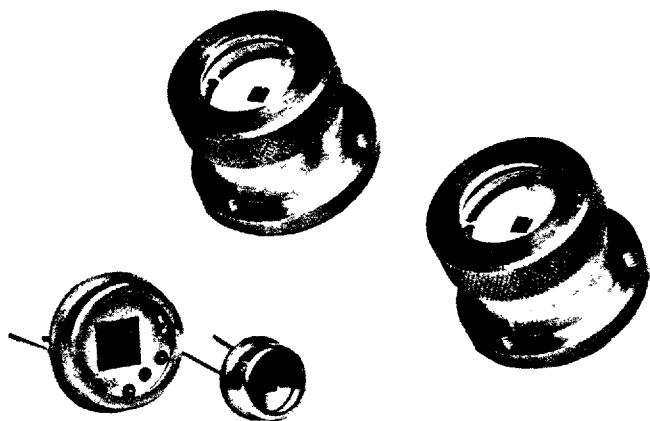


F-08-19
T-65-13

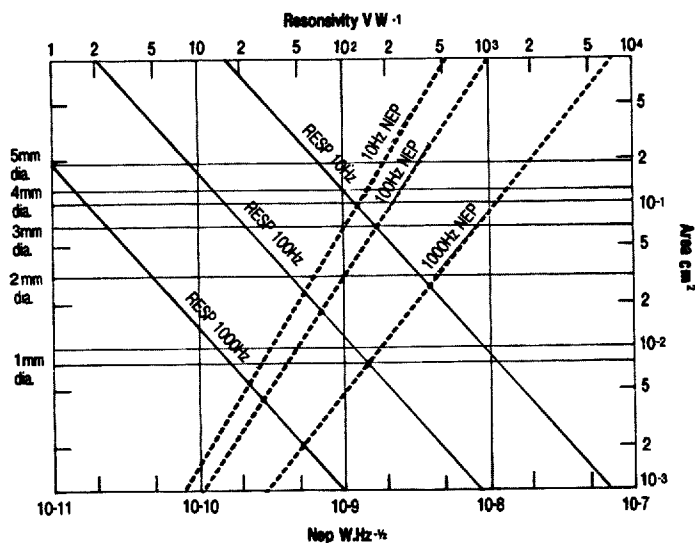
ROOM TEMPERATURE PYROELECTRIC DETECTOR



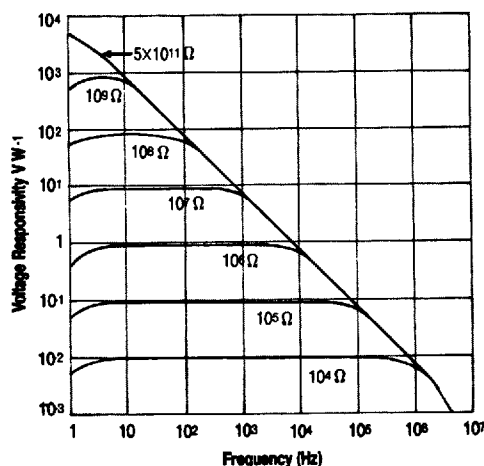
InfraRed Associates pyroelectric detectors are fabricated from single crystal DTGS, LiTaO₃ and PZT material. The DTGS and LiTaO₃ detectors are mounted in housings with an integral FET preamplifier, matched load resistor and either KBr or CsI windows as standard. These units are designed for high D* and responsivity at low frequency and are normally used in a source follower configuration. These room temperature devices exhibit flat spectral response over a broad wavelength region which is normally limited by the window transmission.

LiTaO₃ and PZT are also offered as rugged, low cost units simply mounted in packages without any accessing electronics or windows. These units are provided for low sensitivity, high power applications such as laser power meters.

LiTaO₃ Pyroelectric Detector Characteristics at 25°C



Responsivity/Frequency Load Resistor Variable



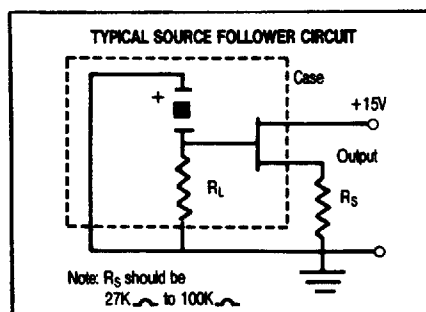
TYPICAL SPECIFICATIONS

Performance Specifications

Typical Characteristics	LiTaO ₃ MATERIAL					DTGS MATERIAL				Units
	CPX-1	CPX-2	CPX-3	CPX-4	CPX-5	DTG-1.3	DTG-2	DTG-3	DTG-4	
Element Dimensions	1mm dia	2mm dia	3mm dia	4mm dia	5mm dia	1.3×1.3	2×2	3×3	4×4	mm
Voltage Responsivity	920	300	141	87	58	2400	1200	600	400	V W ⁻¹
NEP	.58	1.77	2.65	3.88	4.88	.43	.66	1.5	2	10 ⁻⁹ W Hz ^{-1/2}
D*	1.5	1	1	0.9	0.9	3	3	2	2	10 ⁸ cm Hz ^{1/2} W ⁻¹
Spectral Response	← 2-50 →					← 2-50 →				um
Frequency Response	← 100K →					← 100K →				Hz
Load Resistor	5×10 ¹¹ ←					1×10 ¹¹ →				ohm

Performance Specifications

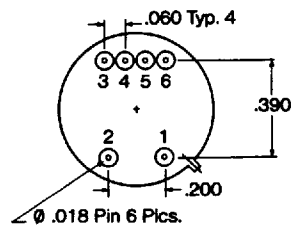
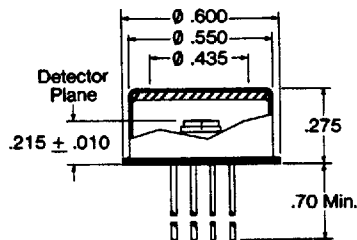
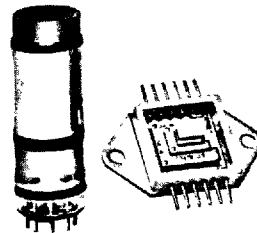
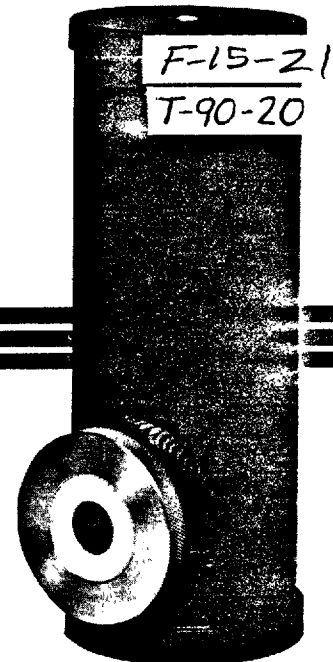
Typical Characteristics	MODEL CPZ PZT MATERIAL					MODEL CPL LiTaO ₃ MATERIAL					Units
	CPZ-1	CPZ-2	CPZ-3	CPZ-4	CPZ-5	CPL-1	CPL-2	CPL-3	CPL-4	CPL-5	
Element Dimensions	1×1mm	2×2mm	3×3mm	4×4mm	5×5mm	1mm dia	2mm dia	3mm dia	4mm dia	5mm dia	mm ²
Current Responsivity	>0.15	>0.10	>0.10	>.075	>0.050	1.5	1.2	1.1	0.6	0.5	uAW ⁻¹
Capacitance	79	325	730	1299	2030	20	40	52	61	72	pF
Thermal Breakpoint	5	3	1	0.5	0.5	6	4	2	1	0.5	Hz
Element Impedance	← 1×10 ¹² →					← 1×10 ¹² →					ohm
Maximum Incident Power	← 0.3 →					← 0.15 →					W
Operating Temperature	← -10+100 →					← -50+100 →					°C



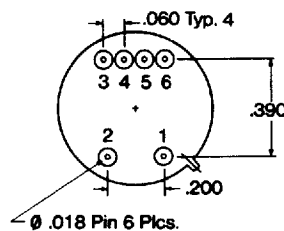
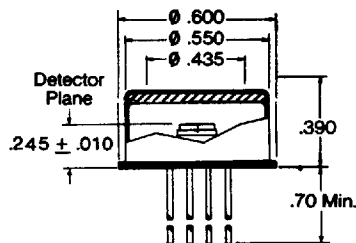
TYPICAL APPLICATIONS

- Spectrometers
- Radiometers
- Process Control
- Laser Power Measurements
- Pyrometry
- Flame Detection
- Security Systems
- Gas Analysis
- Hot Box Detection
- Pollution Monitoring

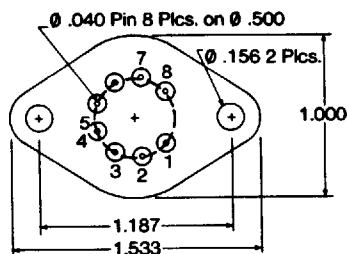
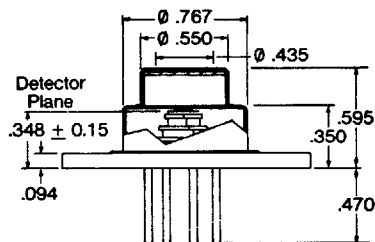
STANDARD PACKAGING



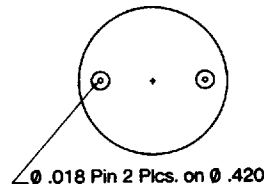
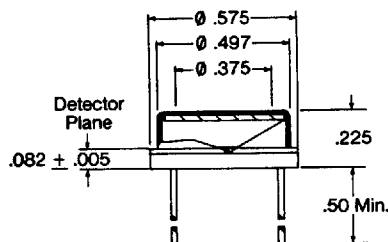
TO-8-1



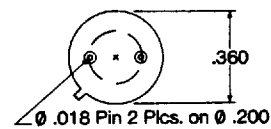
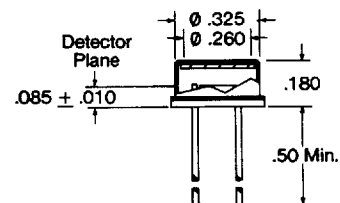
TO-8-2



TO-3



TO-8



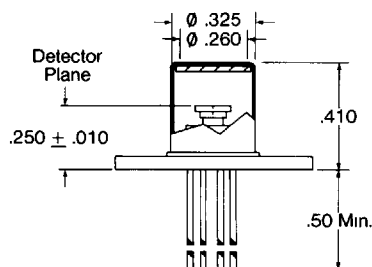
TO-5

InfraRed Associates standard packages include hermetically sealed TO-style packages for room temperature detectors. Thermoelectric cooled devices are housed in TO-37 or TO-8 packages for one and two stage coolers while our three stage units require a TO-3 package. All packages are hermetically sealed with a dry gas to provide optimum performance.

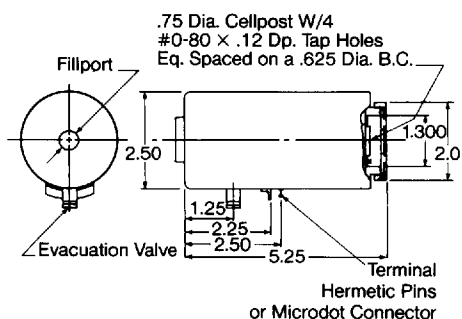
Detectors requiring cryogenic operation are typically packaged in metal repumpable dewars. These dewars offer rugged construction as well as long hold times and are available in both side and down looking configurations. Smaller glass dewar packages are also offered mainly for use with Joule Thompson Croystat or Stirling Cycle Cooler Systems.

Custom designed packages are available for all detector types and operating conditions.

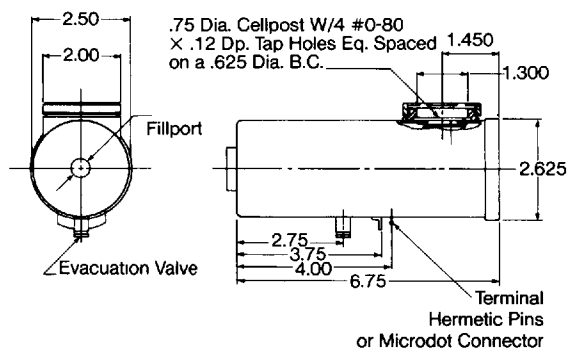
TYPICAL SPECIFICATIONS



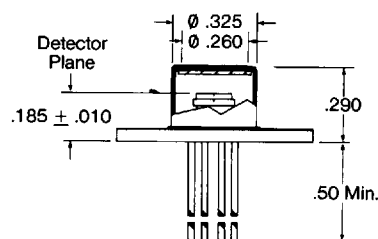
TO-37-2



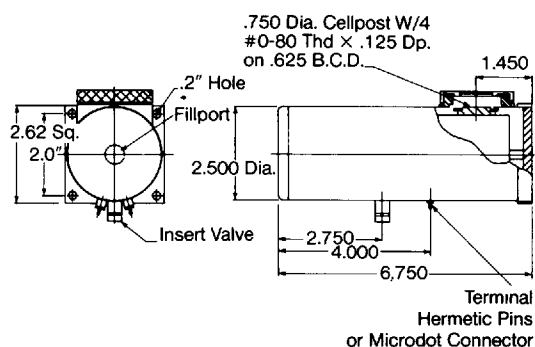
DMDL-6



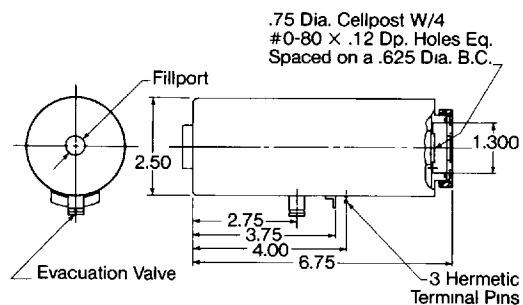
DMSL-12



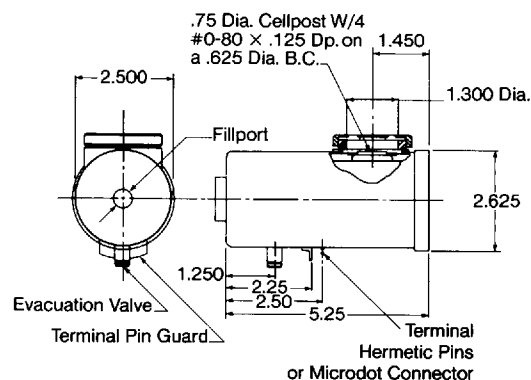
TO-37-1



DMSL-12-SQUARE BASE



DMDL-12



DMSL-6