INSTEC
FOCUS ON EXCELLENCE

User's Manual
CW3000

Industrial Chiller

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INSTEC, Inc.

Warranty

November 3, 2025

INSTEC, Inc. guarantees the product will conform to the specifications set forth in this manual, and will remain free of defects in workmanship and materials for a period of one year from the date of delivery. Should a product, in *INSTEC'*s opinion, malfunction during the warranty period because of a defect in workmanship or material, *INSTEC* will repair or replace it at no charge to the buyer, provided the product has not been subject to accidental damage, misuse, abuse, or unauthorized alteration, modification, and/or repair.

Examples of actions that will make this warranty null and void include, but are not limited to, the following:

- Storing or operating the device at any temperature outside the operating and storage temperature range.
- Performing or attempting to perform unauthorized service or repair.
- Resale -- except through an authorized dealer.

Products requiring service under this WARRANTY should be delivered to *INSTEC*, Inc. All portions of such systems, hardware and software, should be sent, along with proof of purchase if obtained from an authorized dealer. The buyer must insure the product or assume risk of damage or loss in transit. If unable to repair or replace the product, INSTEC will refund the purchase price paid by the original buyer.

DISCLAIMER

THE FOREGOING WARRANTY IS IN LIEU OF AND TO THE EXCLUSION OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. *INSTEC*, INC.'S LIABILITY AND THE BUYER'S EXCLUSIVE REMEDY FOR BREACH OF THE FOREGOING WARRANTY SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT OR REFUND OF THE PURCHASE PRICE. UNDER NO CIRCUMSTANCES WILL INSTEC BE LIABLE TO THE BUYER IN ANY WAY FOR DAMAGES, INCLUDING ANY LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR MISUSE OF THE PRODUCT, OR *INSTEC*'S BREACH OF THE FOREGOING WARRANTY

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Chapter 0. Safety Information

WARNING

Always follow the safety guidelines outlined in this User Manual. Improper use may result in personal injury or death

Within this manual, a set of symbols are used to call attention to Safety Warnings, Caution Notices, and Notes. The symbols are defined in Figure ***1***:

Warning Symbol
Indicates a safety guideline that should be followed at all times

Caution Symbol
Indicates a caution notice that calls attention to a potential saftey risk

Note Symbol
Indicates an important notice which should be given careful consideration.

Figure 1*: Symbol Legend*

Documentation: The CW3000 Chiller is just one component of your Instec temperature control system. Be sure to carefully read, and follow the safety guidelines outlined for each component device in the system.

Water Leaks: While the CW3000 itself is well protected against water damage, the same cannot be said for equipment around, or connected to the CW3000. Before powering on the CW3000, be sure to secure all connections using a zip-tie or hose clamp to ensure a water-tight connection. Place the CW3000 in a secure location without electronics or sensitive samples below it. Be sure to consult the User's Manual for the INSTEC Stage/Plate/Chuck being used with the CW3000, and be sure not to connect the chiller to the Gas-purge ports instead of the frame cooling ports. These ports should be clearly labelled in the manual.

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Extreme Temperatures: While the *CW3000* case should never exceed ambient temperatures, special care should be taken with regards to the Stage/Plate/Chuck/ probe station being cooled. The sample area temperature can exceed 60 C, or drop below -20 C depending on the configuration. Always be aware of the operating temperature of your stage and avoid physical contact accordingly. Contact with extreme temperatures, hot or cold, may cause bodily harm.

Power Button: Power is supplied or interrupted on the CW3000 benchtop chiller via a rocker switch located on the front panel of the controller. This button can be identified by the power symbol below in Figure 2. An identical switch is used to enable/disable the radiator fan, however only the primary power switch will illuminate the red status LED also located on the front panel.

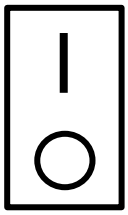

***Figure 2**. Primary power switch indicator*

Coolant choice: When using regular tap water with the CW3000, it is recommended to flush and then replenish the fluid reservoir every 1-2 months. This will help prevent the buildup of mineral deposits inside the chiller, and extend the operational lifespan. INSTEC recommends using primarily distilled water as coolant, which greatly reduces the frequency that the water must be replaced.

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Chapter 1. Introduction

1.1 Product Description

The CW3000 chiller is a convenient solution for providing weak to moderate cooling power for *INSTEC* temperature control system. The chiller operates by circulating water through its internal reservoir, through the *INSTEC* Stage/Plate/Chuck which needs to be cooled, then finally through fan-cooled radiator. This circuit provides enough cooling power to keep most INSTEC Stage/Plate/Chuck frames near room temperature

When used for cooling TEC Stages/Plates/Chucks, the lower temperature limit of the sample area is limited by the amount of frame cooling used to maintain the thermal gradient across the TEC modules, and the geometry of the frame itself. To determine the lower temperature limit of your *INSTEC* TEC Stage/Plate/Chuck, consult the documentation included with the Stage/Plate/Chuck, or Contact **support@instec.com**. As a general rule of thumb, the cooler you can keep the frame, the cooler you can keep the sample. The CW3000 is primarily designed for convenience, and is not sufficient for maximizing the sample cooling power of *INSTEC* products.

1.2 Features

- Coolant temperature monitoring with automated over-temp cutoff capability
- 2.4gal (9L) internal water reservoir with water level monitoring
- Convenient form factor (11” W x 19” L x 15” H)

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Specifications	
Model	CW3000
Input Power	110V/60Hz or 220V/50Hz (region dependent)
Capacity	2.4 gal (9L)
Max Flow Rate	2.6 gal/min.(10L/min)
Dimensions	19 x 11 x 15 in
Material	Steel, ABS, Copper
Current	0.9A
Max Lift	32.8 ft (10m)
Cooling Capacity	50W/°C
Weight	20.9 lbs (9.5kg)

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Chapter 2. System Installation

2.1 Unpacking and Equipment List for CW3000

Please inspect the shipping carton for any signs of damage that may have occurred during shipment. If the shipping carton shows any signs of damage, please retain the shipping carton for insurance purposes. Open the shipping carton and remove and inspect the contents. Please report any occurrences of shipping damage to *INSTEC* immediately.

Table 1: Standard Parts for the CW3000

Standard Parts for the CW3000	
One (1) CW3000 Chiller	
One (1) AC Power cord (Region Specific)	
Two (2) Silicone Rubber Tubing	
One (1) Alarm Signal Plug (not used)	
One (1) User's Manual	

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2.2 CW3000 Overview

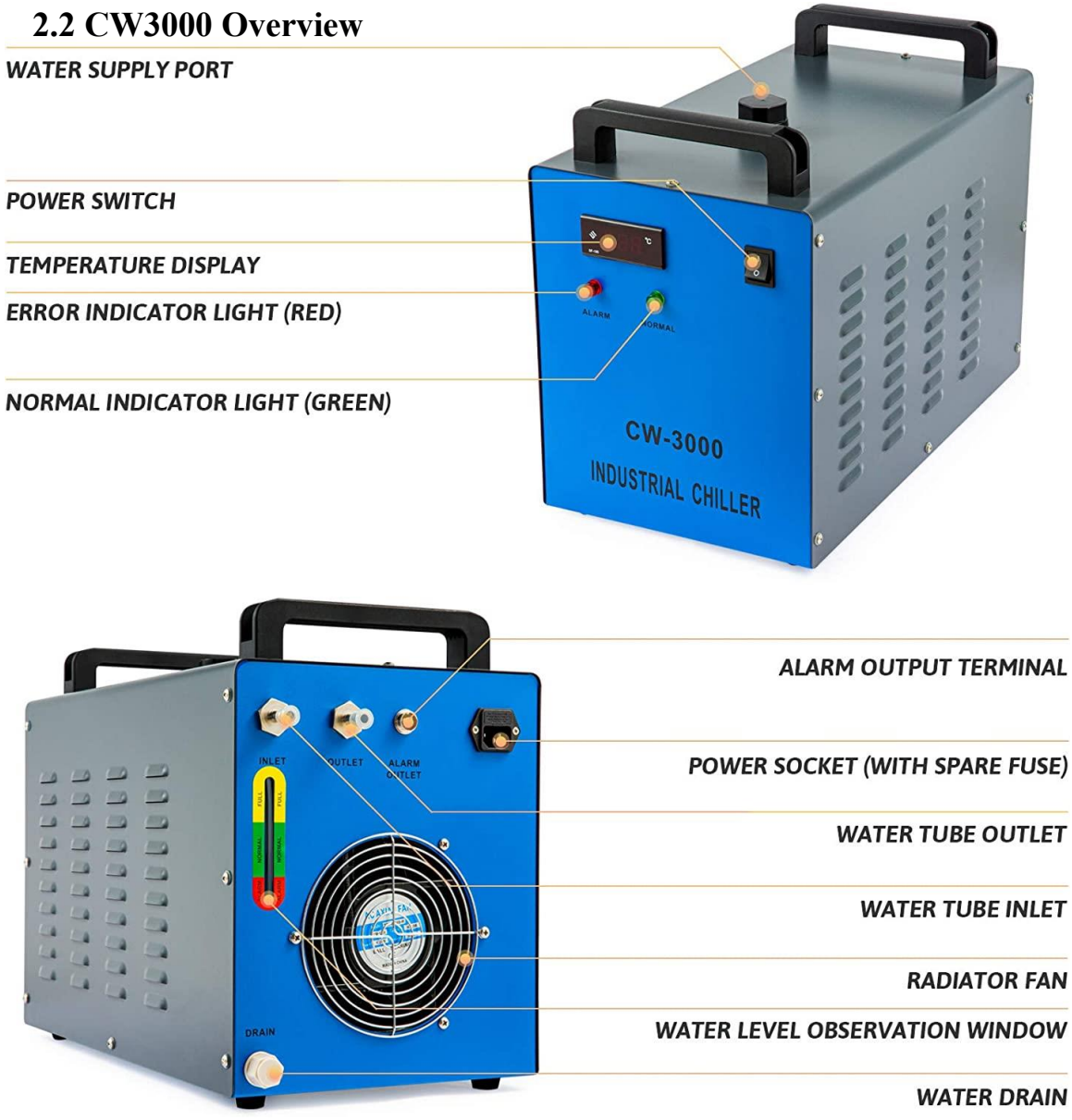

Figure 3. *The overview diagram for the CW3000*

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2.3 Establish Water Circulation

Place the CW3000 controller on a level, clean surface with ample ventilation. Because the CW3000 relies on a large radiator fan to keep the circulating water cooled, make sure the vents on the sides and rear panel are unobstructed.

The front panel of the CW3000 is shown in **Figure 3**. All electrical connections to the CW3000 use different types of ports to eliminate the possibility of an incorrect connection.

During the initial setup, or after setting up the device after a long period of inactivity (3+ months), it is recommended to drain and refill the reservoir, as algae growth may be present. To do this, unscrew the drain plug located on the rear panel, as shown in Figure 3, and allow the water to fully drain. Replace the drain cap once finished, Next, unscrew the water reservoir lid and fill the reservoir, with distilled or tap water, until the water level indicator shows that the reservoir is sufficiently full.

Circulator Safety: Be sure that the chiller is placed away from any open electronics to avoid electric shock. As an added precaution, it is recommended that all fluid ports are tightly secured using zip-ties or hose clamps **BEFORE** powering the chiller on.

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2.4 System Setup and Operation

Once water circulation is established, disconnect the power cord from the CW3000. While the power is disconnected, connect the CW3000 to your INSTEC Stage/Plate/Chuck, by simply connecting the Inlet and Outlet ports to the frame cooling ports on the Stage/Plate/Chuck via the included silicone tubing. These ports are typically barbed hose fittings which are connected directly to the frame of the Stage/Plate/Chuck. Secure the connections using zip-ties or hose clamps.

Frame Cooling Port Identification: Be sure to consult the User's Manual for the INSTEC Stage/Plate/Chuck being used with the CW3000 to identify the frame cooling ports. Be sure not to connect the chiller to the Gas-purge ports instead of the frame cooling ports, as this may flood the Stage/Plate/Chuck, or the surrounding area, with water.

Once the CW3000 has been securely connected to the Stage/Plate/Chuck, the Chiller may be reconnected to power and turned on.

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Chapter 3. Troubleshooting

Failure	Cause of Failure	Approach
Chiller does not power ON when switch is turned to the ON position.	Power cord is not plugged in	Plug in the power cord
	Burnt out fuse	Replace the fuse inside the power socket on the rear panel
Flow alarm sounds even if there is fluid flow	Water level inside the reservoir is too low	Check for any leaks and add water
Fluid temperature is hot	Poor ventilation	Relocate the chiller to where there is ample ventilation
	Excessive heat load	Reduce the heat load, or a stronger chiller may be required for your application
Alarm sounds after adding water or changing water	Water came into contact with electronics	Dry off the chiller or leave the chiller to dry
	Damaged internal pump	Repair or replace the transfer pump
Chiller powers on but the fan does not run	Water temperature is below 20°C	Normal behavior, leave as is
Slow drainage	The reservoir cap is closed	Open the cap to the reservoir