

# *HPS Controls Ltd.*

*Series 800*

*PLS*

*Primary Loop Stations*

**Heating and Radiant Floor  
Primary Loop Stations**

## **Installation Instructions**

Thank you for purchasing the finest in heating and radiant floor Control Stations. We are confident that you will enjoy years of trouble free service from this Station. As with any product requiring specific installation guidelines, a good understanding of **ALL** the system components and final product is necessary to achieve the optimum results. This manual has been kept as short and uncomplicated as possible.

**Please read the ENTIRE manual  
before beginning your installation  
as this will help avoid costly  
mistakes.**



# HPS Controls Ltd.

## Series 800 PLS

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## HPS Controls Ltd. Series 800 PLS

### Applications & Features

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- Primary Loop Stations**
- Consist of a pre-piped Primary loop to be used with Primary/Secondary piped hydronic systems.
  - Available with specified port locations for both boiler and zone supply and returns. Piping sizes are available up to 2”.
  - 1 or 2 primary circulators are available dependant upon application.
  - Includes Spirovent, 12psi feed water regulator, dual check back flow preventer, and ½” connection for the expansion tank and make-up water supply.
  - Can be coupled or grouped with other HPS Zone Control Stations to complete a simplified and professional looking boiler system.
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**PLS-1 Stations**

Used for:

- Standard single primary pump applications with no priority pump requirement off of the primary loop.
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**PLS-2 Stations**

Used for:

- 2 primary pump applications:
    - 2nd pump is typically designed to work as a priority zone for an indirect water heater or other priority system.
    - These panels are most commonly used with condensing boilers or control modules that utilize a priority (high temperature) primary loop over a general heating primary loop.
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## HPS Controls Ltd. Series 800 PLS

### Primary Loop Station Installation

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#### Important

**All local code requirements must be followed.**  
**Contact your Local Plumbing Inspection Department for requirements necessary for your area.**

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#### Installation Instructions

Refer to your shipping list and confirm that all of the components have been received and are undamaged. If you received damaged material, please notify the freight forwarder and the supplier immediately.

1. The Primary Loop Station should be installed close to the heating appliance to simplify the piping installation.
  - Fasten the Station to the wall using a minimum of eight #10 size screws.
  - When possible fasten a wood backing of either 2x4 or plywood in place to support the PLS Station.
  - Attach a 2x4 to the wall for resting the station from underneath to hold the station when mounting. Remove after mounting.
2. The “Boiler Supply” and “Boiler Return” lines to the Primary Loop Station are standardized at 1 ¼”, but up to 2” is available with “Select a Design”.
  - Ball valves of corresponding size **must** be installed on the boiler **supply and return** lines to isolate it from the boiler. This will assist in purging or servicing of the system.
  - The secondary loop supply and return pipes from the Station are standardized at 1”, but up to 2” is available with “Select a Design”.
  - On PLS-2 stations, circulator “C2” is to be designated as the indirect or “priority circulator”, along with the “C2” supply and return lines.
3. Measure the tube or copper pipe length required for both the supply and return lines to and from the station to the adjacent equipment and install. Ball valves should also be installed on secondary supply and return lines to assist in the purging/servicing process.

#### Caution

The “Boiler supply” and “Boiler return” connections on the station are designed to be piped directly into the boiler system as the “**Primary**” piping.

- No external pumps need to be attached to the boiler as the boiler primary circulator is located within the station.
  - If the Primary Loop Station is installed in any other manner, the panel may not operate properly and this will void any warranty.
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## HPS Controls Ltd. Series 800 PLS

### Wiring the Primary Loop Station

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#### **Wiring the circulators**

The Primary Loop Station does not contain a circuit board or any internal relays to operate the circulators.

Wiring of the circulators can be performed simply by several different manners:

1. Main pump control relay within the boiler.
  - If using a PLS-2 station most condensing boilers can be equipped to run 2 primary circulators, and designate circulator "C2" as a priority.
2. Main pump connections located in other Series 100 thru 700 HPS Stations.
3. Various independent boiler system control modules.

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## HPS Controls Ltd. Series 800 PLS

### System / Station Purging

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#### Removing Air from the System

All the air in the system must be removed during the filling of the system, by purging each circuit of each secondary zone independently in turn. All PLS Stations come with a purge valve and Spirovent to assist in the purging process.

1. Place a garden hose on the purge valve within the Station, run to a convenient drain, and open the purge valve.
2. Make sure that the ball valve is closed on the main return to the boiler.
3. It is important to purge all secondary zones first before purging out the PLS Station.

#### Note:

- The PLS Station does contain a Spirovent. This vent will NOT initially purge the complete system for you.
- The vent will remove a considerable amount of air on its own but each secondary zone will still have to be purged individually.

After all piping and stations have been filled and purged, open all valves.

#### Caution:

Do not forget to open the valves at the secondary supply and returns, and all valves at the zone manifolds.

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#### If Using a Floor Drain

Place the hose into the floor drain approximately 3" to 4" below the water line to allow for the bubbles to be seen as they rise to the surface. Doing the purging procedure twice will reduce the chance of air in the system.

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#### Radiant Slab Cold Weather Startup Caution

When doing cold weather start up, it is possible that areas of the slab may be below freezing even with temporary heat being provided. The system should not be filled and purged until it is ready to have the system circulating with the boiler in operation applying heat to the slab. Depending on the starting temperature of the slab, it may take hours to days for the slab to reach radiant floor operational temperature due to the large thermal mass.

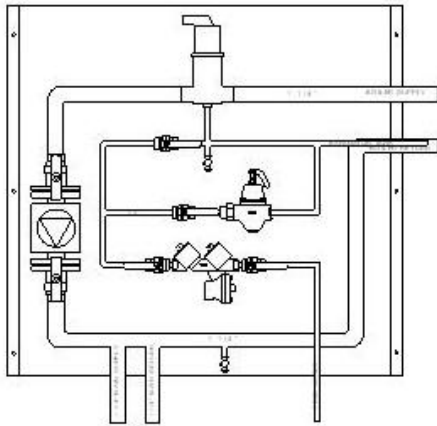
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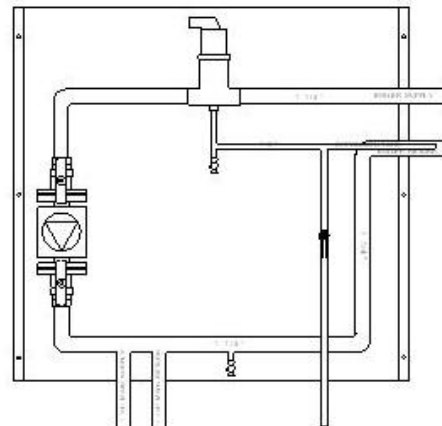
# HPS Controls Ltd. Series 800 PLS

## Diagram A (PLS Series)

### One Pump Primary Loop Station

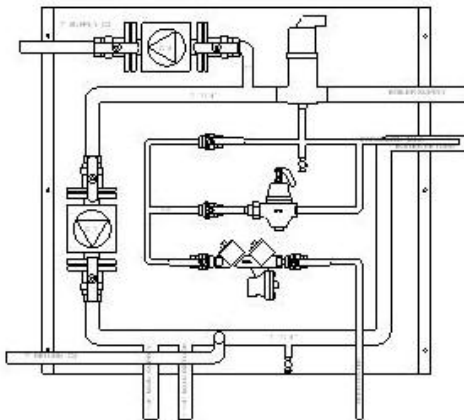


PLS-1RS

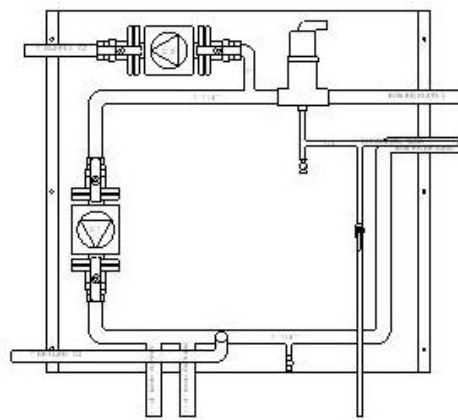


PLS-NBF-1RS

### Two Pump Primary Loop Station



PLS-2RS



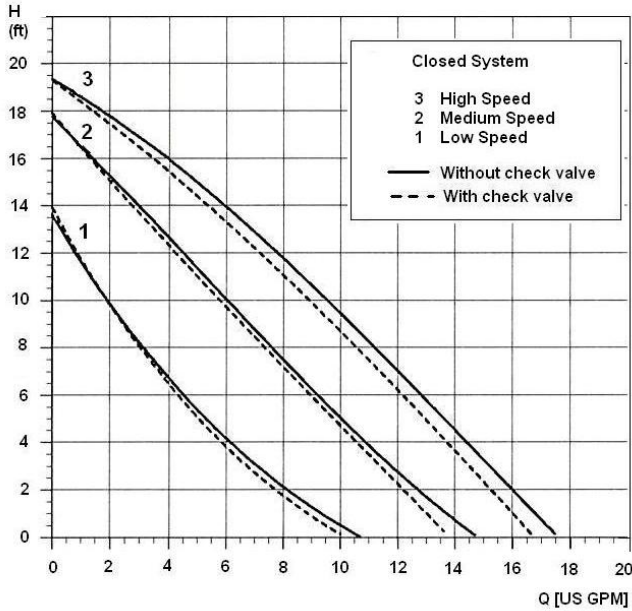
PLS-NBF-2RS

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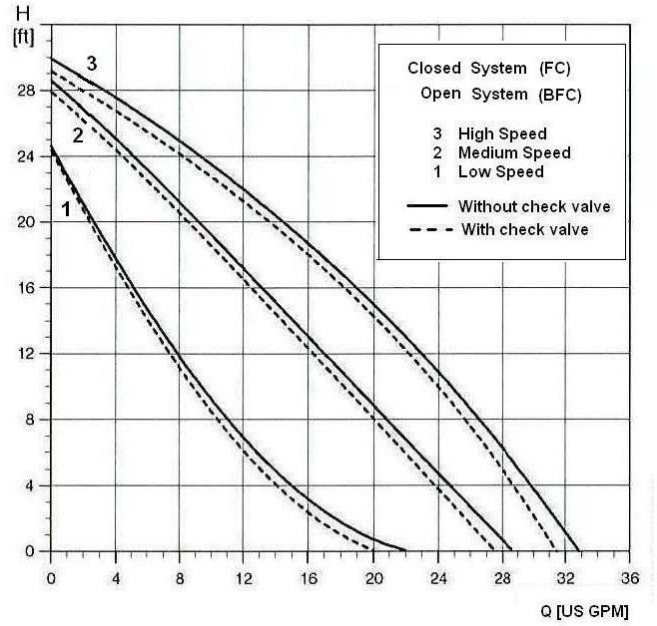
# HPS Controls Ltd. Series 800 PLS

## Diagram B (Grundfos Pump Curves)

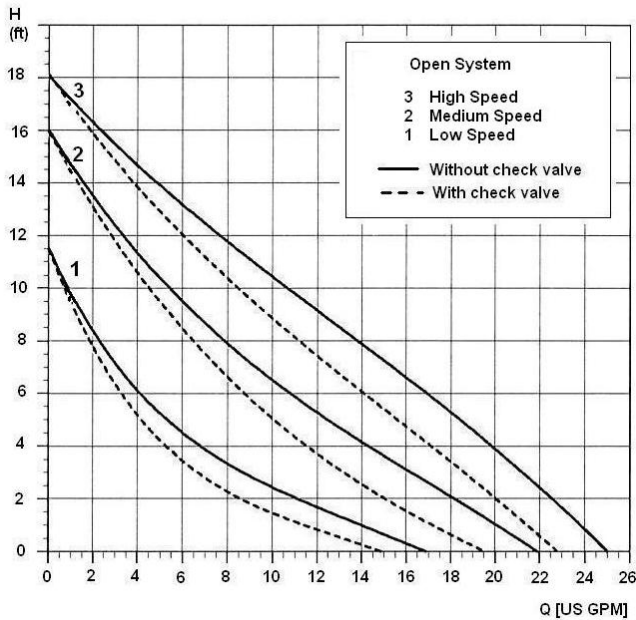
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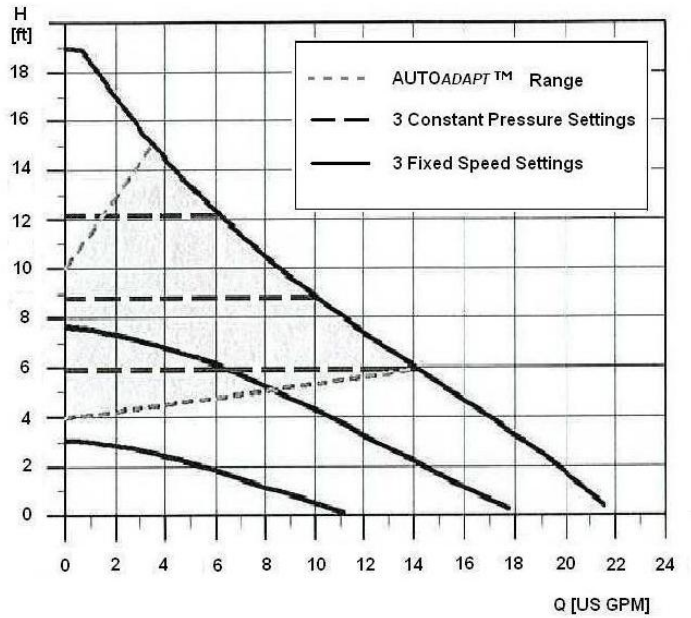
UPS 26-99FC/BFC Super Brute



UPS 15-55SFC/SUC Super Brute



ALPHA 15-55F/SF



**HPS Controls Ltd.**  
**Series 800 PLS**

## **Warranty**

### **Hydronic Primary Loop Stations**

#### **LIMITED MANUFACTURER'S WARRANTY**

We warrant products manufactured by HPS Controls to be free from defects in material and workmanship for a period of two years from the date of manufacture or one year from the date of installation, whichever ever occurs first. In the event of any claim under this warranty or otherwise with respect to our products which is made within such period, we will at our options, repair or replace such products or refund the purchase price paid to us by you for such products. In no event shall HPS Controls be liable for any other loss or damage, whether direct, indirect, incidental, or consequential. This warranty is your exclusive remedy and shall be in place of any other warranty or guarantee, express or implied, including, without limitation, any warranty of merchantability or fitness for a particular purpose. This warranty may not be assigned or transferred and any unauthorized transfer or assignment thereof shall be void and of no force or effect.

#### **CONDITIONS OF SALE**

**TERMS:** Net 30 days. Invoice date is the date of shipment. Subject to credit approval. Past due invoices are subject to 2% per month (24% per annum) late charge.

**RETURNS:** Factory authorization is required prior to any return, the return must be made within (60) days of such authorization. Product to be returned must be shipped freight prepaid, and is subject to a 25% handling charge. RGA form required with serial number, purchase date and a detailed description of problem.

**CLAIMS:** Claims for shortage or error in shipment must be made within (5) days of receipt. Claims for damage or loss in transit must be made directly to the delivering carrier.



10683 – 214 Street  
EDMONTON, ALBERTA, CANADA T5S 2A2

Phone: 780-482-1051  
800-708-1051  
Fax: 780-482-3143  
E-mail: [hpsc@telus.net](mailto:hpsc@telus.net)

Website: [www.hpscontrols.com](http://www.hpscontrols.com)