Photon etc
A spectrum of solutions

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ZephIR™ 2.5
INFRARED CAMERA

The ZephIR 2.5 is a fully integrated HgCdTe camera with a 320 x 256 pixels focal plane array (FPA) sensitive from 850 to 2500 nm. The camera provides low noise detection and easy operation. This is in large part due to a four stages thermoelectric cooler (TEC) which can maintain operating temperature as low as -80 °C. The TEC's forced air heat dissipation requires none of the maintenance of a water or liquid nitrogen chilled unit and does not suffer from the limited lifetime of Stirling mechanical coolers.

The camera's hardware coded region-of-interest (ROI) enables the user to choose between a full-frame rate of 340 frames per second (fps) and a windowed rate of up to 3000 fps. Users can also choose to use Photon etc's PHySpec camera control software or develop their own using an extensive software development kit (SDK).

TECHNICAL SPECIFICATIONS		
Focal plane array (FPA)	HgCdTe	
FPA size (px)	320 x 256	
Pixel size (µm)	30	
Spectral range (QE > 10%)	0.85 - 2.5 µm	
FPA operating temperature	-80 °C	
Dark current (sensor at -80 °C)	Target at 21 °C: < 30 (Typ. ~20) Mē/px/s	
	High	Low
Typical gain setting (ē/ADU)	10.3	216
Typical readout noise (ē)	150	980
Typical full well capacity (kē)	160	3300
Readout modes	IWR	
Frame rate in CameraLink™ (fps)	Up to 340 full frame 2200 for a 64x64 ROI	
Frame rate in USB 3.0 (fps)	Up to 340 full frame 2200 for a 64x64 ROI	
Integration time range	1 µs - 8 ms	1 µs - 100 ms
Digitization (bits)	14	
Peak responsivity	1.8 A/W at 2450 nm	
Quantum efficiency	Up to 85%	
Typical operability	> 99%	
Cooling	TEC 4 stages, forced air	
Cooldown time	10 minutes	
Ambient temperature range	10 °C to 35 °C	
Cold shield acceptance	F/1.4	
Software	PHySpec™ control and analysis for Windows10 - 64-bits, SDK (C++, Python)	
Computer interface	CameraLink™ or USB 3.0	
External control	Trigger IN/OUT	
Power consumption on 12VDC (W)	Max. 52 (typ. steady-state 33)	
Dimensions	169 mm x 130 mm x 97.25 mm	
Weight	2.9 kg	
Certification	CE ETL Intertek	

MAIN ADVANTAGES OF TE COOLED AIR SYSTEM:

- » Compact
- » Highly reliable
- » Long lifetime
- » No maintenance
- » Low dark current
- » Low readout noise

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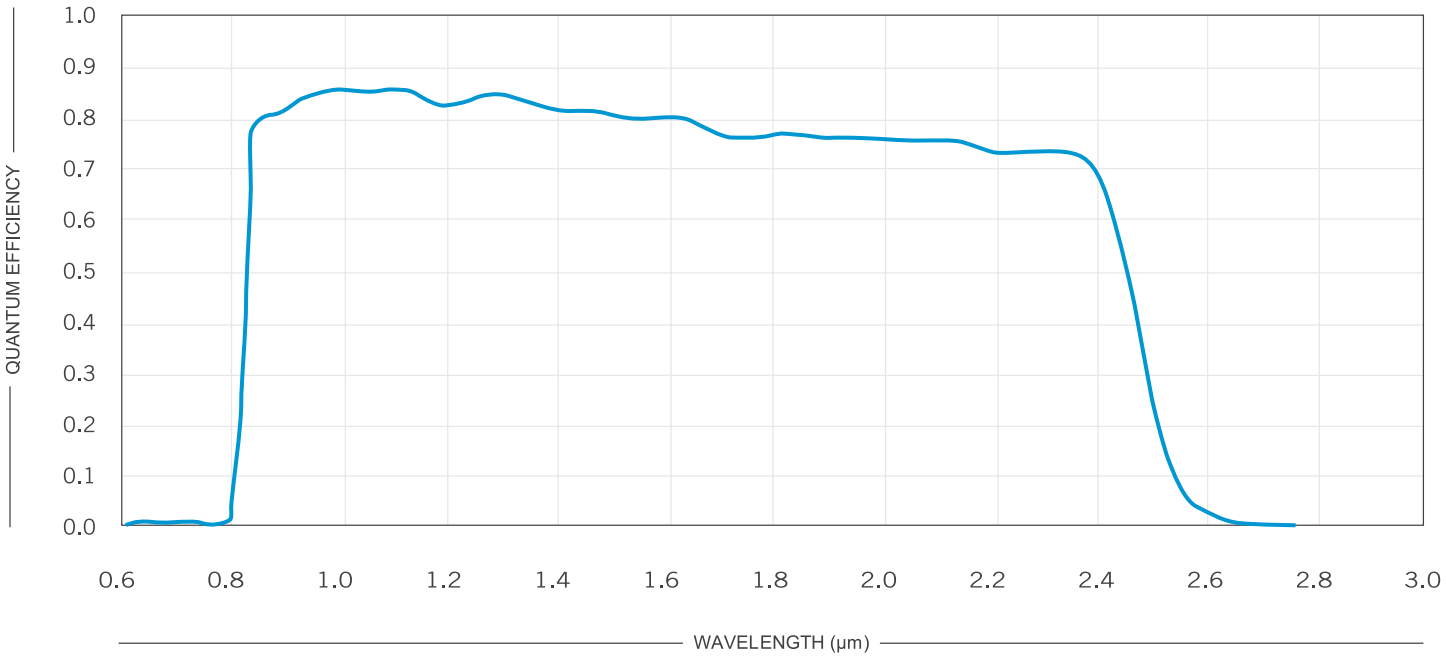
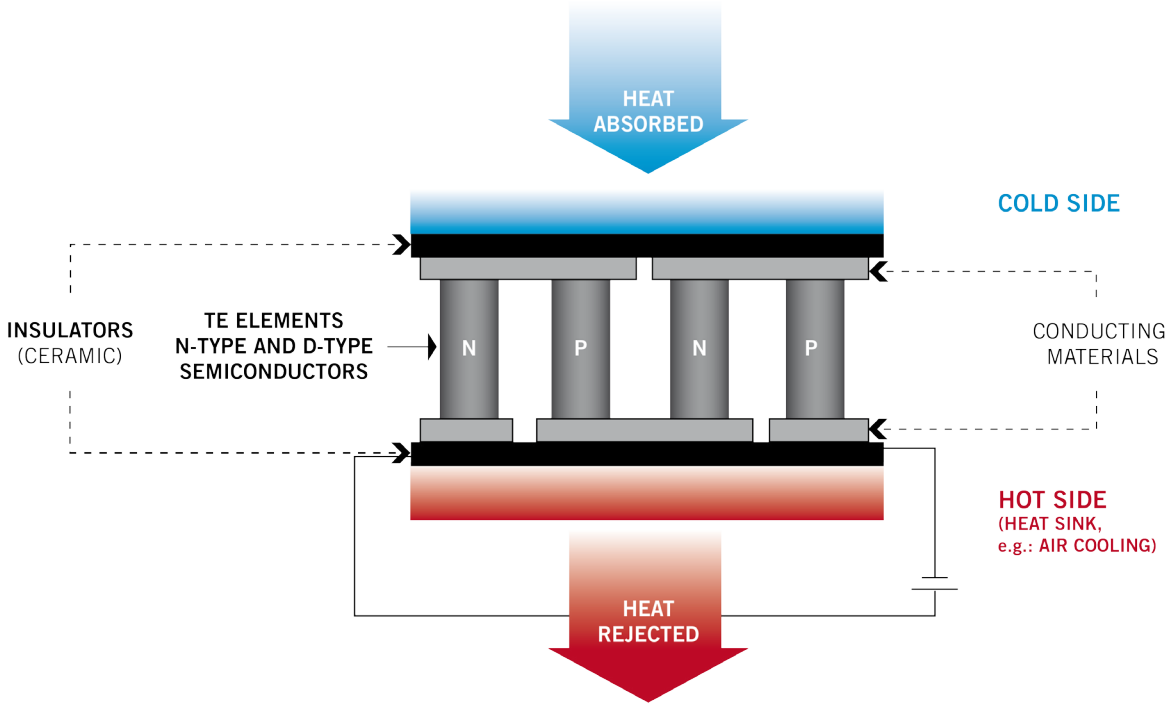


ZephIR 2.5

Quantum efficiency presented at -80 °C



Schematic of a thermoelectric device where the Peltier effect is used to generate heat flow between two materials.