

## FOV-Expansion Development Kit

Optotune's FOV-Expansion Development Kit combines the 2D fast steering mirror with the liquid to replicate the principle of the human eye. The mirror allows to steer the field of view (FOV) while the lens enables fast focussing. This Development Kit features two imaging systems with a wide angle objective for overview and a narrow angle objective (50mm or 75mm) for high resolution in the area of interest. This Development Kit is accompanied with Software to demonstrate its suitability for surveillance and inspection applications (face recognition, autofocus, area of interest selection).



### Mechanical specifications

Outer dimensions w/o drivers & cabling (WxDxH)	115 x 84 x 200	mm
Weight w/o drivers & cabling	650	g
Mounting	M4 post / M6 through holes	
Camera cable length	3	m
Lens cable length	1	m
Mirror cable length	1	m

### Optical specifications

Resolution	6 (50 mm lens) 4 (75 mm lens)	mdeg
Focal length of wide-angle lens	4	mm
F# of wide-angle lens	f/2.0	
Wide-angle FOV (H x V)	67 x 84	°
Focal length of narrow-angle lens	50 or 75	mm
F# of narrow-angle lens	f/2.8 (50mm) f/2.8 (75mm)	
Narrow-angle FOV (H x V)	8.2 x 6.1 (50 mm lens) 5.5 x 4.1 (75 mm lens)	°
Focal tuning range	250 – Infinity	mm
Camera	Daheng MER2-302-56U3C	
Sensor	Sony IMX265 CMOS 1/1.8"	
Camera resolution	2048 x 1536	pxl
Pixel size	3.45 x 3.45	µm
Sensor size	7.18 x 5.32	mm
Shutter type	global	

### Electrical specifications and interfaces

Total Power consumption (typ.)	10	W
Required current on USB (Powered USB Hub not included)	1.5 (at 5V)	A
Camera interface	USB 3.0	
Mirror controller (MR-E-2) interface	USB 2.0	
Lens controller (EL-E-4i) interface	USB 2.0	USB extension included

### Standard Configurations

Configuration	Objective	
FOV Expansion Dev Kit (50 mm)	50 mm	
FOV Expansion Dev Kit (75 mm)	75 mm	

## Hardware Components

- Fast steering mirror, MR-E-2 head unit (DVIS)
- Mirror controller, MR-E-2 base unit
- Focus tunable lens, EL-16-40-TC-VIS-5D<sup>1</sup>
- Lens controller, EL-E-4i
- 2x industrial camera, Daheng MER2-302-56U3C<sup>2</sup>
- Wide-angle objective, 4 mm lens
- Narrow-angle objective, 50 mm or 75 mm
- UV/IR-cut filter in front of narrow-angle camera
- Lens cable, CAB-6-100, 1 m long
- 2x USB3 cable, 3 m long (USB-hub not included, 1.5 A needed)
- Black anodized aluminium mount (can be shifted along optical axis)
- Packaged in aluminium case:

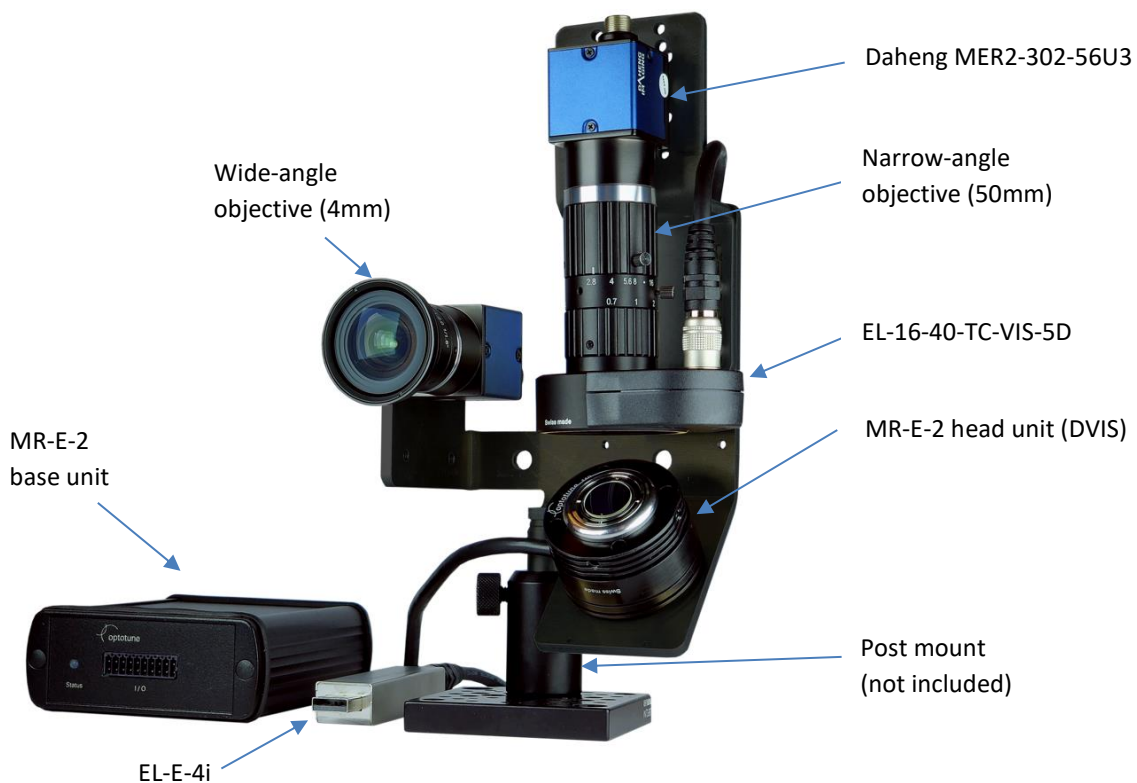


Figure 1: Hardware Components included in FOV Expansion Development Kit

<sup>1</sup> The filter threads for the 50 mm and 75 mm objectives are different. The 50 mm lens is paired with EL-16-40-TC-VIS-5D-M27 whereas the 75 mm lens comes with EL-16-40-TC-VIS-5D-M30.5.

<sup>2</sup> Other Genicam compliant cameras are supported by both software (Optotune Cockpit) and hardware (mounting holes).

## Mechanical layout

Figure 2 shows cameras, the lenses and the mirror without cables and drivers. The unit can be mounted on an optical post (M4). Alternatively, the two M6 clearance holes may be used for mounting.

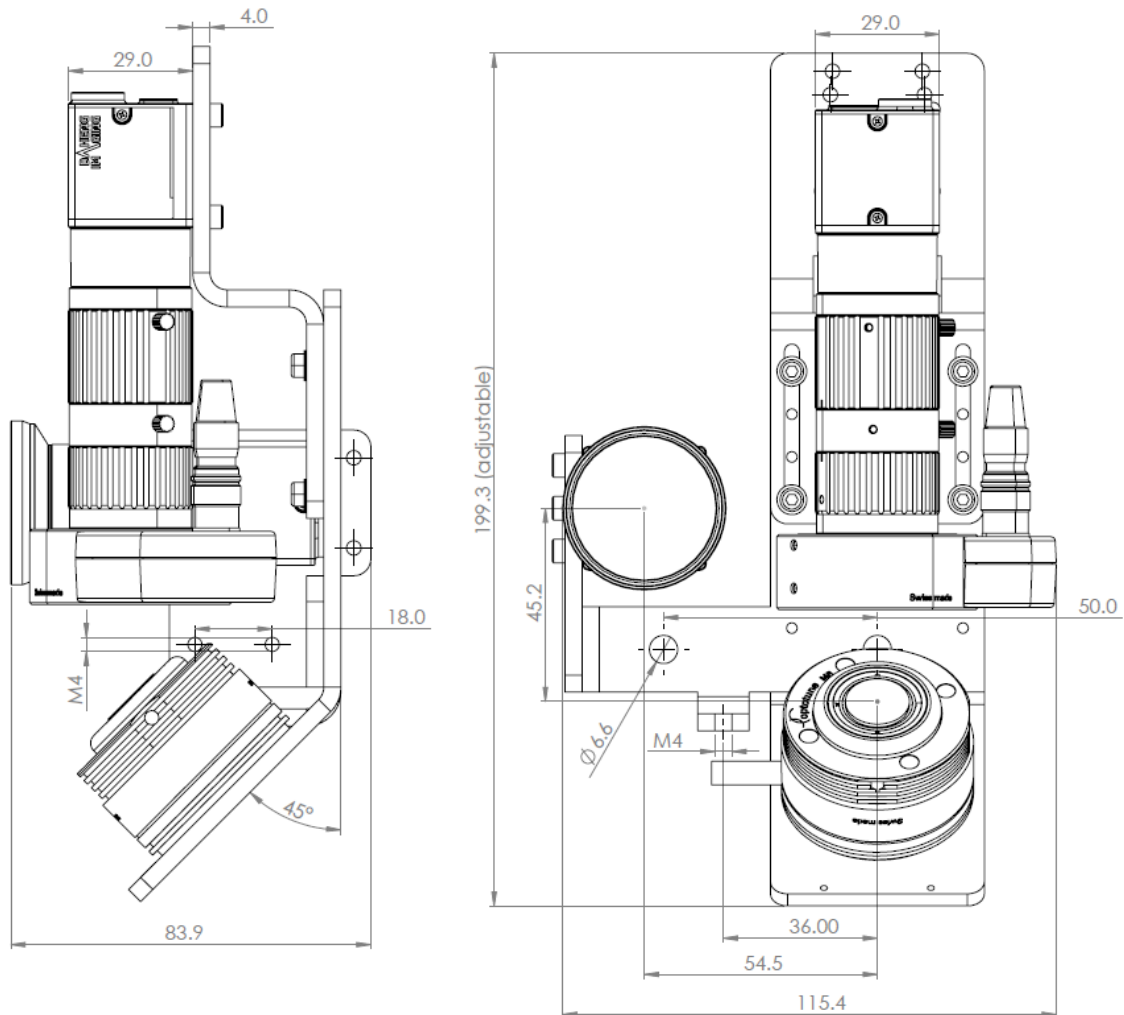


Figure 2: Mechanical drawing of the FOV Expansion Development Kit. The units are in mm.

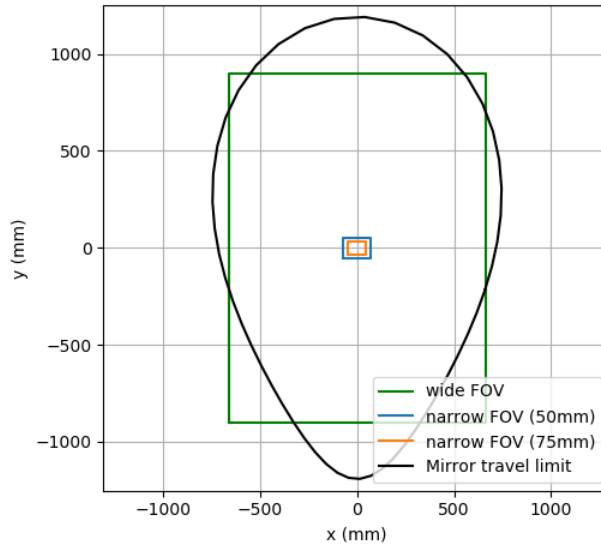


Figure 3: Size comparison between the different field of views, at a 1m distant plane. The narrow angle FOV can be steered around within the mirror travel limits.

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