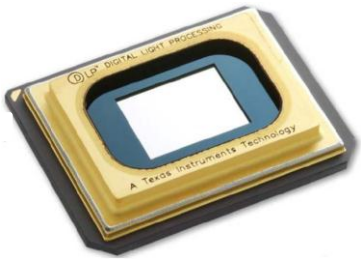
DLP® V-Modules

High-Performance DLP® subsystems



The DLP® V-Modules of ViALUX are based on the DLP® Discovery™4100 platform and represent the highest performance class of DLP® catalog products available.
DLP® V-Modules offer unique flexibility in mirror control enabling a wide variety of new emerging applications. Outstanding pattern frequencies of 22727 global array updates per second are achieved taking advantage of the 50 Gbit/s bandwidth of the DLP® Discovery™ chipset.
The usable spectral range covers all wavelengths from 350 nm UVA to 2 500 nm NIR. The „A-Type“ DMD package has efficient cooling options enabling up to 60 W sustained optical power transfer per DMD.

All DLP® V-Modules enable a rapid launch into DLP® application development. The DLP® controller boards come with completely configured high speed FPGA logic and USB controller firmware so that customers save time and costs for a dedicated hardware and firmware development. DLP® V-Modules are well suited for education, academic research, proof of concept, and also as OEM components for series production.

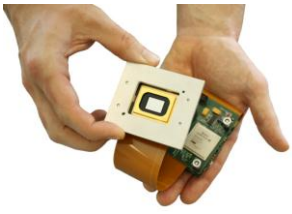
The high-performance Discovery™4100 chipset of the DLP® V-Modules is driven by the DLP® Controller Suite ALP-4. The ViALUX proprietary FPGA design is the core of the well proven ALP-4 firmware and software. The industrial grade USB 2.0 device driver for all current Microsoft® Windows® operating systems guarantees smooth integration with any type of PC. Multiple V-Modules can be controlled from one computer simultaneously. The USB 2.0 transfer is speeded up by lossless compression achieving effective PC transfer rates of up to 1.2 Gbit/s. The DLP® V-Module software API, a DLL library, fits seamlessly into standard programming platforms like C++, .NET, LabVIEW, MATLAB.

Three DLP® V-Modules are available and two windows can be selected for use with visible or ultra-violet light.

V-7000	with 0.7“ XGA DMD for visible or ultra-violet light
V-9500	with 0.95“ 1080p DMD for visible or ultra-violet light
V-9600	with 0.96“ WUXGA DMD for visible light only

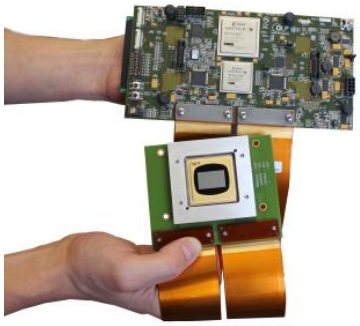
Two different PCBs are used covering the three DMD formats: V4100 and VX4100.

V4100 Board for V-7000



The ViALUX V4100 Board is optimized for the 0.7” XGA DMD and the customer take advantage of the small footprint and the flexibility of the PCB. It is a monolithic double-FPGA PCB without connectors between FPGAs and DMD. This makes it robust and well suited for industrial use.

VX4100 Board for V-9500 and V-9600



The VX4100 Board supports the largest DMDs with 0.95” and 0.96” diagonal array size, respectively. The control and data lines for the 2xLVDS DMD are put into two flexible cables of 5” or 12” length giving a high degree of freedom for the optical arrangement.

V-Module Specifications

	V-7000	V-9500	V-9600
DLP® Chipset Family	Discovery™ 4100	Discovery™ 4100	Discovery™ 4100
DMD Type	0.7” XGA 2xLVDS	0.95” 1080p 2xLVDS	0.96” WUXGA 2xLVDS
Window Options	VIS, UV	VIS, UV	VIS
DMD Micro Mirror Array	1024 x 768	1920 x 1080	1920 x 1200
Micro Mirror Pitch	13.7 µm	10.8 µm	10.8 µm
Active Mirror Array Area	14.0 x 10.5 mm²	20.7 x 11.7 mm²	20.7 x 13.0 mm²
DLP® Board Type	V4100	VX4100	VX4100
Control Board Dimensions	71 x 68mm²	191 x 99 mm²	191 x 99 mm²
DMD Board Dimensions	67 x 50 mm²	102 x 83 mm²	102 x 83 mm²
Flexible Cable Length	90mm	127/305 mm	127/305 mm
RAM Capacity on Board	32 Gbit	32 Gbit	32 Gbit
Binary Patterns on Board	43 690	15 534	13 981
Hardware Trigger	master / slave	master / slave	master / slave
DLP® Controller Suite	ALP-4.2	ALP-4.1	ALP-4.1
Array Switching Rate 1bit B/W	22 727 Hz	10 752 Hz	9 708 Hz
Array Switching Rate 6bit Gray	1091 Hz	848 Hz	826 Hz
Array Switching Rate 8bit Gray	290 Hz	254 Hz	252 Hz
PC Interface	USB2.0*	USB2.0*	USB2.0*
PC Transfer Rate	400 … 1600** fps	130 … 510** fps	120 … 460** fps

*USB transfer with lossless on the flight compression
**depending upon compression rate of data and PC

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