



**TO: All Manufacturers' Representatives, Sales & Marketing Managers,  
Customer Service and Sales & Marketing Personnel**

**FROM: Darryl Singleton, Vice President of Sales & Marketing**

**SUBJECT: Knight Boiler Upgrade – Smart Just Got Smarter**

**DATE: July 12, 2010**

AquaTech Sales & Marketing on behalf of the Lochinvar Corporation are pleased to announce the release of a newly enhanced line of Knight Boilers in Canada. Equipped with several new advanced features, the re-engineered SMART SYSTEM is now standard on all KNIGHT® Residential Heating Boiler models, as well as the KNIGHT® XL Commercial Boiler and in the fall, the ARMOR® Commercial Water Heaters as well.

Lochinvar has enhanced its SMART SYSTEM user interface to provide an even greater level of control than ever before, offering installers and facility managers easier access to all of the information they need to set-up, troubleshoot and monitor all equipment functions.

### **Interface Improvements**

As part of the new design, the SMART SYSTEM control features a larger display screen – nearly twice the size of the original to clearly communicate more information, as well as new color coding functionality. The interface displays a blue screen during normal system operation, while a yellow screen signals that maintenance is due and a red screen notifies the user that the appliance is in lockout mode.

To ensure quick, easy use, the SMART SYSTEM is now equipped with soft keys for easy adjustment of settings and an encoder knob for fast transitions from screen to screen. This combination allows the user to easily “dial in” the setup and operation of the unit.

### **Selectable Cascade Options**

As with the original SMART SYSTEM, the enhanced control features a built-in cascading sequencer that allows up to eight boilers or water heaters to be installed, providing "Soft Start Lead-Lag" cascade operation. With Lead-Lag, one boiler or water heater in the system is the lead unit, which modulates up to capacity based on demand; as demand increases, additional units are fired and the last two units called on modulate until all of them are operating at 100 percent modulation or until demand is satisfied.

However, the upgraded SMART SYSTEM also offers the additional option of "Efficiency Optimized" cascade operation, providing the user with two selectable functions for fine-tuning the sequencing of multiple unit installations. With Efficiency Optimized cascade operation, multiple units in the system modulate at the same firing rate to meet load requirements. With two cascade options, the installer can choose which modulation logic best fits his application.

### **A Smarter System**

The re-engineered SMART SYSTEM now controls up to three individual setpoint temperatures, allowing three different temperature loops to be serviced and enabling the appliance to run at the lowest required temperature to increase system efficiency.

As an added option, the SMART SYSTEM now offers two-way communication through Modbus protocol. This new capability simplifies the interface between the Building Management System (BMS) and the boiler or water heater, while allowing the BMS to monitor up to 40 unit variables. The installer can also now access the SMART SYSTEM PC software via a standard USB cable instead of through a PC cable, as required on previous models.

The re-engineered SMART SYSTEM now offers the Domestic Hot Water (DHW) Night Setback, which resets the DHW setpoint to save energy during times when there is no demand. The new control also now features DHW Modulation Limiting to allow a minimum modulation rate to be set when using an indirect tank, limiting cycling and minimizing energy waste when generating hot water.

### **Multiple 0-10V Inputs and Outputs**

Another major enhancement to the SMART SYSTEM control is the addition of multiple 0-10V Analog Inputs and Outputs. For example, the new 0-10V enable Input allows a thermostat or a 0-10V signal to initiate a call for heat, giving the BMS options for enabling a single unit or a cascaded system, while the new 0-10V Output allows BMS to monitor the firing rate of each unit. In addition, a 0-10V signal controls the optional variable speed boiler pump, which allows the

system to maintain a higher temperature rise at low firing rates and reduce boiler flow when low flow in the system loop is detected. The 0-10V System Pump Signal Input offers faster reaction to changes of flow in the system, reducing the possibility of temperature over-shoot and excessive cycling.

Lochinvar Corporation is a leading manufacturer of high-efficiency water heaters, boilers, and storage tanks located near Nashville, Tennessee. Lochinvar's master distributor in Canada is AquaTech Sales & Marketing Inc.

AquaTech represents all areas of Canada for Lochinvar with the exception of Quebec and is celebrating it's 30th year in business this fall. For more information about Lochinvar products and services in Canada, contact: AquaTech Sales & Marketing Inc., 4390 Paletta Court, Burlington, Ontario. L7L 5R2

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Best Regards,



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