Photon etc
A spectrum of solutions

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ZephIR™ 1.7
INFRARED CAMERA

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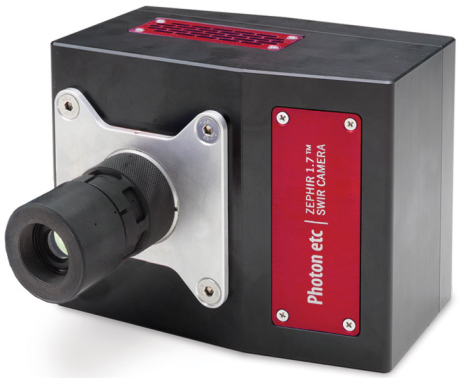

The ZephIR 1.7 is a high-end, scientific grade, 640 x 512 pixels resolution, InGaAs camera that marries performance with reliability. It has extremely low noise levels, high efficiency, and a rapid frame rate compatible with an external trigger. This is made possible by a combination of state-of-the-art control electronics and a four stage thermoelectric cooler (TEC) which can maintain an operating temperature as low as -80 °C. The TEC, in turn, uses forced air cooling which requires none of the maintenance of a water or liquid nitrogen chilled unit.

The ZephIR 1.7 is one of the most sensitive and dependable InGaAs cameras on the market.

MAIN ADVANTAGES OF TE COOLED AIR SYSTEM:

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

TECHNICAL SPECIFICATIONS

	ZephIR 1.7x		ZephIR 1.7s		
Focal plane array (FPA)	InGaAs		InGaAs		
FPA size (px)	640 x 512		640 x 512		
Pixel size (µm)	15		15		
Spectral range (QE > 10%)	0.45 - 1.70 µm at 25 °C ~0.5 - 1.63 µm at -80 °C		0.95 - 1.70 µm at 25 °C 0.90 - 1.61 µm at -80 °C		
FPA operating temperature	-80 °C		-80 °C		
Dark current (sensor at -80 °C)	Target at 21 °C: < 300 (Typ. ~250) ē/px/s No thermal emission from target: < 150 (Typ. ~125) ē/px/s		Target at 21 °C: < 300 (Typ. ~250) ē/px/s No thermal emission from target: < 150 (Typ. ~125) ē/px/s		
	High	Low	High	Med	Low
Gain setting (ē/ADU)	2.67	47.5	2.2	7.4	89
Typical readout noise (ē)	22	135	35	75	350
Full well capacity (kē)	8.5	230	27	110	1400
Readout modes	CDS	ITR	CDS, IMRO, ITR, IWR		
Frame rate in CameraLink™ (fps)	105	210	Up to 240 full frame 1900 for a 128x128 px ROI		
Frame rate USB 3.0 (fps)	110	220	Up to 250 full frame 1900 for a 128x128 px ROI		
Integration time range	1 µs ~ 16 s	100 µs ~ 14 min	1 µs to 19 minutes (low gain)		
Digitization (bits)	13		14		
Peak responsivity	1.1 A/W at 1660 nm		1.0 A/W at 1550 nm		
Quantum efficiency	> 70% 0.95 - 1.67 µm at 25 °C > 70% 0.87 - 1.60 µm at -80 °C		> 70% 1.00 - 1.65 µm at 25 °C > 70% 0.95 - 1.56 µm at -80 °C		
Typical operability	99.9%		> 99.5%		
Cooling	TEC 4 stages, forced air		TEC 4 stages, forced air		
Cooldown time	< 10 minutes		< 10 minutes		
Ambient temperature range	10 °C to 35 °C		10 °C to 35 °C		
Cold shield	f#/1.4		f#/1.4		
Software	PC (Windows10 - 64-bits) with PHySpec™ control and analysis software (computer not included)				
Computer interface	CameraLink™ or USB 3.0		CameraLink™ or USB 3.0		
External control	Trigger IN / OUT		Upon request		
Power consumption on 12V DC (W)	39 (typ. 23)		33 (typ. 20) Trigger IN / OUT		
Dimensions	169 mm x 130 mm x 97 mm		169 mm x 130 mm x 97 mm		
Weight	2.6 kg		2.6 kg		
Certification	CE, ETL Intertek		CE, ETL Intertek		

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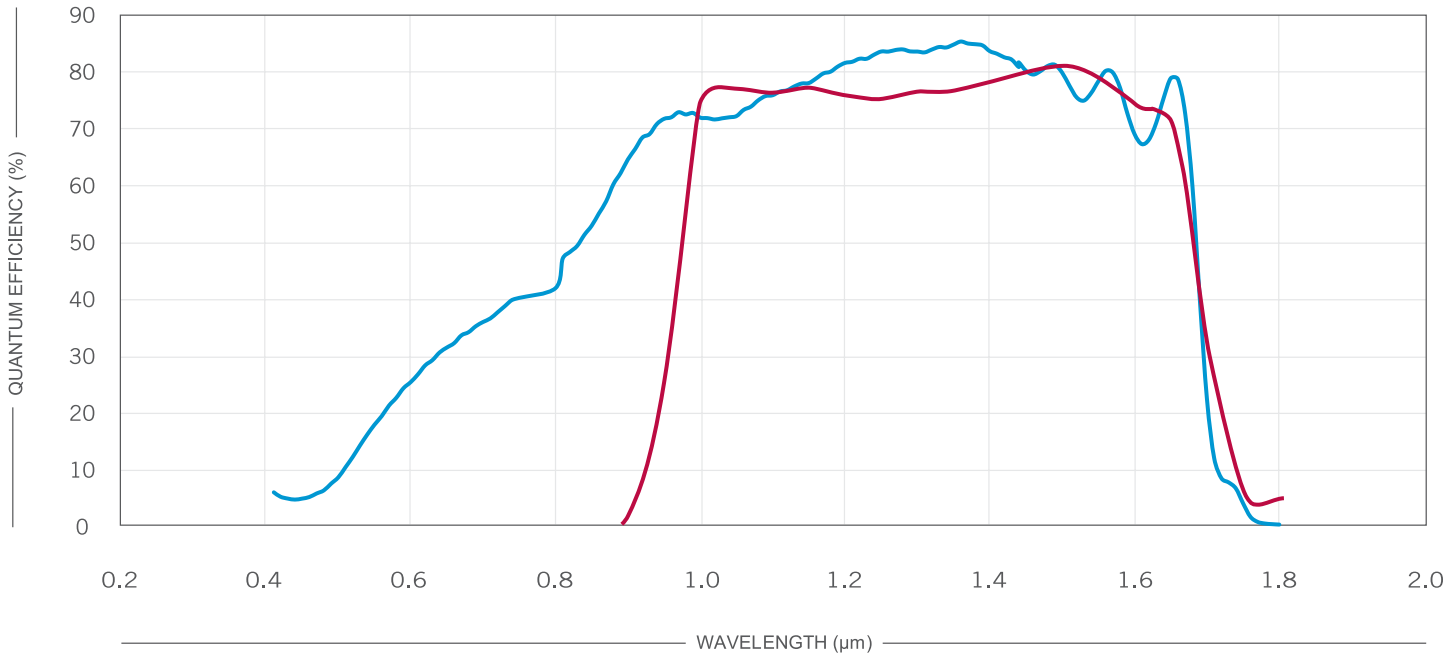
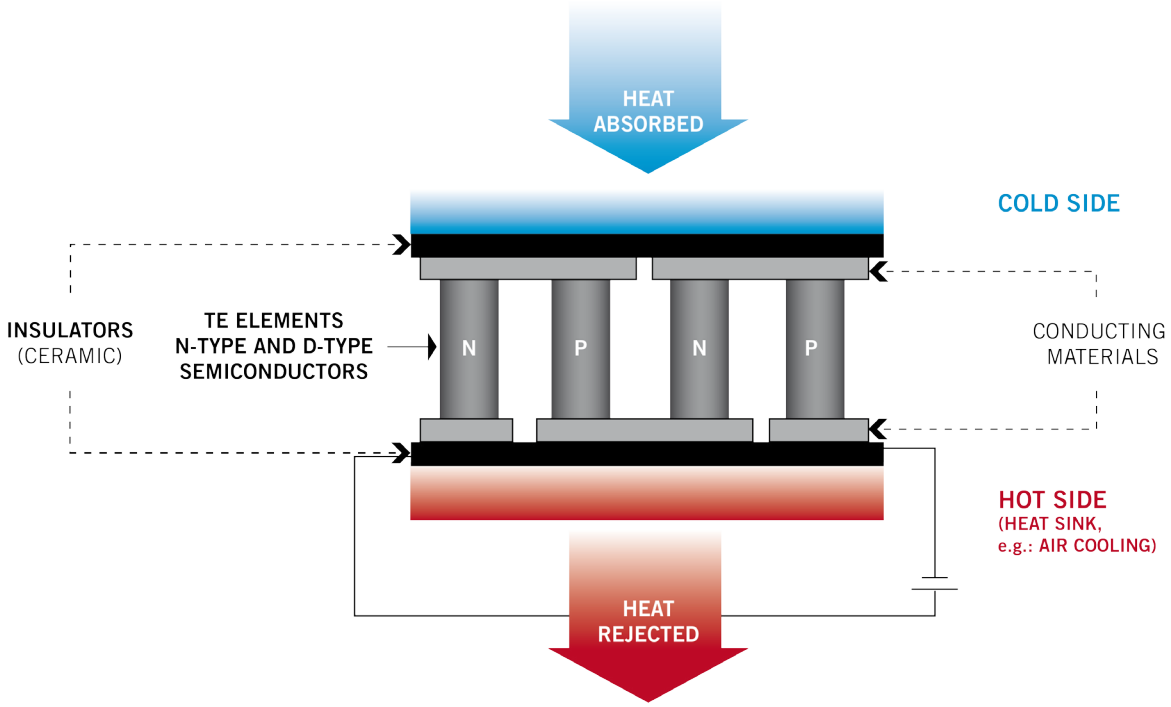


Quantum efficiency presented at 25 °C.
The cut-off wavelength shifts towards the blue by ~ 7nm for every 10 °C of cooling.



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