The Beckett AquaSmart is an advanced boiler control designed for use on residential and light commercial boiler systems. All models include the option of enabling Beckett HeatManager™ dynamic temperature reset that, when selected, provides up to 20% fuel consumption savings. The control includes a backlit LCD digital display with touch pad to easily program temperature limits, differentials, and other advanced options. The AquaSmart also has memory storage of system history for help with diagnostics and troubleshooting.

Please refer to the AquaSmart Owner’s Manual for more detailed instructions and advanced programming options.

Technical Specifications

**Electrical Ratings**
- **Input Voltage:** 120 Vac - 50/60 Hz.
- **Input Current:** 0.1 A + B1 + C1 + ZC
- **MAX Input Current:** 20A (Reduce to 15A if optional power switch is used)
- **24 Vac Thermostat Anticipator Current:** 0.1 Amp.
- **Burner Current Rating (B1):**
  - 7600A (oil): 7.4 A at 120 Vac FLA; 44.4 A inrush LRA.
  - 7600B (gas): 1.25 A at 24 Vac; 30 VA (total load).
- **Circulator Current Rating (C1):** 7.4 A at 120 Vac FLA; 44.4 A inrush LRA.
- **Zone Control Current Rating (ZC):** 7.4 A at 120 Vac FLA; 44.4 A inrush LRA.

**Temperature Ranges and Differentials**
- High Limit Setting Range: 100 to 240°F (38 to 116°C)
- High Limit Differential Range: 5 to 45°F (3 to 25°C)
- Low Limit Setting Range: 100 to 220°F (38 to 104°C)
- Low Limit Differential Range: 10 to 45°F (6 to 25°C)
- Factory Range Stops available - consult factory

**Environmental Ratings**
- Storage Temperature: -40 to +150°F (-40 to +65°C)
- Operating Temperature: -4 to +150°F (-20 to +65°C)
- Maximum Sensing Element Temperature: 250°F (121°C)
- Relative Humidity: 5 to 85% RH, non-condensing and non-crystallizing

**Approvals**
Underwriters Laboratories Recognition to UL353, UL1998 for U.S. and Canada

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**CAUTION** Do Not Use This Control in an Application that is Not Within the Ratings Listed in This Section. Improper Control Operation May Result.

**WARNING** Electrical Shock, Fire, Explosion and Burn Hazards

This control must be installed, adjusted and put into operation only by a trained, licensed, qualified professional or service agency in accordance with the National Electric Code ANSI/NFPA 70 (Canada CSA C22.1) state, local codes and authorities having jurisdiction.

The installer must carefully read and follow the installation and service instructions contained in this pamphlet and in the owner’s manual. Make them available to the equipment owner, so they can be kept for future reference.
Installation

OEM Installation: When replacing an OEM-installed AquaSmart, consult the appliance manufacturer’s wiring diagrams and instructions for additional information.

Retrofit Installation: The AquaSmart can be used to replace most standard boiler temperature controls. For a cross-reference of compatible replacements, refer to Owner’s Manual.

There are two basic methods for mounting the AquaSmart to the boiler.

1. **Sensor/Immersion Well Mounting** – This is the most common method. If the existing well is not suitable for any reason, a standard design aftermarket immersion well with the proper dimensions can be purchased from a HVAC distributor. The AquaSmart can then be mounted in the typical way.

2. **Surface Mounting** – This is sometimes required and is part of the AquaSmart base design. The base has adequate clearance built-in to accommodate the temperature sensor lead exiting the back of the control. A 48” extension cable (Pt. No. 52120) can be purchased separately for applications where needed.

Basic Programming

To ensure smooth appliance operation, the AquaSmart requires a separation between the High and Low limits no less than the greater differential plus 5°F.

For example: If the High Limit is set to 180°F, the High Diff to 20°F, and the Low Diff to 10°F, the control will not allow a Low Limit above 155°F (180°F - 20°F [the greater of the two differentials] - 5°F = 155°F).

A. Temperature High Limit

1. In any mode or screen other than an OPTION sub-menu, press the “HIGH LIMIT” key.

2. The temperature displayed is the current setting. Use the ▲ and ▼ keys to select the desired setting. Tap the button to increase or decrease the temperature by 1°, or hold it to increase or decrease the temperature by 5° at a time.

3. Press the “ENTER (RESET)” key. Confirm the setting by pressing “ENTER (RESET)” again if the value is correct, or “CANCEL (BACK)” if it is not.

B. Temperature Low Limit

1. In any mode or screen other than an OPTION sub-menu, press the “LOW LIMIT” key.

2. The temperature displayed is the current setting. Use the ▲ and ▼ keys to select the desired setting. Tap the button to increase or decrease the temperature by 1°, or hold it to increase or decrease the temperature by 5° at a time. For cold-start operation, turn the low limit off by pressing the down arrow key repeatedly until OFF is displayed.

**IMPORTANT:** To prevent flue gas condensation and reduce fatigue caused by thermal cycling on conventional (non-condensing) boilers, the LOW LIMIT set point should be 150° F or above.

**NOTE:** Boiler manufacturer’s temperature requirements supersede this recommendation.

3. Press the “ENTER (RESET)” key. Confirm the setting by pressing “ENTER (RESET)” again if the value is correct, or “CANCEL (BACK)” if it is not.

C. Temperature High Limit Differential

1. In any mode or screen other than an OPTION sub-menu, press the “HIGH DIFF” key.

2. The temperature displayed is the current setting. Use the ▲ and ▼ keys to select the desired setting. Tap the button to increase or decrease the temperature by 1°, or hold it to increase or decrease the temperature by 5° at a time.

3. Press the “ENTER (RESET)” key. Confirm the setting by pressing “ENTER (RESET)” again if the value is correct, or “CANCEL (BACK)” if it is not.

D. Temperature Low Limit Differential

1. In any mode or screen other than an OPTION sub-menu, press the “LOW DIFF” key.

2. The temperature displayed is the current setting. Use the ▲ and ▼ keys to select the desired setting. Tap the button to increase or decrease the temperature by 1°, or hold it to increase or decrease the temperature by 5° at a time.

3. Press the “ENTER (RESET)” key. Confirm the setting by pressing “ENTER (RESET)” again if the value is correct, or “CANCEL (BACK)” if it is not.
Figure 2 - 7600A/B single-zone connections with or without a tankless coil

Control Wiring:

1. Set “DHWP OFF” (default, see programming section of the *Owner’s Manual* for further instructions)

2. Set “C1 on TT” (default, see programming section of the *Owner’s Manual* for further instructions)

![Diagram of 7600A/B single-zone connections]

Figure 3 - 7600A/B multi-zone connections with Indirect Domestic Hot Water (DHW)

Control Wiring Option: Utilizing a Zone Panel

1. Set “DHWP OFF” (default, see programming section of the *Owner’s Manual* for further instructions) DHW Zone priority will be determined by the zone panel.

2. Set “C1 on TT” (default, see programming section of the *Owner’s Manual* for further instructions)

3. Circulator-on delay will affect all zones. Circulator-off delay will have no effect. If Circulator-on delay is not desired, remove the n-pole contactor and wire the circulators directly to the zone panel.

![Diagram of 7600A/B multi-zone connections with Indirect Domestic Hot Water (DHW)]
Limited

WARRANTY

For Residential, Commercial and Specialty Burners

The R. W. BECKETT CORPORATION ("Beckett") warrants to persons who purchase its Beckett burners from Beckett for resale or for incorporation into a product for resale ("Customers") that its equipment is free from defects in material and workmanship under normal use and service for 60 months from the date of manufacture for Residential Burners and 18 months from the date of manufacture for Commercial and Specialty Burners. Residential burner models include: AF, AFG, AFII, NX, SF, SR and SMG. Commercial burner models include: CF375, CF300, CF800, CF1400, CF2300A, CF2500, CF3500A, CG10, CG15, CS25 and CS50. Specialty burner models include: ADC, ADCP, ARV, SDG and SM. The provisions of this warranty are extended to individual major burner components as follows:

a) 60 months from date of manufacture for all Beckett-branded major components, except for 12 Vdc components.

b) 18 months from date of manufacture for all non-Beckett-branded major components and Beckett branded 12 Vdc components.

c) 12 months from date of manufacture for all Beckett-branded tools, such as the GeniSys Display.

Note: Normal service items found to be defective upon receipt by the customer are covered by this warranty.

THIS WARRANTY DOES NOT EXTEND TO EQUIPMENT SUBJECTED TO MISUSE, NEGLECT, OR ACCIDENT; NOR DOES THIS WARRANTY APPLY UNLESS THE PRODUCT COVERED BY IT IS PROPERLY INSTALLED BY A QUALIFIED, COMPETENT TECHNICIAN, WHO IS LICENSED WHERE STATE AND LOCAL CODES REQUIRE, AND WHO IS EXPERIENCED IN MAKING SUCH INSTALLATIONS, IN ACCORDANCE WITH THE LATEST EDITION OF NFPA NO. 31 OF THE NATIONAL FIRE PROTECTION ASSOCIATION, THE LATEST EDITION OF THE NATIONAL FUEL GAS CODE (NFPA NO. 54) AND IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES HAVING JURISDICTIONAL AUTHORITY.

Equipment, which is defective in material or workmanship and within the warranty period, may be returned for credit as follows: Beckett Burners, Beckett-branded major components and non-Beckett-branded major components that came as original equipment on a Beckett burner or were sold as a replacement part by Beckett should be returned, freight prepaid, to Beckett’s home office. Credit will be issued to the customer unless the returned equipment is determined by Beckett to be out of warranty or damaged by user, in which case the equipment will be scrapped.

Note: Beckett is not responsible for any labor cost for removal and replacement of equipment.

THIS WARRANTY IS LIMITED TO THE PRECISE TERMS SET FORTH ABOVE, AND PROVIDES EXCLUSIVE REMEDIES EXPRESSLY IN LIEU OF ALL OTHER REMEDIES, AND IN PARTICULAR THERE SHALL BE EXCLUDED THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL BECKETT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE OF ANY NATURE. Beckett neither assumes nor authorizes any person to assume for Beckett any other liability or obligation in connection with the sale of this equipment, Beckett’s liability and Customer’s exclusive remedy being limited to credit as set forth above.

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