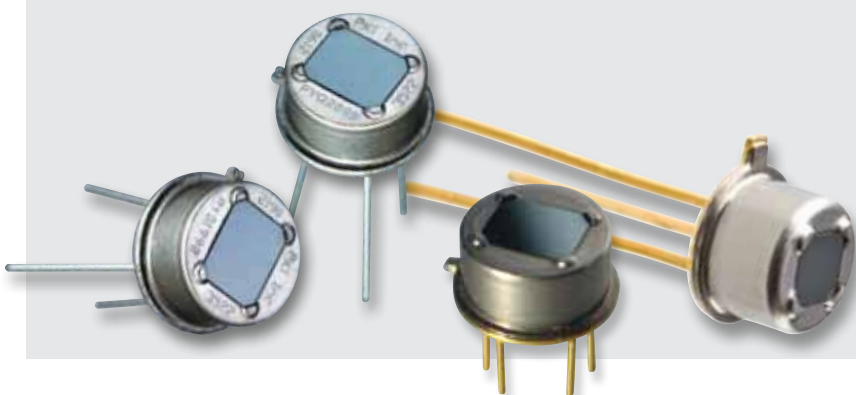


NEW "Smart" DigiPyros® PYD 1096, PYQ 1098

NEW "Mini" DigiPyro® PYD 5731,

PYD 1998, PYD 1978, PYD 1988

PYQ 2898



Infrared Sensing Solutions

Features and Benefits

- Window sizes ranging from 2.5x2.5 to 5.2x4.2 mm²
- TO-5 and TO-46 housings
- High level electrical performance
 - Low EMI sensitivity
 - Unique responsivity
- Reduced cost and space requirements when compared to analog circuitry

Applications

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

DigiPyro® Family for Motion and Presence Detection

Introduction

The "Smart" DigiPyro® and "Mini" DigiPyro® are the newest additions to the growing DigiPyro® family of digital pyroelectric infrared detectors, brought to you by PerkinElmer.

The Smart DigiPyro delivers several unique advantages including fully integrated

event logic timing, adjustable sensitivity settings, and ambient light sensing. The Smart DigiPyro offers signal processing functionalities to streamline the integration required for OEMs. It is offered in a standard 6-pin TO-5 housing. Like all members of the DigiPyro family, the "Smart" DigiPyro, PYD 1096, pyrodetector provides OEMs with clear advantages over traditional analog-based motion detection, including significantly improved EMI immunity and reduced cost and space requirements when compared to analog circuitry.

The new "Mini" DigiPro, PYD 5731, is a miniaturized version of the digital pyrodetector (PYD 1988). It is a dual-element configuration with a 3-pin TO-46 housing for smaller size. The new "Mini" is designed for motion sensing applications which are space-constrained and/or lens-size constrained.

With continuous innovations in infrared sensing technology, focusing on smaller and smarter digital motion detection solutions, PerkinElmer is making a fundamental step-change in home and industrial safety and security applications.

TECHNICAL DATA

Detector Type:

PYQ 1096 Smart DigiPyro® Detector

PYQ 1098 Smart DigiPyro® Detector

Parameter	Symbol	Unit	Min	Typ	Max	Remarks	Min	Typ	Max	Remarks
Operating voltage	V_{DD}	V	2.7	3.0	3.3	Supplied with current limiting Resistor	2.7	3.0	3.3	Supplied with current limiting Resistor
Supply current	I_{DD}	μA			150	$V_{DD} = 3.3 V$, see note 3)			150	$V_{DD} = 3.3 V$, see note 3)
Serial interface update time	t_{REP}	ms		-				-		
ADC resolution		Bits		-				-		
Output data format		Bits		-				-		
ADC sensitivity		$\mu V/\text{count}$	6	6.5	7		6	6.5	7	
ADC output offset		counts								
Sensitivity threshold		μV_{pp}	84		672	in steps of $m \cdot 42 \mu V$; $m \in \{2, \dots, 16\}$				
On-time		s	2		4096		2		4096	
OEN (for ambient light control)			$0.8 V_{DD}$							
Temperature Reference										
Gain temperature		Counts/K		-				-		
Linearity		%		-				-		
Filter										
Digital filter cut on		Hz		0.44				0.44		
Digital filter cut off		Hz		7				7		
Output driving current		μA		1				1		

- 1) A digital band pass filter is recommended to cut off output offset (see application notes).
- 2) Interrupt driven readout is recommended to make full use of low noise performance.
- 3) Option for mains supply with limiting resistor (20 mA, built in shunt regulator 2.7 V to 3.3 V).

DigiPyro "Smart"

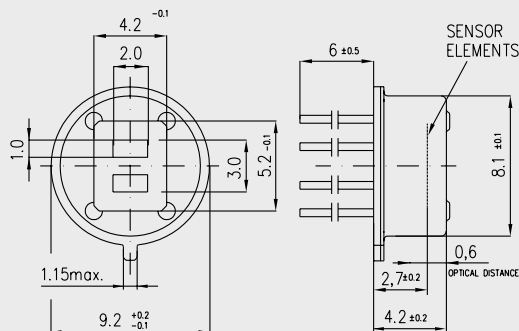


Figure 1. PYD 1096 "Smart"

DigiPyro "Smart"

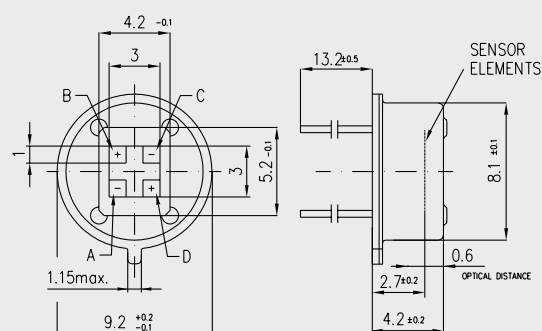


Figure 2. PYQ 1098 "Smart"

DigiPyro Triple Channel

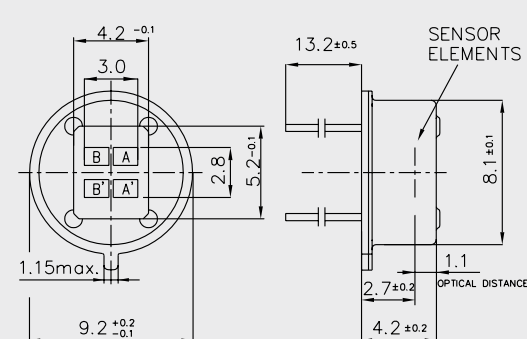


Figure 5. PYQ 2898

Diagram of DigiPyro "Smart"

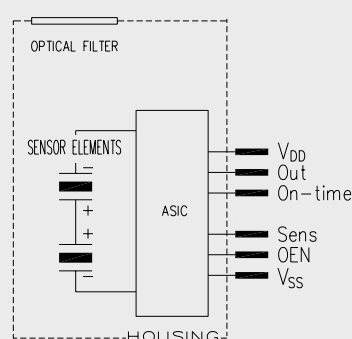


Figure 6. PYD 1096 "Smart"

PYD 5731 "Mini" Dual Element DigiPyro® Detector

PYD 1978, 1988, 1998 Dual Element DigiPyro® Detectors

PYQ 2898 Triple Channel DigiPyro® Detector

Min	Typ	Max	Remarks	Min	Typ	Max	Remarks	Min	Typ	Max	Remarks
2.7	3.3	3.6		3	5	5.5		2.7	3.3	3.6	
		15	$V_{DD} = 3.3\text{ V}$		30	40	$V_{DD} = 5.0\text{ V}$			15	$V_{DD} = 3.3\text{ V}$
	13				3.7				14		
	14		max. Count = $2^{14}-1$		14				14		max. Count = $2^{14}-1$
	2 x 14				15				3 x 14		
6	6.5	7		6.1	6.5	6.7		6.1	6.5	7	
7000	8192	9200		6200	8250	11000		7000	8192	9200	
	-				-				-		
	-				-				-		
-				-				-			
	80		-20°C to +80°C		-				80		-20°C to +80°C
-5		5			-			-5		5	
	-		1)		-		1)		-		1)
	10				10				10		
	-				-				-		

DigiPyro "Mini"

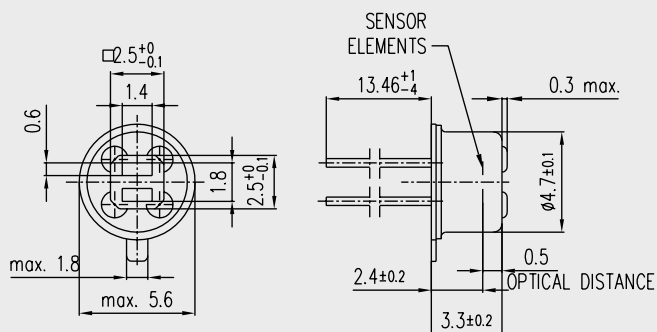


Figure 3. PYD 5731 "Mini"

DigiPyro Dual Element

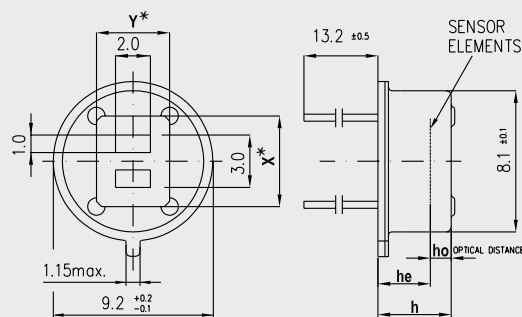


Figure 4. PYD 1978, PYD 1988, PYD 1998*

*PYD 1978: x=4 mm, y=3 mm
 PYD 1988: x=4.6 mm, y=3.4 mm
 PYD 1998: x=5.2 mm, y=4.2 mm

Diagram of DigiPyro "Smart"

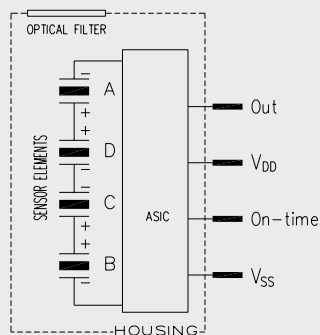
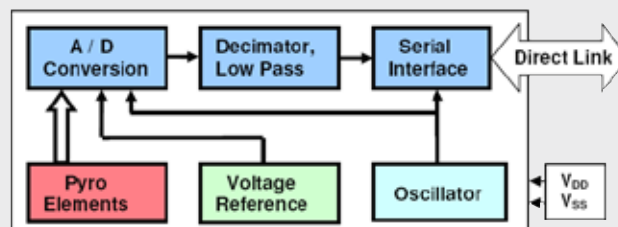


Figure 7. PYQ 1098 "Smart"

Block Diagram of DigiPyro



DigiPyro Application Kit

PerkinElmer has designed an Application Kit that helps customers perform their first measurements with the DigiPyro family. 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.

DigiPyro Family

PerkinElmer offers a range of DigiPyro Dual Element models (PYD 1998, PYD 1988, PYD 1978), a Quad Element, Triple Channel model (PYQ 2898), as well as the new Smart PYD 1096, PYQ 1098, and Mini PYD 5731 to meet your specific motion detection needs. Please consult with your PerkinElmer sales representative for the digital motion detection solution that best meets your design requirements.

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