



ATS-Chill iM Series

# ATS-Chill iM Series Immersion Chiller Instructional Manual



# Warranty Agreement

## Limited Warranty

Advanced Thermal Solutions, Inc. (hereinafter “ATS”) warrants that: (1) ATS-Chill iM Series chillers will perform in accordance with the written materials for a period of ninety (90) days from the date of purchase; and (2) Software will be free from defects and errors in materials and workmanship, and covered for a period of ninety (90) days from the date of purchase if utilized under normal use and service. Any implied warranties on the Software are limited to ninety (90) days.

## Customer Remedies

ATS and all its suppliers' entire liability and the consumer's exclusive remedy shall be at ATS's option, either for the return of the price paid or the repair and replacement of the Software or Hardware that does not meet the limited warranty and which is returned to ATS. The limited warranty is deemed to be null if the failure of the Software and accompanying material results from an accident, abuse, and/or misapplications. Any replacement of the Software and accompanying material will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer.

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**NO LIABILITY FOR CONSEQUENTIAL DAMAGES.** In no event shall ATS or its suppliers be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary) loss arising from the use of or inability to use this ATS product, even if ATS has been advised of the possibility of such damages.

## COPYRIGHT

The ATS-Chill iM Chiller Series and its operating software is patent pending and proprietary to Advanced Thermal Solutions, Inc.

## DISCLAIMER

While every effort is made to ensure accuracy, Advanced Thermal Solutions, Inc, cannot be held responsible for errors or omissions in this Manual. Furthermore, it reserves the right to revise this document and make changes without notice.



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Before you operate the equipment please read carefully all the instructions and safety notes. If you have any questions please call **781-769-2800**. Follow the instructions on setting up, operation, etc. This is the only way to prevent incorrect operation of the equipment and to ensure full warranty protection

## Section 1: Introduction

The ATS-Chill iM Chiller's function is to remove heat generated by components submerged in a liquid maintaining its temperature at a fixed value.

The ATS-Chill iM chiller is a refrigeration system that generates its cooling through its compressor, then through the heat exchange with the liquid medium, it lowers the temperature of the liquid medium that the cooling evaporator is inserted in.

The chiller's integral controller is used to provide constant temperature and cooling functions. **This chiller is comprised of a refrigerating unit and an electronic controller.**



## Section 2: Main Features

- Temperature display is standard configuration
- Dynamic constant temperature control system, fast response, small temperature fluctuations
- Key components of the refrigeration system, including the compressor and circulation fans are from top quality OEMs.
- Evaporator is made of nickel-plated copper tube winding. Beautiful and compact it is easy to use in small containers
- Cooling power meet the cooling and constant temperature requirements for laboratory analysis equipment

## Section 3: Equipment Instructions

1. Put the evaporator coil into the container. The liquid level must not cover the coil, if there applied liquid circulation functions to increase the connective heat transfer coefficient, the using effect will be more apparent.
2. The machine control panel buttons function as follows:  
The machine's main power switch on the rear of the machine

### Key Functions

**POWER KEY:** Power supply switch - press this key to start the instrument. When working, press the POWER button to shut down. Turn off the COOL button, then turn off the PUMP after the delay. When only the POWER light is on when in standby, only the POWER key is operational. Other buttons, lights, digital tubes will not respond. The POWER light flashes fast when there is a phase sequence fault, when no key can react, when cooling is not operational or when the pump is disconnected.

**COOL Key:** Cooling switch - press the COOL button, allowing refrigeration; if they meet the cooling conditions (cooling delay Ct up, the water temperature below the limit water temperature AP, water temperature higher than the set temperature-DL), the compressor starts.

**PUMP Key:** Circulation switch - press the PUMP key to start the pump working. Under normal working hours the PUMP light is on.

**C Set key** - For set-point modifications. Change and confirm new parameters.

**∧ Displacement key** - In the set state, press this button to shift or query run time.

**∧ Increasing key** - press this button to make the set value plus one, press and hold the button to increase set value continuously. Under standard conditions press and hold the key to start/stop the controller




**∨ Decreasing key** - press this button to make the set value minus one, press and hold the button to make the set value decrease continuously. Under standard conditions press and hold the key to start / stop self-tuning.



3. Operating the control panel

## Section 3: Equipment Instructions (con't)

### Set value change mode:

- Press the Set button.  The PV area shows the SP code.
- Press the increasing  and decreasing  keys to set the desired set temperature.
- Press the Set button. The PV area displays the ST code. Set the required running time by increasing and decreasing buttons, if set to 0, cancel the timer function.



- **Timer Function:** The timer is set in minutes. When the time setting is  $ST = 0$ , the controller will cancel the timer function. When the controller has been running if the time setting is  $ST > 0$  and run-time to the ST value. When the lower display shows END, the controller stopped working; press the Increasing key in the temperature display area to restart the controller.
- **Self-tuning:** In the standard mode, press and hold the Decreasing key for (4) four seconds. The controller starts self-tuning and the SV value flashes. Wait for the end of self-tuning to set a new group of PID parameters. Press the Decreasing button to force stop the self-tuning function. The PID parameters will maintain their original values.
- **Delay the pump stops:** When running, press the POWER switch to turn off the power. The pump will keep running for a time. During the delay the light flashes fast, turn off the pump after the delay, PUMP light off.
- When holding down the set button for a long time, the instrument goes into the internal parameter modification status. Users should not modify the internal parameters to avoid chaos control. Hold down the Set button for a longer time to exit the state. In the parameter setting mode, press the SET key to enter the user parameter setting interface that enables  $LK = 18$ , and then press the SET button to enter the setup interface to modify the parameters.
- Appearance parameters (for reference only): Deviation alarm  $AL-1 = 10$ , the absolute value alarm  $dl = 10$ , refrigeration control delay  $ct = 10$ , control period  $T = 15$ , the process value bias  $pb = \text{measured value}$

## 6. Technical Data

### Specifications for Chill-iM

Model		iM201	iM202	iM402
Constant Temperature Range @25°C Room Temperature		-20°C~30°C	-20°C~30°C	-40°C~30°C
No-load Constant Temperature Volatility		±0.5°C	±0.5°C	±0.5°C
Lowest Temperature		-20°C	-20°C	-40°C
Cooling Ability (W)	0°C	300W	800W	780W
	-20°C	140W	400W	360W
	-40°C	---	---	120W
Working mode		Continuous	Continuous	Continuous
Overall Dimensions (W x D X H)		400 × 415 × 280 mm (15.75 x 16.34 x 11.02")	400 × 415 × 280 mm (15.75 x 16.34 x 11.02")	400 × 415 × 280 mm (15.75 x 16.34 x 11.02")
Evaporator Specifications (mm)		Φ50×150	Φ50×150	Φ75×180
Power Supply		AC220V, 50Hz, 6A	AC220V, 50Hz, 6A	AC220V, 50Hz, 10A
Weight		22kg	25kg	35kg

## 7. Caution

- Avoid direct sunlight on the chiller
- The chiller should be placed in a temperature below 35°C, with no corrosive gas, in an environment of relative humidity below 80%.
- The area around the chiller should be well-ventilated. Distance from the walls or barriers should be no less than 30cm.
- This chiller must use a separate power supply (AC 220V, 50Hz, 10A) and be properly grounded.
- Stop the chiller and release the medium before carrying or moving it. The instrument should incline less than 45 degrees during the carrying.
- The refrigeration system should not open or stop frequently; otherwise it may damage the compressor.
- This product has a (1) one year warranty from the date of sale.

## 8. Warranty, Responsibilities and Regulations

- The warranty period of this machine is one year. During the warranty period, if there is any breakdown while the customer uses the machine normally in accordance with product instructions and attached labels, the company is responsible for the repair.
- Within the specified warranty period, if there is one of the following situations, there is no entitlement for free repairs.
  - Unable to show the warranty card and purchasing certificate.
  - Actual information does not match the content in whole or in part with the warranty card leaking fill or altered.
  - Failure and damage caused by improper use or not using in accordance with the product instructions and the attached labels.
  - Failure and damage caused by improper storage, such as: drops and bumping during transportation, moving and use.
  - Failure and damage caused by arbitrary repair, adjustment and modification not specified or approved by the company.
  - Failure and damage caused by accident such as unusual voltage other than the machine.
  - Consumption, wear and tear, aging and replacement of consumables.
- According to the trade, the content of the warranty and regulation may be different. As noted in the warranty terms of the instruction, please carefully verify the recorded content. The warranty period of this machine is one year. Under correct usage, if damage occurs, the company is responsible for the maintenance.



## Advanced Thermal Solutions, Inc

**Advanced Thermal Solutions** is a leading engineering and manufacturing company supplying complete thermal and mechanical packaging solutions, from analysis and testing to final production. ATS is world renowned for its portfolio of more than 5,000 high performance heat sinks, research-quality test equipment's, and leading-edge R&D, specifically tailored to the telecom, LED and computing industries. In addition, ATS provides thermal design consulting services and training for the electronics cooling industry. For more information about **Advanced Thermal Solutions**, please visit [www.qats.com](http://www.qats.com).

For further technical information, please contact **Advanced Thermal Solutions, Inc.** at **781.769.9979** or email [qats-hq@qats.com](mailto:qats-hq@qats.com) or visit [www.qats.com](http://www.qats.com).



Advanced Thermal Solutions, Inc  
89-27 Access Road,  
Norwood, MA 02062  
phone: 718.769.2800