



BURNERS

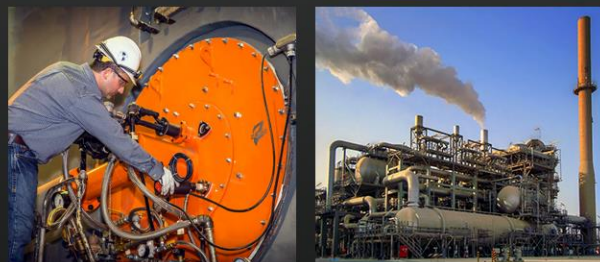
FLARES

THERMAL OXIDIZERS

VAPOR CONTROL

RENTALS

AFTERMARKET



ZECCO

ProFlame™ and ProFlame+™ Integrated Flame Scanners

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Combustion Electronics Group

Where do we sell Flame Scanners?

Power Plants

- Duct Burners
- Steam Boilers
- Air Heaters
- CFB



Petro-Chemical / Refineries

- Incinerators
 - SRU's
- Heaters
- Power Boilers



Where do we sell Flame Scanners?

Pulp & Paper

- Dryers
- Power Boilers
- Black Liquor Recovery



Other Industrial Plants

- Wood/Laminate Flooring
- Steel Industries
- Cement Plants
- Wastewater Treatment
- Food Processing
- Education
 - Universities



Common Scanner Suppliers



➤ Fireye, Inc.

- 65UV5 – Single burner applications
- 85UVF1 – Single burner applications
- 95DSS3 – Multiple burner applications

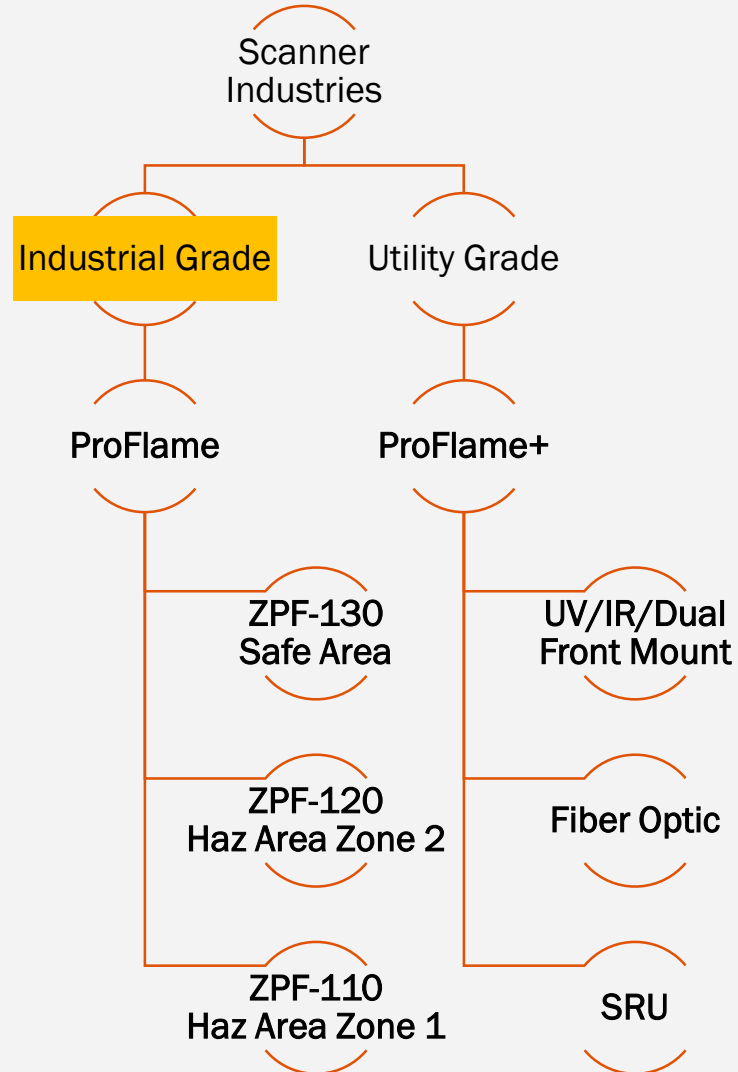


➤ Durag Group

- D-LX100 – Single burner applications
- D-LX200 – Multiple burner applications



ProFlame Scanners



ProFlame/ProFlame+ Scanner Features



- Integrated solid state sensor/amplifier eliminates costs for amplifier cabinets
- State-of-the-art unfiltered solid-state UV sensor for detecting the flames from gaseous and liquid fuels
- Easily configurable frequency and gain settings for ease of tuning
- Intuitive display to assist in troubleshooting
- Dual signal channel design with electronic self-check for continuous use in SIL3 applications



ProFlame/ProFlame+ Scanner Features



- Aiming feature to reduce commissioning time when sighting the flame scanner
- Durable housing meets a variety of operating environments (IP67, NEMA 4X, EX-proof)
- Low power consumption with a 24V dc supply
- Reliable 4 to 20 mA flame intensity and flame relay contacts output.



Approvals



➤ CE (EN298 and EN230)

- TÜV
- ATEX and IECEX



➤ GOST-R (Russia)



➤ Marine - Lloyds Register



➤ InMetro (Brazil)



➤ North American

- UL
- CSA and cUL
- FM



ProFlame Applications



- Single-Burner Applications
- Duct Burner Applications
- Smaller, Multiple-Burner Applications (heaters, furnaces, boilers)
- Gaseous and Liquid Fuels



Model	IP67	Ex-Zone I	Ex-Zone II	Spectral range / nm	Application - Fuel type
ZPF-110	X	X		210 to 380	Oil, gas (special gases such as refinery and blast furnace gases)
ZPF-120	X		X	210 to 380	Oil, gas (special gases such as refinery and blast furnace gases)
ZPF-130	X			210 to 380	Oil, gas (special gases such as refinery and blast furnace gases)

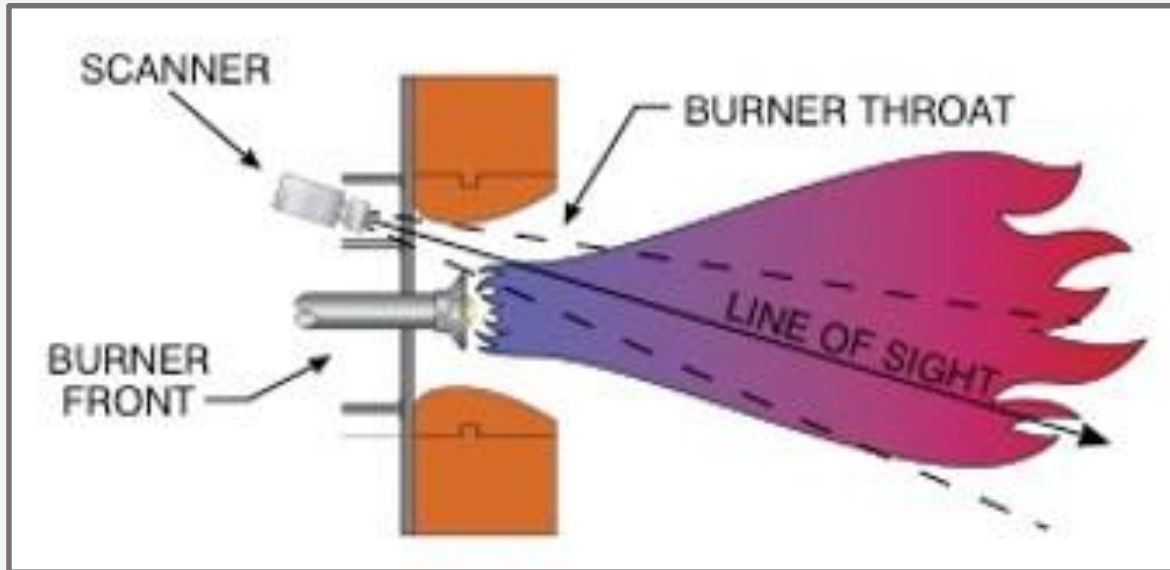
ProFlame+ Applications



- Zone 1 (ZPF-1100) and Zone 2 (ZPF-1200) applications.
- Large multiple burner applications (front and opposed wall, turbo)
- Fiber optic applications (i.e., rotary kilns, tilting burners) (UF,IF)
- Solid, gaseous and liquid fuels, as well as SRU applications

Model	IP65	EX-Zone1	EX-Zone 2	Spectral Range / nm	Application - Fuel Type
ZPF-1100UV	X	X		270-420	Liquid and gaseous fuels
ZPF-1100IR	X	X		300 to 1050	Liquid fuels and pulverized coal
ZPF-1100DS	X	X		300 to 2700	Gaseous fuels and pulverized coal
ZPF-1200UV	X		X	270-420	Liquid and gaseous fuels
ZPF-1200IR	X		X	300 to 1050	Liquid fuels and pulverized coal
ZPF-1200DS	X		X	300 to 2700	Gaseous fuels and pulverized coal
ZPF-1200UF	X		X	270-420	Liquid and gaseous fuels
ZPF-1200IF	X		X	300 to 1050	Liquid fuels and pulverized coal
ZPF-1100SRU ZPF-1200SRU	X	X	X	Thermopiles	Sulfur Recovery Units

Scanner Sighting



NOT THIS



NOT THIS



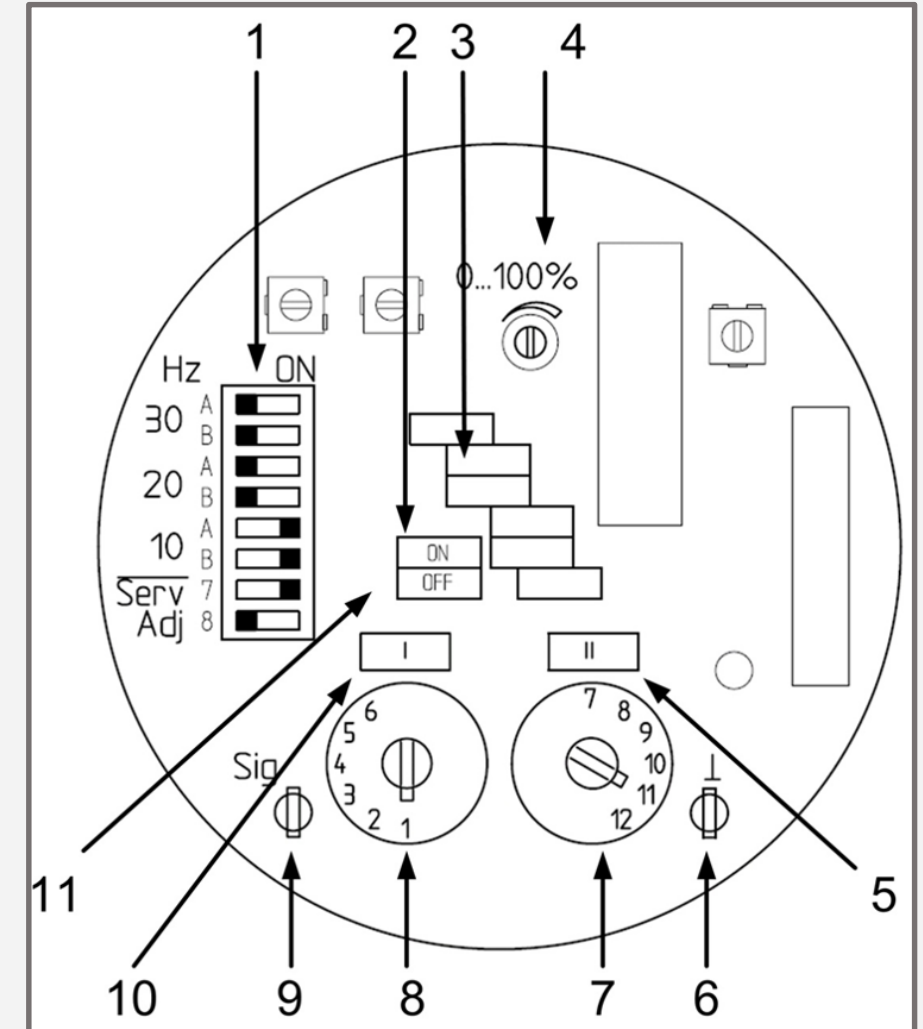
BUT THIS



ProFlame Tuning Controls



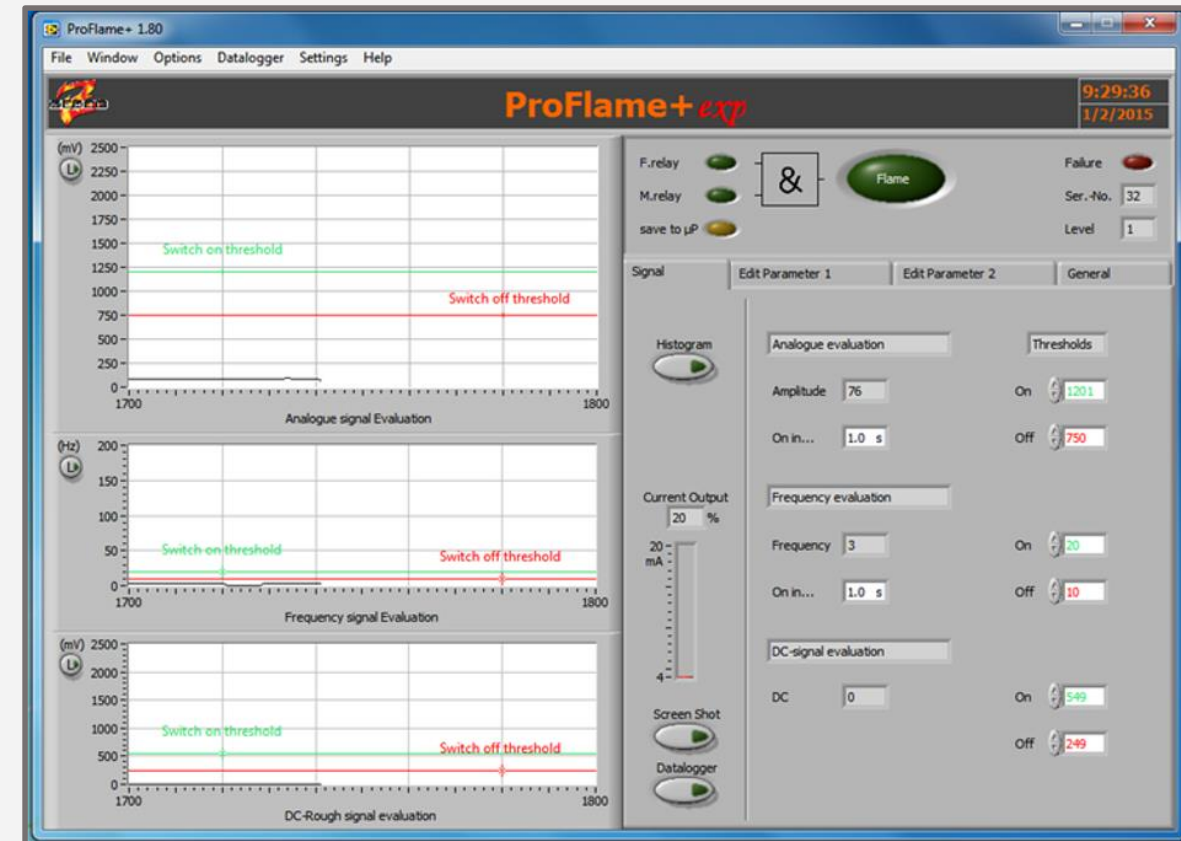
- Dipswitches: Flicker frequency settings (1-6) both A + B dipswitches must either be ON or OFF.
- Green LED indicator: Flame-On state
- Intensity indicator: Flame signal (Adj. dipswitch OFF) or raw signal (Adj. dipswitch ON).
- 0-100% Potentiometer: Flame-On stabilization (delay)
- Yellow LED: Active gain range indicator
- Test points: To measure raw flame signal (mVac)
- 6 position rotary switch: Gain range II (High gain range)
- 6 position rotary switch: Gain range I (Low gain range)
- Red LED Indicator: Flame-Off state



ProFlame+ Tuning Controls



- Independently adjustable On and Off thresholds for both amplitude and frequency inputs

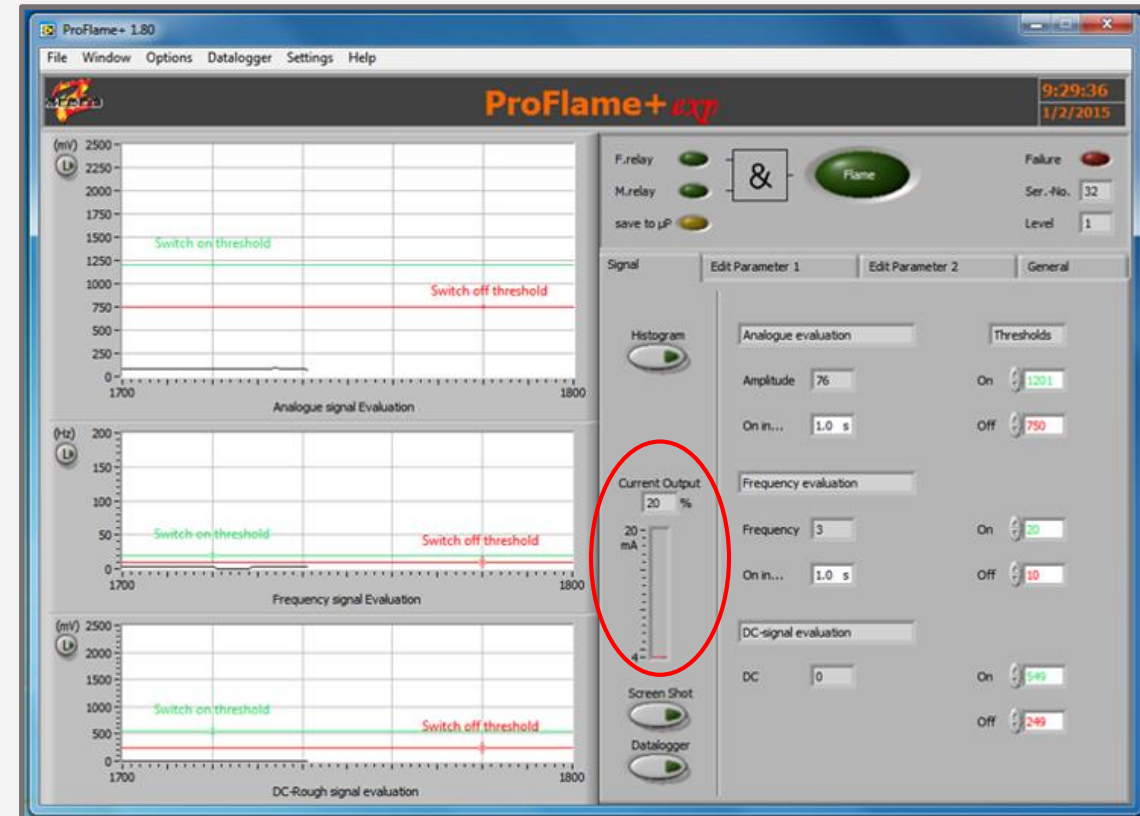


ProFlame Signal Strength/Analog Output

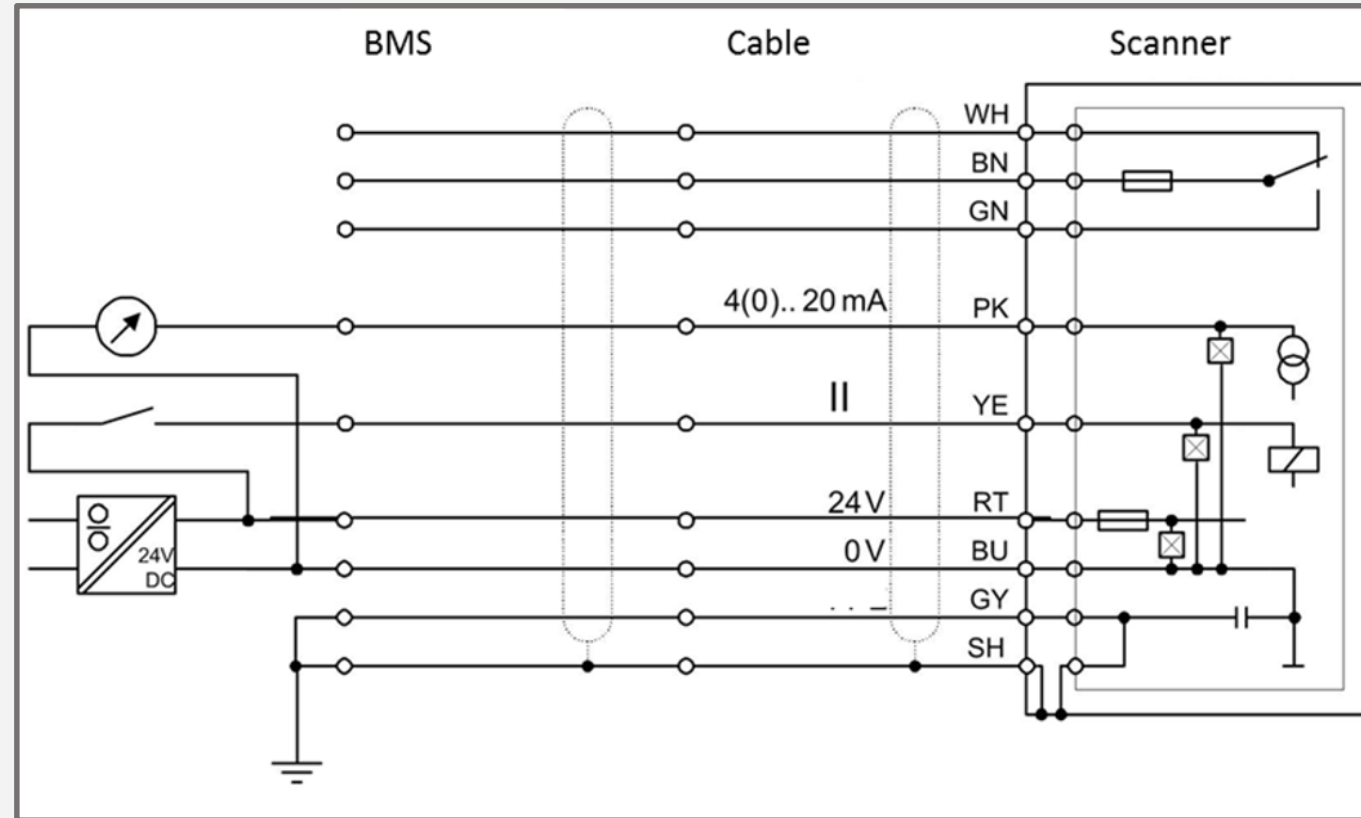


Flame Signal to Outputs Comparison Chart

Flame Signal Amplitude	Test points	LED Output	4-20mA Output
Flame Off	< 25 mVac	none	$\approx < 5\%$
2x Threshold Value	50 mVac	$\approx 2^{\text{nd}}$ Yellow	$\approx 25\%$
3x Threshold Value	75 mVac	$\approx 4^{\text{th}}$ Green	$\approx 50\%$
4x Threshold Value	100 mVac	$\approx 5^{\text{th}}$ Green	$\approx 85\%$



ProFlame Wiring



WH = White (N.C.)

BN = Brown (Common)

GN = Green (N.O.)

PK = Pink (4-20 mA output)

YE = Yellow (Gain range select)

RT = Red (24V dc positive)

BU = Blue (24V dc neutral)

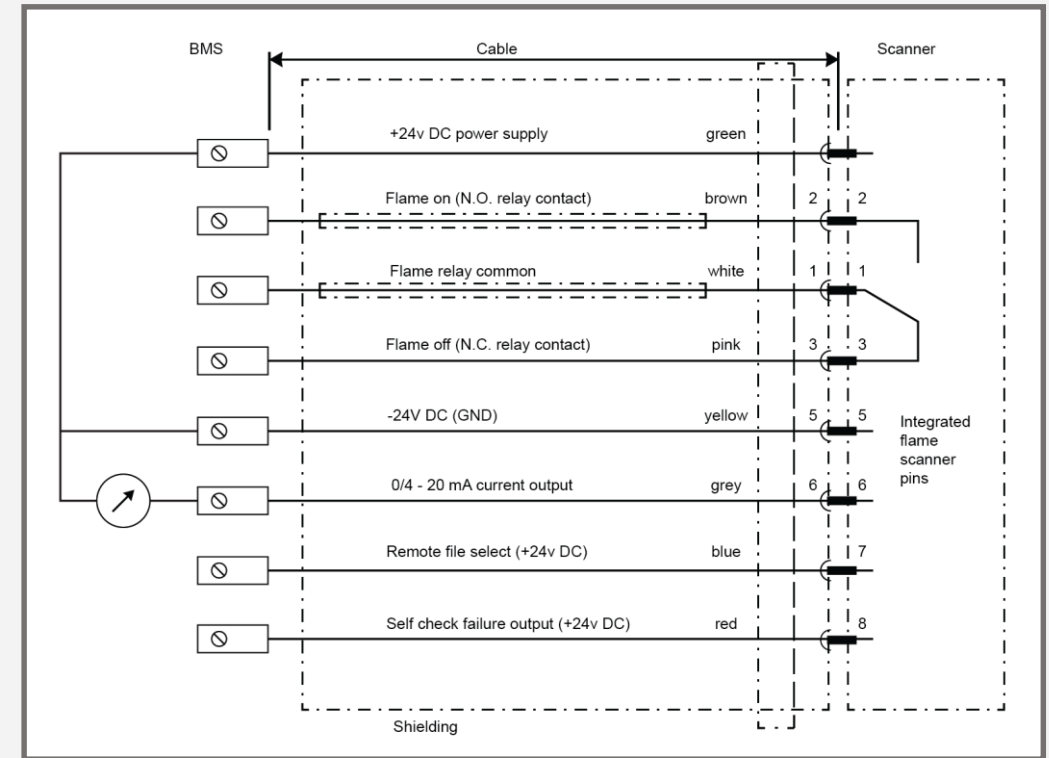
GY = Grey (Earth ground)

SH = Shield (Instrument ground)

ProFlame + Wiring



1	Flame relay: Common	white
2	Flame relay: Flame on, N.O. relay contact	brown
3	Flame relay: Flame off, N.C. relay contact	pink
4	power supply: +24V dc	green
5	power supply: 0V (GND)	yellow
6	current output 0/4 - 20 mA	grey
7	Remote File select (+24V dc)	blue
8	Self-Check Failure (+24V dc)	red





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