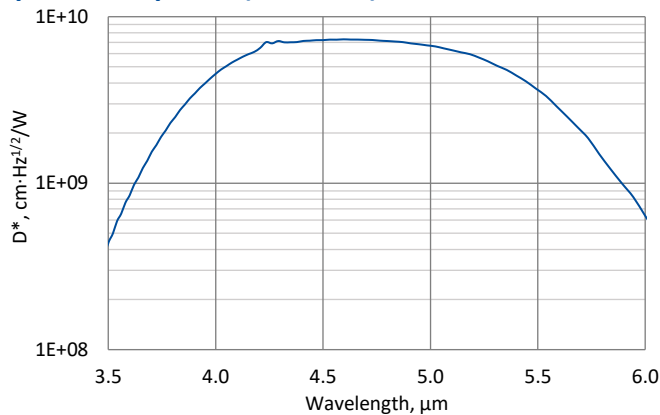


QM-5 – ENGINEERING SAMPLE

3.5 – 6.0 μm and DC – 1 MHz HgCdTe four-channel IR detection module with photovoltaic quadrant geometry detector

QM-5 is „all-in-one“ position IR detection module. Thermoelectrically cooled photovoltaic **quadrant geometry** detector, based on HgCdTe heterostructure, is integrated with transimpedance, DC coupled four-channel preamplifier, a fan and a thermoelectric cooler controller in a compact housing. It is designed to accurately measure the displacement of an incident beam relative to the calibrated center. This device is ideal for measuring the movement of a beam, the distance traveled, or as feedback for alignment systems.

Spectral response ($T_a = 20^\circ\text{C}$)



Exemplary spectral detectivity, the spectral response of delivered devices may differ.

Specification ($T_a = 20^\circ\text{C}$)

Parameter	Typical value
Optical characteristics	
Cut-on wavelength $\lambda_{\text{cut-on}}$ (10%), μm	3.5±0.5
Peak wavelength λ_{peak} , μm	4.5±0.5
Optimum wavelength λ_{opt} , μm	5.0
Cut-off wavelength $\lambda_{\text{cut-off}}$ (10%), μm	6.0±0.5
Detectivity $D^*(\lambda_{\text{peak}})$, cm·Hz ^{1/2} /W	≥7.0×10 ⁹
Detectivity $D^*(\lambda_{\text{opt}})$, cm·Hz ^{1/2} /W	≥6.8×10 ⁹
Output noise density v_n (100 kHz), nV/Hz ^{1/2}	≤500
Electrical parameters	
Voltage responsivity $R_v(\lambda_{\text{peak}}, R_L = 1 \text{ M}\Omega^*)$, V/W	≥1.7×10 ⁵
Voltage responsivity $R_v(\lambda_{\text{opt}}, R_L = 1 \text{ M}\Omega^*)$, V/W	≥1.6×10 ⁵
Low cut-off frequency f_{lo} , Hz	DC
High cut-off frequency f_{hi} , Hz	≥1M
Output impedance R_{out} , Ω	50
Output voltage swing V_{out} ($R_L = 1 \text{ M}\Omega^*$), V	0 – 4
Output voltage offset V_{off} , mV	max ±20
Power supply voltage V_{sup} , V _{DC}	+7.5
Power consumption, W	max 6
Other information	
Active elements material	epitaxial HgCdTe heterostructure
Active areas A, mm×mm	4×(0.2×0.2)
Distance between active elements, mm	0.02
Window	pSiAR
Acceptance angle Φ	~70°
Ambient operating temperature T_a , °C	10 to 30
Signal output sockets	4×MCX
Power supply socket	DC 2.1/5.5
Mounting hole	M4
Fan	yes

* R_L – load resistance

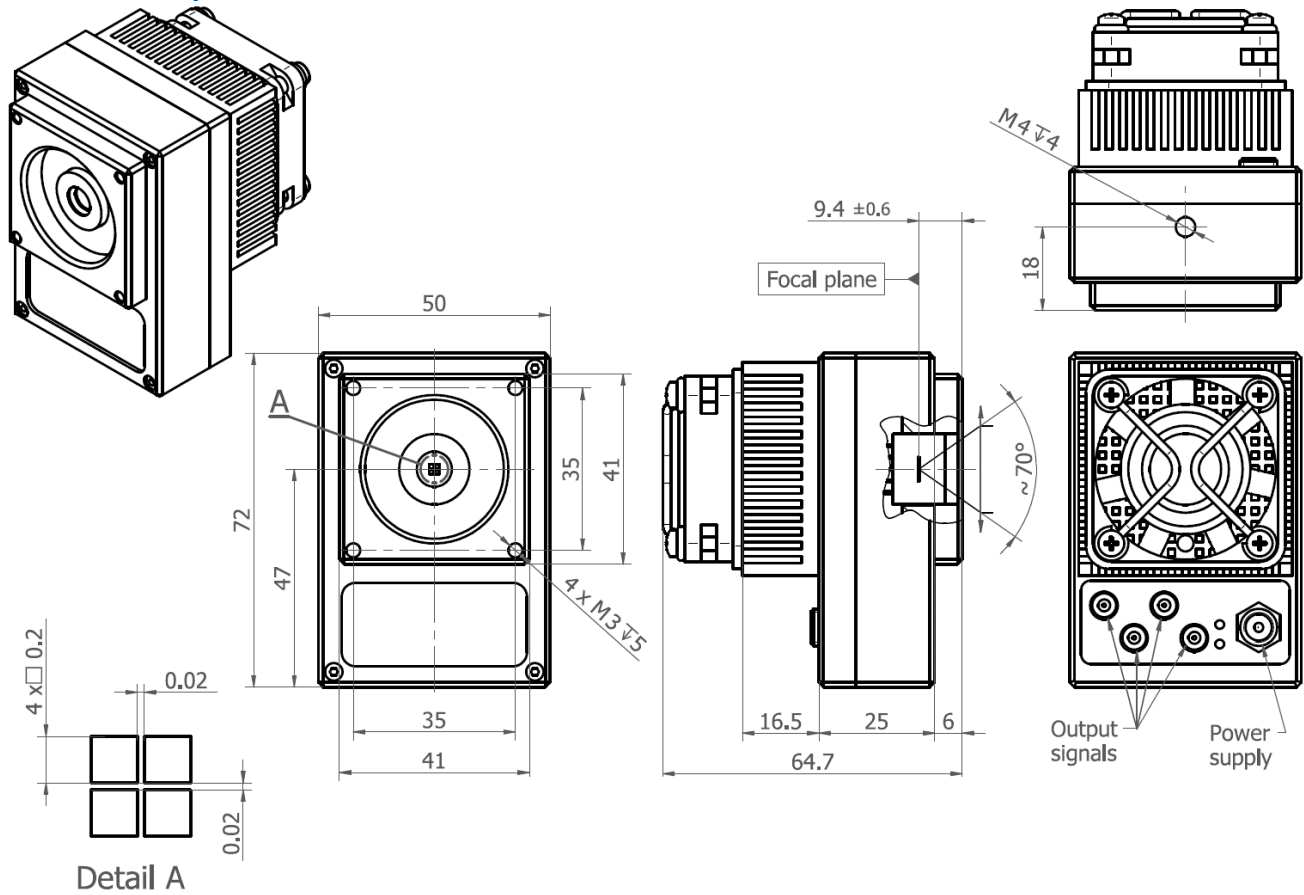
Features

- Four channels
- Low crosstalk
- Single power supply
- Compatible with optical accessories

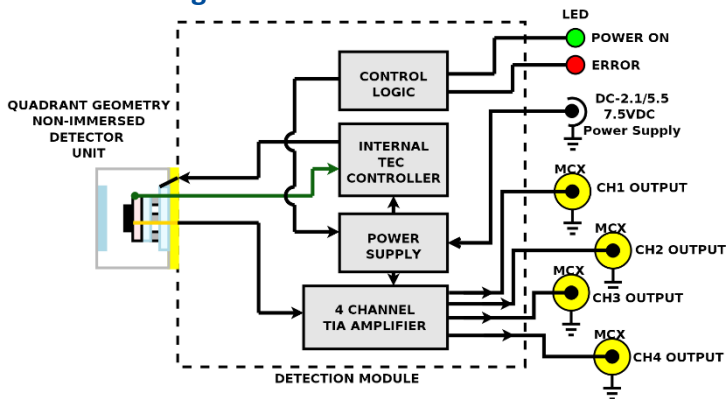
Applications

- Spectrophotometry
- MWIR laser measurements
- Laser power monitoring and control
- Laser beam profiling and positioning
- Laser calibration

Mechanical layout, mm



Schematic diagram



Included accessories

- 4xMCX-BNC cables + AC adaptor

Dedicated accessories

- OTA optical threaded adapter
- DRB-2 base mounting system