

SiriusLW

High Performance IR Photodetector for Long Wave Infrared Imaging 640x512 QWIP (20μm pitch)

- Up to 120Hz Operation
- Low Power
- High Sensitivity
- Compact TV Format
- 20 micron Pixel Technology



The Sofradir staring snapshot 640x512 Long Wave Infrared (LWIR) Quantum Well Infrared Photodetector (QWIP) is offered to answer the high resolution (TV format or HDTV with microscan) applications (FLIR,IRST, reconnaissance, surveillance, airborne camera, etc.) in the band III (8-9μm) detection.

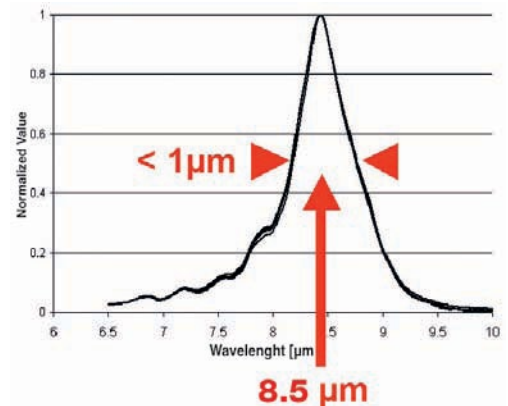
Hybridized on a state-of-the-art CMOS Read-Out Integrated Circuit (ROIC), this detector can be offered in various long vacuum-life dewar and cooler configurations, in order to meet the different mechanical and cooling needs of the systems.

STANDARD CONFIGURATION:

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

ON-REQUEST CONFIGURATION:

- IDDCA with split Stirling-cycle linear cooler for expanded lifetime and system integration facilitation



Security



Defense



Soldier Systems

ROIC FEATURES

Selection	Parallel or serial electrical interface
Modes	Snapshot operation, direct injection input circuit, integrate-while-read mode, programmable integration time, anti-blooming, image invert/revert/inverse
Window Modes	Fixed (640x512, 640x480, 384x288) or programmable
Charge Handling Capacity	$10.4 \times 10^6 e^-$ (for 100% well fill)
Gain Control	x1, x1.3, x2, x4
Readout Noise	110 μV for gain 1
Signal Outputs	1, 2 or 4
Pixel Output Rate	up to 10MHz per output
Frame Rate	up to 120Hz full frame rate (640x512, 4 outputs)
Electrical Interface	simplified through two 21-pin connectors

ARRAY FEATURES

Pixel Pitch	20μm x 20μm
QWIP Spectral Response	$\lambda_{\text{peak}} = 8.5\mu\text{m} \pm 0.1\mu\text{m}$, $\Delta\lambda = 1\mu\text{m} @ 50\%$
FPA Operating Temperature	70K to 73K optimum

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TYPICAL PERFORMANCE

Pixel NETD (average)	31mK @ 73K (300K, f/2, 7ms integration time, with full well @ 343K)
Residual Fixed Pattern Noise	low and stable (< NETD)
Non-uniformity	< 5% RMS (σ /mean, 300K uncorrected performance)
Array Operability	> 99.9% typical (NETD < 2xNETD _{average})

OPTIONS

- Complete LW Camera
- LW Engine
- Proximity Driving Electronics (including ADC)

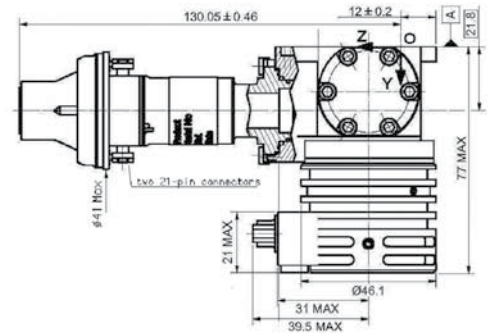
STANDARD CONFIGURATION

Sirius LW-K548

K548 Microcooler Integrated Cooler Driving Electronics



- Central FOV: f/2
- Operating Temperatures: -40°C / +71°C
- Weight: < 0.66kg (1.45 lb)
- Power Supply: 24 V
- Typical Characteristics at 20°C, 73 K:
 - Minimum FPA Temperature: < 70K
 - Cooldown input power: < 27 W_{DC} (*)
 - Regulated input power: < 12 W_{DC}
 - Cooldown time: < 3 min., 30 sec.



*W_{DC} – at cooler C&CE DC input

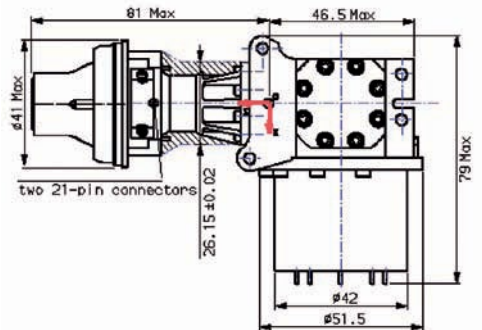
CONFIGURATIONS ON REQUEST

Sirius LW-RM4

RM4-xi Microcooler



- FOV: f/2
- Operating Temperature: -40°C / +71°C
- Weight: < 0.7kg (1.5 lb)
- Power Supply: 24 V
- Typical Characteristics at 20°C, 73K:
 - Minimum FPA Temperature: < 70K
 - Cooldown input power: < 30 W_{AC} (*)
 - Regulated input power: < 13 W_{AC}
 - Cooldown time: < 6 min.

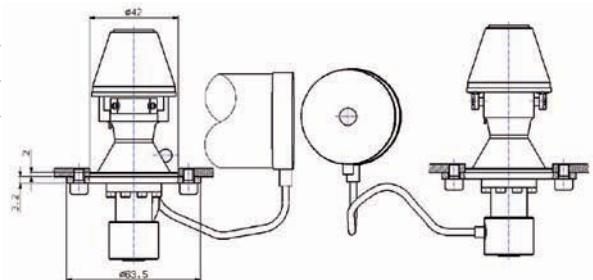


(*) W_{AC} – at cooler pins AC input

Sirius LW-LSF

LSWF Split Cooler

- Operating Temperature: -40°C / +71°C
- Weight: < 2.5kg (5.5 lb)
- Power Supply: 11 V



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.