HYDROSTAT®

MODEL 3150

Combination Low Water Cut-Off & Universal Temperature Limit Control for Oil-Fired Boilers

120 VAC Operating Voltage

PATENT NOS. 7,891,572; 8,931,708

INSTALLATION INSTRUCTIONS and OPERATING MANUAL

- **Replaces Common Aquastat* Models –** Can be installed on existing immersion wells to replace both cold-start and triple-action Aquastats®. Industry standard wiring designations make change-outs quick and easy.

- **Digital Display –** Easy to read LED continually displays boiler temperature. Also displays temperature limit and differential settings during adjustment.

- **Easy to Set –** Dials for setting temperature limits and differentials eliminate complicated programming.

- **Thermal Pre-Purge Feature –** Conserves fuel and meets 2012 DOE regulations by circulating latent heat in the boiler to the heating zone before firing the burner.

*Aquastat is a registered trademark of Honeywell International, Inc.

Dual Function Design

Temperature Limit Control
Designed for cold start and tankless coil boilers.

Low Water Cut-Off
Provides protection against potentially dangerous low water conditions when installed with the Hydrolevel Electro-Well™ (see page 2 for details).

⚠️ **WARNING** **Electrical shock hazard.** To prevent electrical shock, death or equipment damage, disconnect power supply before installing or servicing control. Only qualified personnel may install or service this control in accordance with local codes and ordinances. Read instructions completely before proceeding.

⚠️ **CAUTION** To prevent serious burns, boiler should be thoroughly cooled before installing or servicing control.

⚠️ **WARNING** **Frozen pipes/water damage.** Central heating systems are prone to shut down as a result of power or fuel outages, safety related fault conditions or equipment failure. Installation of freeze protection monitoring or other precautions is recommended for unattended dwellings in climates subject to sustain below-freezing temperatures.
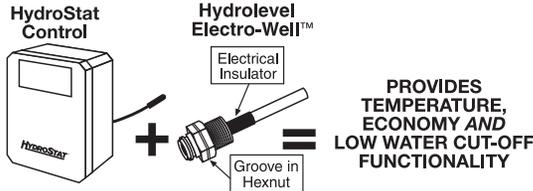
HYDROLEVEL COMPANY 126 Bailey Road, North Haven, CT 06473 • Phone (203) 776-0473 • FAX (203) 764-1711 • www.hydrolevel.com

IMMERSION WELLS

Fuel Smart HydroStat can be installed on a Hydrolevel Electro-Well™ or on an existing immersion well already in the boiler.
IMPORTANT: The control will only provide low water cut-off protection when installed on an Electro-Well™.

<table>
<tr><td>

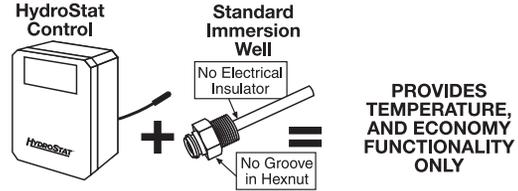## Installing HydroStat with Hydrolevel Electro-Well™

The Electro-Well can be identified by the black electrical insulator or, if installed, by the groove cut into the hexnut.

HydroStat Control **Hydrolevel Electro-Well™**

Electrical Insulator

Groove in Hexnut

+ **=** **PROVIDES TEMPERATURE, ECONOMY *AND* LOW WATER CUT-OFF FUNCTIONALITY**

When installed on an Electro-Well™ (sold separately), the Low Water Cut-Off function is automatically activated. Heat transfer grease should not be used.
NOTE: For proper operation, there must be 1/2" clearance between the copper well tube and any furnace within the boiler.
See Electro-Well™ models on page 11.

</td><td>

Installing HydroStat with Standard Immersion Well

HydroStat Control **Standard Immersion Well**

No Electrical Insulator

No Groove in Hexnut

+ **=** **PROVIDES TEMPERATURE, AND ECONOMY FUNCTIONALITY ONLY**

NOTE: When installed on a standard immersion well, the "LWCO Active" LED will not illuminate.

</td></tr>
</table>

MOUNTING THE CONTROL

IMPORTANT Make sure that the immersion well or Electro-Well™ is installed in the boiler manufacturer's designated temperature limit control tapping.
NOTE: If installing an Electro-Well, pipe sealing compound should be used. **Teflon tape is not recommended.**
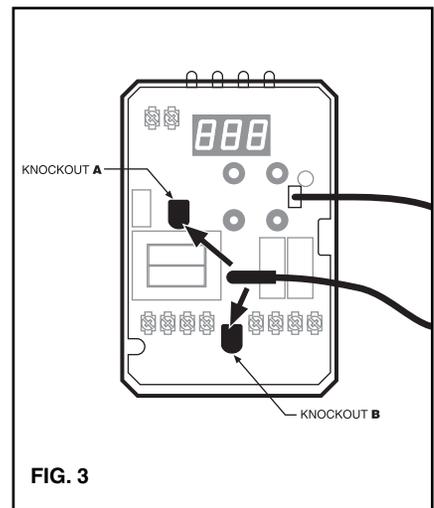
STEP 1 Two mounting positions are available on the back of the control (Fig. 1). Select which of the two positions (2 knockouts) is best for the location of the control. Remove the knockout.
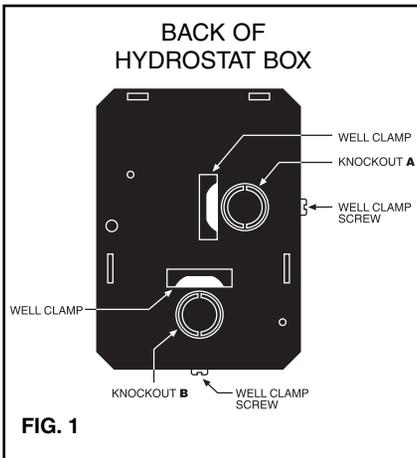
STEP 2 Place control on the well. While holding box against well nut, tighten well clamp screw. (Fig. 2)
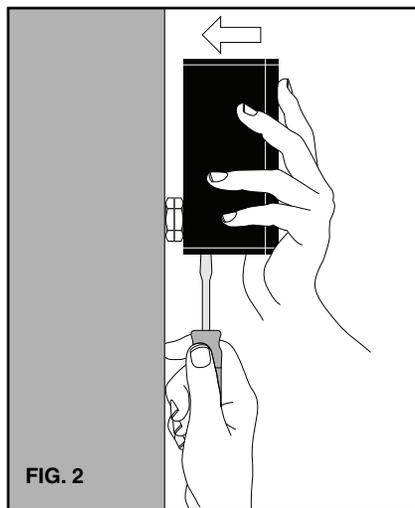
STEP 3 Insert sensor ALL THE WAY into well through the knockout (A or B) you have chosen. (Fig. 3)

BACK OF HYDROSTAT BOX

WELL CLAMP
KNOCKOUT **A**
WELL CLAMP SCREW
WELL CLAMP
KNOCKOUT **B**   WELL CLAMP SCREW

FIG. 1

FIG. 2

KNOCKOUT **A**
KNOCKOUT **B**

FIG. 3

IMPORTANT – Sensor must be inserted all the way into the well for proper operation.

CORRECT

INCORRECT
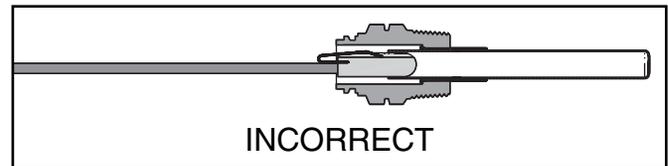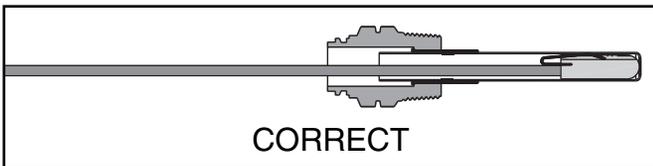
NOTE: In the case of space restrictions, the Fuel Smart HydroStat control may be mounted in a horizontal orientation without any loss of function. Hydrolevel recommends vertical mounting, when possible, for proper orientation of LED display.

REMOTE MOUNTING KITS are available separately for mounting the Fuel Smart HydroStat control box in a remote location. Each kit includes mounting hardware and a remote sensor. See page 12 for kit options.

WIRING

⚠ WARNING **Electrical shock hazard.** To prevent electrical shock, death or equipment damage, disconnect power supply before installing or servicing this control.
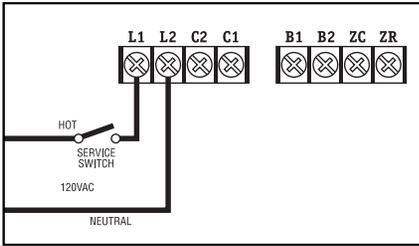
STEP 1 Connect 120 VAC Hot to terminal **L1.** Connect 120 VAC Neutral to terminal **L2.** Disconnect means and overload protection as required (provided by others).
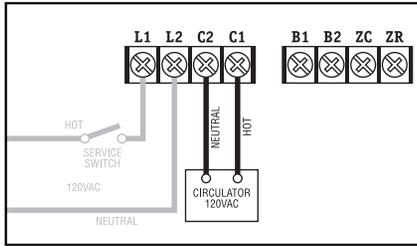
STEP 2 Connect the circulator to **C1** and **C2.** (C2 is neutral.)
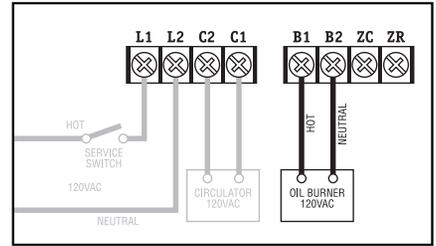
STEP 3 Connect the burner circuit to **B1** and **B2.** (B2 is neutral.)
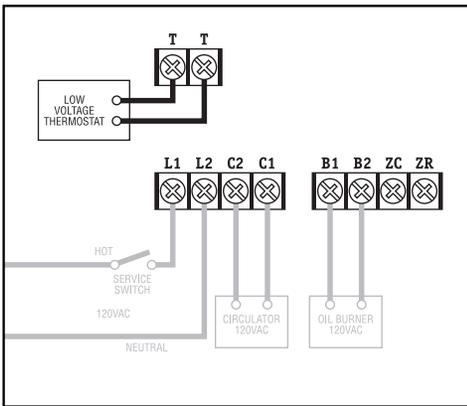
STEP 4 Connect the thermostat to **T** and **T.**
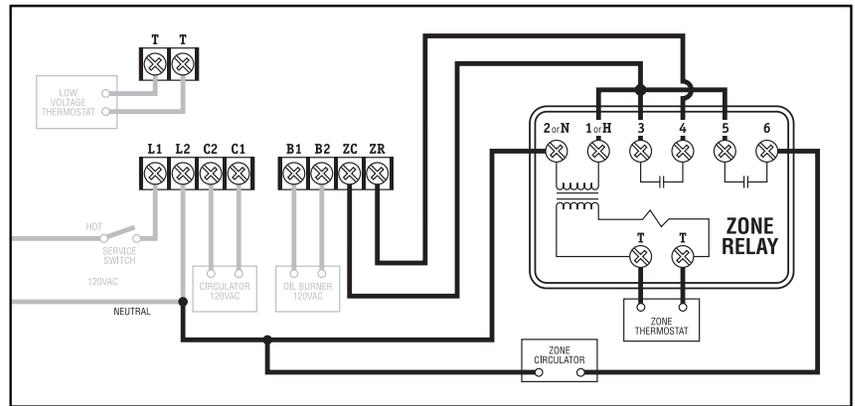
Multi-Zones Adding additional zones.

SCHEMATIC/LADDER DIAGRAM

Internal Wiring
High Voltage Field Wiring
Low Voltage Field Wiring

3
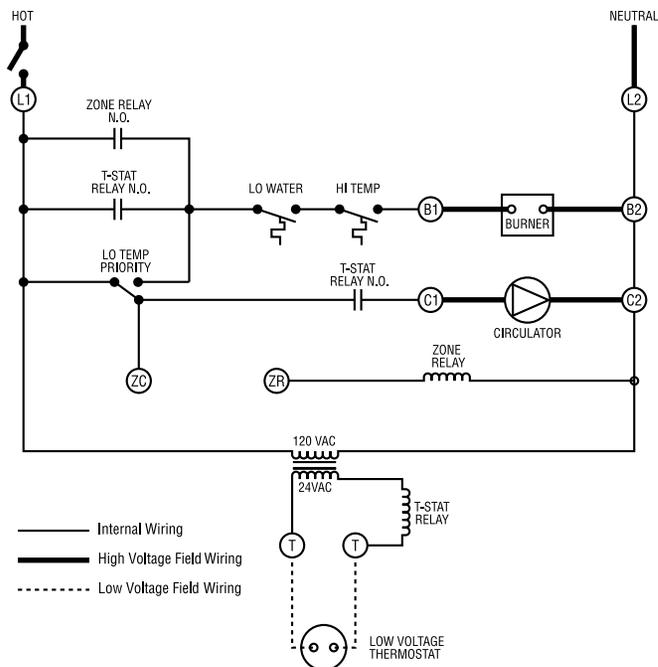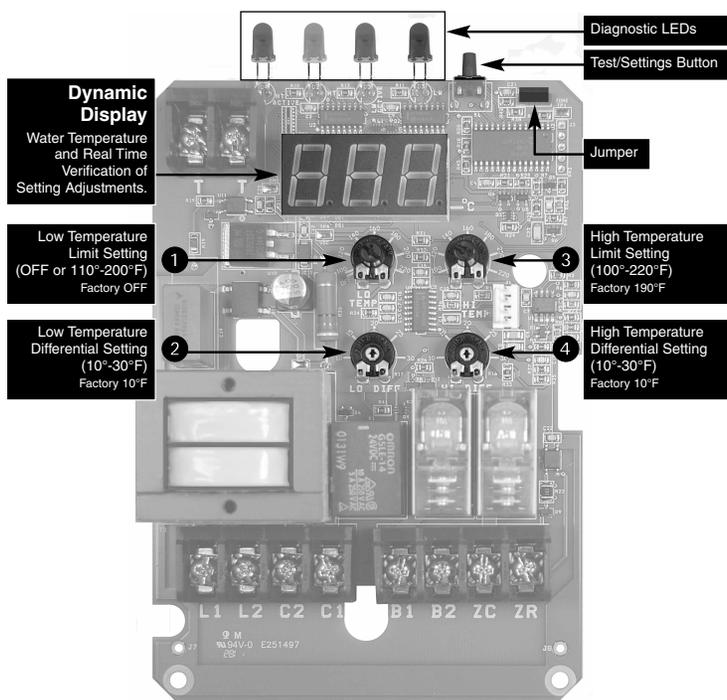
Dynamic Display
Water Temperature and Real Time Verification of Setting Adjustments.

Diagnostic LEDs

Test/Settings Button

Jumper

Low Temperature Limit Setting (OFF or 110°-200°F) Factory OFF

High Temperature Limit Setting (100°-220°F) Factory 190°F

Low Temperature Differential Setting (10°-30°F) Factory 10°F

High Temperature Differential Setting (10°-30°F) Factory 10°F

L1 L2 C2 C1 B1 B2 ZC ZR

NOTE: Be careful not to select overlapping temperature settings. For example: If the HIGH TEMPERATURE LIMIT is set at 190°F with a HIGH TEMPERATURE DIFFERENTIAL set at 20°F, then the LOW TEMPERATURE LIMIT needs to be set at 170°F (190°F - 20°F = 170°F) or below.

IMPORTANT: To prevent flue gas condensation and reduce fatigue caused by thermal cycling on conventional (non-condensing) boilers, both HIGH and LOW LIMIT set points should be 150°F or above (Limit Setting - Differential Setting ≥ 150°F). Boiler manufacturer's temperature requirements supercede these recommendations.

To set COLD START operation
Operates on call for heat only.

1 Low Temperature Limit
Make sure Low Temperature Limit is turned fully counter-clockwise (OFF position).

2 Low Temperature Differential
No change is required.

3 High Temperature Limit
(factory setting = 190°F)
Adjust setting until desired temperature is displayed.

4 High Temperature Differential
(factory setting = 10°F)
Using a small screwdriver, adjust setting until desired differential is displayed.

To set WARM START operation
Maintains temperature for domestic hot water.

1 Low Temperature Limit
Adjust setting until desired temperature is displayed. Prior to adjusting, remove the jumper located at the top right corner of the circuit board (not equipped on all units).
IMPORTANT: If low limit temperature cannot be set above 140°F, remove jumper.

2 Low Temperature Differential
Using a small screwdriver, adjust setting until desired differential is displayed.

3 High Temperature Limit
(factory setting = 190°F)
Adjust setting until desired temperature is displayed.

4 High Temperature Differential
(factory setting = 10°F)
Using a small screwdriver, adjust setting until desired differential is displayed.

COLD START
Low Limit Switch = OFF
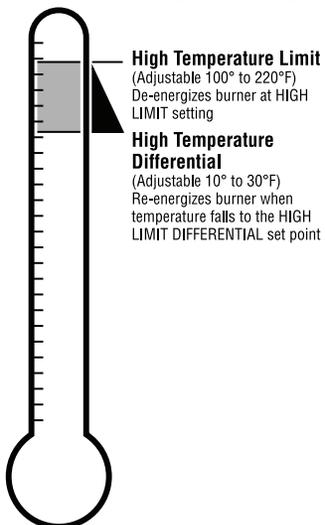
High Temperature Limit
(Adjustable 100° to 220°F)
De-energizes burner at HIGH LIMIT setting

High Temperature Differential
(Adjustable 10° to 30°F)
Re-energizes burner when temperature falls to the HIGH LIMIT DIFFERENTIAL set point

Example
High Limit = 180°
Differential = 10°
On a call for heat, the burner will shut off at 180° and restart at 170° (180°-10°). The circulator will run as long as there is a call for heat.

WARM START
(maintains temperature for domestic hot water)
Low Limit Switch = ON
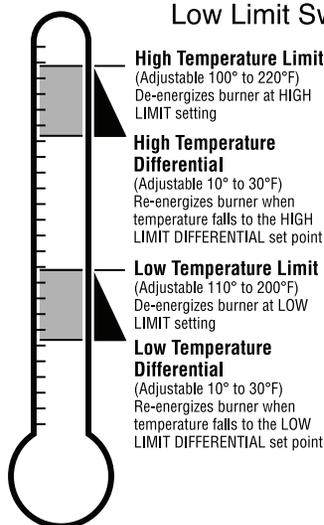
High Temperature Limit
(Adjustable 100° to 220°F)
De-energizes burner at HIGH LIMIT setting

High Temperature Differential
(Adjustable 10° to 30°F)
Re-energizes burner when temperature falls to the HIGH LIMIT DIFFERENTIAL set point

Example
High Limit = 180°
Differential = 10°
On a call for heat, the burner will shut off at 180° and restart at 170° (180°-10°). The circulator will run as long as there is a call for heat.

Low Temperature Limit
(Adjustable 110° to 200°F)
De-energizes burner at LOW LIMIT setting

Low Temperature Differential
(Adjustable 10° to 30°F)
Re-energizes burner when temperature falls to the LOW LIMIT DIFFERENTIAL set point

Example
Low Limit = 150°
Differential = 10°
When there is no call for heat, the burner fires at 140° (150°-10°) to maintain boiler temperature. Burner shuts off at 150°.

NOTE: To prioritize domestic hot water the HydroStat control will not allow the circulator to operate at any time the temperature is below the low limit setting.

NOTE: The Program Mode – `Pro` – is accessed by turning the

LO TEMP dial to a position just above OFF.

Thermal Pre-Purge

Thermal Pre-Purge is designed to maximize boiler efficiency. When activated, the control will supply latent heat that may remain in the boiler from a previous run cycle to the heating zone that is now calling. The control monitors how quickly the boiler temperature is declining and activates the burner only when it determines that the latent heat is insufficient to satisfy the call. During the purge cycle the display will indicate `Pur`. This feature works with single-zone and multi-zone heating systems utilizing circulators or zone valves. No change in wiring is needed.

To activate Thermal Pre-Purge

1. Turn the LO TEMP dial to access the Program Mode – indicated in the display as `Pro`
2. Turn the HI TEMP dial to select feature `1`
3. Push the Test/Settings Button to turn Thermal Pre-Purge `On` or `OFF`
4. Reset LO TEMP and HI TEMP settings to desired temperatures (see page 4)

Degrees Fahrenheit or Celsius

The control has the ability to operate in degrees Fahrenheit or Celsius. When operating in Celsius, a `C` will appear in the display next to the temperature whenever the temperature is below 100 degrees.

To change between degrees Fahrenheit and degrees Celsius

1. Turn the LO TEMP dial to access the Program Mode – indicated in the display as `Pro`
2. Turn the HI TEMP dial to select feature `2`
3. Push the Test/Settings Button to `c` for Celsius or `F` for Fahrenheit
4. Reset LO TEMP and HI TEMP settings to desired temperatures (see page 4)

Manual Reset Low Water Cut-Off

The low water cut-off operation on the HydroStat can be set to operate in automatic (default) or manual reset mode. When in manual reset mode, the control will shut-down the burner immediately when a low water condition is detected. If the low water condition is sustained for 30 seconds, the low water light will blink, indicating that the control has locked out the burner. The control can only be reset by pushing the Test/Settings button on the top of the control. The manual reset feature meets CSD-1 code requirements.

IMPORTANT: The system must be checked by a qualified heating professional prior to resuming operation.

⚠ **WARNING: DO NOT ADD WATER UNTIL THE BOILER HAS FULLY COOLED.**

To activate Manual Reset LWCO mode

1. Turn the LO TEMP dial to access the Program Mode – indicated in the display as `Pro`
2. Turn the HI TEMP dial to select feature `3`
3. Push the Test/Settings Button to `A` for Automatic Reset Mode or `b` for Manual Reset Mode
4. Reset LO TEMP and HI TEMP settings to desired temperatures (see page 4)

To Test the Manual Reset Feature: Press and hold the Test/Settings button located on the top of the control for 30 seconds to simulate a low water condition. After 30 seconds, the Low Water light will blink indicating that the control is locked out. To reset the lock-out condition, press the Test/Settings button momentarily.

Circulator Activation Options

When in the default mode, the HydroStat activates the circulator (**C1/C2** contacts) on calls to **TT.** The control can be programmed to activate the circulator on calls to **ZC/ZR** in place of, or in addition to, calls to **TT.**

To change how the Circulator is activated

1. Turn the LO TEMP dial to access the Program Mode – indicated in the display as ☐r0
2. Turn the HI TEMP dial to select feature Ч
3. Push the Test/Settings Button to select between the following options:

    Я - Circulator on **TT** call only

    Ь - Circulator on **ZC/ZR** call only

    С - Circulator on both **TT** & **ZC/ZR** calls

4. Reset LO TEMP and HI TEMP settings to desired temperatures (see page 4)

Setting the Well Type (Electro-Well vs. Standard Immersion Well)

When used to replace older temperature-only controls, the HydroStat can be installed on the existing well. (The Hydrolevel Electro-Well is required to activate low water cut-off operation – see page 2 for details). Older wells may contain hardened heat transfer grease or other contaminants that could interfere with metal-to-metal continuity between the sensor head and the inside of the well. Insufficient contact could lead to false low water conditions and burner shut downs. Setting the well type to Standard Well prevents the possibility of this occurring.

To change the well type

1. Turn the LO TEMP dial to access the Program Mode – indicated in the display as ☐r0
2. Turn the HI TEMP dial to select feature ᙠ
3. Push the Test/Settings Button to select Я for Electro-Well or Ь for Standard Well.

NOTE: To ensure that the low water cut-off is always active when the control is installed on an Electro-Well, setting Ь will ONLY be available when installed on a standard well. The Hydrostat sensor checks to determine if a standard well is used by looking for low resistance to ground, a condition that can only exist with a standard well. If you are installing on a standard well and either Low Water LED's are on, setting Ь will not be available. Check to see if the inside of the well tube is badly oxidized or contaminated with heat transfer grease. It may be necessary to clean the well to allow for setting Ь to be selected (See Troubleshooting Guide on page 12 for more information).

Restore Factory Default Settings

To restore all features to the factory default settings (see following chart for default settings)

1. Turn the LO TEMP dial to access the Program Mode – indicated in the display as ☐r0
2. Turn the HI TEMP dial to select feature dEF
3. Push the Test/Settings Button to Ч to reset all features to the default settings.
4. Reset LO TEMP and HI TEMP settings to desired temperatures (see page 4)

Dial Setting	Feature	Options	Description	Default Setting
I	Thermal Pre-Purge	OFF on	Purge Inactive Purge Active	OFF
2	Fahrenheit or Celsius	F c	Degrees Fahrenheit Degrees Celsius	F
3	LWCO Manual or Automatic Reset	Я b	Automatic Reset Manual Reset	Я
Ч	Circulator Options	Я b c	Circulator operation on TT call only Circulator operation on ZC/ZR call only Circulator operation on call from either	Я
5	*Not available on this control*			
6	*Not available on this control*			
1	*Not available on this control*			
8	Well Type	Я b	Hydrolevel Electro-Well Standard Immersion Well	Я
dEF	Restore Factory Defaults	y n	Restore Defaults Do Not Restore Defaults	n

Not all features are available on older HydroStat models.

SEE PAGE 4 FOR ADDITIONAL SETTINGS

```
┌─────────────────────────────────────────────────────────┐
│   ┌─────────────┐     ┌─────────────┐        TEST/        │
│   │    TEMP     │     │    LWCO     │      SETTINGS       │
│   └─────────────┘     └─────────────┘                     │
│      ◉      ◉            ◉      ●          ◎              │
│   ACTIVE   HIGH       ACTIVE   LOW                         │
│            TEMP                WATER                       │
└─────────────────────────────────────────────────────────┘
     GREEN    YELLOW     GREEN    RED
       ❶        ❷         ❸        ❹         ❺
```
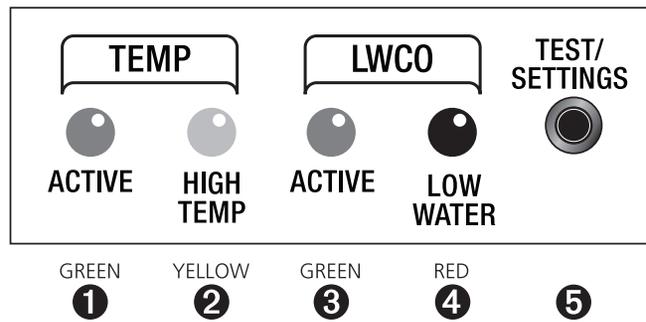
❶ TEMP **ACTIVE**   Indicates that the HydroStat control is powered and that the temperature function is active.

❷ TEMP **HIGH TEMP**   Illuminates when the boiler water temperature reaches the high limit setting. It will remain lit until the water temperature falls below the high limit setting less the differential setting. The HydroStat control will prevent burner operation while this LED is on. **NOTE:** This LED illuminates regularly during normal boiler operation.

❸ LWCO **ACTIVE**   Indicates that the low water cut-off (LWCO) function of the HydroStat control is active. When the control is installed with a Hydrolevel Electro-Well, this LED will be on at all times when the control is powered. **NOTE:** If the control was installed with a well other than the Electro-Well, this LED will not illuminate. This indicates that the control is providing temperature function only.

❹ LWCO **LOW WATER**   Indicates that the boiler is in a low water condition. The HydroStat control will prevent burner operation during this condition. If the LOW WATER light is blinking, the control has been programmed to provide lock-out protection in the event a low water condition is detected (see Manual Reset Low Water Cut-Off on page 5). Pressing the TEST/SETTINGS button will reset the control.

IMPORTANT: The system must be checked by a qualified heating professional prior to resuming operation.

⚠ **WARNING: ALLOW THE BOILER TO FULLY COOL BEFORE ADDING WATER.**

❺ **TEST/SETTINGS** Button

To Test Low Water Cut-Off: Press and hold the Test/Settings button for 5 seconds. The display will read LCO.

LWCO TEST LCO

The red Low Water light should illuminate and the burner circuit (B1 and B2) should de-energize. **NOTE:** The control must be installed with a Hydrolevel Electro-Well for low water cut-off functionality (see page 1 for more details).

To View Current Settings: Press and release the Test/Settings Button in short intervals to sequentially display the following settings:
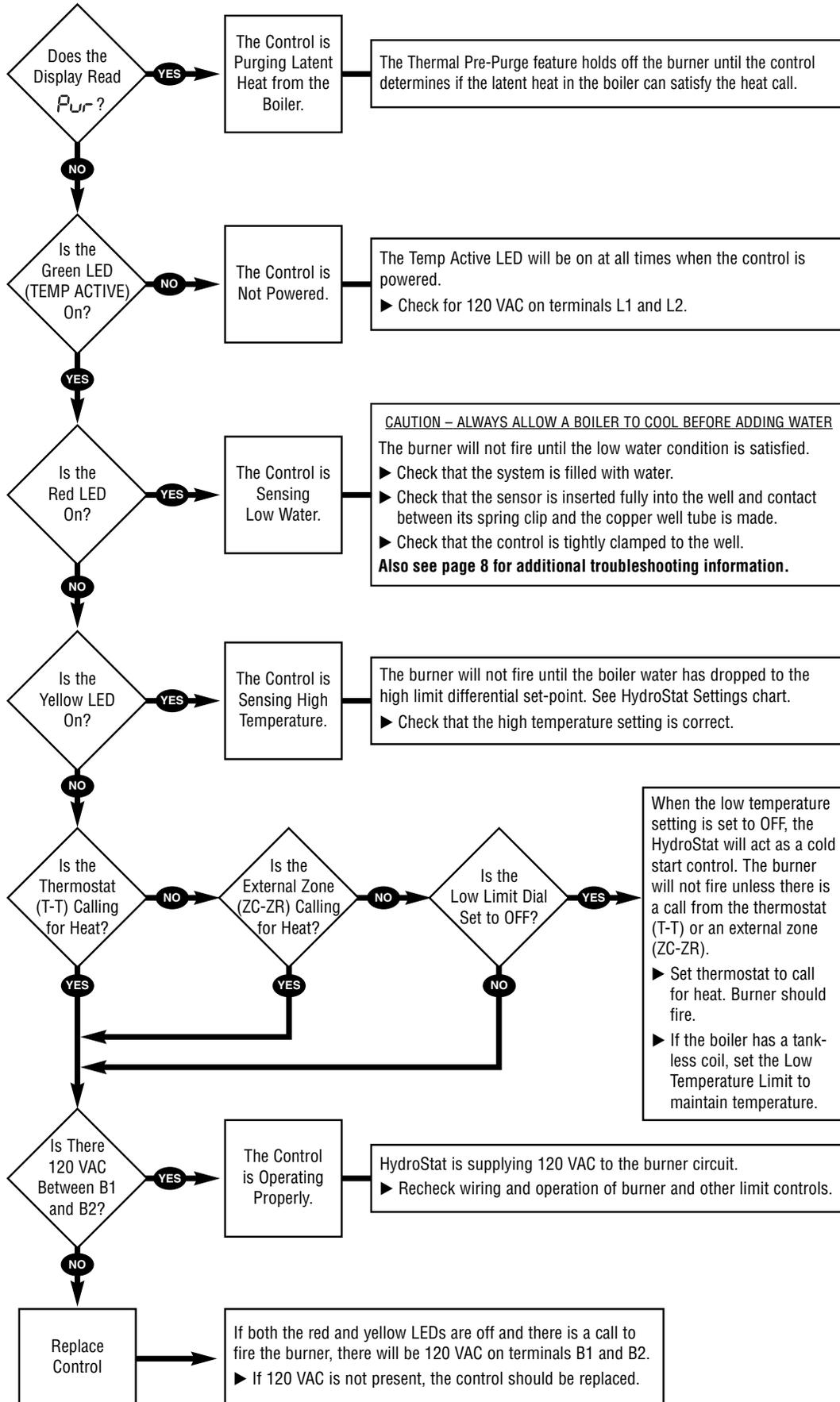
HIGH LIMIT SETTING HL
▼
HIGH DIFFERENTIAL SETTING HdF
▼
LOW LIMIT SETTING LL
▼
LOW DIFFERENTIAL SETTING LdF

The display will return to boiler temperature (default) if Test/Settings Button in not pressed for 5 seconds.
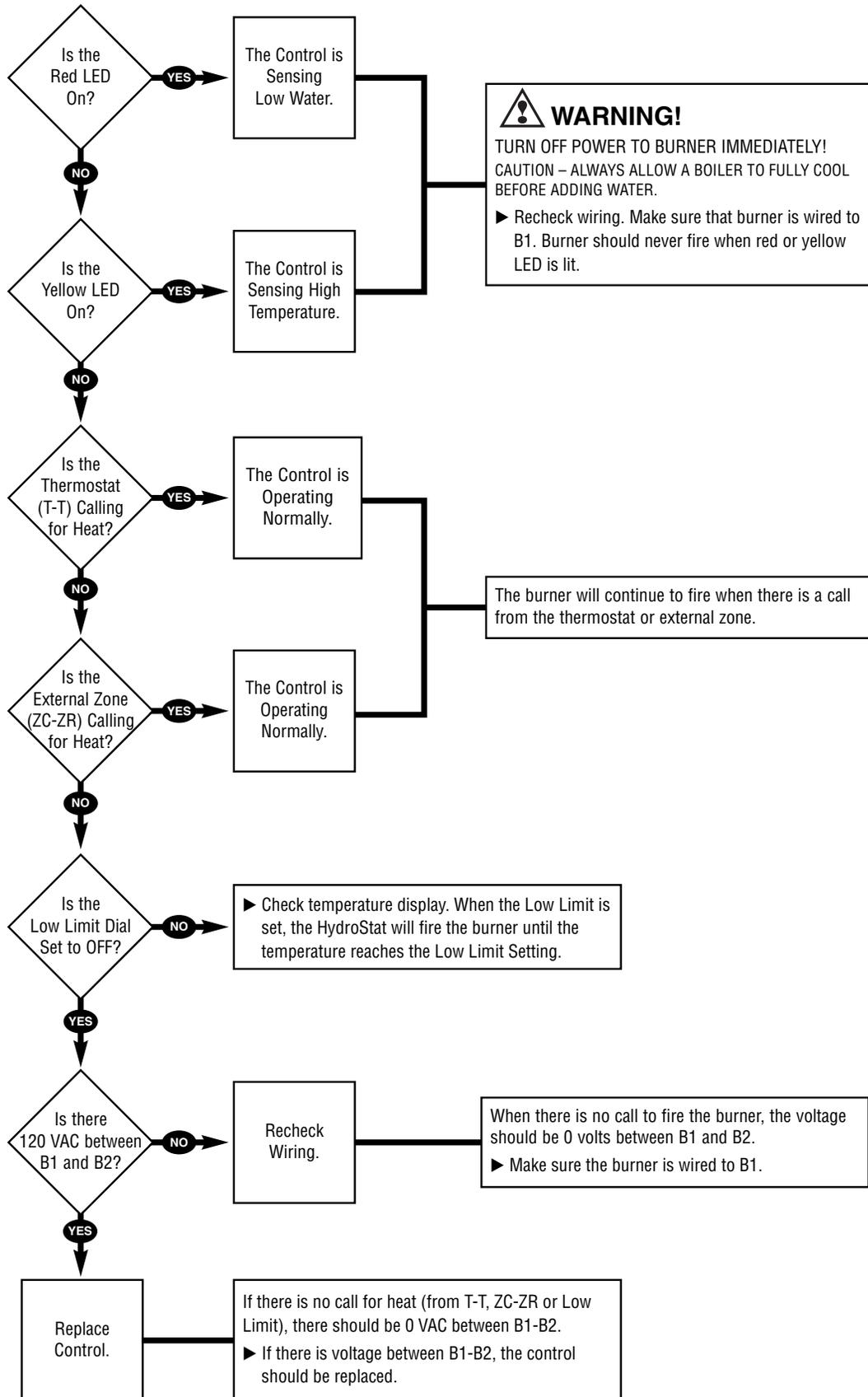
TROUBLESHOOTING

Burner Will Not Fire	See Flow Chart 1, page 9
Burner Will Not Shut Down	See Flow Chart 2, page 10
Temperature Display Exceeds High Limit Setting	Under normal operation, boiler temperature will continue to rise after the control shuts off the burner. This condition, known as "thermal stacking", results from hot boiler surfaces continuing to release heat into the boiler water.
No or Insufficient Domestic Hot Water	If the boiler has a tankless coil make sure the low limit setting on the HydroStat is set properly. **NOTE:** If the low limit setting is dialed fully counter clockwise, it will shut off the low temperature maintenance feature and will function as a cold start control. Faster hot water response may also be achieved by turning off the Thermal Pre-Purge Feature (see page 4). If boiler is operating in conjunction with an indirect water heater, check to be sure the temperature control on the indirect tank is set properly. Make sure any valves in between domestic hot water heating device, boiler, and hot water taps are open.
Boiler Will Not Maintain Low Limit Temperature	Check for overlapping high temperature setting. If the high limit setting is set below the low limit setting, the control will default to the high limit setting and the corresponding high limit differential setting.
Temperature Display Differs from Boiler T&P Gauge Temperature Reading	Temperature variances can result from differing water temperatures within the boiler or different reaction times of the two devices. If the HydroStat temperature is significantly below the T&P gauge temperature, make sure the thermistor is inserted all the way to the end of the well.
LWCO "Active" Light (Green LED) Is Not On	The HydroStat will only provide low water cut-off functionality when used in conjunction with an insulated Electro-Well™. When attached to a standard immersion well, the LWCO "Active" light will remain off and the HydroStat will provide temperature functionality only.
Low Water Light (Red LED) Is On or Blinking	⚠ **WARNING:** A low water condition is a serious and potentially dangerous condition. Do not attempt to add water to a hot boiler. Allow the boiler to fully cool before adding water. ***When Installed on an Electro-Well™*** When the LOW WATER light is on, this indicates that the control is not detecting water in the boiler. When the LOW WATER light is blinking, this indicates that the control has been programmed to provide low water lock-out protection and is currently locked out (see Manual Reset Low Water Cut-Off on page 5). Pressing the TEST/SETTINGS button after the low water condition is resolved will reset the lock-out condition. **1.** If the light is on and the heating system is filled with water, pull the sensor out of the well and inspect it. Make sure that the metal clip is protruding enough to come in contact with the inside of the well tube. Check that the well does not have excessive build-up of heat transfer grease that may interfere with the clip contacting the well. **2.** Remove well and examine for excessive residue build-up. Clean and re-install. ***When Installed on a Standard Immersion Well*** If either LWCO LED lights are illuminated and the control is installed on a standard immersion well, this is a false reading caused by a loss of continuity between the sensor and the inside of the well tube. Follow steps 1 and 2 (above) to ensure that the metal sensor head is making good contact with the inside surface of the copper well.

Troubleshooting Flow Chart 1 – Burner Will Not Fire

Does the Display Read $\mathcal{P}$ur ? — **YES** → **The Control is Purging Latent Heat from the Boiler.** → The Thermal Pre-Purge feature holds off the burner until the control determines if the latent heat in the boiler can satisfy the heat call.

NO ↓

Is the Green LED (TEMP ACTIVE) On? — **NO** → **The Control is Not Powered.** → The Temp Active LED will be on at all times when the control is powered.
▶ Check for 120 VAC on terminals L1 and L2.

YES ↓

Is the Red LED On? — **YES** → **The Control is Sensing Low Water.** → CAUTION – ALWAYS ALLOW A BOILER TO COOL BEFORE ADDING WATER
The burner will not fire until the low water condition is satisfied.
▶ Check that the system is filled with water.
▶ Check that the sensor is inserted fully into the well and contact between its spring clip and the copper well tube is made.
▶ Check that the control is tightly clamped to the well.
Also see page 8 for additional troubleshooting information.

NO ↓

Is the Yellow LED On? — **YES** → **The Control is Sensing High Temperature.** → The burner will not fire until the boiler water has dropped to the high limit differential set-point. See HydroStat Settings chart.
▶ Check that the high temperature setting is correct.

NO ↓

Is the Thermostat (T-T) Calling for Heat? — **NO** → **Is the External Zone (ZC-ZR) Calling for Heat?** — **NO** → **Is the Low Limit Dial Set to OFF?** — **YES** → When the low temperature setting is set to OFF, the HydroStat will act as a cold start control. The burner will not fire unless there is a call from the thermostat (T-T) or an external zone (ZC-ZR).
▶ Set thermostat to call for heat. Burner should fire.
▶ If the boiler has a tank-less coil, set the Low Temperature Limit to maintain temperature.

Is the Thermostat (T-T) Calling for Heat? — **YES** ↓
Is the External Zone (ZC-ZR) Calling for Heat? — **YES** ↓
Is the Low Limit Dial Set to OFF? — **NO** ↓

Is There 120 VAC Between B1 and B2? — **YES** → **The Control is Operating Properly.** → HydroStat is supplying 120 VAC to the burner circuit.
▶ Recheck wiring and operation of burner and other limit controls.

NO ↓

Replace Control → If both the red and yellow LEDs are off and there is a call to fire the burner, there will be 120 VAC on terminals B1 and B2.
▶ If 120 VAC is not present, the control should be replaced.

Troubleshooting Flow Chart 2 – Burner Will Not Shut Down

Is the Red LED On? — YES → **The Control is Sensing Low Water.**

NO ↓

Is the Yellow LED On? — YES → **The Control is Sensing High Temperature.**

⚠ **WARNING!**

TURN OFF POWER TO BURNER IMMEDIATELY!
CAUTION – ALWAYS ALLOW A BOILER TO FULLY COOL BEFORE ADDING WATER.

▶ Recheck wiring. Make sure that burner is wired to B1. Burner should never fire when red or yellow LED is lit.

NO ↓

Is the Thermostat (T-T) Calling for Heat? — YES → **The Control is Operating Normally.**

The burner will continue to fire when there is a call from the thermostat or external zone.

NO ↓

Is the External Zone (ZC-ZR) Calling for Heat? — YES → **The Control is Operating Normally.**

NO ↓

Is the Low Limit Dial Set to OFF? — NO →

▶ Check temperature display. When the Low Limit is set, the HydroStat will fire the burner until the temperature reaches the Low Limit Setting.

YES ↓

Is there 120 VAC between B1 and B2? — NO → **Recheck Wiring.**

When there is no call to fire the burner, the voltage should be 0 volts between B1 and B2.
▶ Make sure the burner is wired to B1.

YES ↓

Replace Control.

If there is no call for heat (from T-T, ZC-ZR or Low Limit), there should be 0 VAC between B1-B2.
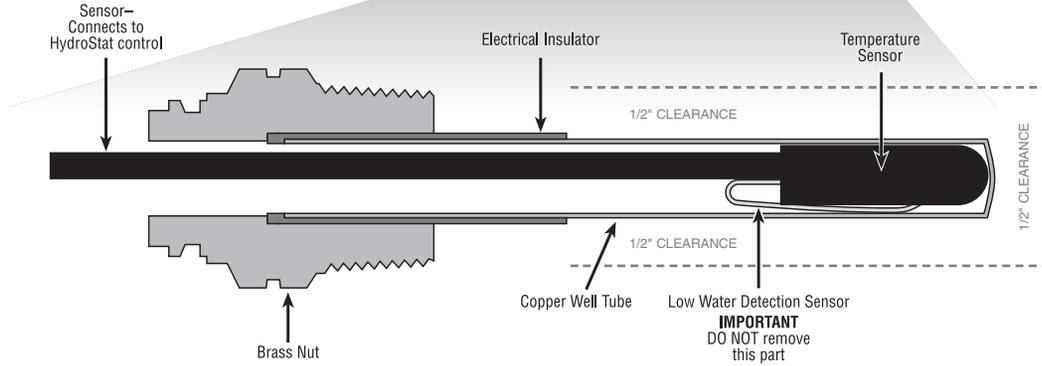▶ If there is voltage between B1-B2, the control should be replaced.

HydroStat installed with Electro-Well™

When installed with the Hydrolevel Electro-Well, HydroStat will provide *both* temperature and low water cut-off functionality. If the control was supplied by the boiler manufacturer, it was installed with an Electro-Well. The Electro-Well is available separately for field installations.
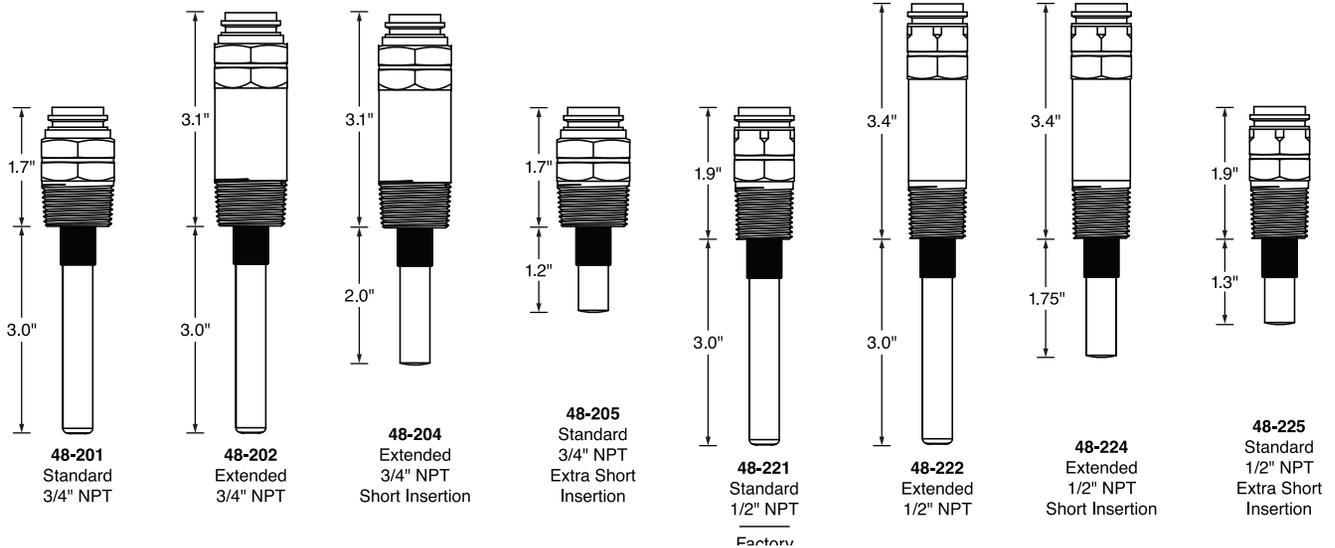
HydroStat Control

Hydrolevel Electro-Well™

Electrical Insulator

Groove in Hexnut

PROVIDES TEMPERATURE, ECONOMY *AND* LOW WATER CUT-OFF FUNCTIONALITY

Sensor– Connects to HydroStat control

Electrical Insulator

Temperature Sensor
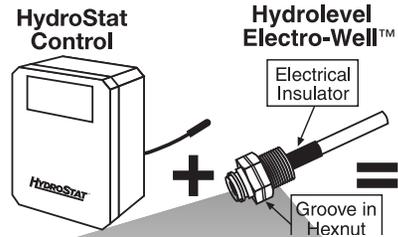
1/2" CLEARANCE

1/2" CLEARANCE

1/2" CLEARANCE

IMPORTANT: For proper operation of the low water cut-off function, there must be a minimum of ½" clearance between the copper well tube and any surface within the boiler.

Copper Well Tube

Low Water Detection Sensor

IMPORTANT DO NOT remove this part

Brass Nut

Electro-Well™ Models

1.7"
3.0"
48-201 Standard 3/4" NPT

3.1"
3.0"
48-202 Extended 3/4" NPT

3.1"
2.0"
48-204 Extended 3/4" NPT Short Insertion

1.7"
1.2"
48-205 Standard 3/4" NPT Extra Short Insertion

1.9"
3.0"
48-221 Standard 1/2" NPT Factory

3.4"
3.0"
48-222 Extended 1/2" NPT

3.4"
1.75"
48-224 Extended 1/2" NPT Short Insertion

1.9"
1.3"
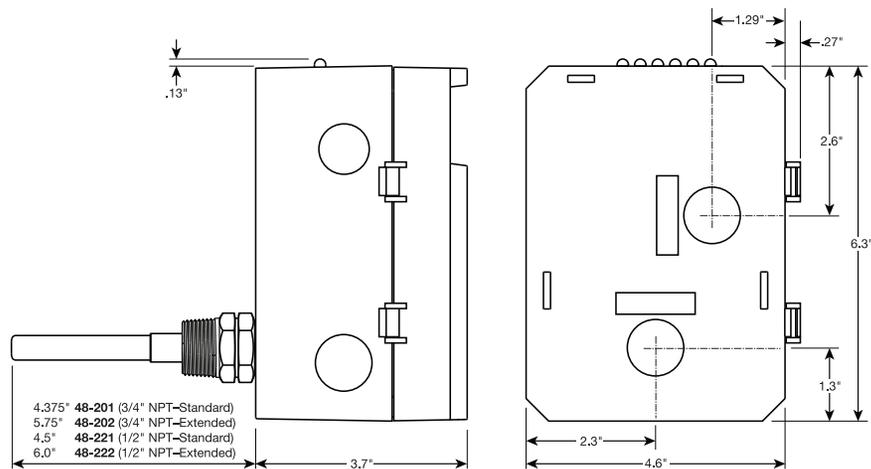**48-225** Standard 1/2" NPT Extra Short Insertion

MAINTENANCE

Remove the Electro-Well from the heating system every five years and clean any scale or sediment deposits from all parts that are exposed to the boiler water. After cleaning, reinstall the well using pipe sealing compound. **Teflon tape is not recommended.**

REMOTE MOUNTING KITS

Part No.	Description
48-101	HydroStat Remote Mount Kit with 24" sensor
48-102	HydroStat Remote Mount Kit with 48" sensor

Part No.	Description
48-103	HydroStat Remote Mount Kit with 10' sensor
48-104	HydroStat Remote Mount Kit with 20' sensor
48-121	HydroStat Pipe Mounting Kit with 48" sensor

DIMENSIONS

4.375" **48-201** (3/4" NPT–Standard)
5.75" **48-202** (3/4" NPT–Extended)
4.5" **48-221** (1/2" NPT–Standard)
6.0" **48-222** (1/2" NPT–Extended)

SPECIFICATIONS HYDROSTAT MODEL 3150

Input voltage	120 VAC, 60 HZ
Burner contacts	7.4 FLA, 44.4 LRA @ 120 VAC
Circulator contacts	5.8 FLA, 34.8 LRA @ 120 VAC
Operating range – low limit	Off or 110°F (43°C) - 200°F (93°C)
Operating range – high limit	100°F (38°C) - 220°F (104°C)
Operating range – differential	10°F (6°C) - 30°F (17°C)
Thermostat heat anticipator setting	0.2A

(UL) LISTED   MADE IN [USA]

3150 022718