

## TS28.6mm-6.0-65-EL

### Lens module specifications

Focus tunable lens (Optotune)	Model	EL-16-40-TC-VIS-5D			
	Focal power	-2	0	+3	dpt
Magnification		5.897	6.004	6.163	X
F/#			30.2		(Fixed)
Maximum sensor format			1.76		inch
Image circle (Φ)			28.6		mm
FoV (at max sensor format) H x V		3.8×2.9	3.7×2.8	3.7×2.7	mm
Working distance		70	66	60	mm
Field depth			0.03		mm
Optical leverage			2		mm/dpt
Optical Distortion		≤0.1	≤0.1	≤0.1	%
Telecentricity		≤0.1	≤0.1	≤0.1	°
Pixel size recommended			3.45		μm
MTF @ 50 lp/mm			2		%
Wavelength range			400-700		nm
Lifecycles (10-90% sinusoidal)			>1'000'000'000		cycles
Mount			F		
Dimension (Φ x L)			Φ60×143.8		mm
Weight			284		g

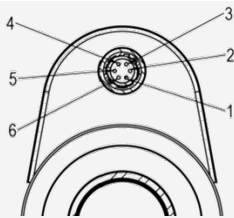
### Focus tunable lens specifications EL-16-40-TC-VIS-5D

Focal power range (@30°C) <sup>3</sup>	-2 to +3	dpt
Wavefront error (at 525 nm & 0 mA) Optical axis vertical / horizontal	<0.25/<0.5	λRMS
Operating temperature	-20 to +65	°C
Storage temperature	-40 to +85	°C
Temperature sensor & memory	STTS2004	(STMicroelectronics)

### Electrical specifications

Control current (typical)	-250 to +250	mA
Absolute max. control current	-500 to 500	mA
Power consumption	0 to 0.7 (nominal) 0 to 2.8 (absolute max.)	W
Motor coil resistance @ 30°C	12	Ω
Absolute maximum voltage (coil)	10	V
Absolute maximum voltage (temp. sensor)	4.3	V

Hirose connector (HR10G-7R-6P)	Function	Sensor pins
Pin 1	Control current +	-
Pin 2	Control current -	-
Pin 3	Ground	1-4
Pin 4	Power (3.3V)	8
Pin 5	I <sup>2</sup> C SCL	6
Pin 6	I <sup>2</sup> C SDA	5



### Controller

The TS28.6mm-6.0-65-EL can be controlled by Optotune’s EL-E-4i lens driver by simply connecting the cable with the Hirose connector to the Hirose connector of the lens controller. It’s important to note that +/-250 mA is required to tune across the whole optical power range. As the lens driver can output more current, it has to be connected to the PC without the lens connected first. Then, in the “Hardware Configurations” tab, the software limit has to be set to +/-250 mA. Afterwards the lens controller can be disconnected, the lens connected to the lens controller and the lens controller connected back to the PC. The current will now only be adjustable from +/-250 mA, hence an overdriving of the lens can be prevented.



Additional selection of controllers is available at <https://www.optotune.com/controllers>

### Mechanical drawings

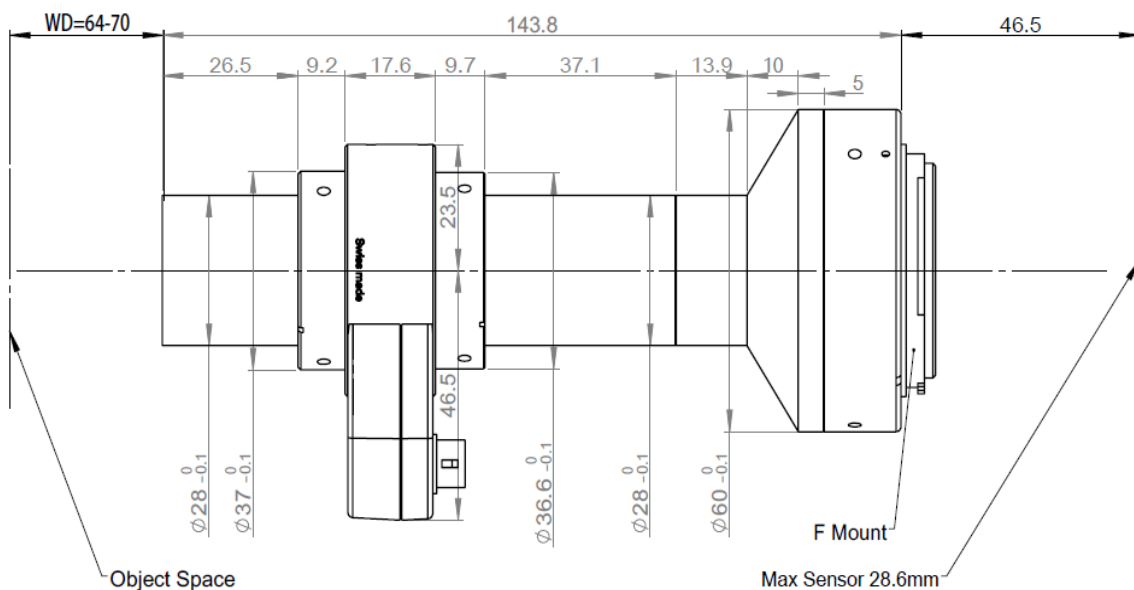


Figure 1: Mechanical drawing of the TS28.6mm-6.0-65-EL

For more information on optical, mechanical and electrical parameters, please contact [sales@optotune.com](mailto:sales@optotune.com)