

Multi-Burner Safeguard and Control System

- **Modular configuration for optimum design flexibility, reliability, and economics**
- **Complete burner management and process control for up to eight burners**
- **Quick delivery**
- **Fully automatic startup**
- **Proven designs and proven hardware**
- **Standard NEMA 4X enclosure**
- **Pilot or direct spark ignition**
- **Selection of standard and optional controllers (NEMA 4 or NEMA 12)**
- **Wiring for large selection of compatible actuators**
- **UL and C-UL listing optional**
- **Wiring for mini-fuel train and valve proving system**



DESCRIPTION

North American's 8894 and 8895 Multi-Burner Flame Supervision and Control Systems, were developed specifically and are well suited for small furnace applications: 1-8 burners.

The 8894 model is designed for simultaneous ignition and shutdown of the burners while the 8895 model serves independent ignition and shutdown. These products offer a range of module options to provide exceptional flexibility in meeting the various needs of furnace operation.

Chief among the standard features is a complete control solution. Burner management, temperature or pressure control, and automatic startup are included. The flip of a switch initiates the entire operating sequence involving limits, purging, lightoff, release to control, process control and flame supervision.

- Purge begins when limits are complete and continues according to the prescribed sequence.
- Safety shutoff valves open and modulating valves are positioned at their respective positions for ignition.
- The ignition sequence occurs (piloted or direct spark).
- When the system recognizes satisfactory flames at all burners, it releases to automatic temperature control.
- It continues to monitor flames and shuts down a burner or burners on loss of flame safety signal.

The bottom line: a highly reliable, state of the art control system. The key element of the flame safeguard sub-system is the popular North American 8888 Burner Control System currently installed in hundreds of plants around the world. Our years of experience in burner supervision and furnace control provide the expertise necessary to meet your needs while providing efficient packaging of these control panels.

The enclosure is fiberglass and rated NEMA 4. Controllers in the selection list are available as NEMA 4 or NEMA 12. Since the door is clear, operators can observe the status of the process indicated by LEDs that are standard on the main printed circuit board and the flame relays. In case of a shutdown the indicators aid in troubleshooting, saving valuable time in relighting the burners with minimal loss in heat.

CUSTOM FEATURES

North American can build the panel to satisfy your specific operation. Everything below can be provided for either the Model 8894 or Model 8895.

- Direct spark or pilot ignition: Whatever the configuration of the burners, the system can control their lightoff.
- A large selection of the most popular controllers: Space on the door accommodates up to three controllers: for example high temperature limit and two loop controllers.
- Multiple controller options.
- Variety of actuator wiring configuration.
- UL and C-UL listing.
- A full set of AutoCad drawings: Panel mechanical and electrical arrangements, instruction manuals for all controllers, and operational sequences needed to start up, operate, and shut down the furnace are standard.
- Fully tested prior to shipment: Every sequence, every control loop, even flame supervision is simulated to assure proper operation when the control system arrives on site.

SPECIFICATIONS

General

- One through eight burner configurations for 8894, simultaneous operation. One through eight-burner configurations for 8895, independent burner operation.
- Single fuel or dual-fuel.
- NEMA 4 rugged fiberglass enclosure.
- All wiring is 105°C, 600 V ac, 16 AWG.
- Clear polycarbonate door to view LED status indicators on flame relays and other equipment inside the enclosure.

Electrical

- 120 V, 50-60 Hz, 15 amp maximum load, including external devices.
- UL or Canadian UL listing per Subject 508, Industrial Control Panels (optional).
- Dry contact outputs:

LIMITS COMPLETE	ALARM (primary burner)
BURNER ON	ALARM (secondary burners)
- Lockout tag-out standard.

Controller options (maximum of three controllers in a system):

- High temperature limit controllers.
- Single loop controllers compatible with North American supported motor types to choose from. Outputs: milliamp (CAT), or 120 V ac cw/ccw. Available with ramp/soak.
- 1400-degree bypass limit controllers.

Burner management

- Automatic purge, lightoff, and release to control.
- Pilot and direct spark (with or without low-fire valve)

- Flame relay reset on door.
- Visible indication on the main printed circuit board:

"MAIN POWER" red LED	"PURGING" yellow LED	"COMMON LIMITS" green LED	"LOW FIRE" yellow LED	"FUEL 1 LIMITS" green LED	"MAIN FUEL OPEN" red LED
"LIMITS COMPLETE" green LED					

Flame relays:

- Primary burner flame relay: Honeywell RM7888 for all models.
- Secondary burner flame relays (burners 2, 8):

RM7890 for 8894.
RM7888 for 8895.
- Compatible with flame rod, standard Honeywell UV (C7027 or C7035, self-check UV C7012E and C7061A).
- Reset pushbutton and indicators on the face of the relay:

"POWER" LED--Lit when flame relay is powered.
"MAIN" LED--Lit when terminal 9 (i.e., MAIN terminal) is powered.
"PILOT" LED--Lit when terminal 8 (i.e., PILOT terminal) is powered.
"ALARM" LED--Lit when terminal 4 (i.e., ALARM terminal) is powered.
"FLAME" LED--Lit when flame is detected.
- All flame relays perform safe-start check.
- Keyboard Display unit available for flame relay diagnostics (optional).

Standard drawings and documentation (Custom drawings available at additional cost.)

ORDERING INFORMATION

The following is a list of the options available with the 8894 and the 8895 systems. Selections are made on the configuration sheet.

Number of burners:	8894: 2 through 8 8895: 1 through 8
Number of zones of control:	One or two
Keyboard display modules:	One on the primary flame relay, none, or one on every flame relay (optional)
Flame detectors:	Flame rod, ultraviolet, UV self-check
Process controllers available: $\frac{1}{16}$ or $\frac{1}{4}$ DIN	High temperature limit controllers: Single loop controllers: $\frac{1}{16}$ or $\frac{1}{4}$ DIN available with ramp/soak 1400° bypass controllers: $\frac{1}{16}$ or $\frac{1}{4}$ DIN
Up to 3 controllers from the list above, with constraints as noted:	
First controller	Any high temperature limit or single loop controller
Second controller	Any high temperature limit, single loop, or 1400° bypass controller
Third controller	Any single loop or 1400° bypass controller
Excess air selector switch:	Fixed, modulated or throttled
Special options: bypass, or none	Pilot relight by low fire switch (8894 only), or 1400°
Alarm horn:	NEMA 4 or NEMA 12, or none
UL listing:	UL or C-UL, or none.

* NEMA 4 is achieved on any Honeywell DC230 and DC330 controller by attaching a weatherproof cover over the faceplate of the unit.

WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of a combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.

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