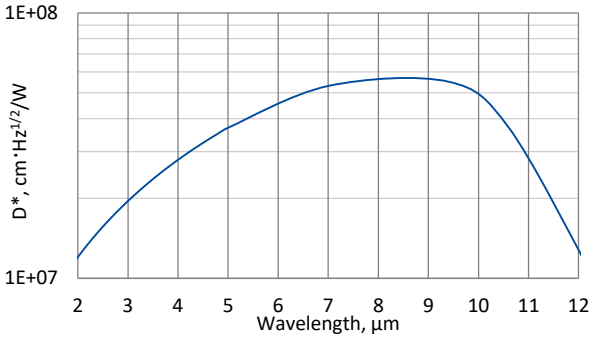
UM-10.6

2.0 – 12.0 µm and DC – 70 MHz HgCdTe universal IR detection module with photovoltaic multiple junction detector

UM-10.6 is an universal „all-in-one" IR detection module. Thermoelectrically cooled photovoltaic detector, based on HgCdTe heterostructure, is integrated with transimpedance, DC coupled preamplifier, a fan and a thermoelectric cooler controller in a compact housing. 3° wedged zinc selenide anti-reflection coated window prevents unwanted interference effects. UM-10.6 detection module is very convenient and user-friendly device, thus can be easily used in a variety of LWIR applications.

Spectral response (T_a = 20°C)



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

Specification (T_a = 20°C)

Parameter	Typical value
Optical parameters	
Cut-on wavelength $\lambda_{cut\text{-}on}$ (10%), µm	≤2.0
Peak wavelength λ_{peak}, µm	9.3±2.0
Optimum wavelength λ_{opt}, µm	10.6
Cut-off wavelength $\lambda_{cut\text{-}off}$ (10%), µm	≥12.0
Detectivity D*(λ_{peak}), cm·Hz$^{1/2}$/W	≥5.0×10^7
Detectivity D*(λ_{opt}), cm·Hz$^{1/2}$/W	≥4.0×10^7
Output noise density v_n (averaged over 1 MHz to f_{hi}), nV/Hz$^{1/2}$	≤380
Electrical parameters	
Voltage responsivity R_v(λ_{peak}), V/W	≥1.6×10^2
Voltage responsivity R_v(λ_{opt}), V/W	≥1.0×10^2
Low cut-off frequency f_{lo}, Hz	DC
High cut-off frequency f_{hi}, Hz	≥70M
Output impedance R_{out}, Ω	50
Output voltage swing V_{out}, V	±2 (R_L = 1 MΩ*)
Output voltage offset V_{off}, mV	max ±20
Power supply voltage V_{sup}, V	+5
DC monitor (approx. 0 V offset)	
Voltage responsivity R_v (λ_{peak}), V/W	≥3.6×10^1
Voltage responsivity R_v (λ_{opt}), V/W	≥2.4×10^1
Low cut-off frequency f_{lo}, Hz	DC
High cut-off frequency f_{hi}, Hz	150k
Other information	
Active element material	epitaxial HgCdTe heterostructure
Active area A, mm×mm	1×1
Window	wedged zinc selenide AR coated (wZnSeAR)
Acceptance angle Φ	~70°
Ambient operating temperature T_a, °C	10 to 30
Signal output socket	SMA
DC monitor socket	SMA
Power supply socket	DC 2.5/5.5
Mounting hole	M4
Fan	yes

*) R_L – load resistance

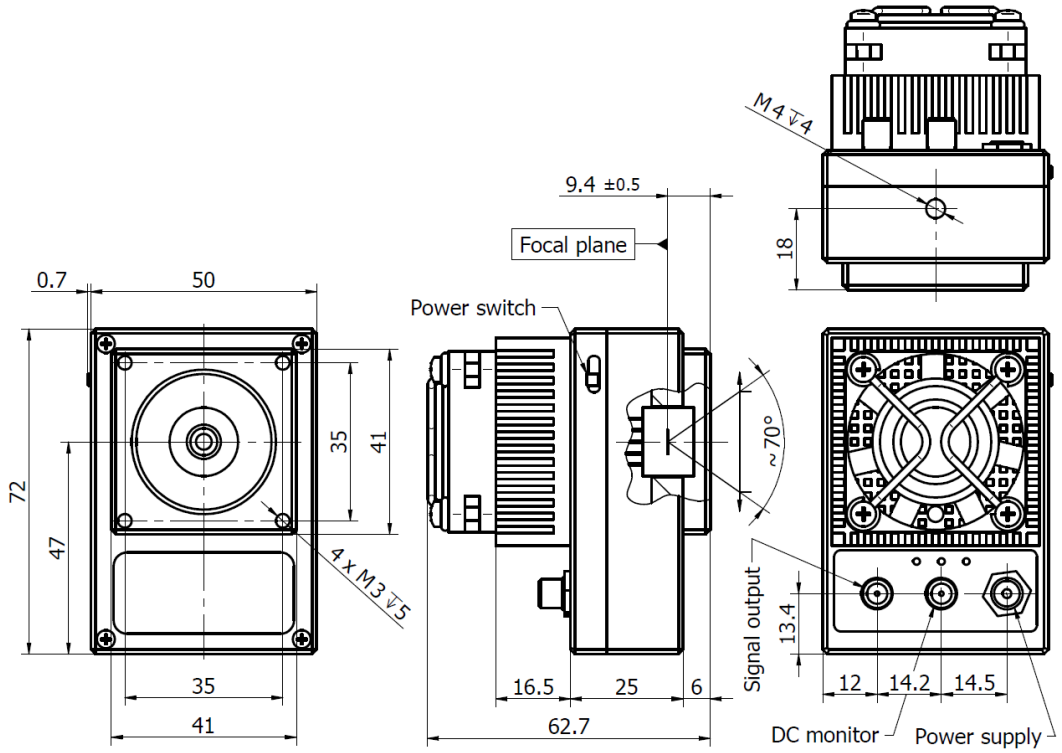
Features

- Integrated TEC controller and fan
- Single power supply
- DC monitor
- Sensitive to IR radiation polarisation
- Optimised for effective heat dissipation
- Compatible with optical accessories
- Cost effective OEM version available
- Universal and flexible
- Quantity discounted price
- Fast delivery

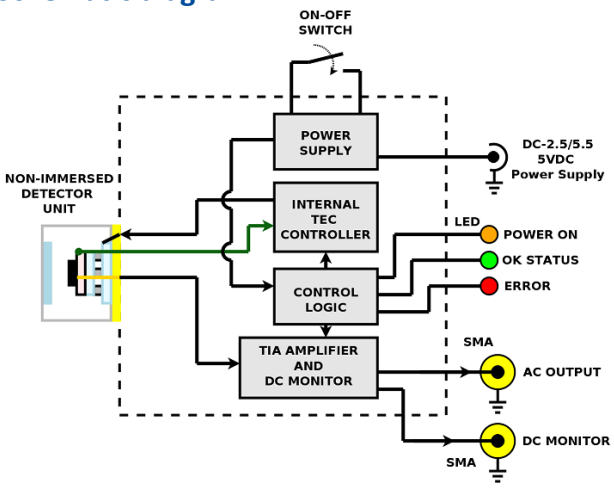
Applications

- Gas detection, monitoring and analysis
- CO_2 laser (10.6 µm) measurements
- Laser power monitoring and control
- Laser beam profiling and positioning
- Laser calibration

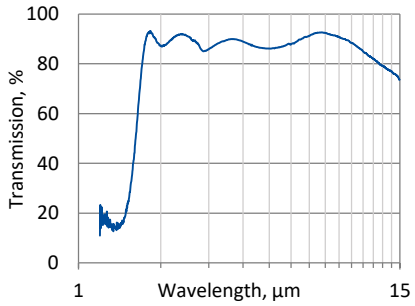
Mechanical layout, mm



Schematic diagram



Spectral transmission of wZnSeAR window (typical example)



Included accessories

- 2×**SMA-BNC** cables + **AC adaptor**

Dedicated accessories

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