varioptic

PRODUCTS

Arctic Series Liquid Lens

Technology Assessment Program & Evaluation Kit

Introduction

Varioptic's liquid lens technology is a breakthrough in the possibilities for designing variable focus small aperture lens systems.

Varioptic recognized the wide interest in gaining insight to such a breakthrough technology and has put in place a program to facilitate this. Interest ranges from university research teams, to organizations looking to use the technology commercially.

To accommodate the needs of the different interest groups, the Technology Assessment Program (TAP) is structured to provide two levels of access to the technology and interaction with Varioptic:

- Technology Assessment Program - this includes 5 lenses, the equipment necessary to operate the lenses, drawings and user's guides. We also provide documentation and technical support for optical and reliability testing, together with sample data. Technical support is available by email or phone, or by visiting our offices for a period of three months.

- Lens Evaluation Kit - this includes 5 lenses, the equipment necessary to operate the lenses, drawings and user's guides, so you can evaluate the liquid lens performance.

It must be stressed that TAP gives no rights to use the technology for any purpose other than evaluating the lens technology (so development of products based on the lenses or information provided is excluded). For organizations that would like to develop products incorporating liquid lenses, we have a flexible business model offering a number of product design or technology licensing options. Obviously we would be happy to discuss these with you.

Release : January 2006

There are 3 basic components

- Lens
- Lens holder
- Power supply (lens driver system)

A short description of each of these is given in the following sections.

Varioptic Liquid Lens

	Item	Unit	-20°C to +60°C
Mechanical	Pupil diameter	mm	3
	Dimensions	mm	Φ10.5 x 2.5
Optical	Focal range	diopter	> 20
	Offset dioptric power	diopter	-5 ±3
	Wave front error (RMS)	µm	<0.5
	Minimum transmittance (400 to 700 nm)	%	>90
Electrical	Driving voltage (at 1kHz)	Vrms	0 - 60
Environmental	Storage temperature	°C	-40 to +85
	Operating cycles		> 1,000,000

Note: - Response time is 100ms typical
- Dissipated Power is <1 mW typical

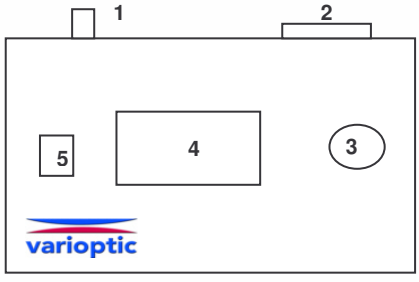
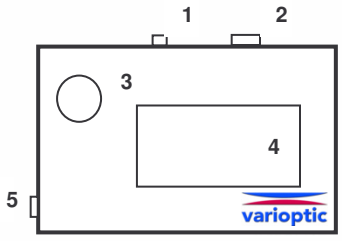
Lens Holder

A voltage needs to be applied to operate the lens, so the lens holder is provided as the means of doing this for evaluation purposes.

Lens Driver Power Supply Unit

Two driver/power supply options are available and which you choose depends on how you propose to test the lenses. The main considerations are:

- Portability – the VPS048 is much smaller and has a rechargeable battery, compared with the VPS060 which is mains powered only
- Programmability – the VPS060 is LabVIew compatible, whereas the VPS048 accepts any PC-based programming via USB interface

VPS-060	**VPS-048**
• Typically, the VPS-60 is used in the stand-alone mode. • A potentiometer allows voltage to be varied between 0-60Vrms. The display allows voltage monitoring. • Push button disables/enables the output to apply step changes in voltage • Remote-control is possible via a 0-5v BNC connector.	• Typically, VPS-048 is used in a remote-controlled mode (but can be used in stand-alone mode if the USB cable is not connected). • Close to real time architecture and can be controlled via the USB port.
Size: 162x192x70 Weight: 1.4Kg Power supply: 110/220Vac mains Output: sinusoidal 	Size: 68x115x25 Weight: 164g Power supply: Li-Ion embedded battery Output: pseudo square wave 
1- BNC connector: 0-5v input remote controlled. 2- 110/220VAC input 3- Potentiometer 4- Voltage display 5- Enable/disable output 	1-2 Wires lens connector 2- Mini-Usb connector (PC controlled) 3- ON/OFF potentiometer (stand alone mode) 4- LCD status display 5- Connector to charge the embedded battery 

Documentation

- Power supply (VPS060 or VPS048) user's guide
- Varioptic Liquid lens mechanical drawing
- Lens holder drawing
- Lens test results - the diopter vs voltage characteristics of each of the lenses we send to you
- Data for optical simulation: pdf format and Zemax library file
- Lens Optical & Electrical Test Methodologies – a comprehensive explanation of the testing methodologies we use, including transmittance, cosmetic and electrical testing. This document also includes Sample Data Set.

Contents

	Lenses	Lens Holder	Power supply	Documentation and Support
Technology Assessment Program	5	5	VPS-048 or VPS-060	• User's guides • Lens and holder drawings • Lens test results • Data for optical simulation • Lens Optical & Electrical Test Methodologies • Technical support (6months)
Lens Evaluation kit	5	1	VPS-048 or VPS-060	• User's guides • Lens and holder drawings • Lens test results

Next Steps

If you wish to take part in the Evaluation Kit or Technology Assessment Program, we will ask you to agree our NDA (confidentiality agreement).

Please contact Varioptic on +33 (0)4 37 65 35 31 or contact@varioptic.com