ELM-16-5.6-11-C

Lens module specifications

Effective focal length		16.0	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	38	°	
	Horizontal	29	°	
	Vertical	24	°	
Back Focal Length		10.0	mm	In air
Optical Distortion		< 0.6	%	
Pixel size recommended		3.45	µm	
Wavelength range		486-656	nm	
Relative illumination		> 87	%	
Max chief ray angle		12.5	°	
Working distance range		160 to Inf	mm	
Mount		C-mount		
Connector type		Hirose		6 pins
Total Track Length		58.7	mm	Liquid Lens included
Dimension (Φ x L)		30.0 x 41.2	mm	
Operating temperature		0 to +40	°C	
Storage temperature		0 to +50	°C	

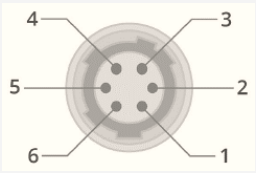
Electrical specifications

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 ITALA 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^2C SCL	6
Pin 6	I^2C SDA	5

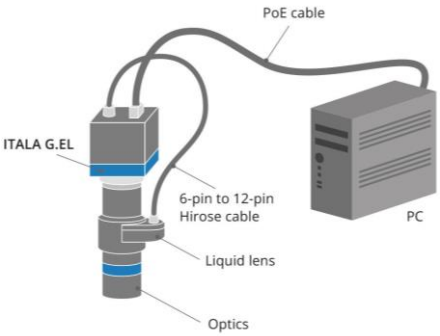


Controller

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-16-5.6-11-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

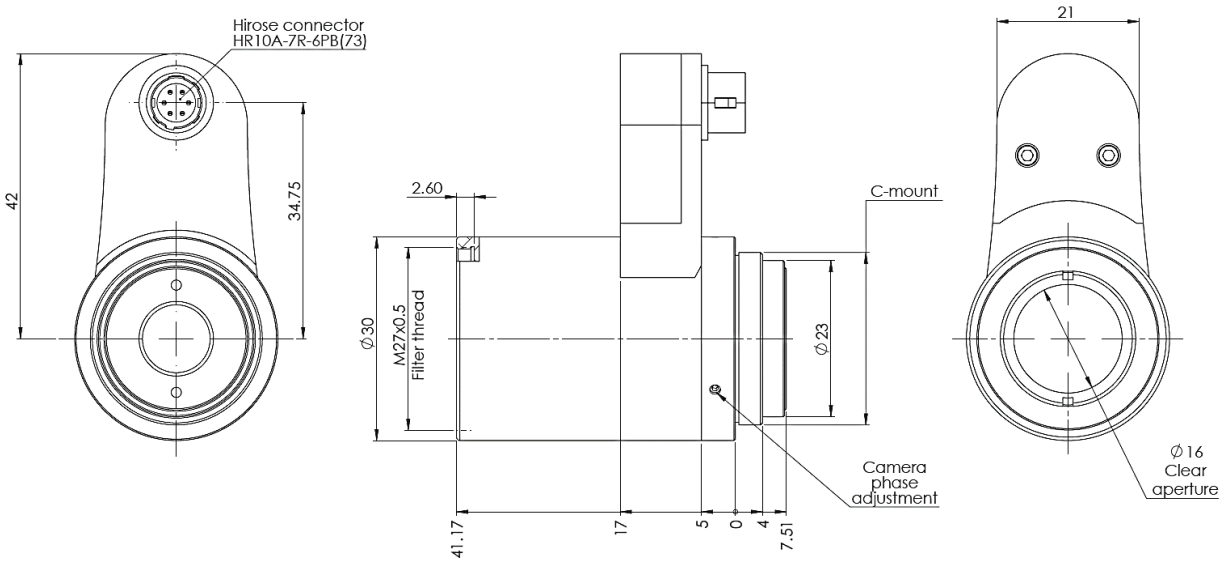


Figure 1: Mechanical drawing of the ELM-16-5.6-11-C