



DP15 SPECIFICATIONS

APPLICATIONS

- UAV sensors
- Targeting systems
- Machine vision
- Laser control
- Laser machining
- Illumination
- 3D scanning
- Imaging
- Ophthalmology
- Display systems
- Adaptive zoom



KEY FEATURES

Large clear aperture 15 mm

Dioptric range

Focal power range: 3 D;

Focal length range: 200 to 500 mm

Low power

< 1 mW holding power (steady-state);
Actuation power scales with frequency
(see p. 2)

Low mass 40 g

Fast response time 13 ms

Orientation independent

Free from gravity-induced optical
aberrations regardless of orientation

Rugged polycarbonate housing

Wide temperature range

Storage: -50 to 85 C;

Operating: 12 to 55 C

DESCRIPTION

DIOPTAR™ is HoloChip's latest adaptive lens family. The DP15 features a 15-mm clear aperture and large dioptric range. The DIOPTAR™ lens family are constructed from injection-molded polycarbonate, enabling a light-weight and rugged solution for numerous imaging applications. Further, the DIOPTAR™ lens family utilizes an all capacitive actuation subsystem requiring almost zero holding power.

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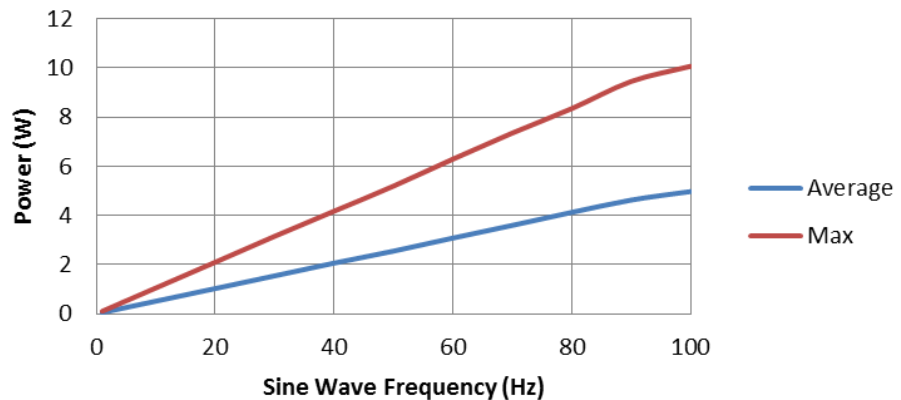
FEATURES

- Low power
- Large dioptric range
- Repeatable focusing
- Fast response time

POWER CONSUMPTION

The DP15 is an electrically-actuated adaptive fluidic lens whose focal length is controlled by the application of voltage. The lens exhibits its longest focal length when no voltage is applied; and shortest when the maximum voltage is applied. Lens actuation may be achieved by the application of 0 to +440 VDC (peak-to-peak) from any power supply intended to drive a purely capacitive load (high voltage low current). The lens draws a small amount of power when the focal length is changed, and nearly no power (< 1 mW) to maintain a specific focal length. Current draw is a function of actuation frequency and total power draw scales linearly. A power draw vs. frequency plot for the DP10 driven with a 0 to +440 VDC sinusoidal signal is shown below.

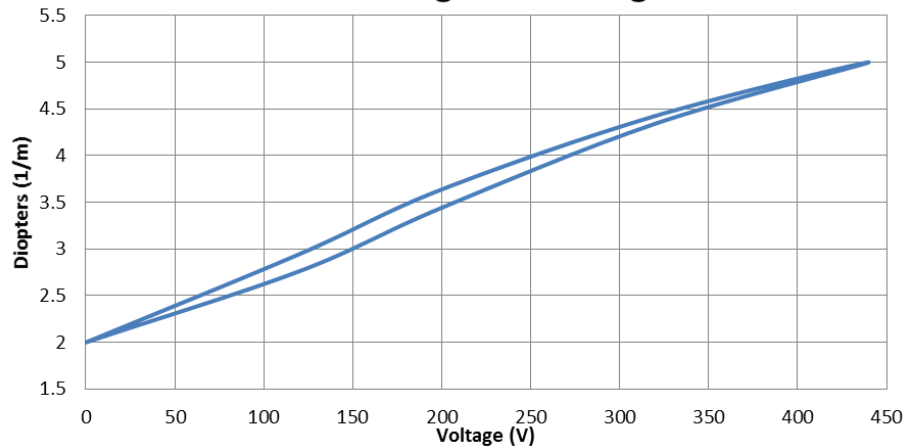
Power Draw vs Frequency 440 volt peak-to-peak



FOCAL LENGTH CONTROL

The variation in focal length of the DP15 is repeatable but will vary slightly between. Additionally, as seen in the figure below, the lens exhibits a small degree of hysteresis (i.e. the focal length vs. voltage curve will be difference when the voltage is increasing than when decreasing). Hysteresis is repeatable.

Focal Length vs. Voltage



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DIOPTAR™ Adaptive Lenses Model DP15

HOLOCHIP®

FEATURES

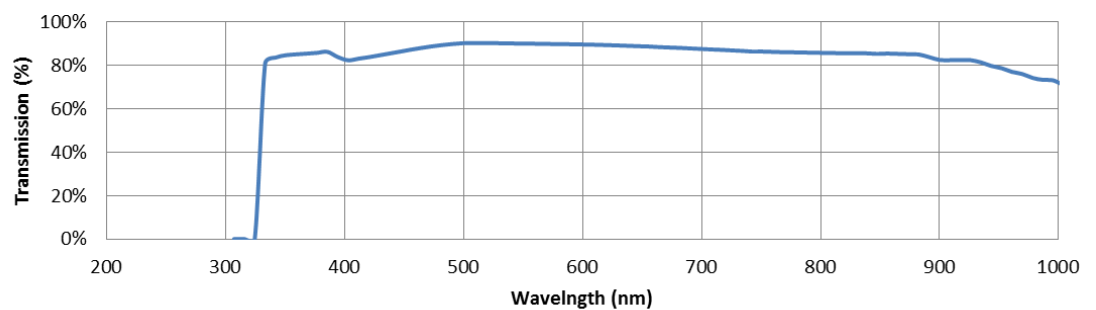
(continued)

- Wide spectral range
- Customizable
- Long lifetime
- Compact
- Easy mounting

SPECTRAL RANGE

The DP15 exhibits approximately 90% transmission across the visible and near-IR spectral range. Custom options are available for high transmission across other spectral bands. Contact us for more information.

Transmission vs Wavelength

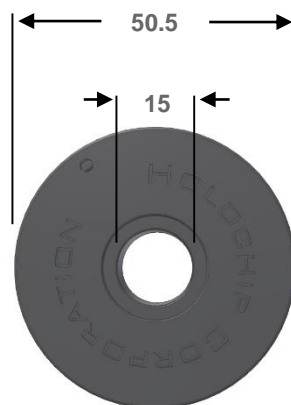


LIFETIME

The DP15 has been subjected to more than 10 million sinusoidal and 10 million square-wave actuation cycles and maintained consistent performance with regards to focal length variation and power consumption.

DIMENSIONS AND MOUNTING

The DP15 has a diameter of 50.5 mm (1.98") and an axial thickness of 12.5 mm (0.49"). The lens is designed to be mounted in a standard 2" diameter lens tube with accompanying retaining ring (for example, model no. SM2L10 lens tube manufactured by Thorlabs®).



Dimensions in mm



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