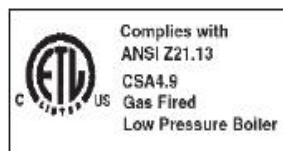


# prestige

## Indirect Water Heater (IDWH)

### Sensor Application Supplement

This document is intended to be used by a factory trained and qualified heating Contractor or service technician only. Read all instructions within this document and within the PRESTIGE Boiler Installation and Maintenance Manual, before proceeding. It is recommended to follow the procedures in the steps given, skipping or missing procedural steps could result in severe personal injury, death or substantial property damage.



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## **IMPoRTanT InfoRMaTion - REad BEfoRE PRocEEdInG**

### **WARNING**

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## **dEflnITIonS**

The following terms are used throughout this manual to bring attention to the presence of potential hazards or to important information concerning the product.

### **DANGER**

Indicates the presence of a hazardous situation which, if ignored, will result in death, serious injury or substantial property damage.

### **WARNING**

Indicates a potentially hazardous situation which, if ignored, can result in death, serious injury or substantial property damage.

### **CAUTION**

Indicates a potentially hazardous situation which, if ignored, may result in minor injury or substantial property damage.

### **NOTICE**

Indicates special instructions on installation, operation or maintenance, which are important to the equipment but not related to personal injury hazards.

### **BEST PRACTICES**

Indicates recommendations made by Triangle Tube for the installers which will help to ensure optimum operation and longevity of the equipment.

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### **NOTICE**

Triangle Tube reserves the right to modify the technical specifications and components of its product without prior notice.

## GEneral InfoRMaTion

This supplement requires the use of the IDWH Sensor Kit PSRKIT22.

The IDWH Sensor kit should include the following parts:

- NTC Sensor with wire leads and connections
- Terminal block tool

The use of this kit will allow the MCBA Control Module of the Prestige boiler to control the domestic storage temperature of the Indirect Water Heater, initiate the burner function during domestic water draw and protect the tank from freezing.

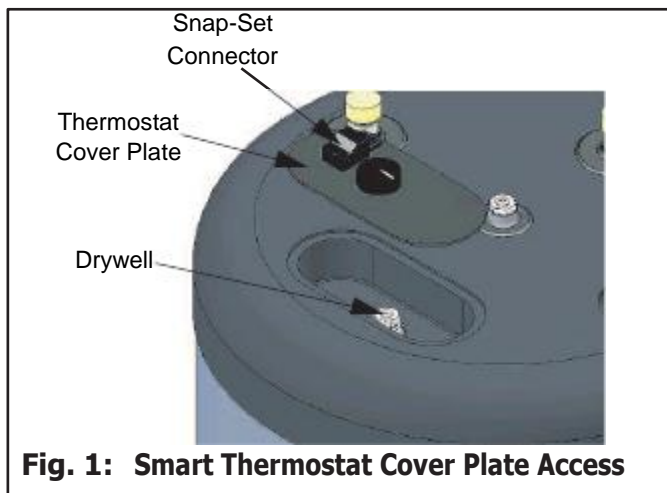
## InSTallaTion PRocEduRE

### WARNING

**Electrical Shock Hazard. Turn power off to the Prestige boiler before proceeding with the kit installation. Failure to comply could result in severe personal injury, death or substantial property damage.**

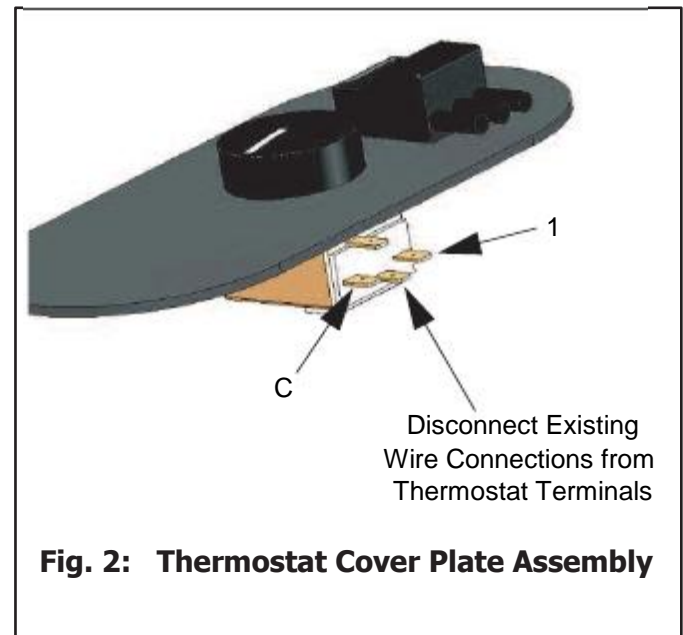
### Insertion of the nTc Sensor

1. Remove the thermostat cover plate from the SMART lid. A flat blade screwdriver may be required to pry the cover plate up from the lid. Use care not to damage the cover plate or the SMART top lid. See Figure 1.



**Fig. 1: Smart Thermostat Cover Plate Access**

2. Remove the thermostat's sensing bulb from the SMART drywell. Once the bulb is removed, coil the thermostat capillary tube and bulb against the bottom of the cover plate using care not to kink or damage the capillary tubing.
3. Disconnect the wire terminal connectors from C and 1 on the thermostat. There is no need to mark the wires prior to disconnecting, as polarity of the connections is not of importance. See Figure 2.



**Fig. 2: Thermostat Cover Plate Assembly**

4. Connect the NTC sensor terminal connectors to the wires previously connected to C & 1. This procedure should now wire the NTC sensor to the Snap-Set connector mounted on the thermostat cover plate.
5. Insert the NTC sensor into the drywell. The recommended depth placement of the NTC sensor should be from the fullest length of the sensor wires with a placement of the bulb a minimum 6 inches from the bottom of the drywell.

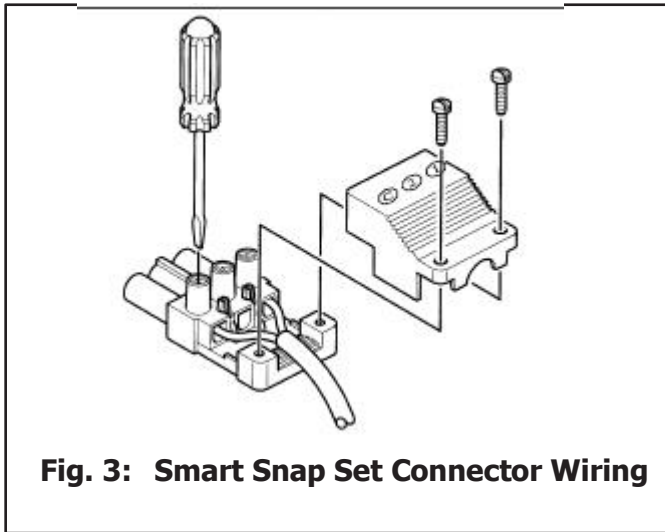
### NOTICE

**actual placement of the nTc sensing will affect the response of the sensor and it's call for heat to the Prestige during a draw of domestic hot water. a high placement position will result in a slower response, where as a lower placement position will create a quicker response.**

6. Snap the thermostat cover plate back into position on the SMART top lid. Ensure the mounting pins of the cover plate are fully inserted into the top lid.

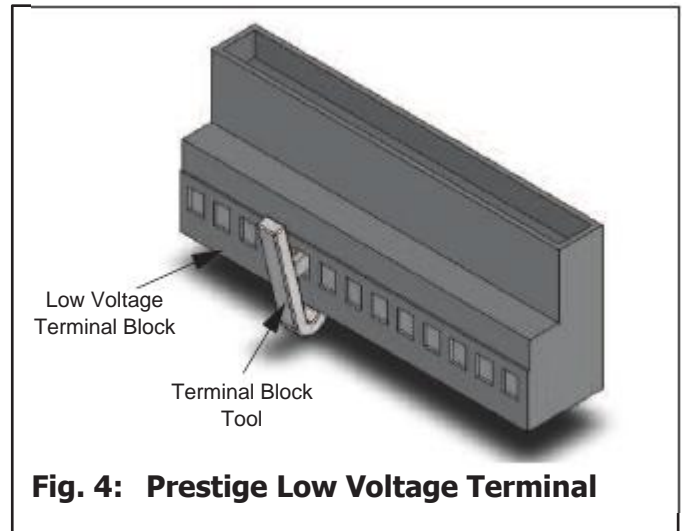
### Wire of nTc Sensor to Prestige

1. Disconnect the Snap-set connector located on the thermostat cover plate of the SMART. One portion of the Snap-set connector will remain mounted on the cover plate. On the Snap-set plug portion not mounted, use a Phillips-head screwdriver and remove the plug cover mounting screws.
2. With the Snap-set plug cover removed, connect 18 gauge wire or thermostat type wire to the end terminals C and 1 of the plug. The wire ends should be stripped and attached securely to the terminals. See Figure 3.
3. Replace the plug cover, ensuring the mounting screws are secure in place.



**Fig. 3: Smart Snap Set Connector Wiring**

4. Remove the front jacket panel of the Prestige by removing the thumb screw along the upper edge. Once the thumb screw is removed, pull the panel slightly forward and lift up.
5. Route the wiring from the snap-set plug to the Prestige. Once at the Prestige, route the wiring through the Prestige wire access openings and along the wire ways inside the Prestige.
6. Disconnect the bottom half of the Prestige's low voltage terminal block. Strip the wire ends and attached to the terminal block terminals 11 and 12 using the terminal block tool supplied with the Prestige. See Figure 4



**Fig. 4: Prestige Low Voltage Terminal**

7. Once the wiring is attached to the terminal block, reconnect the terminal block to the terminal strip. Ensure the connection is complete and secure.
8. Replace the Prestige front jacket panel and secure with the thumb screw.
9. Restore power to the Prestige boiler.

**NOTICE**

**The following section applies to PRESTIGE Boilers using the Honeywell Type 3 McBa control. This control is identified as Honeywell McBa 14201. for PRESTIGE Boilers with Honeywell Type 5 McBa control (identified as Honeywell McBa 54201), reference pages 13 through 19.**

### To change a Parameter Setting

Use the + or - button to change the value of the display.

Press the STORE button once to save the change.

#### WARNING

If a parameter setting is changed from the factory default and the STORE button is not pressed to save the setting, the McBa module will automatically store the setting after 15 minutes. Ensure all parameters settings are either factory default or revised based on the application. Review all parameters settings on page 20 when completed and prior to commission of the boiler. Failure to comply could result in erratic or unreliable operation of the Prestige boiler.

#### NOTICE

once a parameter setting value has been revised and stored, if the STEP button is pressed for the next parameter setting the value setting of that parameter will appear. The display will not show P\_XX of the next sequential parameter. The sequence of parameters may be scrolled through, as the display will roll over from parameter 46 to parameter 1.

#### BEST PRACTICES

If sequential parameters are being revised and since the display will not show P\_XX of the sequential parameter, it is recommended to press and hold the STEP button to scroll through the entire list of parameters before making any additional changes to avoid any potential confusion.



## IdWH SEnSoR PaRaMETER

1. Once the access code number has been stored and accepted in the control module, change the display readout to "Parameter" mode by pressing MODE until the display shows *PARA*.
2. Press STEP to enter the first parameter setting. Continue pressing STEP until the display shows *P\_46*.

### NOTICE

By pressing STEP you will sequence through the parameter settings as follows: *1140, 2\_01, 3\_01, 4186, P\_10, P\_11, P\_012.... P\_46*. The display readout will continue showing "*P*" followed by a 2 digit number that increases after each press of the STEP button after the fourth parameter setting.

### NOTICE

The parameter setting will continue for 46 different parameter setting. By continuing to press the STEP button, the display readout will rollover to the first parameter setting.

### WARNING

do not attempt to revise any other control parameter setting except those listed in this supplement. Perform only those parameter revisions described in this supplement. failure to comply could result in erratic or unreliable operation of the Prestige resulting in severe personal injury, death or substantial property damage.

3. When the display readout shows *P\_46*, stop pressing the STEP button. Wait a second and the display will flip over to the current setting of parameter 46 in the right two digits of the display.
4. Press the + or - button to revise the setting until the display shows *\_12*.
5. Press the STORE button to save the change. The display will flash once to indicate the control module accepts the change.

### WARNING

Parameter 46 has several other possible settings available. The factory setting of the IdWH is aquastat control or *\_13*. The required revised setting of the IdWH nTc control or *\_12*. any other setting of parameter 6 could result in erratic or unreliable operation of the Prestige resulting in severe personal injury, death or substantial property damage.

Parameter	Factory Setting	Revised Setting
46	13	12

6. To exit the Code mode, press the RESET button once. The unit will go into a self-check mode upon acceptance of the reset.

## dHW SToRaGE TEMPERaTuRE SETTIInG

The parameter setting for the domestic storage temperature set point is Parameter 1 and is accessible without having to enter the access code.

To revise the parameter setting within the Prestige Control Module for the set point of the Domestic Storage temperature, the installer can access the parameter setting by entering the Parameter Mode *PARA* during normal operation, the access code is not required.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
1	140°F	68°F	150°F

1. Press MODE once until the display shows *PARA*.
2. Press STEP until the display shows *1140* or 1XXX (where XXX is a setting other than the factory setting).
3. Press the + or - button until the desired DHW storage temperature setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.

## dHW SETPoint ValuE addITion

To achieve a boiler operating temperature during a domestic request for heat the MCBA Control uses Parameter 1 and a second parameter, Parameter 21 DHW Setpoint Value Addition. Parameter 1 plus Parameter 21 will establish the boiler operating temperature.

If Parameter 1 is set below 134°F it is recommended that Parameter 21 be reset to a higher setting. The request for domestic heat is based on the temperature reading of the DHW sensor and its relationship to Parameter 1. The boiler temperature setpoint is based on Parameter 1 plus Parameter 21 with a maximum operating temperature of 194°F.

To revise the parameter setting within the Prestige Control Module for the DHW Setpoint Value Addition, the installer must enter the access code for the control module as previously described in the Program Access of the MCBA section.

1. Enter the access code.
2. Once the access code has been entered and accepted, press MODE until the display shows **PARA**.
3. Press STEP until the display shows **P\_21**. This parameter setting is the DHW Setpoint Value Addition parameter. After releasing the STEP button the display will show the current setting.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
21	46°F	00°F	54°F

4. Press the + or - button until the desired “DHW Setpoint Value” setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.
5. Once the desired parameter setting have been revised and stored within the Prestige Control module, press RESET to exit the CODE mode.

## dHW on diffEREnTial

The MCBA Control Module has 2 differential settings for the burner operation when using the IDWH Sensor kit. The first differential setting the installer has the option of adjusting is Parameter 38 “DHW ON Differential”. This parameter sets the DHW storage temperature low limit. The burner operation will respond when the DHW storage temperature drops below Parameter 1 minus Parameter 38 setting.

A minimum “DHW ON Differential” parameter setting will create a quicker burner operation response to any domestic water draws from the domestic storage tank. In contrast, a maximum “DHW ON Differential” setting will result in a delayed response to domestic draws.

### DANGER

**The “dHW on differential” setting of Parameter 38 greatly affects the production of domestic hot water. a minimum setting of Parameter 38 could result in a rapid response to a dHW request for heat resulting in a potential scald hazard. It is strongly recommended that the installer utilize a anti-scald thermostatic mixing valve on the hot water outlet of the dHW storage tank. failure to comply could result in severe personal injury, death or substantial property damage.**

To revise the parameter setting within the Prestige Control Module for “DHW ON Differential” control, the installer must enter the access code for the control module as previously described in the Program Access of the MCBA section.

1. Enter the access code.
2. Once the access code has been entered and accepted, press MODE until the display shows **PARA**.
3. Press STEP until the display shows **P\_38**. This parameter setting is the “DHW ON Differential”. After releasing the STEP button the display will show the current setting.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
38	02°F	(-)06°F	54°F

4. Press the + or - button until the desired “DHW OFF Differential” setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.
5. Once the desired parameter setting have been revised and stored within the Prestige Control module, press RESET to exit the CODE mode.

### dHW off dIffEREnTial

The second differential setting is Parameter 39 “DHW OFF Differential”. This parameter sets the DHW storage temperature high limit. The burner operation will cease when the DHW storage temperature rises above Parameter 1 plus Parameter 39.

A maximum “DHW OFF Differential” parameter setting will result in an extended burner firing cycle when responding to any domestic water draws from the storage tank. This extended burner firing cycle could result in a final storage temperature of the domestic hot water that is higher than the desired storage temperature setting.

#### DANGER

**The “dHW off differential” setting of Parameter 39 greatly affects the production of domestic hot water. a maximum setting of Parameter 39 could result in an excessive domestic storage temperature resulting in a potential scald hazard. It is strongly recommended that the installer utilize a anti-scald thermostatic mixing valve on the hot water outlet of the dHW storage tank. failure to comply could result in severe personal injury, death or substantial property damage.**

To revise the parameter setting within the Prestige Control Module for “DHW OFF Differential” control, the installer must enter the access code for the control module as previously described in the Program Access of the MCBA section.

1. Enter the access code.
2. Once the access code has been entered and accepted, press MODE until the display shows *PARA*.
3. Press STEP until the display shows *P\_39*. This parameter setting is the “DHW OFF Differential” parameter. After releasing the STEP button the display will show the current setting.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
39	06°F	(-)36°F	54°F

4. Press the + or - button until the desired “DHW OFF Differential” setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.
5. Once the desired parameter setting have been revised and stored within the Prestige Control module, press RESET to exit the CODE mode.

### dHW PRIoRITy TIMEouT

The boiler provides a domestic hot water priority feature, which will block a heating call when a domestic hot water call is present. A DHW priority timeout setting of *00* (Factory Setting) will not limit the length of a domestic call. A domestic call will always have priority over a heating call.

A DHW priority timeout setting above *00* will limit the length of a domestic call when both domestic and heating calls are present. Once the DHW priority timeout setting has been reached, priority will shift to the heating call. If both calls continue, the priority will switch back to the domestic call after reaching the DHW priority timeout setting.

#### NOTICE

**a short dHW priority setting could lead to excessive switching between domestic and heating calls. This excessive switching could adversely affect the production of heat and domestic hot water.**

### Parameter 43 adjustment

To revise the parameter setting within the Prestige Control Module for “DHW Priority Timeout” control, the installer must enter the access code for the control module as previously described in the Program Access of the MCBA section.

1. Enter the access code.
2. Once the access code has been entered and accepted, press MODE until the display shows *PARA*.

- Press STEP until the display shows *P\_43*. This parameter setting is the “DHW Priority Timeout” parameter. After releasing the STEP button the display will show the current setting.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
43	00 minutes	00 minutes	120 minutes

- Press the + or - button until the desired “DHW Priority Timeout” setting is achieved. Press STORE to save the setting. The display will flash when the revised setting is accepted.
- Once the desired parameter setting have been revised and stored within the Prestige Control module, press RESET to exit the CODE mode.

## additional dHW fEaTuRES

### frost Protection

With the addition of the IDWH sensor, the Prestige Control module will now provide a Frost Protection feature to the SMART tank. This feature becomes active when Parameter 46 is set to 12 and cannot be overridden.

The Frost Protection feature is designed to protect the SMART IDWH from a potential freeze up. The protection is activated once the IDWH sensor records a domestic temperature of 37°F. At that time the Prestige boiler will begin the burner function at low input and the DHW circulator will begin circulating. The burner will continue operating at minimum input with the DHW circulator energized until the sensor senses a domestic water temperature of 50°F. At that point the boiler will shut down the burner function and the DHW circulator. This feature is always active even if the DHW operation is in the OFF mode.

### Misc. functions

There are several other Parameter settings available for DHW applications, i.e. post pump features, blocking time for burner operation. These features are explained more in detail in the Prestige Control Supplement.

## TRouBIESHooTInG

### Error codes

If Parameter 46 setting is 12 (IDWH Sensor) the following “soft” lockouts could occur:

*b\_38* alternating with a status code of 9

The IDWH Sensor is not properly connected to the Prestige low voltage terminal strip. Check for proper connections and terminations.

*b\_33* alternating with a status code of 9

The IDWH Sensor is short-circuited. Check if the DHW is being used and is properly connected to the Prestige low voltage terminals. Ensure Parameter 35 is correctly set for 12 and is stored properly.

Once the condition is corrected the errors will automatically reset and the Prestige will return to normal operation.

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**facToRy SETTInG foR HonEyWEll TyPE 5 McBa PaRaMETERS**

<b>Parameter</b>	<b>Factory Setting</b>
1	140°F
2	01
3	01
4	186°F
10	86°F
11	00°F
12	64°F
13	(-)22°F
18	32°F
19	00 minutes
20	00°F
21	46°F
32	01 minute
33	03 x 10.2 sec.
38	02°F
39	06°F
40	03 x 10.2 sec.
41	00 x 10.2 sec.
42	00 x 10.2 sec.
43	00 minute
45	00
46	13

## Additional quality water heating equipment available from Triangle Tube

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