

## ELM-12-5.6-11-C



### Lens module specifications

Effective focal length	12.0	mm	
F/#	5.6	(Fixed)	
Maximum sensor format	2/3	inch	
Maximum image circle (Φ)	11.0	mm	
Lifecycles (10-90% sinusoidal)	>1'000'000'000	cycles	
FOV (at max sensor format)	Diagonal	50	°
	Horizontal	38	°
	Vertical	32	°
Back Focal Length	8.2	mm	In air
Optical Distortion	< 1.5	%	
Pixel size recommended	3.45	μm	
Wavelength range	486-656	nm	
Relative illumination	> 84	%	
Max chief ray angle	4.7	°	
Working distance range	100 to Inf	mm	
Mount	C-mount		
Connector type	Hirose		6 pins
Total Track Length	54.9	mm	Liquid Lens included
Dimension (Φ x L)	30.0 x 37.4	mm	
Operating temperature	0 to +40	°C	
Storage temperature	0 to +50	°C	

### Electrical specifications

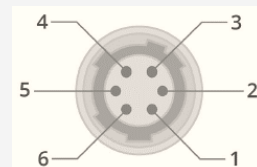
Control current (typical)	-120 to +120	mA	
Operating voltage	-1...1	V	
Power consumption (full tuning range)	0 to 100	mW	$P = R_{Coil} \times i^2$
Power consumption (+/- 5 dpt tuning range)	0 to 15	mW	
Settling time	2 to 4	ms	Low pass filtered / normal step signal

### Focus tunable lens specifications

EL-3-10-VIS-26D

Focal power range (@20°C)	-13 to +13	dpt	
Wavefront error @525nm (vertical/horizontal optical axis)	<0.2/<0.2	λRMS	
Temperature compensation	Yes		If ITALIA G.EL camera series used

Hirose connector (HR10A-7R-6PB)	Function	Sensor pins
Pin 1	Control current +	-
Pin 2	Control current -	-
Pin 3	Ground	1-4
Pin 4	Power	8
Pin 5	I <sup>2</sup> C SCL	6
Pin 6	I <sup>2</sup> C SDA	5

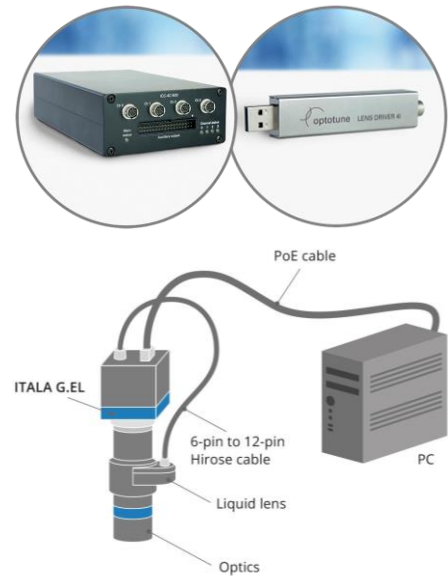


## Controller

The liquid lens is controlled with electrical current and must be operated by a suitable lens controller. Hirose cables and liquid lens controllers are sold separately. The following controllers are considered fully compatible with ELM-12-5.6-11-C:

- Optotune lens driver EL-E-4i
- Optotune industrial controller ICC-4C-500

This lens module can also be controlled by Opto Engineering's ITALA G.EL camera series, which offers thermal compensation (Focal Power Mode).



## Mechanical drawings

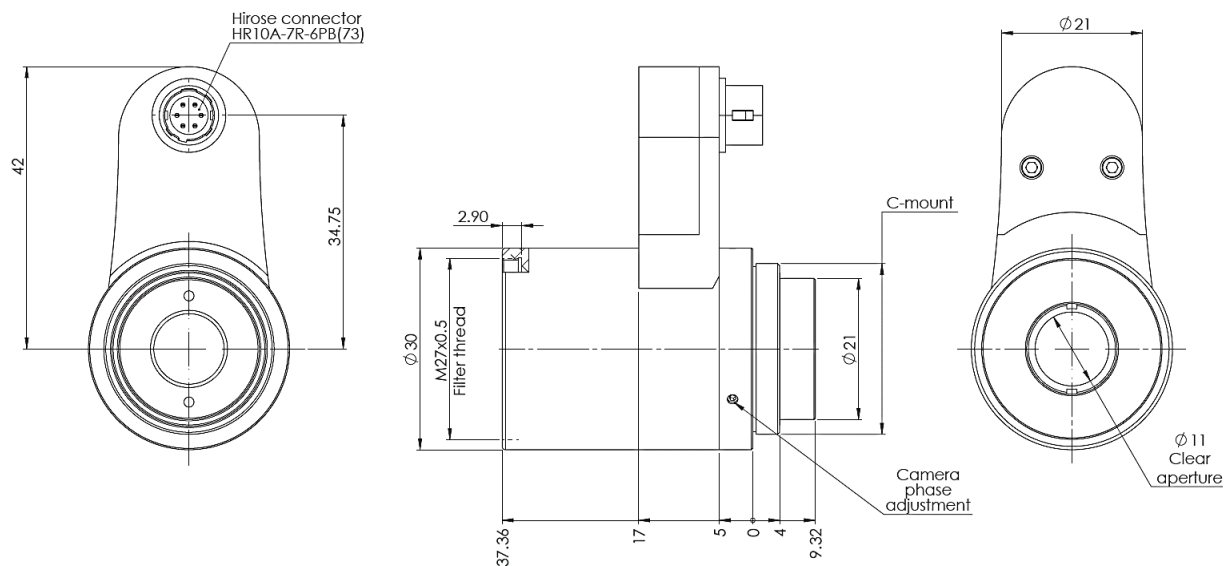


Figure 1: Mechanical drawing of the ELM-12-5.6-11-C