

Small Field of View Detector



Performance

Small field of view detector

Detector Crystal Thickness	0.5 cm CZT
Field of View	88mm x 88mm
Intrinsic Spatial Resolution	2.0 mm square pixels
Intrinsic Pixels per Camera (Space-Bandwidth Product)	1,936 square, no overlap
Intrinsic Energy Resolution	≤ 4.5% FWHM @ 140 keV
Energy range	30 keV to 364 keV
Operating temperature range	16°C to 24°C ambient
API	Software for acquisition computer interface

Collimators - hexagonal hole option:

The entire active imaging area is covered by a 23mm thick hexagonal hole lead collimator. The hex holes are 1.2mm with septa thicknesses of 0.2mm. Collimator to detector separation 4.4 mm.

Benefits of CZT

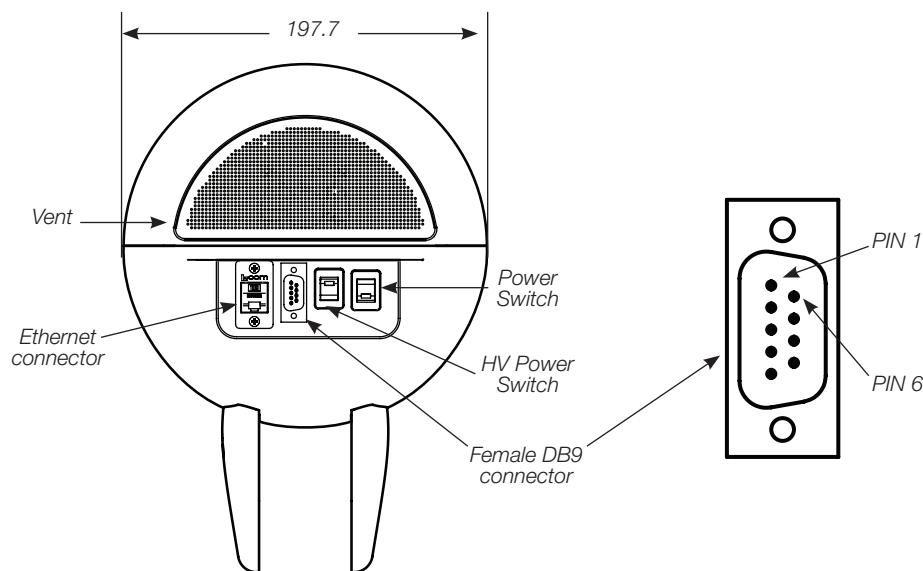
Some of the key advantages of CZT gamma cameras include:

- 1) better **image resolution** (better intrinsic spatial resolution)
- 2) lower **patient dose** and/or, shorter **exam times** (higher patient throughput with less patient motion)
- 3) better **image contrast** (better scatter rejection with better energy resolution and tighter energy windows; and less partial volume dilution from better spatial resolution)
- 4) easier **hospital or clinic siting** with smaller footprint and weight MBI systems (compact detector volume and no edge dead space, requiring less volume of shielding, and immunity to magnetic fields)
- 5) less **calibration time** (from stability of solid-state detectors compared to PMTs), and
- 6) higher **patient throughput** (from simultaneous multiple isotope imaging studies using better energy resolution).

Electrical Characteristics

Power Supply:

The main power supply should be at least 33W with dual regulated output voltages of 5V and 13V DC. The power supply must be low noise linear type. It is recommended this line have fault and overvoltage protection so as not to damage the system, either in line DC rated fuse or circuit breaker. Connection to the camera is made utilizing a DSUB-9 (DB-9) male connector to mate with the connector on the camera. Pinout for main power connection is shown in Table 1.



DB-9 PINOUT	
PIN	SIGNAL
1	DC COMMON (FOR 13 VDC)
2	N/C
3	+13 VDC, 0.6A
4	N/C
5	DC COMMON (FOR 5 VDC)
6	N/C
7	+5 VDC, 5.0A
8	N/C
9	N/C

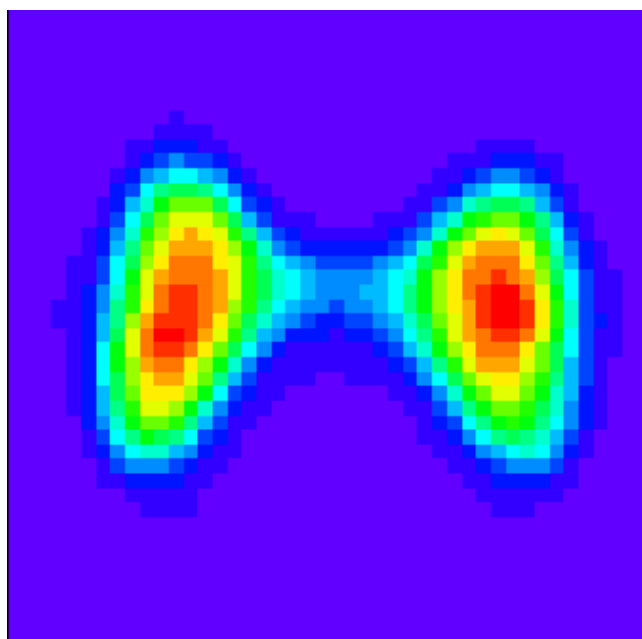
Table 1

Communications Interface:

Connection to the communications interface should be made with appropriate cable rated for gigabit Ethernet over the distance from the host computer to the system. CAT6 cable or better is recommended. The NIC card connected to the system on the host computer should also be capable of gigabit Ethernet or better.

Maximum Ratings:

Characteristics	Symbol	Rating	Unit
Ambient Temperature	TA	16 to 24	°C
Storage Temperature	TS	-20 to 50	°C
Relative Humidity	RH	20 to 75	%
Power Dissipation	P	21	W

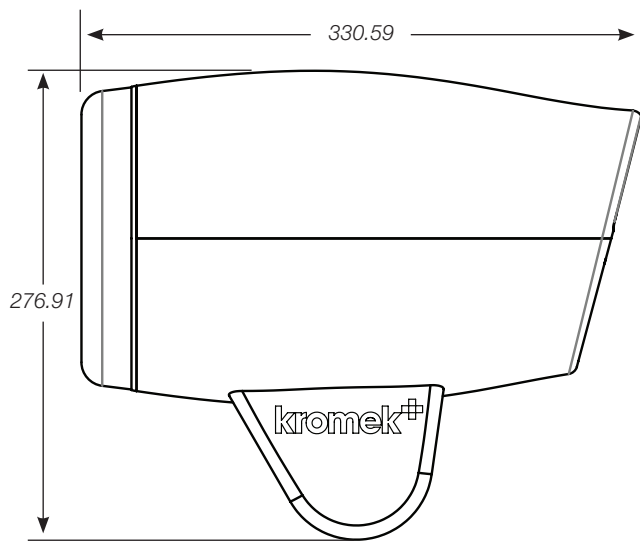


Example image of anatomical Thyroid phantom using ⁹⁹Te

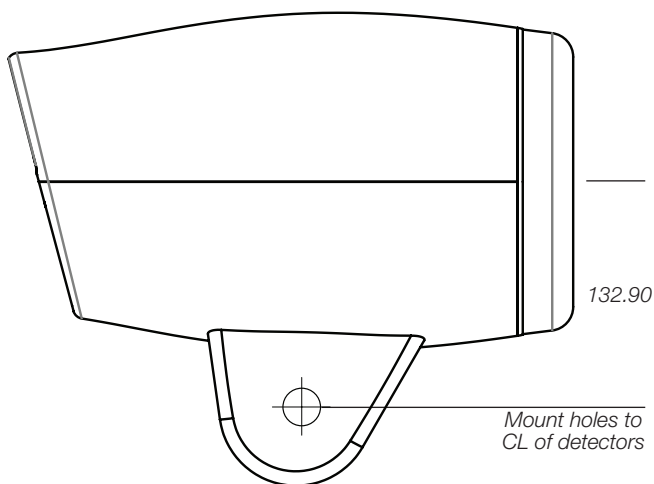
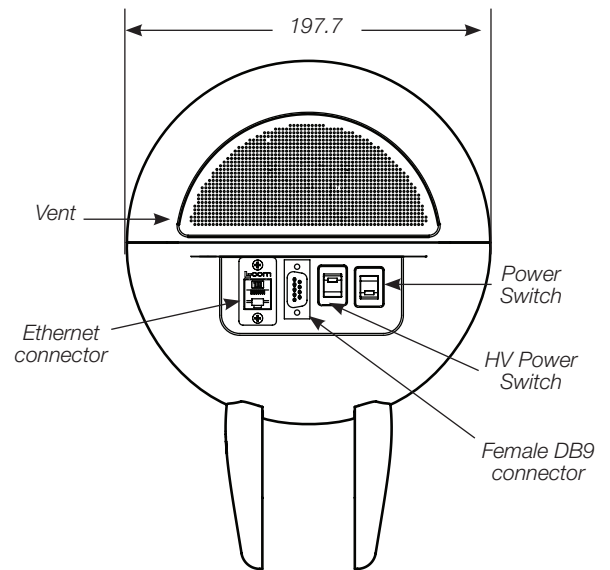
Image to NEMA NU 1-2012 section 2.4

Mechanical Characteristics

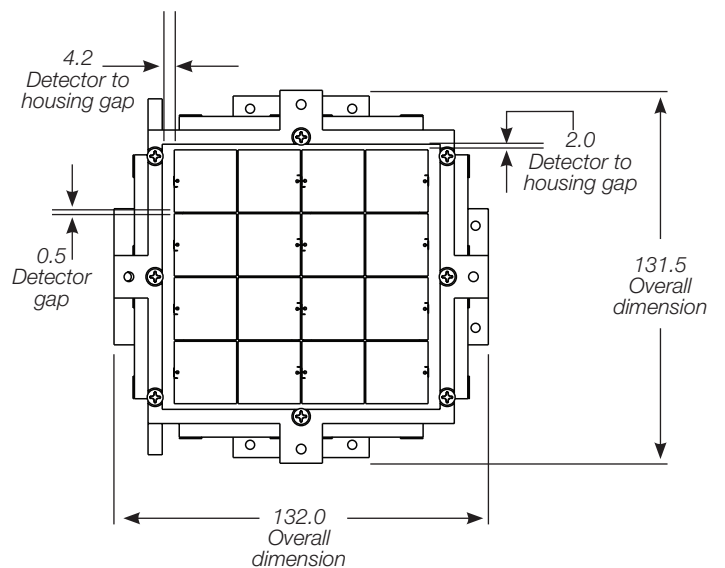
All dimensions shown are in mm unless otherwise stated.



Camera overall dimensions



Camera mounting hole pattern



Active imaging area

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