CRYO-640-300Z

640×512 Cooled MWIR Camera · 15–300 mm Zoom

Overview

The CRYO-640-300Z is a complete cooled MWIR imaging unit: a 640×512/15 µm MCT focal plane with integrated Stirling cooler behind 15–300 mm continuous-zoom optics (FOV 35.5°×28.7° → 1.83°×1.47°), NETD ≤40 mK, full-frame video over HD-SDI (720p25) + CameraLink Base (100 Hz). The field-proven function set — auto/manual focus with per-step memory, movable crosshair, 8 palettes, ×2/×4 e-zoom, power-on NUC and BIT — is controlled over RS-422 from a 28 VDC rail, operating -40℃ ~ +60℃.



640×512	15–300 mm	≤40 mK	Stirling
RESOLUTION	CONTINUOUS ZOOM	NETD	COOLED MCT

Key Features

Cooled MCT Sensitivity

- Cooled MCT (HgCdTe) 640×512 @ 15 µm FPA with integrated Stirling cooler (IDDCA)
- NETD ≤40 mK — sees temperature detail uncooled LWIR cannot reach

15–300 mm Continuous Zoom

- Continuous optical zoom, field of view 35.5° × 28.7° → 1.83° × 1.47° (±5%)
- 20 equally-spaced FOV steps with per-step focus memory

Field-Proven Function Set

- Movable crosshair with position memory, white/black hot polarity, 8 palettes
- ×2 / ×4 electronic zoom, image freeze, mirror / flip

Typical Applications



Border & Coastal Surveillance



Airborne & UAV Payloads



Maritime & Shipboard



Critical Infrastructure

Technical Specifications

Thermal Imaging

Detector	Cooled MCT (HgCdTe) MWIR FPA, 640×512 @ 15 µm, integrated Stirling cooler (IDDCA)
Cryocooler	RS058 Stirling
Resolution	640×512
Pixel Pitch	15 µm
Spectral Band	3–5 µm
Detector NETD (23 ℃)	16 mK (F/2) / 18 mK (F4)
NETD	≤40 mK
Frame Rate	50 Hz (100 Hz over CameraLink)
Start-up / Cool-down	≤7 min (room/low temp) / ≤10 min (high temp)

Optics

Lens	15–300 mm continuous zoom, F/4.0
Field of View	35.5° × 28.7° → 1.83° × 1.47° (±5%)
Zoom Travel Time	≤6 s (room temp) / ≤8 s (full range)
Auto Focus Time	≤4 s
Focus Range	5 m ~ ∞

Optical Performance

Boresight stability over zoom	≤4 px (referenced to NFOV axis)
Optical distortion	<5%

Imaging Functions

Crosshair	Load / hide, movable, position memory
Polarity	White hot / black hot
Palettes	8 pseudo-color palettes
E-zoom	×2 / ×4
Image Control	Brightness / contrast auto & manual (AGC: linear / histogram / hybrid), freeze, mirror / flip
Correction	Defocus NUC at power-on; background NUC on command
Image Enhancement	DRC wide dynamic, 2D/3D denoising, EE edge enhancement
BIT	Power-on / start-up / periodic self-test with status feedback

Interfaces

Video Output	HD-SDI (720p25) + CameraLink Base (100 Hz)
Control Interface	RS-422 (115200 bps)

Power, Physical & Environmental

Supply	28 VDC (24~32 V), ≤20 W / peak ≤25 W
Dimensions	≤240 × 115 × 110 mm
Weight	≤2 kg
Mounting	6 × φ4.5 mm through holes
Operating Temperature	-40℃ ~ +60℃
Storage Temperature	-45℃ ~ +70℃
Shock	Half-sine 20 g / 11 ms, 3 axes × 6 directions × 3

Reliability & Compliance

MTBF	≥3000 h (target ≥5000 h)
MTTR	0.5 h field / 2 h depot
Service life	8000 flight hours or 5 years

Specifications subject to change without notice.
Rev. 1.0 · October 2026