

Point of Use Temperature Control System

November 2007

Facility Manual



Facility Manual

Point of Use
Temperature Control System

COPYRIGHT

This manual and the information contained herein is the proprietary property of Noah Precision, LLC.

No part of this manual may be reproduced or copied without the express written permission of Noah Precision, LLC. Any unauthorized use of this manual or its contents is strictly prohibited. Copyright © 2004-2007 Noah Precision, LLC. All Rights Reserved.

DISCLAIMER AND LIMITATION OF LIABILITY

The information contained in this manual is subject to change by Noah Precision, LLC without prior notice. Noah Precision, LLC makes no warranty of any kind whatsoever, either expressed or implied, with respect to the information contained herein. Noah Precision, LLC shall not be held liable for damages, of whatever kind, as a result of the reliance on or use of the information contained herein.

PRODUCT USAGE STATEMENT



DANGER:

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or maintaining this equipment. Practice all plant and product safety instructions and precautions. Failure to follow instructions can cause personal injury and/or property damage. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. All personnel who work with or who are exposed to this equipment must take precautions to protect themselves against serious or possibly fatal bodily injury.

Noah Precision, LLC provides information on its products and associated hazards, but it assumes no responsibility for the after-sale operation of the equipment or the safety practices of the owner or user. This equipment produces or uses potentially lethal high-voltage, high-current, electrical power. NEVER DEFEAT INTERLOCKS OR GROUNDS.

TRADEMARKS



logo is a registered trademark of Noah Precision, LLC

Noah Precision® is a registered trademark of Noah Precision, LLC

Point of Use™ is a trademark of Noah Precision, LLC

All other trademarks are the property of the respective trademark owners.

® and ™ denote United States trademarks.

CUSTOMER FEEDBACK

Noah Precision's technical writing staff has carefully developed this manual using research-based document design principles. However, improvement is ongoing, and the writing staff welcomes and appreciates customer feedback. Please send any comments on the content, organization, or format of this user manual to:

- tech.writing@noahprecision.com

Specifications

The specifications for facility water are broken down into minimum requirements that are adequate for typical applications and performance-based specifications that provide the maximum cooling capacity for the most demanding applications.

Process Chilled Water & Power

Noah Precision's Point of Use (POU) temperature control systems require two fabrication plant facility inputs, process chilled water (PCW) and electrical power. The connection and service requirements for the PCW, also called facility or house water, and electrical power are listed in sections below (*see Table 1*).

The electrical specifications listed represent operational minimums and are not performance-based. The POU system's power supply controller (PSC) is *not phase-sensitive*.

PCW & PSC Specifications

Table 1. Process Chilled Water Specifications

Description	Specification	Notes
3300	2.0 gpm (7.6 lpm) MIN 3.0 gpm (11.4 lpm) MIN	typical application demanding application*
3500	3.0 gpm (11.4 lpm) MIN 4.5 gpm (17.0 lpm) MIN	typical application demanding application*
MAX PCW Temperature	86°F (30°C) 68°F (20°C)	typical application demanding application*
MIN PCW supply pressure	30 psi (106.8 kPa)	
MAX PCW supply pressure	80 psi (689.5 kPa)	
MIN PCW (sup-ret) delta	30 psi (206.8 kPa)	

* *demanding ~ process temperature setpoint < 0 °C and/or bias RF power > 2000 W*

Table 2. PSC Electrical Power Specifications

Description	Input Power
3300 with PSCe, 4400 or 8800	190-230 VAC, 15A, 3-phase, 4-wire, 47-63Hz
3500 with PSCe or 8800	190-250 VAC, 30A, 3-phase, 4-wire, 50-60Hz

PCW Connection Kits

Facility water manifolds with supply and return-side shut-off valves and pressure sensors and return-side flow meters (see Figure 1) are recommended. Inline filtering (10µm) may be required for facilities with high impurity concentrations, and house water should be chemically treated to prevent the growth of biologicals.

½” Swagelok swiveling PCW fittings are located on the bottom of Noah’s POU temperature control modules (see Figure 3). They can swivel independently to face the front, rear, or sides of the POU module to facilitate easy fab integration. Quick-disconnect (QD) fittings and flexible hoses are **recommended** to connect from the PCW manifolds to the POU modules (see Figures 1 & 3).

Note: QD fittings and valves are **recommended** for the PCW loop, but **not** for the Perfluorinated process fluid loop connections to the chamber.

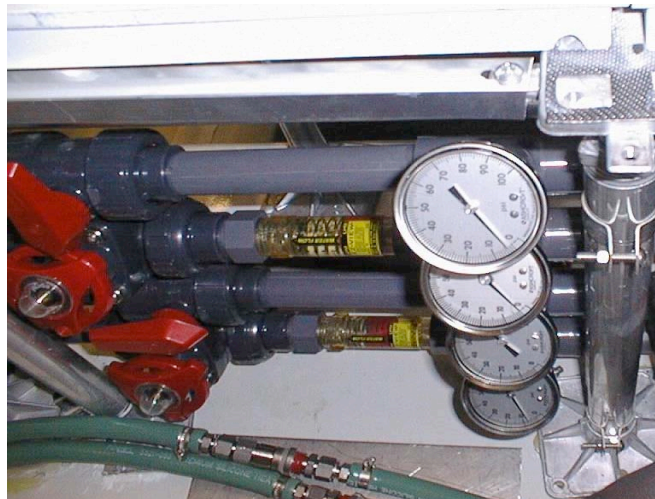


Figure 1. Recommended PCW Manifolds & PCW QD Kit (hose) installed



Figure 2. ½” Swagelok PCW QD Kit (tube)

Note: PCW QD Kit for fabs with hose also an option



Figure 3. 1/2" Swivel Swagelok Fittings w/ Barbs

Note: Barbs are part of the PCW QD Kit

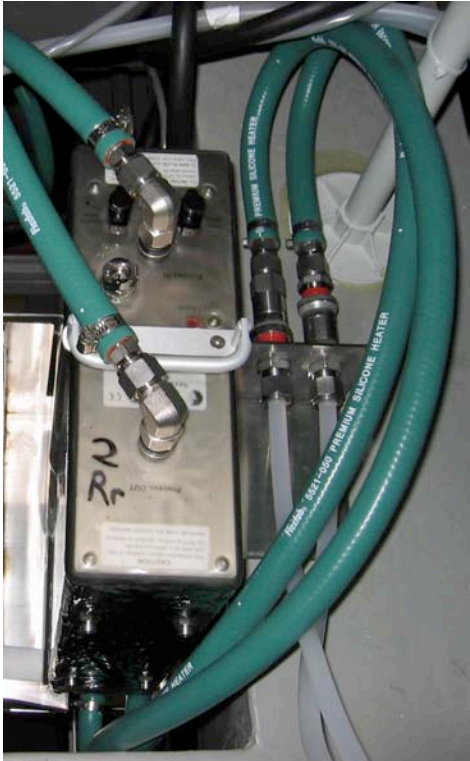


Figure 4. POU System Installed w/ PCW QD Kit (tube)

PSC Mounting & Power Connections

PSC Mounting

There are several options for mounting the POU Systems' power supply controllers (PSCs). These options include:

- Noah Precision PSC rack, 76" (193 cm) height
- Noah Precision PSC rack, 54" (137 cm) height
- Tool's existing rack, 19" (48 cm) width (see [Figure 5](#))
- Custom-made PSC mounts, 19" (48 cm) width (see [Figure 6](#))



Figure 5. PSCs installed in tool's rack



Figure 6. Custom made, single or dual-PSC mounts are space efficient and inexpensive

PSC Power Connections

There are several options for connecting electrical power to the POU Systems' power supply controllers (PSCs). These options include:

- Noah Precision power distribution box (PDB); single- or multi-drop (*see Figure 7*)
 - NOT REQUIRED FOR ALL INSTALLATIONS
 - Fed from tool's breaker(s)
 - Fed from facility power panel



Figure 7. Power Distribution Box (PDB), front and rear

Note: PSC power cords are ~ 10 ft (3 m) long and equipped with NEMA L15-30 power plugs. Do NOT hardwire PSCs directly to house power.

- Noah Precision power receptacles (*see Figure 8*)
 - Less expensive alternative to PDB
 - Fed from tool's breaker(s)
 - Fed from facility power panel



Figure 8. Noah Precision Power Receptacles

- Facility-supplied receptacles (see [Figure 9](#))
 - Fed from tool's breaker(s)
 - Fed from facility power panel



Figure 9. Facility-supplied Power Receptacles

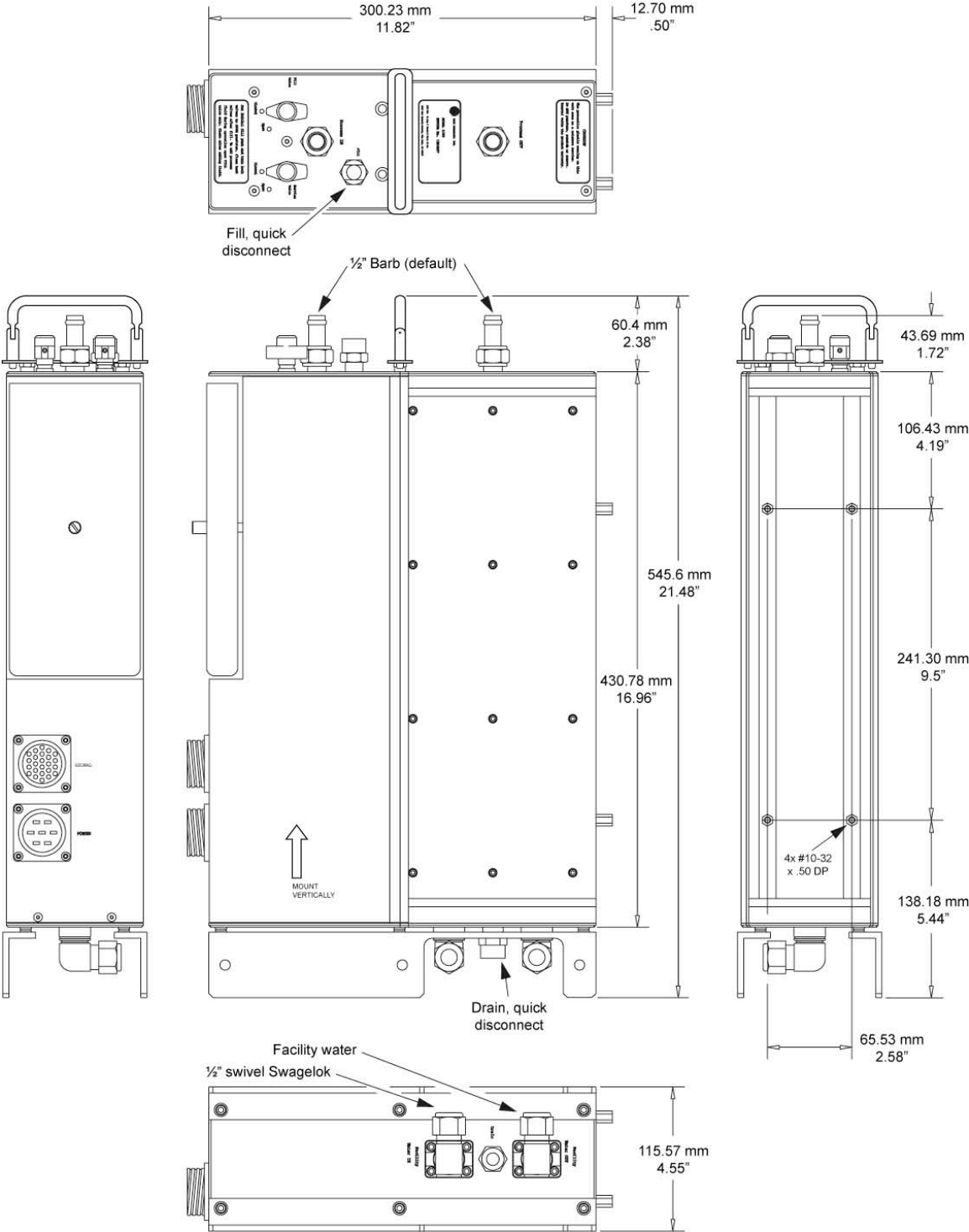


Figure 10. POU 3300 Dimensions

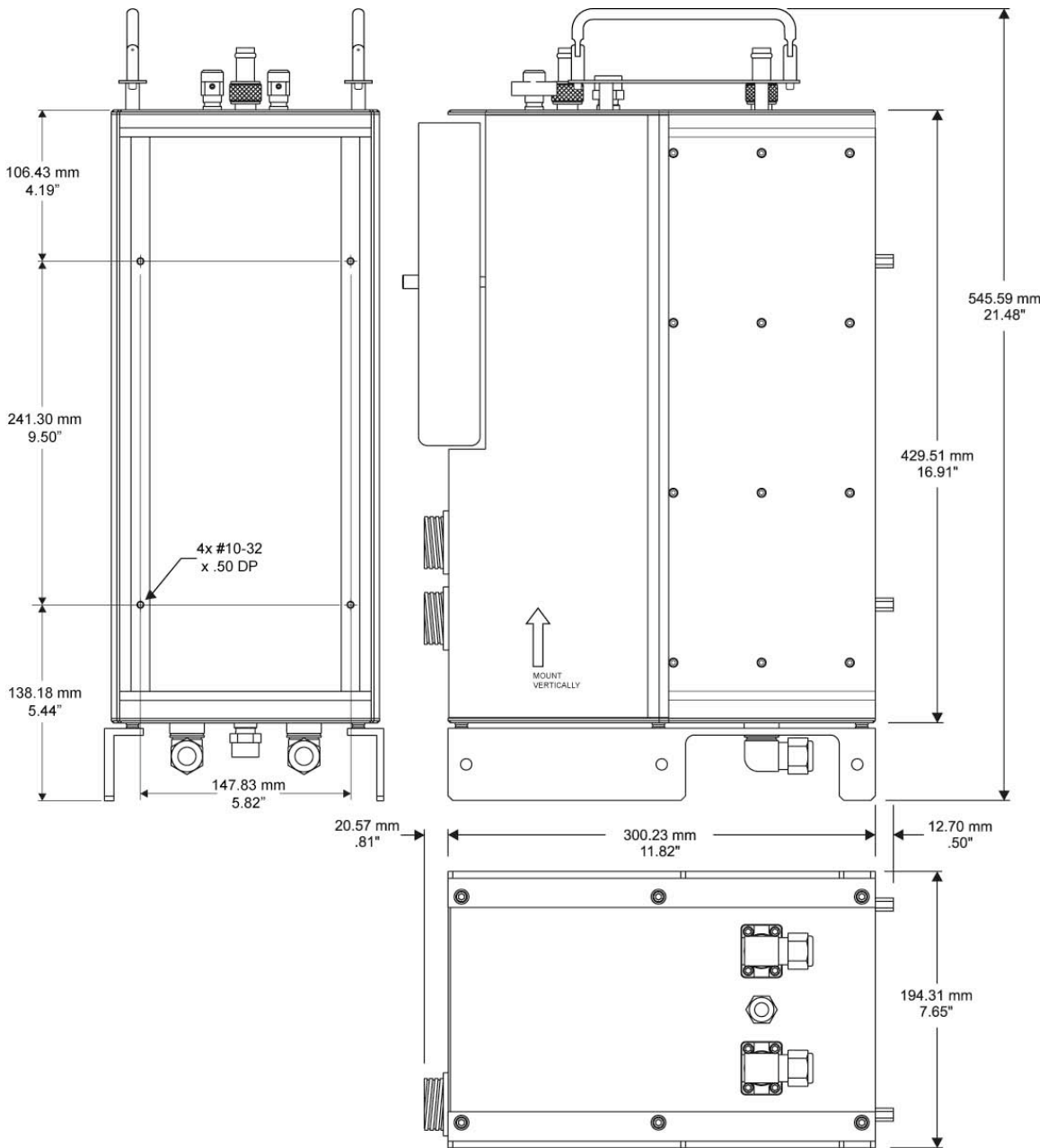


Figure 11. POU 3500 Dimensions