

MercuryLW

High Performance IR Detector for Long Wave Infrared Imaging 480x6 HgCdTe LWIR

- High Resolution 2nd Generation Scanning System
- Low Power
- High Sensitivity
- Lightweight



The Sofradir 480x6 Long Wave Infrared (LWIR), Time Delay and Integration (TDI), focal plane assembly is offered to answer the requirements of band III (8-12 μ m) detection of high resolution (FLIR,IRST, surveillance, etc.) military scanning systems. This detector takes advantage of the Sofradir high performance, stable, low defect density photo-voltaic HgCdTe technology, hybridized on a state-of-the-art CMOS Read-Out Integrated Circuit (ROIC).

This detector is offered in long vacuum-life dewar with split Stirling Coolers, in order to meet the mechanical and cooling needs of the systems.

STANDARD CONFIGURATION:

- Integrated Detector Dewar Cooler Assembly (IDDCA) with 1W LS10-11i split Stirling-cycle linear cooler



Security



Defense



Soldier Systems

ROIC FEATURES

Selection	Parallel or serial electrical interface
Modes	Snapshot operation, direct injection input circuit, simultaneous mode (integrate-while-read), programmable integration time, bi-directional TDI scanning, programmable pixel deselection
Charge Handling Capacity	Eight gains from 0.6 to 12.5 million e ⁻ (for 100% well fill)
Electrical Dynamic Range	> 74 dB
Signal Outputs	16
Pixel Output Rate	up to 4MHz per output
Integration Time	20 μ s typical (selectable, depending on frame/output rate)

ARRAY FEATURES

Format	480 lines with TDI on 6 elements
Detector Pitch (cross-scan/in-scan)	49.8 μ m x 25.4 μ m
Detector Size (cross-scan/in-scan)	38 μ m x 28 μ m
Detector Spectral Response	7.7 μ m up to material cut-off (high pass cold filter)
FPA Operating Temperature	77K to 80K

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TYPICAL PERFORMANCE

D* peak RMS / T _{int.} (average)	> 2.6 10 ¹¹ (cm/√ Hz.W ⁻¹) at 300K
Residual Fixed Pattern Noise	low and stable (< NETD)
Non-uniformity	< 5% RMS (σ/mean, 300K uncorrected performance)
Array Operability	> 99% typical (NETD < 2x NETD _{average})

OPTIONS

LW Engine	Complete LW Camera
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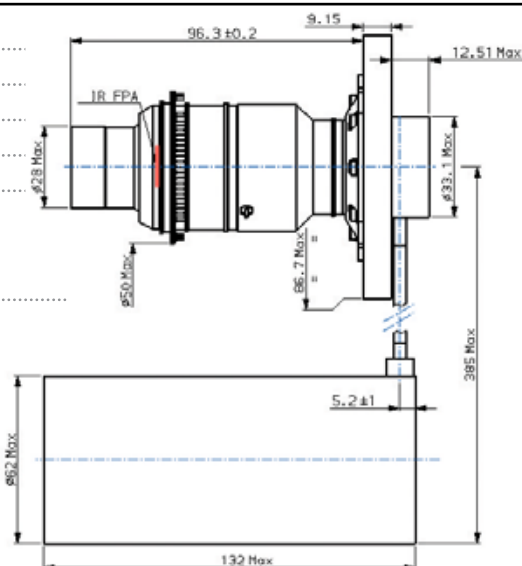
STANDARD CONFIGURATIONS

Mercury LW-LS10



- LS10**
 FOV: f/2.6
 Weight: < 2.1 kg (4.7 lb)
 Operating Temperature: -55°C / +71°C
 Power Supply: 13.5V
 Typical Characteristics at 20°C, 77K:
 Cooldown input power: 60 W_{AC} (*)
 Regulated input power: 25 W_{AC}
 Cooldown time: 4 min., 30 sec.

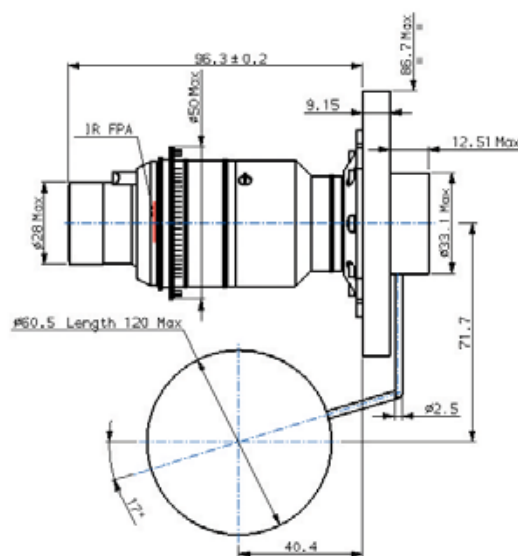
(*) W_{AC} - at cooler pins AC input



Mercury LW-SL150

- SL150**
 FOV: f/2.6
 Weight: < 2.7kg (5.95 lb)
 Operating Temperature: -55°C / +71°C
 Power Supply: 24-32 V
 Typical Characteristics at 20°C, 77K
 Cooldown input power: 90 W_{DC} (*)
 Regulated input power: 30 W_{DC}
 Cooldown time: 4 min.

(*) W_{DC} - at cooler C&C DC input



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