ATX-12N include the PC3-700 series (except PC3-720) PC4-1000 series (except PC4-1020), and PC5-1300 series. All of these chassis require removal of a hard drive bay and minor modification to the rear PSU mounting plate (or the purchase of a separate Koolance “Chassis PSU Mounting Plate”, if compatible).

**Default PSU Plate (User Modification Needed)**

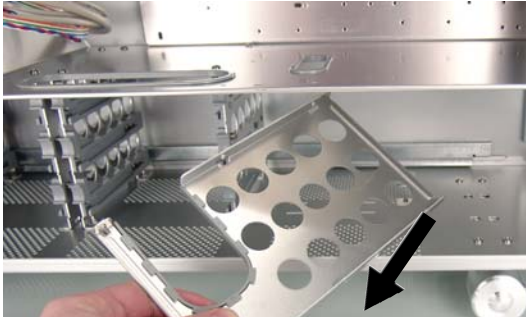
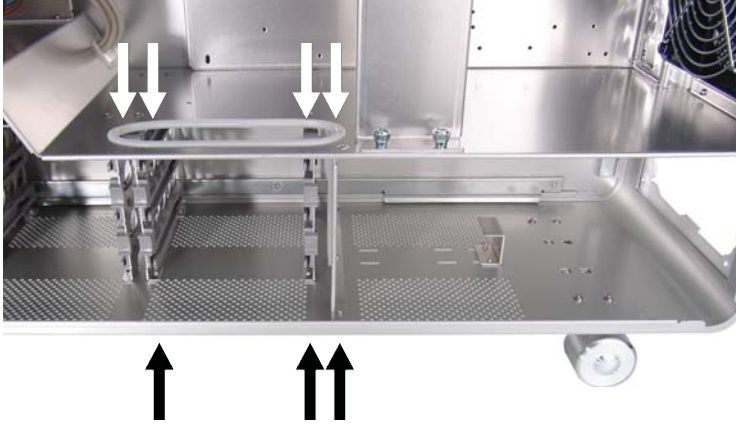


**Koolance Optional Pre-Modified PSU Plate**



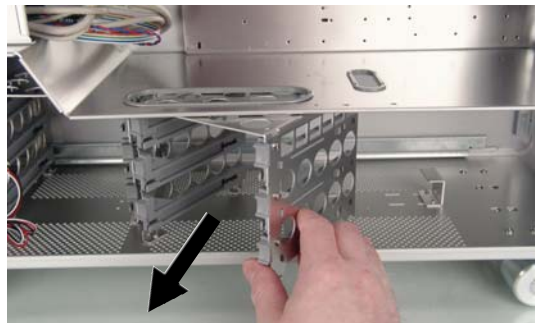
For most computer cases, the PSU-1000ATX-12N must be installed from inside the chassis due to its width. If you do not have a Koolance case, please skip to the next section.

Most Koolance chassis must give up one hard drive cage in order to fit the PSU-1000ATX-12N. Begin by removing the screws for this rear drive cage, the top screws for the front hard drive cage, and the PSU partition wall. Screws are located above and below the hard drive area.



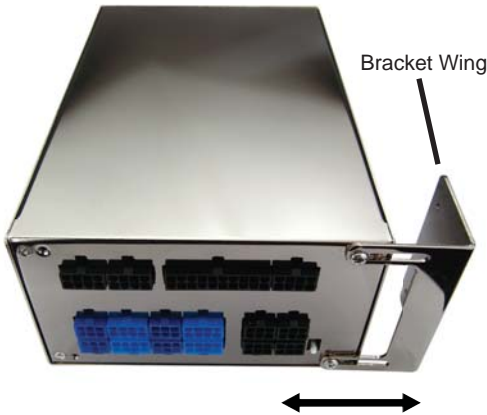
Remove the PSU partition wall and rear hard drive bay.

With the top screws of the front hard drive cage removed, it should be possible to remove the rear drive cage by carefully flexing the top partition (without completely removing the front cage).





## Support Bracket



The PSU-1000ATX-12N is supplied with an optional support bracket. For chassis with top-mounted power supplies (above the motherboard), the support bracket can help increase case stability.

The bracket is screwed into the PSU's cable panel, on the same side of the computer less frequently opened. It is adjustable to meet the computer's side panel.

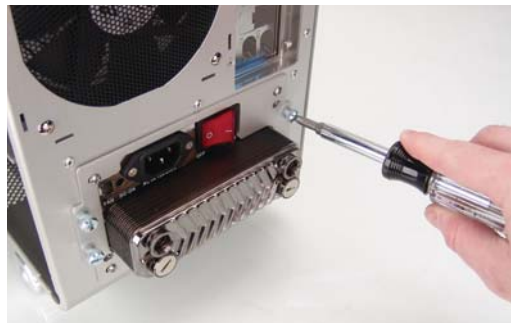
Velcro strips are provided to be applied in between the bracket's flat wing and the computer chassis side panel. Installation of the bracket is optional.

## Installation

Carefully guide the power supply into the chassis (per normal installation).



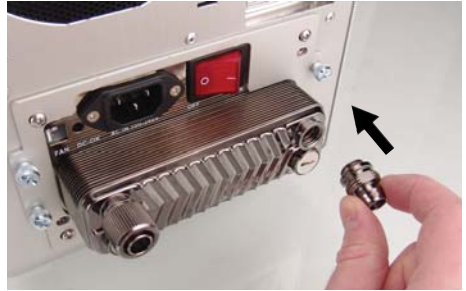
Screw the PSU-1000ATX-12N to the computer chassis' PSU mounting area.



## Tubing Connection

Once the power supply is mounted inside the chassis, insert and tighten the desired inlet and outlet nozzles (purchased separately).

These should only be installed on the top nozzle sockets!



Attach the inlet and outlet tubing to the inlet and outlet nozzles.



If you require the PSU-1000ATX-12N hoses to be connected inside the computer chassis, install the supplied L-bracket into an available rear card slot.



Feed the inlet and outlet hoses from the power supply heat exchanger back into the L-bracket.

Finally, connect these coolant hoses to your existing liquid cooling system.



To allow for sharper hose angles without kinking, Koolance offers steel "Tubing Wrap", available at [www.koolance.com](http://www.koolance.com)



# Specifications

## AC Input

Operating Range: 110-240VAC, Auto-switching

Frequency: 47-63Hz

Current: 12A @ 110V, 6A @ 240VAC

PFC: Active

Efficiency: 80% min.

## DC Output

Output Max:

+5V @ 30A

+3.3V @ 30A (combined +5V and +3.3V is 180W max.)

+12V @ 70A (12V1@18A, 12V2@18A, 12V3@30A, 12V4@30A)

-12V @ 0.8A

+5VSB @ 3.0A

Continuous Power: 1000W

Regulation: 5%, -4% (3.3V, +5V, +12V, 5Vsb) +9-5%(-12V)

Ripple & Noise: 50mV (3.3V, 5V, 5Vsb), 120mV (-12V), 240mV(+12V)

Hold Time: 16ms min.

PG Delay: 100-500ms

## Safety

OV Protection: +3.3V, +5V, +12V

OC Protection: +3.3V, +5V, +12V

Short Protection: All output to ground

Over Temperature Protection: Heat sink: 85°C Alarm, 90°C Power-Off

Pump Protection: Power-Off on no RPM signal

## Environmental

External Coolant Temperature: 0 - 50°C

Storage Temperature: -10 to 70°C

Humidity: 20 - 90% RH

Altitude: 0-7000 feet (0-2134m)

## Miscellaneous

Compatibility: EPS12V

MB Connectors: 1 x 24-pin, 2 x 8-pin,

4 x 6-pin PCI-E, 4 x 8-pin PCI-E

Driver Connectors: 2 x (4-plug) SATA, 2 x (4-plug) Molex + Floppy

## Limited Warranty

**Koolance Incorporated (“Koolance”) warrants each new PSU-1000ATX-12N liquid-cooled power supply (“the system”), against defects in materials or workmanship for a period of three years 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, OPENING OF THE PRODUCT, LOSS OF PARTS OR LIQUID, 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.

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