

# DATASHEET

## SmartScan® 121 Flame Detection System



Hamworthy Combustion's SmartScan® 121 combines modern sensor technology with 'state of the art' control to reliably sense the presence and condition of flames.



- Worldwide approvals



### Key Features

- Increased spectral range allowing oil and gas flames to be detected
- Easy to sight scanner head providing accurate alignment
- Simple to install and commission
- High levels of discrimination between adjacent flames, fireballs and radiating surfaces
- Easy to read bargraph and LED displays
- On-line lens cleaning – no need to remove the viewing head
- Mechanical self-check shutter- vibration resistant
- Separate amplifier to mount away from harsh environments at the burner front
- **CE** marked fully compliant with EMC and electrical safety standards
- Hazardous area – Galvanic isolator – no requirement for separate intrinsically safe earth
- Dual circuits controlling dual flame relay outputs.
- Failsafe operation – third party approved to **EN 298** and **EN230**
- Intrinsically Safe and Flameproof heads available
- Stainless steel heads for corrosive environments
- Zone 0 IEC and Div 1 FM certified

## Standard Supply

- Viewing head
- Viewing head mount
- Viewing head cable
- Amplifier module

## Related Questions

- What fuels will I be firing?
- Where is the best place to mount the amplifier module?
- Is it a safe or hazardous area?
- What is the temperature at the burner frc

## AMPLIFIER SPECIFICATION

• Amplifier:	3U x 12HP rack mount module. Standard depth
• On-Off/reset:	Fascia mounted push buttons
• Power Supply:	115Vac + 10% - 15% 47-63 Hz 230Vac + 10% - 15% 47-63 Hz 24Vdc ± 15%
• Power Consumption:	18W maximum
• Two fuel set-up:	Separate gain parameters
• Flame on sensor output:	Volt free contact 3A resistive @ 230Vac
• Flame off sensor output:	Volt free contact 3A resistive @ 230Vac
• Flame strength indication:	4 - 20mA
• Operating temperature:	-40°C to +60°C
• Flame on response time:	0.8 seconds
• Flame off response time:	1.0 seconds (gas) 3.0 seconds (oil)
• Self checking interval:	5.0 seconds factory set
• Flicker frequency range:	20 – 200 Hz (LF) 100-400 Hz (NF)
• Flame strength indication:	Red LED bargraph
• Flame threshold indication:	Red LED bargraph
• Flame gain adjustment:	Fascia mounted potentiometer
• Flame threshold adjustment:	Fascia mounted potentiometer
• Internal fault indication:	Red LED
• Shutter fault indication:	Red LED
• Threshold bias adjustment:	Fascia mounted potentiometer
• Fuel profile selection:	Volt free digital input
• Weight:	1.4 kg

## Other Hamworthy Combustion Services Related to this product

- Complete bespoke Burner Management Systems
- Burner ignition systems
- Burners
- Fuel valve trains
- Complete turnkey service
- After sales back up



## DETECTOR HEAD SPECIFICATION

• Operating temperature range:	-40°C to +85°C
• Humidity	10-95% RH non-condensing
• Environmental protection	IP65
• Head variants	UV – suitable for most Gas and Oil flames UV/Vis – increased sensitivity for weak gas flames IR – suitable for coal or poorly atomised oil flames
• Maximum cable distance:	350m (application dependent)
• Field cable:	3 core screened – i.s. and fire retardant available
• Detector head mount:	M54 x 2
• 3 Area classifications:	Safe area, EEx ia IIC T4(-40°C<=Tamb=>+80°C) and EEx d IIC T4(-40°C<=Tamb=>+85°C)
• Self checking mechanism:	Electro mechanical optical shutter blade
• Field of View:	1.6° (enhanced discrimination)
• Signalling system:	4-20mA
• Connection:	Quick release 3 pole shielded plug or M20 glanded for Stainless steel and EExd Heads
• Weight:	0.89kg (1.0kg for EExd head)
• Head mount movement	± 8.5°

For further information on combustion equipment please contact the head office:

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Hamworthy Combustion Engineering Limited reserve the right to make changes and improvements which may necessitate alteration to the specification without prior notice

**HAMWORTHY**  
COMBUSTION

Incorporating:  
PEABODY ENGINEERING  
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