Eclipse Combustion
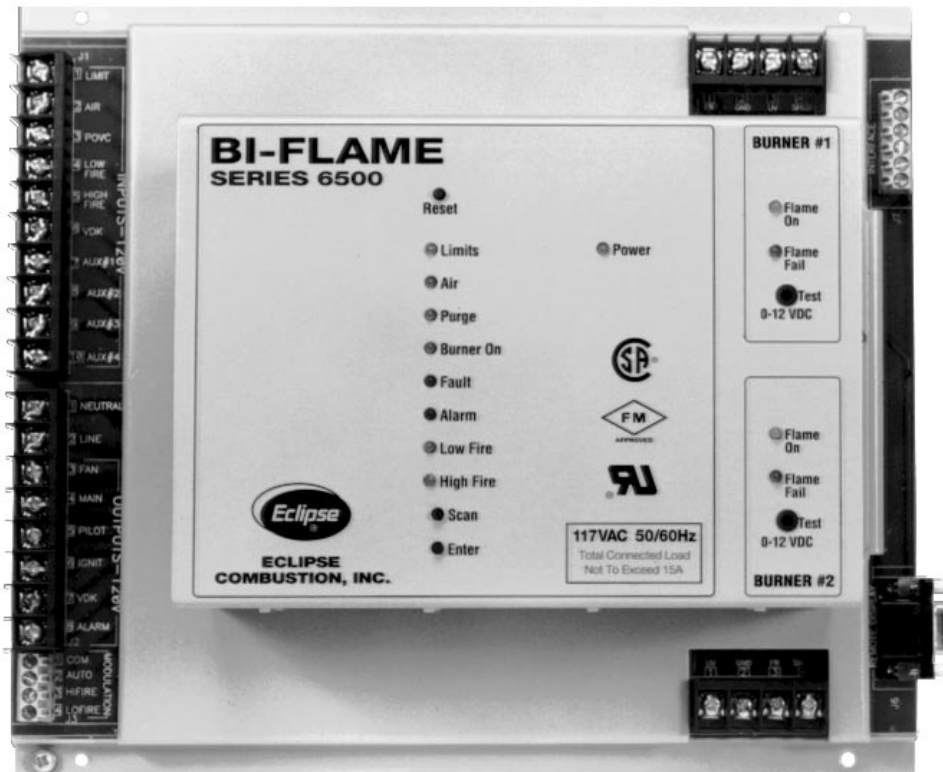# Bi-Flame
Dual-Burner Flame Monitoring System
Series 6500

Standard Features

- UL recognized, FM approved and CSA certified.
- Microcomputer based system.
- 0-12 VDC flame signal test ports conveniently located on front of unit.
- Monitors up to two burners.
- Flame sensor module for ultraviolet and/or flame rod.
- DIP switches for timing functions and system configuration.
- Fault relay testing.
- Dynamic on-board testing.
- Proof of valve closure testing.
- Modulation capability.
- High fire and low fire position switch interlocks.
- Check for shorted air switch.
- Test mode for pilot flame adjustments.

Optional Features

- 1/4 DIN panel mountable LCD display with or without remote reset.
- Process mode of operation for extended purge time—up to 13.5 minutes.
- Display lock on flame signal (with LCD display option).
- RS232 or RS485 communications interface.

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Specifications

Supply	90-130 VAC, 50/60 HZ standard.

Temperature Limits

Bi-Flame	6500	–40° to +60°C (-40° to +140°F)
90° U.V. scanner	5600-90A	–20° to +60°C (-4° to +140°F)
U.V. scanner	5600-91	–40° to +125°C (–40° to +257°F)
U.V. self-check scanner	5602-91	–40° to +60°C (–40° to +140°F)

Flame Failure Response Time	3 seconds ± 0.5
Trial For Ignition/Pilot Interrupt	5, 10 or 15 seconds selectable.
Purge Time	Modulating: selectable from 0 to 225 seconds in 15 second increments. Processing: selectable from 30 seconds to 13.5 minutes in 30 second increments.

Output Relay Contact Ratings
(Ratings @ 120VAC; 15A Total Connected Load)

Terminals J2-4 through J2-8	1/2 HP (inductive load) 10 amps (resistive load)
Terminal J2-3	1 HP (inductive load) 16 amps (resistive load)

Modulation Contact Ratings
(Ratings @ 120VAC)

Terminals J3-1 through J3-4	1/2 HP (inductive load) 10 amps (resistive load)

Shipping Weight	4 kilograms (9 lbs.)

Dip Switch Settings

S2 Dip Switch

SW1: Recycling mode selection (On=Recycling; Off=Non-recycling)
SW2: Pilot selection (On=Intermittent, where pilot remains on during burner cycle; Off=Interrupted, where pilot valve closes after main burner is established).
SW3: Trial-for-ignition (TFI) range selection (On=10 seconds; Off=5 seconds (with S4-SW7 on), or 15 seconds (with S4-SW7 off).
SW4 through 8: Purge time selection (switch settings are additive); see illustration at right for exact times.

S4 Dip Switch

SW1 through 4: Actuation of auxiliary inputs (optional)
SW5: For using a Valve Leakage System (VLS) with Bi-Flame (optional)
SW6: History logging option
SW7: TFI range selection
SW8: Operational mode selection (On=Modulation; Off=Process). This selection activates the purge outputs. It also determines which purge times are used by switches 4 through 8 on S2 dip switch.

S6 Dip Switch

Factory set at two burners; **do not change**. Changing will result in an "unmatched burner" condition and prevent system operation. Shown below is the actual factory setting:

SW1	SW2	SW3	SW4	SW5 thru 8
Off	On	Off	Off	Off

DIP Switch Settings

NOTE: Switch settings are for illustrative purposes only!

DIP Switch S2 Settings

SW	MODULATION	PROCESS
8	0	30 SEC.
7	120 SEC.	7 MIN.
6	60 SEC.	3 MIN.
5	30 SEC.	2 MIN.
4	15 SEC.	1 MIN.
	MODULATION PURGE TIME (ADDITIVE) S4#8=ON	PROCESS PURGE TIME (ADDITIVE) S4#8=OFF
3	10 SEC. TFI = ON 5 SEC. TFI = OFF (S4#7 = ON)	10 SEC. TFI = ON 15 SEC. TFI = OFF (S4#7 = OFF)
2	INTERMITTENT PILOT	INTERRUPTED PILOT
1	RECYCLING	NON-RECYCLING
ON ⟷ OFF		

DIP Switch S4 Settings

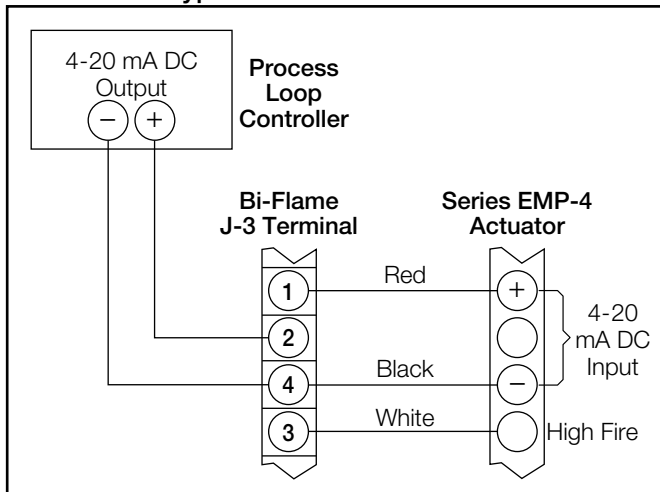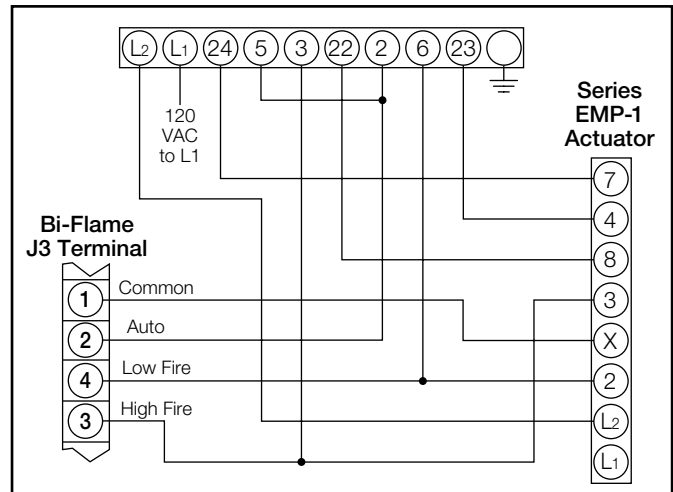| SW		
8	MODULATION	PROCESS
7	10/5 SEC. TFI	10/15 SEC. TFI
6	PROGRAM ON	PROGRAM OFF
5	VDK INSTALLED	VDK NOT INSTALLED
4	AUX. #4 = ON	AUX. #4 = OFF
3	AUX. #3 = ON	AUX. #3 = OFF
2	AUX. #2 =ON	AUX. #2 =OFF
1	AUX. #1 = ON	AUX. #1 = OFF
ON ⟷ OFF		

Wiring Diagram
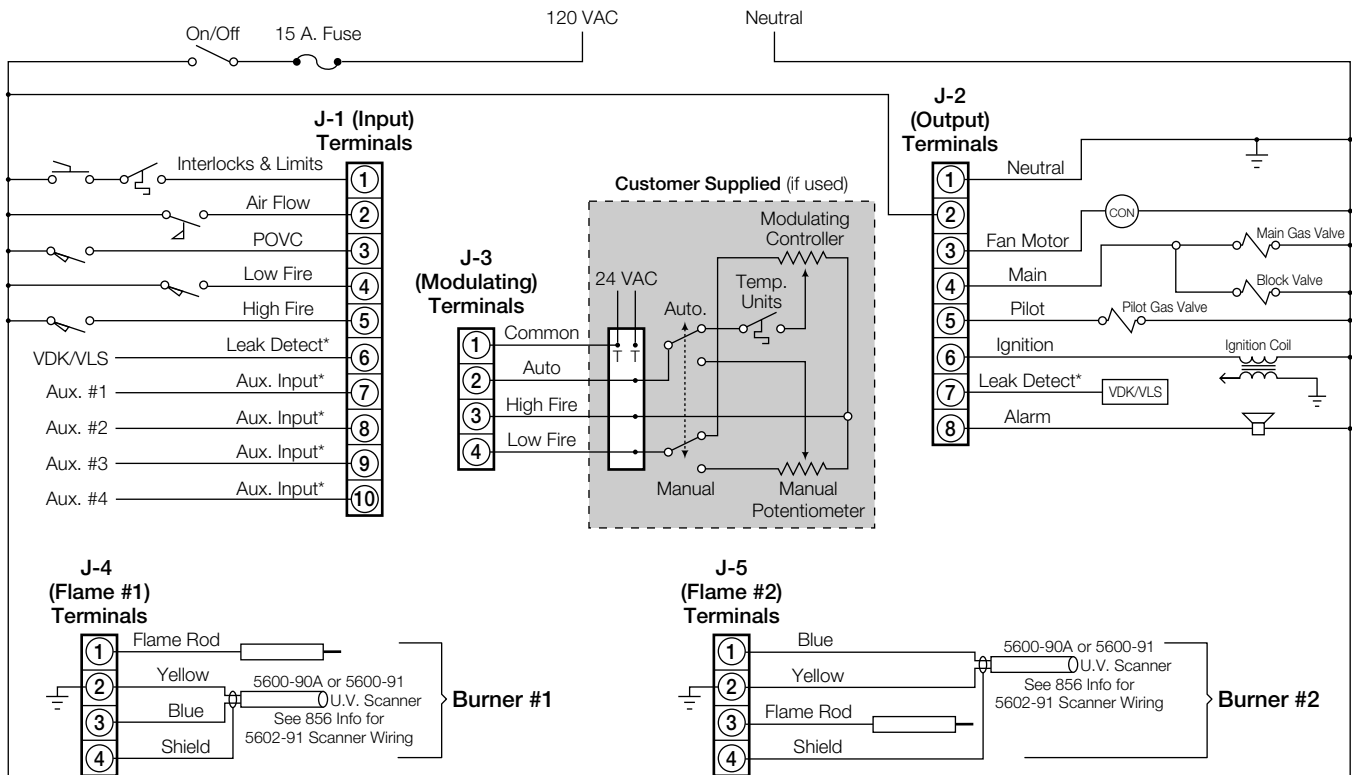
* Optional

Notes:

1. Wiring must conform to applicable electrical codes.

2. Wires must meet 90°C (194°F) specification minimum and must be No. 16 AWG or larger and in accordance with all applicable codes.

3. Flame sensor wires must be run in their own separate conduit or shielded cable. Multiple shielded cables can be run in a common conduit.

4. Flame signal should read between 4 and 12 VDC with 100K ohm/volt impedance meter. Flame failure is approximately 2 VDC. Positive TEST POINT jack is on the cover with negative point being the ground.

5. Purge time, TFI, intermittent/interrupted pilot, and recycle/non-recycle selections are made with a DIP switch located in the logic module.

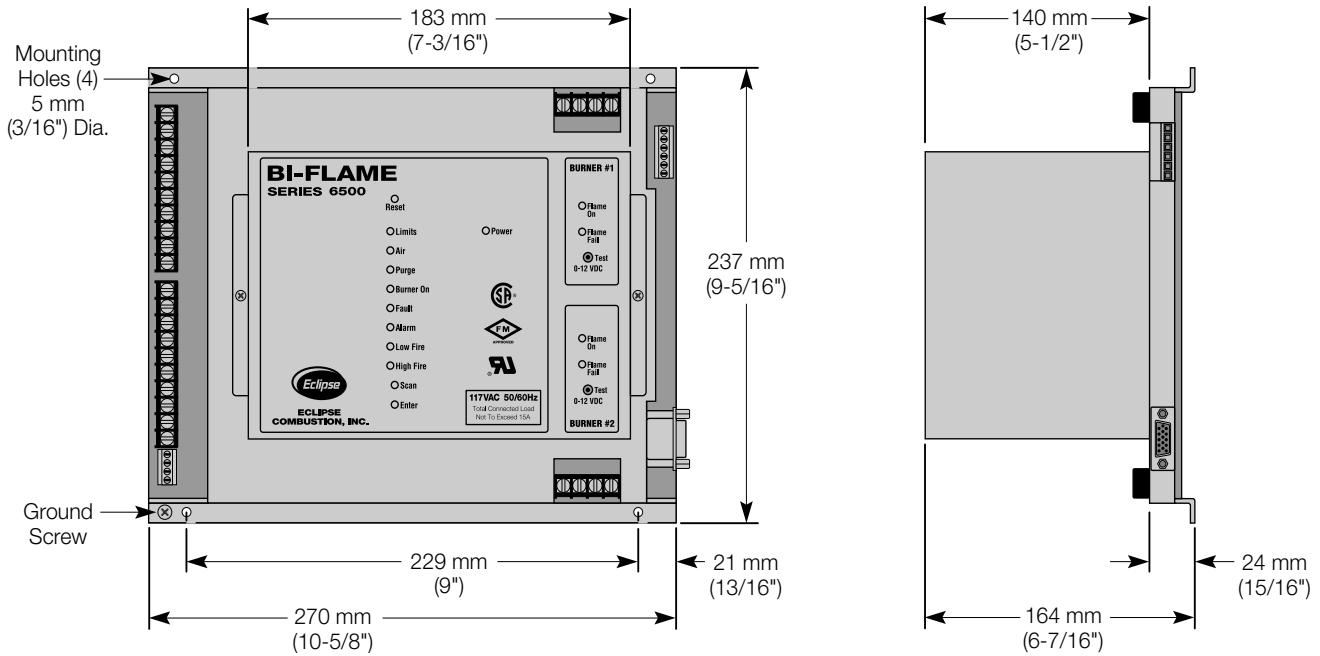# Typical Wiring Examples for Eclipse EMP Series Actuators

Dimensions

Bi-Flame LCD Display Messages *(with Optional Remote Display)*

Burner Start-up
- Safe Start OK
- Limits Open
- Fan Energized
- Air Proven
- Purge To High Fire
- Purge To Low Fire
- Pilot Trial For Ignition
- Pilot Flame On
- Main Flame On
- Main Flame On Pilot Off

Burner Operation
- Automatic Modulation
- Flame #X* (Flame Signal) (Elapsed Time)
- Post Purge

System Alerts
- Main Flame Fail Recycling
- Air Failure Recycling
- Unsafe Flame On
- Unsafe Air Short
- Test (For Minimum Pilot)

Lockout
- Main Valve Fail
- Unsafe Flame Purge
- Air Not Proven
- Air Failure
- Hi Damper Fail
- Low Fire Fail
- Pilot Flame Fail
- Main Flame Fail
- Unsafe Flame On
- No Purge Select

Failure
- Program Switch Error
- Relay Fail
- Watchdog Fail
- L-Internal Fault
- V-Internal Fault
- K-Internal Fault
- D-Internal Fault

*X = Burner number being scanned

Available Options & Their Configuration
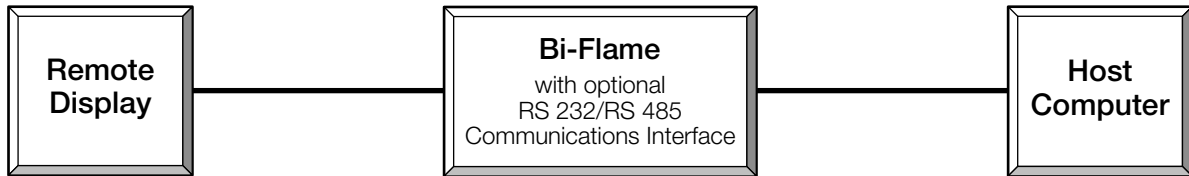
Remote Display
- LCD Remote 1/4 DIN Available
- Contrast Adjustment
- Panel Door Mounting
- 6 or 10 Foot Cable

Communications Options
- RS 232
- RS 485

Other Options
- Four Auxiliary Inputs
- History Logging
- Process Mode of Operation
- Valve Leakage System Testing

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