



**An Eco-Friendly Solution.**



# Honeywell's SOLA Boiler Control saves you money and reduces your carbon footprint!

## Efficient Boiler Control

Honeywell's SOLA Boiler Control offers energy saving features including: setback, fan and burner modulation, outdoor reset and multiple boiler lead lag control. The Honeywell SOLA Boiler Control integrates 15 control functions into one compact device. Put it all together and Honeywell's SOLA Boiler Control is your solution for efficient, integrated, and reliable boiler control!



## The Compact Solution

### 15 Integrated Control Functions

- Primary flame safeguard control
- Igniter/Spark generator (22kv 10 mj 60HZ spark/sec)
- Operating control: Central heat
- Operating control: Domestic hot water
- PID load control: Central heat
- PID load control: Domestic hot water
- High limit control: Boiler outlet
- High limit control: Domestic hot water
- High limit control: Stack temperature
- Outdoor reset control
- 3 Pump outputs with 5 assignable functions
- Stack temperature high limit
- Multiple boiler lead lag control
- Building automation router
- Remote firing rate interface

### Expanded Diagnostics

- 11-item programmable first-out annunciation
- 15-item lockout event history
- 15-item alert event history

## Flexibility

With flexible display solutions, the boiler network can grow to meet future demand needs.

- User selectable names, functions, parameters, features and program settings allow tailoring each control to individual requirements
- With modbus RTU protocol, connect SOLA controls to a building automation system or up to 8 controls to one system display
- Remote firing rate control interface (4-20mA)
- DHW auto detection simplifies commissioning
- Instantaneous plate heat exchanger I/O and control logic
- Program interface modules back up and restore control parameters
- Low Fire, High Fire, and PWM Control Options

## Safety/Boiler Protection

- Boiler slow start function to prevent thermal shock
- Frost protection
- Anti-condensation
- 3 Delta-T functions with inversion detection
- Outlet and heat exchanger T-rise functions
- Stack, Boiler, Domestic hot water high limits
- UL353 Limit Rating: Stack Temp or Operating Limit or Inlet/Outlet, Delta -T
- 250°F Vessel High Limit Capability

## Setback/Time Of Day

Saves fuel by reducing boiler output temperatures for low use or unoccupied periods

## Outdoor Reset

- Saves up to 10 percent on average fuel usage
- Adjusts boiler output temperature to compensate for outdoor air temperature changes, causing boiler to operate at lower temperatures during mild weather
- Reduces unnecessary boiler cycling



## Typical Applications

*The SOLA Boiler Control works with low mass and commercial boilers of all types. Typical applications may include apartment buildings, hospitals, retail complexes, schools, universities and office complexes.*



## Fan And Burner Modulation

- Maximizes electrical energy savings and minimizes fuel use compared to fixed speed components
- Reduces fan speed and burner firing rate in response to modulation
- An ideal pairing with Premix components and Premix burner technology, which reduce NOx formation

## Lead Lag

Save money and enhance equipment life

- Boiler cascade logic
- Boiler timed rotation
- Outdoor reset multiple boiler sequencing
- Multiple boiler pump control logic
- Base load and unison firing control logic
- Enhanced PID control to minimize equipment cycling

## Affordable

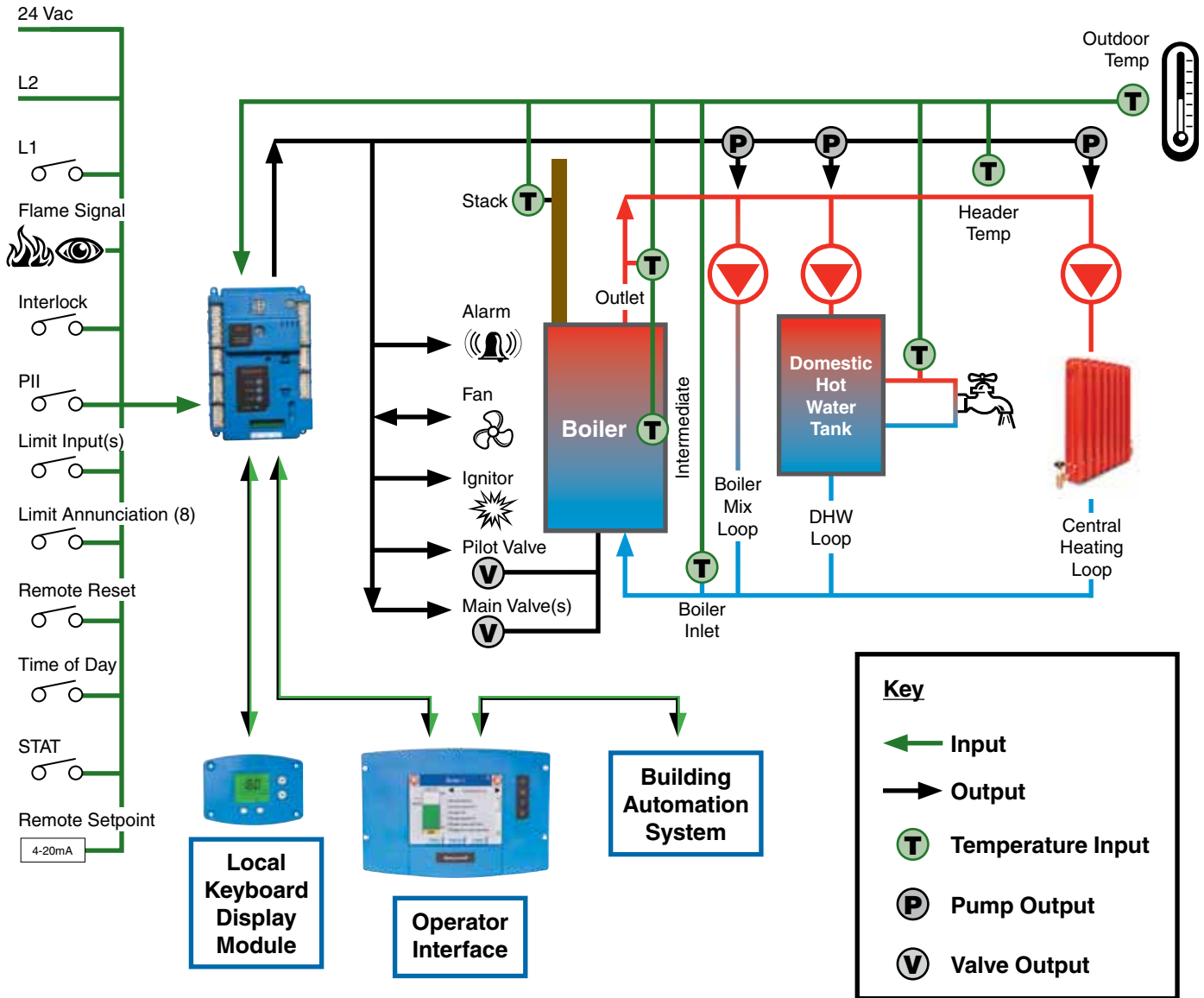
Compare to purchasing, installing and maintaining 15 individual controls.

## Money

- Reduced installation, wiring and maintenance with integrated control functions
- Reduced energy usage helps save you money



# The Hydronic Boiler Control Solution



Honeywell's SOLA Boiler Control is your solution to efficient boiler control!

# Singular Control

The SOLA Boiler Control orchestrates multiple hydronic boiler functions, based on user programmable settings and priorities. Each boiler has a dedicated control, with an optional display for monitoring, adjustment diagnostics and trend analysis (model dependent). Central Heating is the main heating loop, while Domestic Hot Water comprises the optional secondary heating loop. User assigned priorities for each heat loop dictate which is addressed first.

## Choose The SOLA Hydronic Control for Your Application

Item	R7910A1001	R7910A1019	R7910A1118	R7910A1027	R7910A1084
24 Vac Control Circuit	•	•	•	•	•
24 Vac Demand Input	•	•	•	•	•
24 Vac Load Circuit	•		•		•
120 Vac Load Circuit		•		•	
Modulation Output: PWM	•	•	•	•	•
Modulation Output: 4-20 mA or 0-10V dc	•	•		•	•
High/Low Fire Switch Inputs		•			
Flame Rod Flame Detection	•	•	•	•	•
UV Flame Detection	•	•		•	
Thermostat Input /Heat Anticipator			•		•

## Program Module

### PM7910A1013



SOLA program back-up and restore of application parameters. Facilitates field control replacement.

## Interface Options

### S7910A1008 Local Keyboard Display Module



LCD for monitoring and setpoint adjustment of a local SOLA and the boiler it controls. Communicates via Honeywell 3-wire protocol. Order separately.

### S7999C1008, S7999C1016, S7999C1040 Local Operator Interface



Touchscreen display for individual boiler configuration, control, remote monitoring, fault history and diagnostics. Provides visual indication of burner operational status, control variables, thresholds and lockout or alert events. Communicates via 3-wire RS-485 ModBus™ protocol. Order separately.



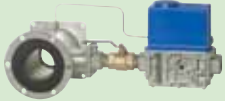






### S7999B1026, S7999B1067 System Operator Interface



Touchscreen display for individual and multiple boiler configuration, control, remote monitoring, fault history, diagnostics and trend analysis. Provides visual indication of burner operational status, control variables, thresholds, lockout or alert events and trends. Up to 8 SOLA devices may be monitored and controlled with a single system operator interface. Communicates via 3-wire RS-485 ModBus™ protocol. Enables Building Automation Interface to one or multiple SOLA controllers. Order separately.

## The Honeywell Solution

Get the Honeywell advantage by combining the SOLA Boiler Control with compatible Honeywell components for a compact and powerful boiler solution. For more information, visit [customer.honeywell.com](http://customer.honeywell.com).

Component	Purpose
C7027, C7035, C7044  UV Sensors 	Minipeeper® ultraviolet flame detectors. Disposable models and field replaceable UV tube models. Integral threaded collar and bracket mounted models. Compatible with SOLA integral amplifier.
C7007, C7008, C7009 / Q179A-B-C-D, C7005, Q347 	Flame Rod Holders / Pilot Burner Assemblies for rectified flame sensing. Some gas pilot assemblies have integral ignition electrodes. Compatible with SOLA integral amplifier. Q347 used for single rod spark and sense applications.
V4730/V4734/ V8730C VMU  Valves, Venturi 	Valve/Venturi compatible with modulating premix burners. Internal dual shutoff valves and regulator. A modulated combustion blower motor pulls the gas/air mixture through venturi, mixing in a 1:1 ratio for consistent burner operation. Modulation directed by SOLA control. Capacity range of 512-2, 320k Btuh, sizes from 1/2" to 1 1/4", 24Vac & 120Vac. No proof of closure switch.
Q624A, Q652B  Solid State Spark Generators 	High voltage solid state spark generators, 120Vac. Synchronized for use with UV sensors by sparking on one half of the ac cycle while UV sensors operate on the opposite half cycle. Prevents ignition interference.
32004766	Ignition wire. Note: cannot be used with the Q347 single rod spark/sense application.
V4046C/8046C V4295A/8295A  Gas Pilot Valves 	24 Vac and 120 Vac gas pilot valves provide on/off control of pilot burners. The V4046C valves are magnetically operated, while the V4295A valves are solenoid operated. Fits various pipe sizes between 1/8" and 2 1/2".
198799Z 32003971-002 32003971-003  Sensors 	Single element 10KOhm NTC resistive temperature sensors. Temperature range of -40°F to +266°F. For use as inlet, header, outdoor and intermediate sensors. -002 sensor has 6" leads and Molex® splice connector. -003 kit contains 198799Z sensor with 42" leads and all necessary hardware for strap-on or outdoor mounting.
50001464-006 50001464-007  Sensors 	Dual element 10K Ohm NTC resistive temperature sensors. Temperature range of -40° F to 266° F. For use as outlet and domestic hot water operation/limit sensors. May be used for stack limit sensor if temperature specifications are not exceeded. -006 sensor has 6" leads and Molex splice connector. -007 sensor has 42" leads.
AT72D AT88A Control Transformer	24 Vac, Class 2 control transformer for powering the SOLA control. AT72D is 40 VA and the AT88A is 75 VA. Various configurations available for each.
ControlLinks™ 	The ControlLinks fuel air ratio control system may be used with the high/low fire switch input versions of SOLA. Maximizes combustion efficiency over the entire firing rate curve with independent actuators. Uses a ControlLinks system display.
V5055C, V5097, V4055D Valves, Actuator	Safety shut-off valves and on/off actuator. Available with integral proof of closure switch.
V51E, M72x4, Q100 Valve, Actuator, Linkage	Modulating valve, modulating motor and butterfly valve linkage. Actuator accepts 4-20 mA signal from control and are available in 24 Vac or 120 Vac. Valve not suitable for safety shut-off applications. Fuel and air must be mechanically linked for proper operation.
T775M Control 	May be used for 4-20mA remote setpoint or modulation control inputs.

## SOLA Hydronic Control Condensed Specifications

Application	<p>Modulating hydronic low mass or commercial boilers with central heating and domestic hot water loops. 24 Vac or 120 vac load circuit with 24 vac control circuit. All features are integral to control:</p> <ul style="list-style-type: none"> <li>• 2 Boiler control loops</li> <li>• Primary flame safeguard control</li> <li>• Igniter/spark generator</li> <li>• Central heat operating control</li> <li>• Central heat high limit control</li> <li>• Central heat PID load control</li> <li>• Domestic hot water operating control</li> <li>• Domestic hot water high limit control</li> <li>• Domestic hot water PID load control</li> <li>• Outdoor reset control</li> <li>• 3 Pump outputs with 5 assignable functions</li> <li>• Stack temperature high limit control</li> <li>• Expanded annunciation</li> <li>• Slow start function</li> <li>• Frost protection</li> <li>• Anti-condensation protection</li> <li>• 3 Delta-T functions with inversion detection</li> <li>• Outlet and heat exchanger T-rise functions</li> <li>• Stack rate limit function</li> <li>• Prioritization for demand, rate limiting</li> <li>• Multiple boiler lead lag control</li> <li>• Building Automation Router</li> <li>• Remote firing rate interface</li> <li>• Instantaneous plate heat exchanger I/O and logic</li> <li>• Lead Lag logic; cascade, timed rotation, outdoor reset, pump control, base load-unison firing, enhanced PID to minimize equipment cycling.</li> </ul>
Required Components	<ul style="list-style-type: none"> <li>• Controller: R7910A1001/R7910A1019/R7910A1118/R7910A1027/R7910A1084</li> <li>• Plug connector bag assembly: 50032893-001</li> <li>• Operator interface: S7999B1026/S7999B1067/S7999C1008/S7999C1016/S7999C1040 (configure/monitor boiler)</li> <li>• UV Sensors: C7027/C7035/C7044</li> <li>• Flame rod holders/pilot burner assemblies: C7007, C7008, C7009/Q179A-B-C-D, C7005, Q347</li> <li>• Inlet/header/outdoor/intermediate temperature sensors: 198799Z or 32003971-002 (purchase qty needed)</li> <li>• Header and outdoor temperature sensor kit: 32003971-003 (purchase qty needed)</li> <li>• Outlet and domestic hot water operation / limit sensors: 50001464-006 or 50001464-007 (purchase two if using both functions)</li> <li>• Stack limit sensor: 50001464-006 or -007. Maximum 266°F (130°C)</li> </ul>
Optional Components	<ul style="list-style-type: none"> <li>• Local keyboard display module: S7910A1008 (for monitoring, setpoint adjustment)</li> <li>• Program module: PM7910A1013 (back-up, restore)</li> <li>• Control transformer, 24 Vac, Class 2: AT72D (40VA) or AT88A (75VA)</li> </ul>
Electrical Ratings	<ul style="list-style-type: none"> <li>• R7910A1001: 24 Vac (+25%, -16.6%), 50/60 (+-5%) Hz load circuit</li> <li>• R7910A1019/1027: 120 Vac (+10%, -15%), 50/60 (+-5%) Hz load circuit</li> <li>• All R7910A: 24 Vac (+25%, -16.6%), 50/60 (+-5%) Hz control circuit voltage; Requires Class 2 control transformer</li> <li>• S7910A: 24 Vac, obtained from SOLA 3-wire interface</li> <li>• S7999B/S7999C: 100-240 Vac, 50/60 Hz power input to a separate power supply (included)</li> </ul>
Ambient Temperature Range	<ul style="list-style-type: none"> <li>• R7910A: -4° F to 150° F (-20° C to 66° C)</li> <li>• S7910A: 32° F to 120° F (0° C to 49° C)</li> <li>• S7999B: 32° F to 122° F (0° C to 50° C)</li> </ul>
Humidity Range	<ul style="list-style-type: none"> <li>• R7910A: up to 95% Relative humidity, non-condensing</li> <li>• S7910A/S7999B/S7999C: up to 85% Relative humidity, non-condensing</li> </ul>
Dimensions (W x H x D)	<ul style="list-style-type: none"> <li>• R7910A: 6" x 9" x 3" installed (152mm x 229mm x 76mm)</li> <li>• S7910A: 5.7" x 4.1" x 1.1" (141mm x 102mm x 51mm)</li> <li>• S7999B: 9.4" x 6.7" x 1.6" (239mm x 169mm x 40mm)</li> <li>• S7999C: 7.2" x 5.1" x 0.8" (183mm x 128mm x 21mm)</li> </ul>
Approvals	<ul style="list-style-type: none"> <li>• R7910A: UL/cUL Component Recognized, CSD-1 Acceptable, FCC (Part 15, Class B, Emissions)</li> <li>• S7910A: FCC (Part 15, Class A digital device), UL/cUL Listed</li> <li>• S7999B/S7999C: FCC (Part 15, Class A digital device), UL/cUL component recognized</li> </ul>
Communication	<ul style="list-style-type: none"> <li>• ECOM: Honeywell 3-wire interface for communication with dedicated local display keyboard display</li> <li>• Modbus MB1: 3-wire RS-485 interface for Modbus network; Up to 8 device connections</li> <li>• Modbus MB2: 3-wire RS-485 interface for Modbus network; Up to 8 device connections</li> </ul>

**Learn More**

For more information please contact  
your Honeywell distributor. Or visit  
<http://customer.honeywell.com>.

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