

# Scorpio MW

## High Resolution IR Detectors for Mid Wave Infrared Imaging 640x512 HgCdTe MWIR (15µm pitch)

- High Resolution Format
- High Sensitivity
- Low Power
- Lightweight



Security



Defense



Soldier Systems

The Scorpio MW Integrated Detector Dewar/Cooler Assembly (IDDCA) features a staring snapshot focal plane array having 640x512 pixels with mid-wave infrared sensitivity (3-5µm). The Scorpio MW is ideal for use in such high performance MWIR imaging products as FLIR,IRST, reconnaissance, surveillance and airborne cameras. Hybridized on a Sofradir state-of-the-art CMOS Read-Out Integrated Circuit (ROIC), these detectors are available in various long vacuum-life dewar and cooler configurations in order to meet the different mechanical and cooling needs of the intended systems.

**AVAILABLE CONFIGURATIONS:**

- Integrated Detector Dewar Cooler Assembly (IDDCA) with miniature stirling-cycle rotary coolers, for compact, low power configuration

**ON-REQUEST CONFIGURATIONS:**

- IDDCA with split Stirling-cycle linear cooler, for expanded lifetime and system integration facilitation
- Detector Dewar Assembly (DDA) without or with Joule-Thompson cooler (pressurized gas cooling)

**ROIC FEATURES**

Selection	Serial electrical interface
Architecture	Snapshot operation, direct injection input circuit, selectable read mode (IWR or ITR)
Functionalities	Programmable integration time, anti-blooming
Window Modes	640x512, 640x480, 512x512 or programmable
Charge Handling Capacity	6.5 10 <sup>6</sup> e <sup>-</sup> (for 100% well fill and ITR mode) or 5 10 <sup>6</sup> e <sup>-</sup> (for 100% well fill and IWR mode)
Electrical Dynamic Range	1.5 V
Readout Noise	< 420 e <sup>-</sup>
Signal Outputs	4
Pixel Output Rate	Up to 10MHz per output
Frame Rate	Up to 120Hz full frame rate

**ARRAY FEATURES**

Format	640x512
Pixel Pitch	15µm x 15µm
Detector Spectral Response	3.7µm - 4.8µm
FPA Operating Temperature	up to 120K, 90K typical

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## TYPICAL ELECTRO-OPTICAL PERFORMANCE



Typical NETD	< 18 mK (293K, 50% well fill, 100Hz)
Array Operability	> 99.5% typical
Non-uniformity	< 5% RMS ( $\sigma$ /mean, 293K uncorrected performance)

Cooler	RM2	K508	RM3	LSF
FOV	f/2; f/4	f/2; f/4	f/2; f/4	f/2
Regulated Input Power	< 5 W <sub>DC</sub> (*)	< 4.5 W <sub>DC</sub> (*)	< 4.5 W <sub>DC</sub> (*)	< 10 W <sub>AC</sub> (*)
Cooldown Input Power	< 12 W <sub>DC</sub> (*)	< 14 W <sub>DC</sub> (*)	< 13 W <sub>DC</sub> (*)	< 26 W <sub>AC</sub> (*)
Power Supply	32 V	24 V	24 V	8-12 V
Cooldown Time	5 min	5 min	5 min	5 min
Weight	< 0.45 kg	< 0.65 kg	< 0.57 kg	< 2.6 kg
Operating Temperatures	-40°C / +71°C	-40°C / +71°C	-40°C / +71°C	-40°C / +71°C

(\*) W<sub>AC</sub> = at cooler pins AC input    W<sub>DC</sub> = at cooler C&CE DC input

## OPTIONS

- Proximity Driving Electronics (including ADC)
- Technical training and support
- Cooler driving electronics for LSF

Technical characteristics described in this data sheet are for information only and are not contractual. Because of ongoing product enhancements, specifications are subject to change without notice. Export of these products from the United States is controlled by the US Government. Prior authorization is required for re-export or transfer.



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