

ezPyro[™] TO I²C Pyroelectric Infrared Flame Sensor

Introduction

The ezPyro range of thin film digital pyroelectric sensors for flame detection combines high quality sensors with a high level of configurable electronic integration in an industry standard TO-39 package. High sensitivity combined with fast response times ensure rapid and accurate flame detection. The high dynamic range allows detection of small and large flames, nearby or over larger distances. These sensors integrate a digital, current mode read-out offering high responsivity over the full frequency range of flame flicker (3-30 Hz). Programmable gain and filtering offer maximum flexibility in system design. Industry



standard I²C communication enables plug-and-play connectivity to microcontrollers and allows easy tuning and calibration. Pyreos sensors are very stable over time ensuring a long and maintenance-free operational lifespan. Various optical filter options are available. These sensors can also be daisy-chained to allow synchronized sampling across devices and offer various low power modes.

Sensor Characteristics				
Filter aperture	5.2 mm x 4.2 mm			
Element size	1.0 mm x 1.0 mm			
Sensor Package	TO-39			
D* (typ.) ¹	Tbc			
NEP (typ.) ¹	Tbc			
Time Constant	~10ms (10-20 Hz peak)			
Field of View	>100°			

Electrical Characteristics					
Supply voltage	1.75 to 3.6 V				
Supply current (typ.)	1 to 23 µA				
Digital I/O	I ² C (FM+ compatible)				
ADC	15-23bit ΔΣ ADC @1ksp				
Operating Temperature	-40 to +85 °C				
Storage Temperature	-40 to +110 °C				
Sensor read-out	Current mode				
Configurable	Gain / digital filtering / sampling rate / power modes				

1) Measured without filter @ 500K, 10 Hz, room temperature

Field of View



For V across horizontal

For V across vertical window aperture



For V across diagonal window aperture



Note: Normalised polar plots show typical FoV along x,y axis and diagonal with 4.48µm/620nm filter applied, with infrared source being a blackbody radiator at 500 K temperature.

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Bottom View

Ordering Information

Please quote ezPyro TO Flame Sensor and your desired filter or specific part number ePR44xx2 as per filter table.

Contact: sales@pyreos.com

Mechanical Drawing







Filter Information

Part number	ePR44212	ePR44252	ePR44282	ePR44112
(marking)	(R44212)	(R44252)	(R44282)	(R44112)
Filter name	3.91 μm	4.48 μm	4.55 μm	5.0 μm
	bandpass	bandpass	bandpass	cut on
Cut on wavelength typical (µm)	3.865	4.17	4.34	5.0
Cut off wavelength typical (μm)	3.955	4.79	4.76	-

Filters block up to 8 $\mu m.$

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