

## MERLIN LONG WAVE INFRARED DETECTOR

SELEX Galileo designs, develops and manufactures Infrared (IR) detectors at its dedicated facility in Southampton, UK. With a reputation for providing customers with the best in high performance and cost-effective technology for IR camera systems, SELEX Galileo offers a unique level of expertise.

The Merlin Long Wave Infrared (LWIR) detector is a 1024 x 768 Mercury Cadmium Telluride (MCT) Integrated Detector Cooler Assembly (IDCA). The Merlin LWIR detector is designed for very high performance imaging in the 8 - 10 $\mu$ m waveband.

Using the SELEX Galileo MCT process, the Merlin LWIR detector provides the highest environmental integrity along with the superior performance of focal plane detectors.

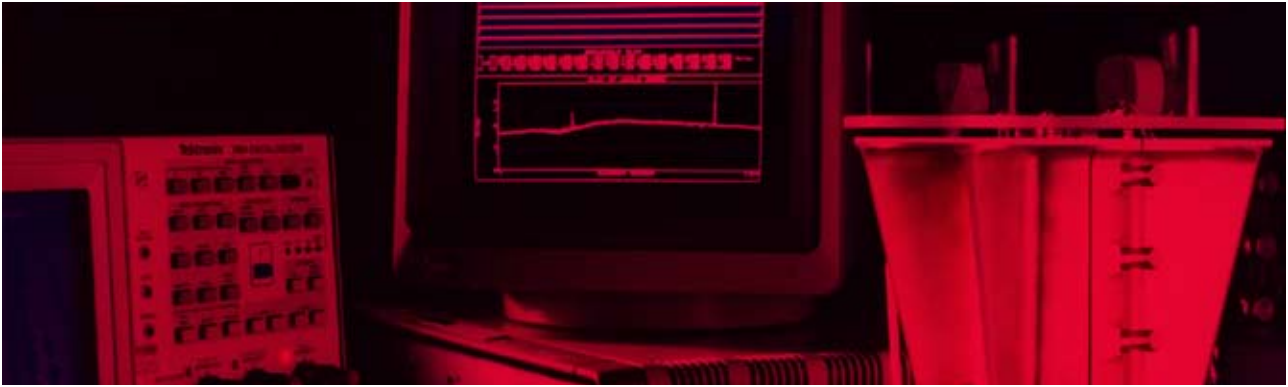
### MAIN FEATURES

- Snapshot or interlaced operation
- Simple to use
- Long Wave (LW) 8 - 10 $\mu$ m
- Interlaced mode doubles charge capacity in each pixel for improved NETD
- High electro-optic performance with low crosstalk, automatic anti-blooming at the pixel level and excellent sensitivity
- Windowing gives enhanced frame rates over selected areas of the array
- Small element pitch enables miniaturisation of the Dewar assembly and optics
- Higher operating temperature than QWIPs
  - Longer cooler life
  - Less in-service support
  - Lower through-life cost
- Extremely short stare times for much less motion blur than QWIPs

### KEY BENEFITS

- Low cost
- Compact
- Ultra high resolution
- High sensitivity

## Merlin Long Wave Infrared Detector



Detector analysis and testing facilities

### TECHNICAL SPECIFICATIONS

#### Format

Array	1024 x 768 pixels
Pixel Pitch	16µm
Active Area	16.38 x 12.29mm

#### Typical Performance

NETD (median)	32mK (23mK interlaced mode)
Pixel Operability	>99%

#### Interface Parameters

Modes	Snapshot or interlaced
Configuration Control	Single serial interface
Output Voltage Range	2.5V
Charge Capacity	7 x 10 <sup>6</sup> electrons (14 x 10 <sup>6</sup> interlaced mode)
Number of Outputs	8
Pixel Rate	Up to 10MHz per output
Intrinsic MUX noise	50µV rms
Array Operating Temperature	Up to 90K
Nominal Operating Voltage	6V
Minimum Pins for Operation	20
Number of Input Clocks	1
Window Material	Germanium
Window Thickness	1.73mm
Cold Filter Material	Silicon
Cold Filter Thickness	0.4mm

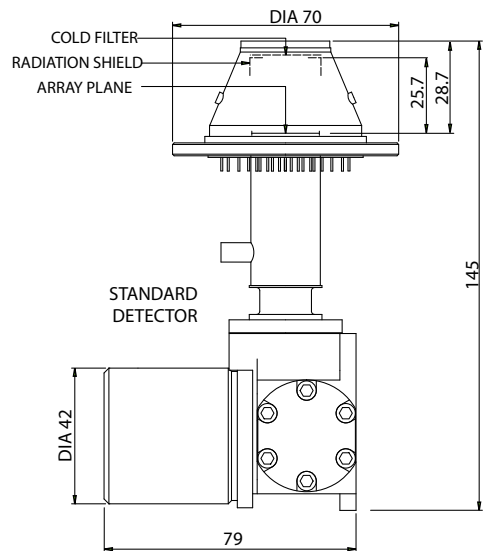
#### IDCA

Weight	<750g
Power Consumption	<10W steady state
Cooling Engine	Rotary Stirling engine
Operating Temperature Range	-40 °C to +70 °C

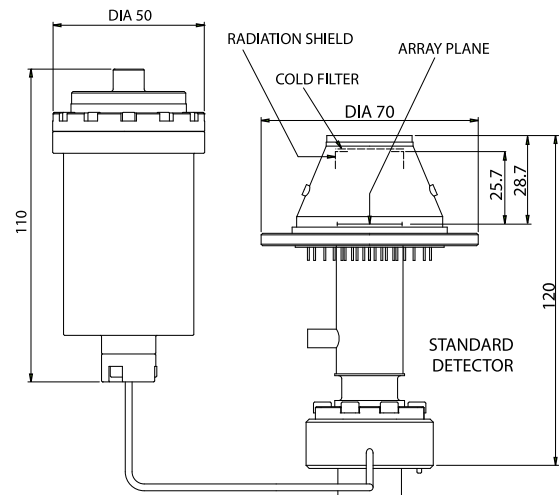
#### LINEAR ENGINE VARIANT

Weight	950g
Power Consumption	<15W steady state
Cooling Engine	Linear Stirling engine
Operating Temperature Range	-40 °C to +70 °C

#### IDCA



#### LINEAR ENGINE VARIANT



All dimensions in millimetres

For more information please email [Infrared.sales@selexgalileo.com](mailto:Infrared.sales@selexgalileo.com)

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