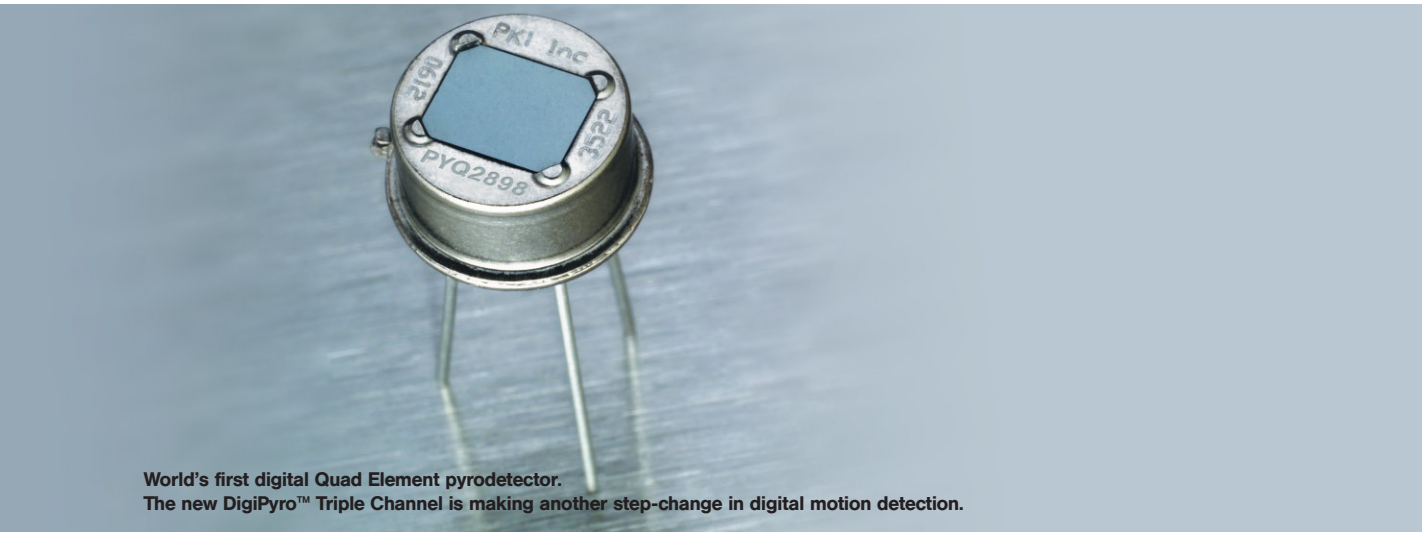
SENSOR SOLUTIONS

DATASHEET

DigiPyro™ Triple Channel

Quad Element Detector, PYQ 2898



World's first digital Quad Element pyrodetector.
The new DigiPyro™ Triple Channel is making another step-change in digital motion detection.

Overview

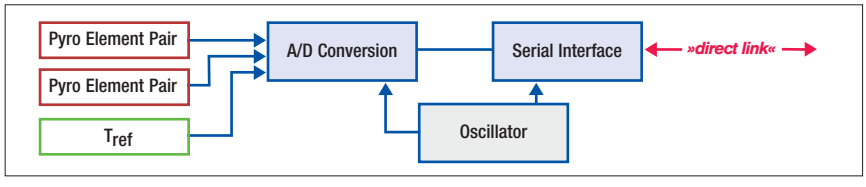
The Triple Channel, PYQ 2898, is the newest addition to the growing DigiPyro™ family of digital pyroelectric infrared detectors, brought to you by PerkinElmer.

The Triple Channel Quad Element detector is the high end version of the DigiPyro family, with two pairs of elements representing two channels and an additional temperature reference channel. It is a quad element configuration which is connected to a special integrated circuit. It contains the analog-to-digital converter, a temperature sensor, the low-power oscillator and a serial interface, all in a standard three-pin TO-5 housing. It offers a 42 bit "direct link" interface.

The move from analog to digital technology enables the DigiPyro to deliver a number of advantages including space savings from fewer components and significantly improved EMI immunity.

The PYQ 2898's fully digital, integrated processing technology continues the high quality standard tradition that customers have come to rely upon with the Dual Element PYD 1998 and all analog pyrodetectors PerkinElmer offers.

With the addition of the PYQ 2898 to the DigiPyro family, PerkinElmer is making another step-change in digital motion detection, for the first time enabling low-cost, quad element systems.



Features and Benefits

- Digital output pyrodetector
  - 42 bit output "direct link", including temperature reference
  - Three pin TO-5 housing
- Low-cost, quad element configuration
  - Four elements 1.375 x 1 mm^2
  - 0.8 / 0.25 mm spacing
- Infrared window
  - 5.5...14 µm transmission
  - Window size 5.2 x 4.2 mm^2
- Outstanding electrical performance
  - Low EMI sensitivity
  - Unique responsivity
  - High power rejection rate
- RoHS compliant

Applications

- Intrusion alarm applications
- Motion activated light switches
- Door openers

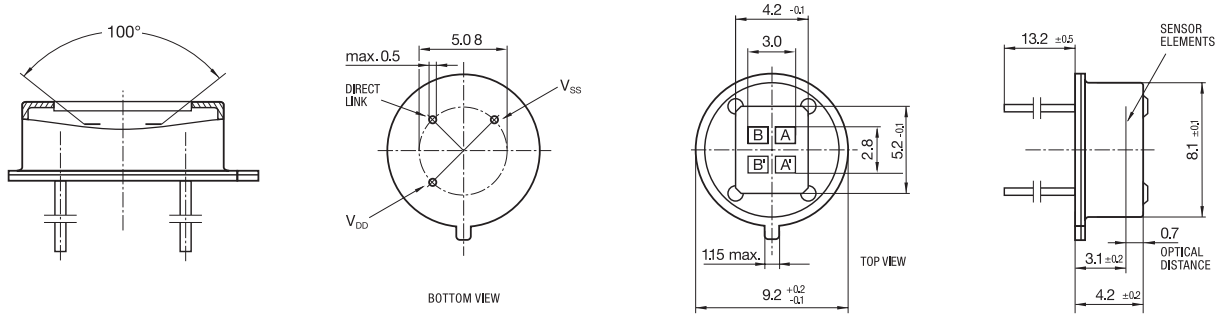
PerkinElmer® precisely.

DigiPyro Triple Channel Electrical Data

Parameter	Symbol	Min	Typ	Max	Unit	Remark
Operating Voltage	V_{DD}	3.0	5.0	5.5	V	
Supply Current	I_{DD}			60	µA (DC)	V_{DD} = 4 V
Input Low Voltage	V_{IL}			0.2 V_{DD}	V	
Input High Voltage	V_{IH}	0.8V_{DD}			V	
Pull Up / Down Current			100		µA	Input to V_{SS} / V_{DD}
Data Setup Time	t_s	25	28		µs	
Data Clock Low Time	t_L	200			ns	
Data Clock High Time	t_H	200			ns	
Data Bit Settling Time	t_{bit}	1			µs	C_{LOAD} = 10 pF
Serial Interface Refresh Time	t_{REP}		7.3		ms	
Serial Interface Refresh Frequency	f_{REP}		137		Hz	
ADC Counts of Bits			42		Bits	
ADC Resolution Each Channel			14		Bits	Max. count = 2^{14}
ADC Sensitivity		6.1	6.5	7	µV/count	
ADC Offset		7000	8192	9200	Counts	
Internal Clock Frequency	f_{CLK}	60	70	90	kHz	
Temperature Reference						
Gain			96		Counts/K	-10°C to +80°C
Linearity		-5		5	%	-40°C to +120°C
Elements						
Responsivity		3.5	4.5		kV/W	
Match				10	%	
Noise			20	50	µVpp	
Operating Temperature	T_o	-40		85	°C	
Storage Temperature	T_s	-40		85	°C	Avoid storage in humid environments.

Unless specified differently, all data refer to 25°C environmental temperature. Parameters may vary from specified values in accordance with their temperature dependence property.

Mechanical Dimensions



PIN layout. All measurements are in mm.

DigiPyro Application Kit

PerkinElmer Optoelectronics has designed an Application Kit that helps customers perform their first measurements with the DigiPyro Dual Element PYD 1998 as well as the Triple Channel PYQ 2898.

It is easy to use and does not require specialized technical know how. Please contact us to receive additional information on how to obtain the Application Kit.

Ordering Information:
Please contact your Customer Support team and refer to the part number PYQ 2898.

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