



W-FLAME

IR/UV FLAME DETECTOR



The W-Flame is a fully integrated optical flame detection system that is ideal for monitoring single and multiple burner applications in the petrochemical, metallurgical, power generation, and Pulp & Paper industries. In the integral configuration, the detector and signal amplifier are combined into a single assembly, which simplifies installation and eliminates the need for a separate amplifier cabinet and costly specialized cables. This configuration also maintains signal integrity between the two modules.

The W-FLAME is able to accurately detect burner flames at various stages of startup and operation by utilizing Safe Fire's advanced photo diode and signal processing system which looks at a combination of three flame characteristics to confirm status. A self check routine is built-in to ensure reliable performance. The complete detector assembly operates on 24VDC and can be pre-configured to specific burner applications which make it a truly plug and play device. The W-Flame is offered in IR or UV configurations.

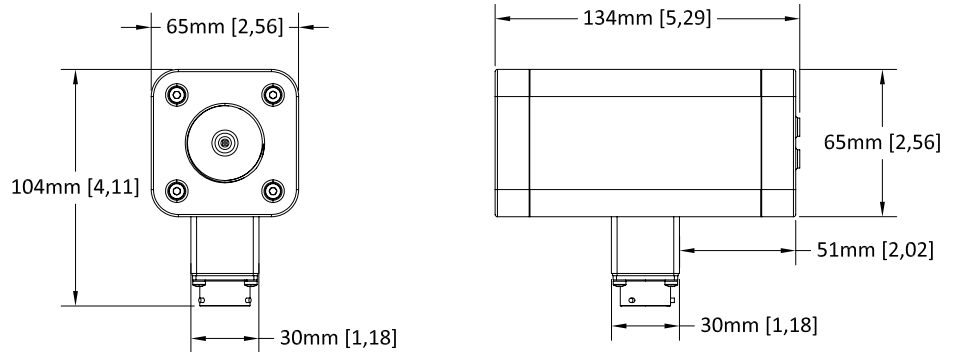
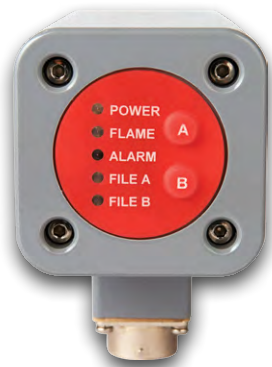


FEATURES

- High temperature resistance
- Superb discrimination
- 2 User selectable program files
- Plug and play capability



DIMENSIONS



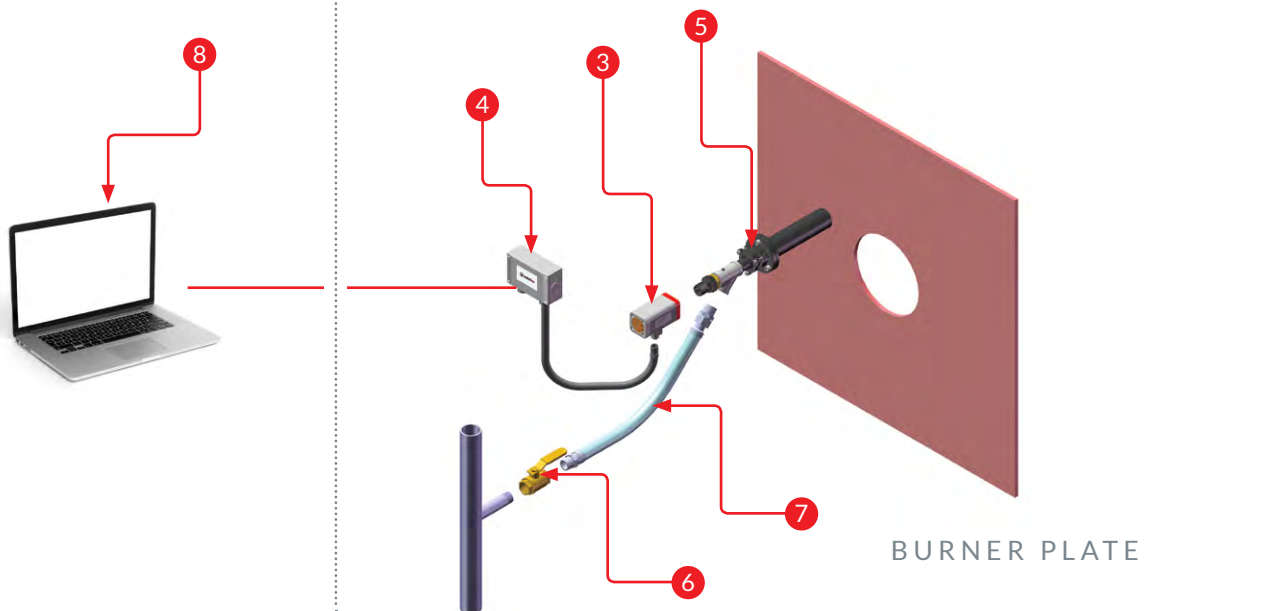
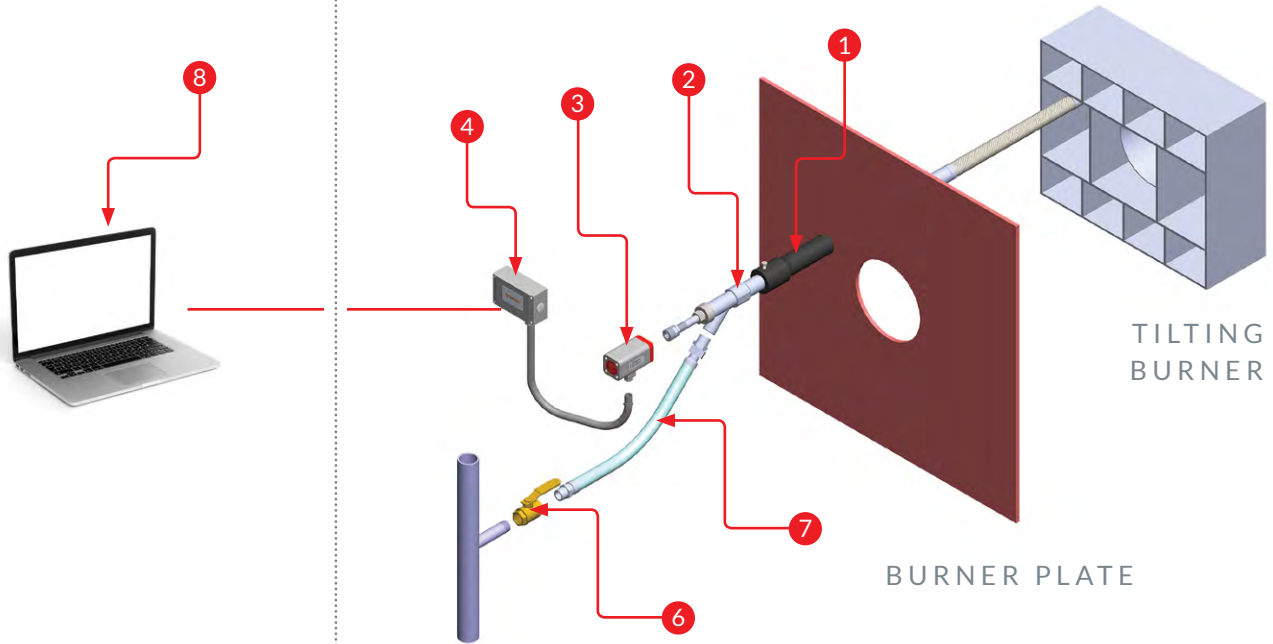
TECHNICAL DATA

MODEL	W-FLAME 12	W-FLAME 22
SENSOR	IR	UV
P/N	65-WFS-0094	65-WFS-0095
WAVELENGTH	900-1700nm	190-570nm
CONNECTOR TYPE	Aviation	
CABLE	12 Pin, Shielded	
OPERATING TEMPERATURE	-40°C to 85°C / -40° F to 185° F	
HUMIDITY	0-95% Humidity, non-condensing	
PROTECTION CLASS	IP 66	
POWER SUPPLY	+24vdc 0.2A	
MOUNTING CONNECTION	1" NPT female thread	
FLAME RELAY CONTACT	Normally open, 2A@ 24vdc	
FAULT RELAY CONTACT	Normally open, 2A@ 24vdc	
SELF-CHECK INTERVAL	2 minutes	
WEIGHT	2.0lbs. / 0.91kg	

HOW THE W-FLAME SYSTEM WORKS...

CONTROL ROOM

BURNER DECK



- | | | | |
|------------------------------|--------------------|--------------------|--------------|
| 1 Mounting tube assy. | 3 W-flame detector | 5 Sight tube assy. | 7 Metal hose |
| 2 Flexible fiber optic assy. | 4 Cable assy. | 6 Ball valve* | 8 Computer |

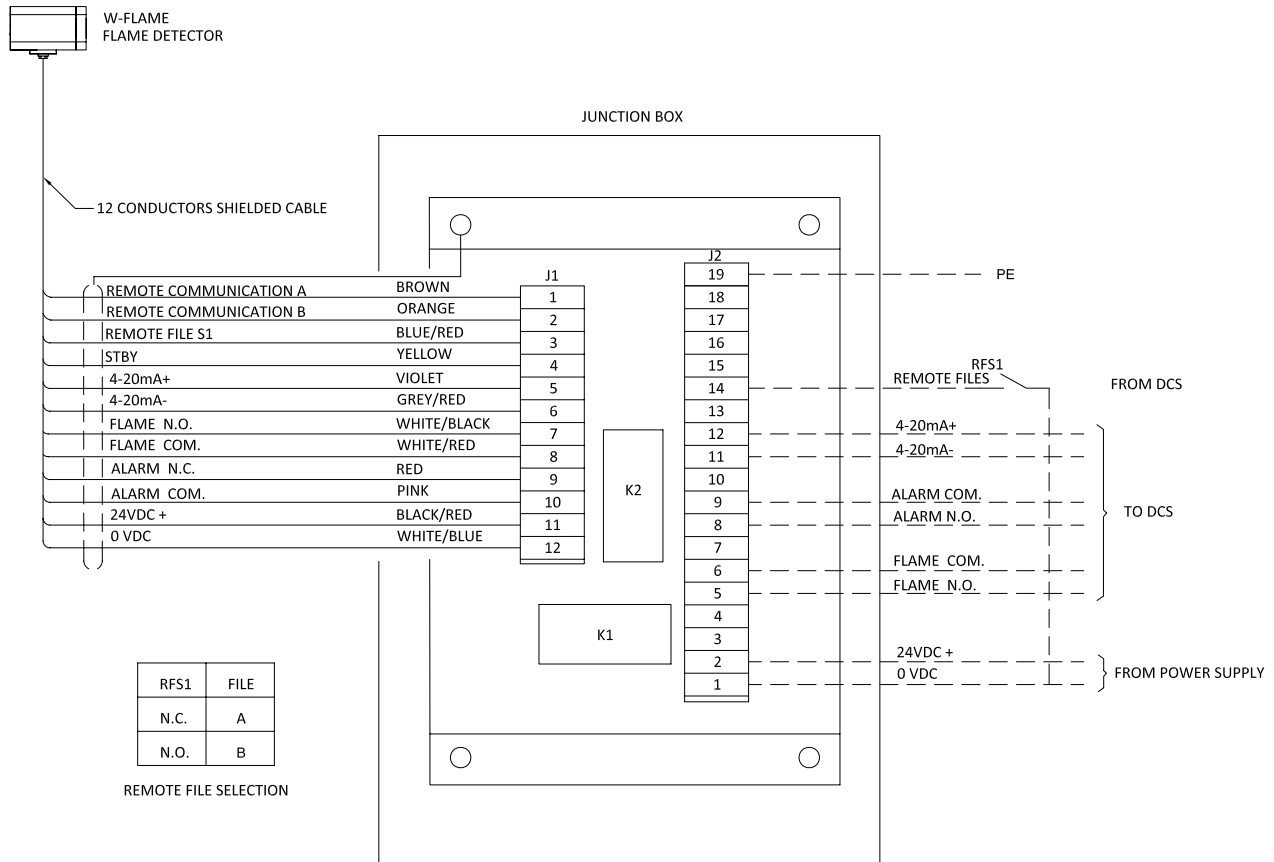
*Option



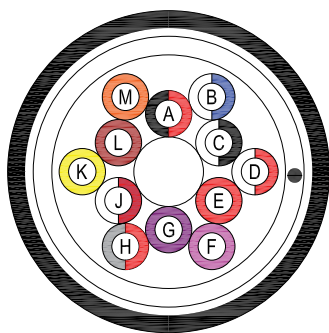
W-FLAME APPLICATION GUIDE

		TANGENTIAL FIRING BOILERS							
FUEL	Light oil				Heavy oil	Coal	Natural gas	Coke oven gas	Blast furnace gas
	FLAME DETECTOR	Mechanical atomization	Steam atomization	Air atomization	Steam atomization				
	W-Flame 12, w/o fiber optic	✗	✓	✗	✗	✗	✗	✗	✗
	W-Flame 22, w/o fiber optic	✗	✗	✗	✗	✗	✓	✓	✓
	W-Flame 12, w/ fiber optic	✓	✓	✓	✓	✓	✗	✗	✗
	W-Flame 22, w/ fiber optic	✓	✗	✗	✗	✗	✓	✓	✓
		WALL-FIRED BOILERS							
FUEL	Light oil				Heavy oil	Coal	Natural gas	Coke oven gas	Blast furnace gas
	FLAME DETECTOR	Mechanical atomization	Steam atomization	Air atomization	Steam atomization				
	W-Flame 12, w/o fiber optic	✓	✓	✓	✓	✗	✗	✗	✗
	W-Flame 22, w/o fiber optic	✓	✗	✗	✗	✗	✓	✓	✓
	W-Flame 12, w/o fiber optic	✓	✓	✓	✓	✓	✗	✗	✗
		✓	✗	✗	✗	✗	✓	✓	✓
		ARCH-FIRED BOILERS							
FUEL	Light oil				Heavy oil	Coal	N/A		
	FLAME DETECTOR	Mechanical atomization	Steam atomization	Air atomization	Steam atomization				
	W-Flame 12, w/o fiber optic	✓	✓	✓	✓	✓	N/A		
	W-Flame 22, w/o fiber optic	✓	✗	✗	✗	✗			
	W-Flame 12, w/o fiber optic	✓	✓	✓	✓	✓			
	W-Flame 22, w/o fiber optic	✓	✗	✗	✗	✗			
		CIRCULATING FLUIDIZED BED BOILERS							
FUEL	Light oil				Heavy oil	N/A			
	FLAME DETECTOR	Mechanical atomization	Steam atomization	Air atomization	Steam atomization				
	W-Flame 12, w/o fiber optic	✓	✓	✓	✓	N/A			
	W-Flame 22, w/o fiber optic	✓	✗	✗	✗				
	W-Flame 12, w/o fiber optic	✓	✓	✓	✓				
	W-Flame 22, w/o fiber optic	✓	✗	✗	✗				

W-FLAME ELECTRICAL CONNECTION



12 CONDUCTORS CABLE

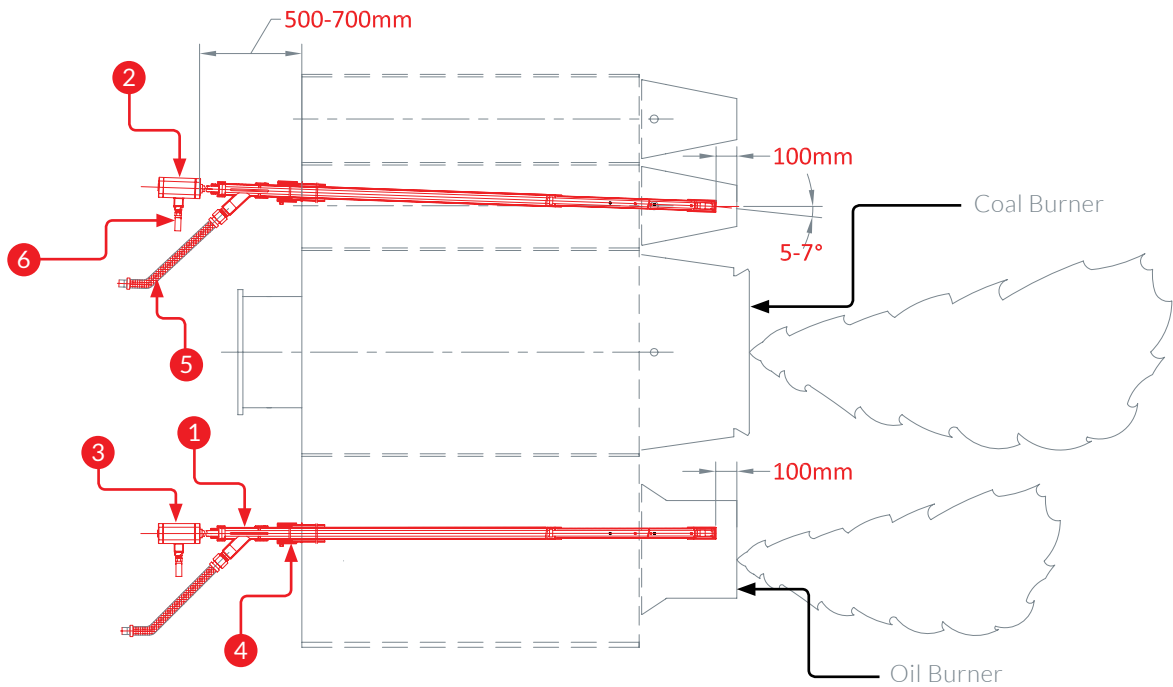


PIN	COLOR	FUNCTION
A	Black/Red	+24 VDC
B	White/Blue	0 VDC
C	White/Black	Flame Relay Contact (N.O.)
D	White/Red	Flame Relay Contact (N.O.)
E	Red	Alarm Relay Contact (N.C.)
F	Pink	Alarm Relay Contact (N.C.)
G	Purple	4-20mA (+)
H	Grey/Red	4-20mA (-)
J	Blue/Red	Spare
K	Yellow	Spare
L	Brown	Remote File Selection A
M	Orange	Remote File Selection B



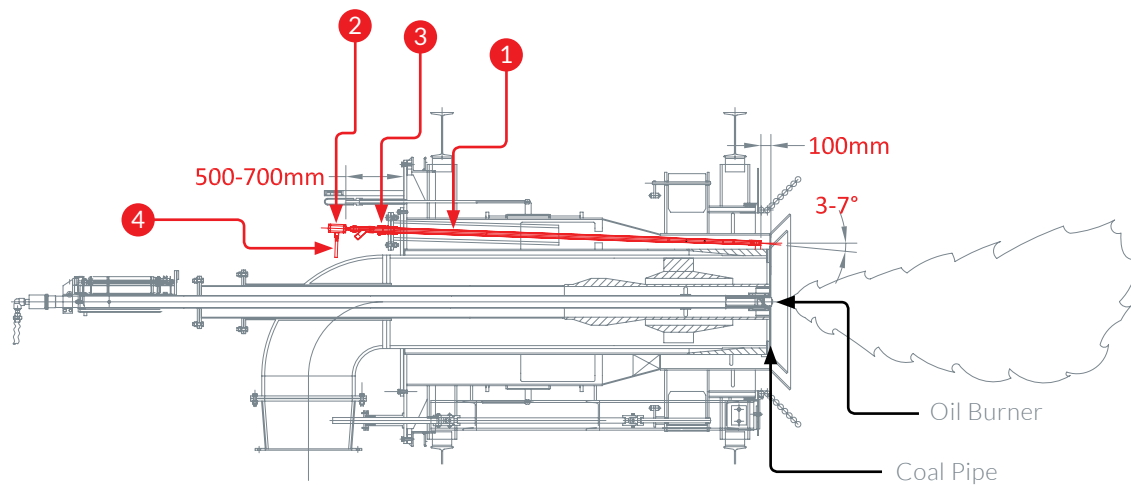
W-FLAME FIBER OPTIC INSTALLATION

TANGENTIAL FIRING BOILER APPLICATION



- | | | |
|------------------------------|----------------------------|---------------|
| 1 Flexible fiber optic assy. | 3 W-flame detector for oil | 5 Metal hose |
| 2 W-flame detector for coal | 4 Mounting tube | 6 Cable assy. |

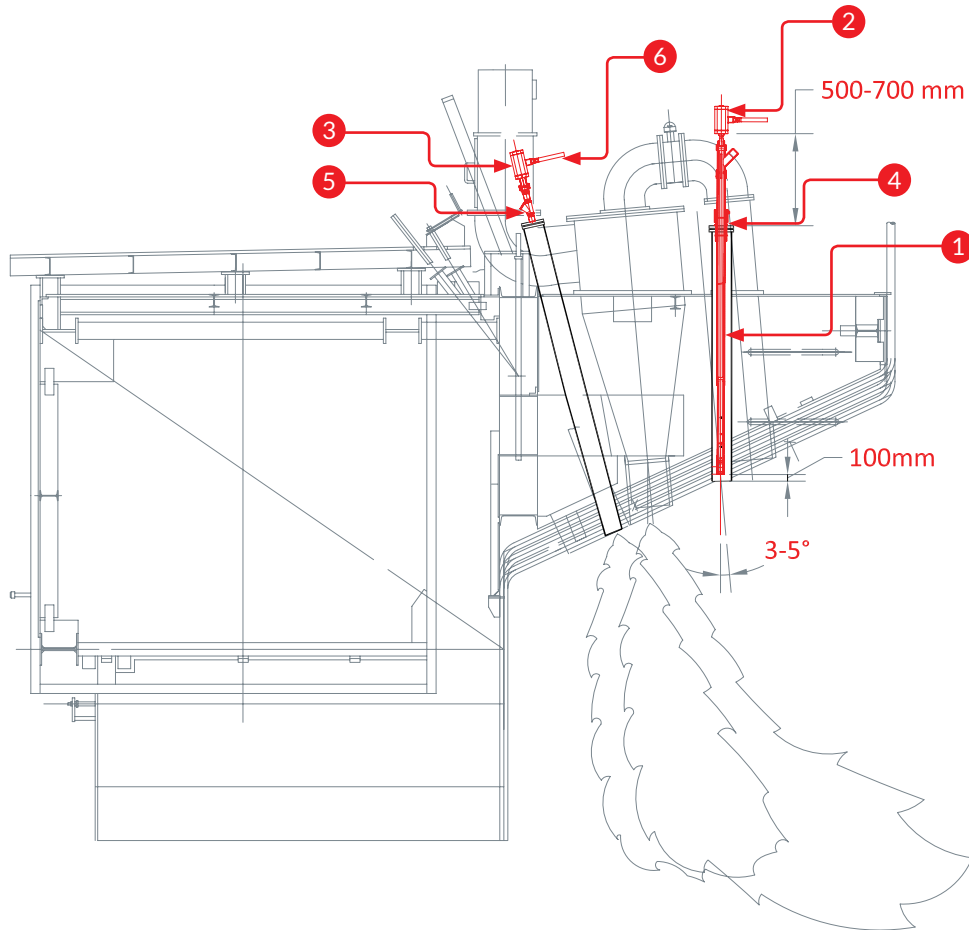
WALL-FIRED BOILER APPLICATION



- | | |
|------------------------------|-----------------|
| 1 Flexible fiber optic assy. | 3 Mounting tube |
| 2 W-flame detector | 4 Cable assy. |

W-FLAME FIBER OPTIC INSTALLATION

ARCH-FIRED BOILER APPLICATION



1 Flexible fiber optic assy.

2 W-flame detector for oil

3 W-flame detector for coal

4 Mounting tube

5 Sight tube assy.

6 Cable assy.

W-FLAME ORDERING DATA

P/N	DESCRIPTION	NOTES
65-WFS-0094	W-FLAME 12, USED FOR THE DETECTION OF IR SPECTRAL.	Figure 2 (Item 3)
65-WFS-0095	W-FLAME 22, USED FOR THE DETECTION OF UV SPECTRAL.	
55-300-1379	MOUNTING TUBE ASSY. 60MM O.D, For 45MM O.D. OUTER CARRIER.	Figure 2 (Item 1)
55-200-0417	12 CONDUCTORS CABLE ASSY., W/ J-BOX. 3.0 M LENGTH.	Figure 2 (Item 4)
55-300-1392	SIGHT TUBE ASSY., W/ SWIVEL FLANGE & LENS CONNECTOR.	Figure 2 (Item 5)
45-300-0188	1" BRASS BALL VALVES, THREADED NPT FEMALE END CONNECTION, FULL PORT.	Figure 2 (Item 6)
45-300-0185	1" METAL HOSE, THREADED NPT MALE×THREADED UNION NPT MALE, 1.5M LENGTH.	Figure 2 (Item 7)

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