

# ZephIR™ 2.9



## INFRARED CAMERA



ZephIR 2.9 is a fully integrated HgCdTe camera with a 320 x 256 pixels focal plane array (FPA) sensitive from 850 to 2900 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.

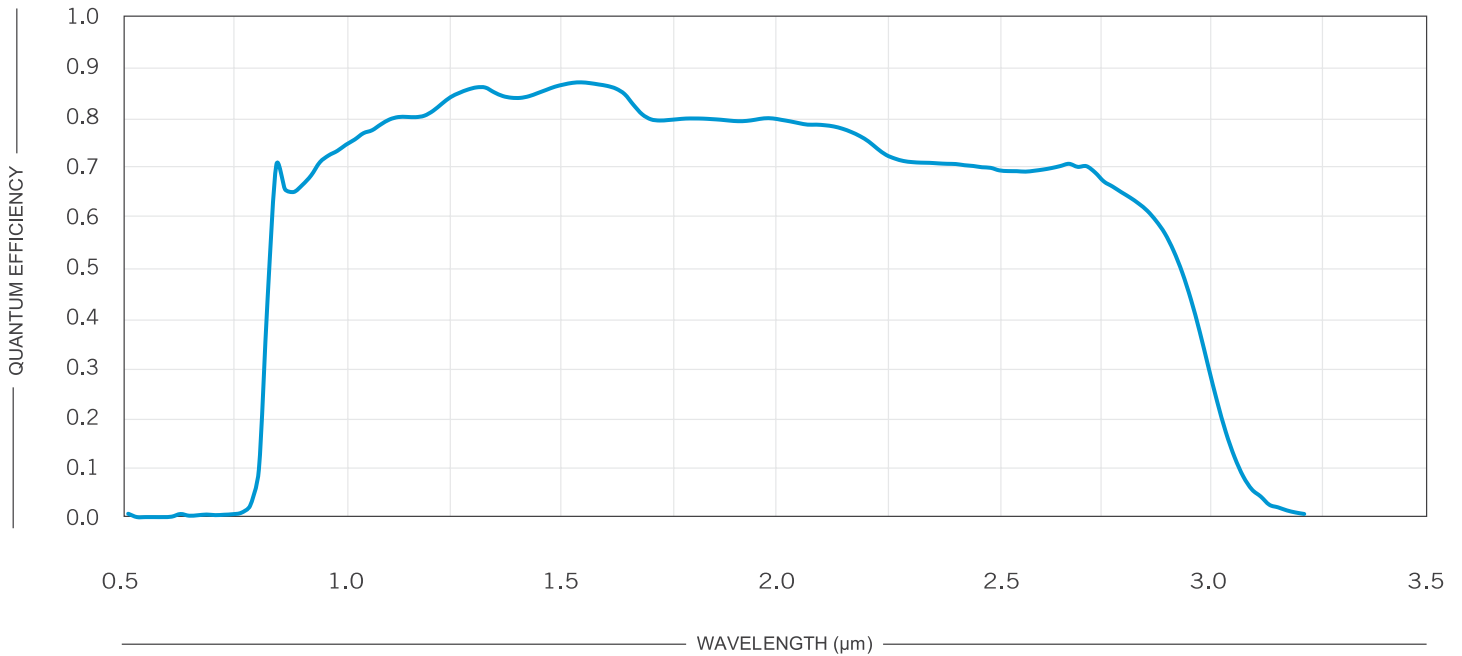
The camera's hardware coded region-of-interest (ROI) enables the user to choose between a full-frame rate of 340 frames per second (fps) and a windowed rate of up to 3000 fps. Users can choose to use Photon etc's PHySpec camera control software or develop their own using an extensive software development 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 - 2.9 µm  |             |
| FPA operating temperature       | -80 °C   |             |
| Dark current (sensor at -80 °C) | Target at 21 °C:<br>< 240 (Typ. ~160) Me/px/s  |             |
| Typical gain setting (e-/ADU)   | High<br>10.3   | Low<br>216  |
| Typical readout noise (e)       | 165  | 1050        |
| Typical full well capacity (ke) | 160  | 3300        |
| Readout modes                   | IWR  |             |
| Frame rate in CameraLink™ (fps) | Up to 340 full frame<br>2200 for a 64x64 ROI   |             |
| Frame rate in USB 3.0 (fps)     | Up to 340 full frame<br>2200 for a 64x64 ROI   |             |
| Integration time range          | 1 µs - 1ms   | 1 µs - 20ms |
| Digitization (bits)             | 14   |             |
| Peak responsivity               | 1.56 A/W at 2700 nm  |             |
| Quantum efficiency              | Up to 85%  |             |
| Typical Operability             | > 98.5%  |             |
| 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,<br>SDK (C++, Python)  |             |
| Computer interface              | CameraLink™ or USB 3.0   |             |
| External control                | Trigger IN/OUT   |             |
| Power consumption on 12VDC (W)  | Max. 63 (typ. steady-state 28)   |             |
| Dimensions                      | 169 mm x 130 mm x 97.25 mm   |             |
| Weight                          | 2.9 kg   |             |
| Certification                   |  <br>Intertek |             |

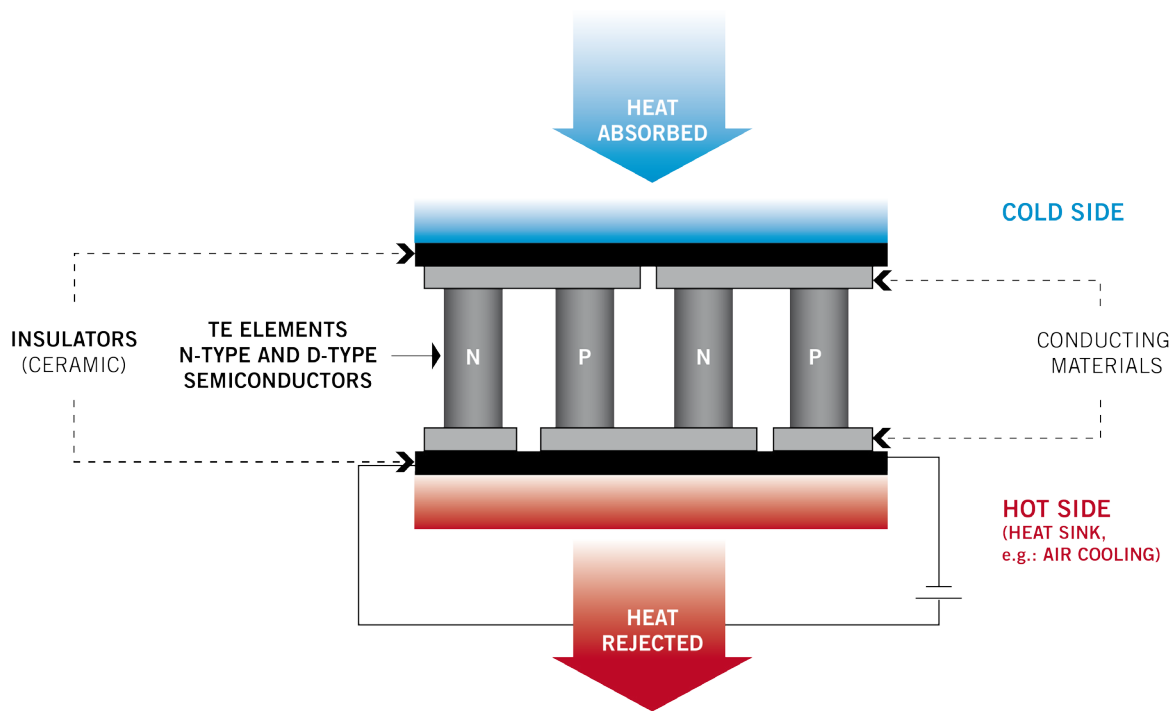
### MAIN ADVANTAGES OF TE COOLED AIR SYSTEM:

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



## ○ ZephIR 2.9

Quantum efficiency presented at -80 °C



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



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