Newsletter DLP® Technology


New ALP-4.3 Release

ViALUX has released a major update of the ALP-4.3 Controller Suite by November 16th 2018.
This ALP-4.3 Rel. 21 includes additions to the FPGA logic, to the USB 3.0 controller firmware and to the API DLL software. The update is distributed free of charge to all customers using the ViALUX SuperSpeed V-Modules. The installation of the most recent ALP-4.3 Controller Suite is available for download from the ViALUX support website.

Download
ALP-4.3 Rel. 21
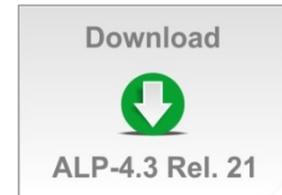
New software features of ALP 4.3 Rel. 21

The following extensions will further enhance the performance and the application potential of SuperSpeed V-Modules:

➔ **Low Latency Control**

➔ **PC detached operation**

➔ **DLP®* partial pattern update**

Low Latency Control

SuperSpeed V-Modules are well known for maximal USB 3.0 data rates including lossless on-the-flight compression for bulk data transfer. Responding to recent customer demands, ViALUX has also speeded up the USB 3.0 control of small data volumes achieving minimum latency for DMD updates. PC controlled DLP® operation takes advantage of the new Low Latency Control in general and the implementation of PC feedback loops is significantly advanced.
The table below shows some typical results obtained with the new ALP-4.3 release, values may vary for different PC configurations. The latency values measured refer to the time between sending a new pattern via the API command AlpSeqPut and the pattern being shown on the DLP micro-mirror array.

	V-7001	V-9501	V-9601	V-6501	V-9001
Release 20	4500 µs	5300 µs	5300 µs	5800 µs	5900 µs
Release 21	1500 µs	2100 µs	2200 µs	2700 µs	2600 µs

PC detached operation

The new ALP-4.3 release enables V-Modules to suspend the USB 3.0 communication without getting lost in software. V-Modules do maintain the controller state they had before detachment. As a practical consequence, one sequence started for repeated display will continue to run when the V-Module is no longer connected to the PC; it will just end when communication is resumed. The initialized DLP® controller and the stored patterns in the on-board RAM are preserved during the disconnected period and new commands are accepted after re-connection. A new hardware watchdog timer is implemented, it can be programmed for signaling the disconnect status to peripheral hardware, e.g. for shutting down the light source if required.
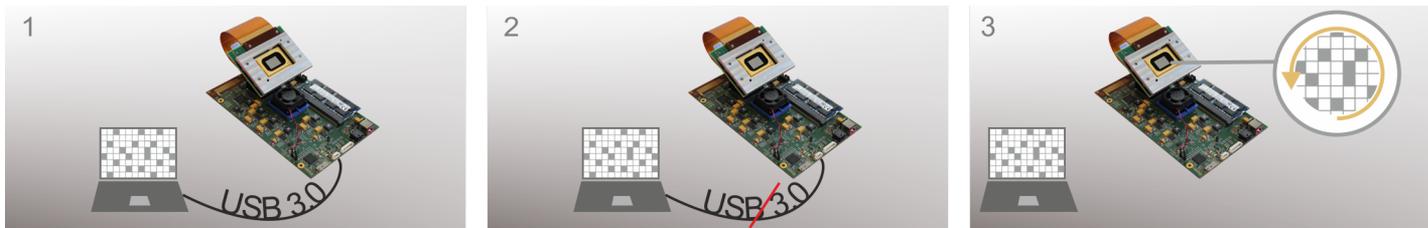
Partial DLP pattern update

Partial pattern update can be used in certain applications to raise the DLP® switching rate. The Area-of-Interest mode of operation has been released now as a standard feature of the ALP 4.3 Controller Suite. If a subset of DLP® lines is selected upon system initialization, all subsequent functions will operate with that selected area only. In doing so, the pattern refresh rate is increased up to 50.000 fps, i.e. the recommended maximum for reliable and sustained operation of the DLP® system. The corresponding AlpSeqPutEx function supports partial pattern upload into the on-board RAM and increases both, the RAM capacity with respect to the stored number of patterns and the upload speed in terms of patterns/s.

New V-Module configuration options

Two new configuration options are available for the SuperSpeed V-Module family:

➔ **Extended on-board RAM with 128 Gbit capacity**

➔ **Three cable length options for connecting the DMD extension board**

128 Gbit on-board RAM

Doubling the memory capacity, customer can make even more extensive use of pre-loaded patterns; the table shows the maximum number of binary images that can be hold in the on-board RAM.

	V-7001	V-9501	V-9601	V-6501	V-9001
Binary Patterns on Board	174 762	62 137	55 924	62 137	33 554

Flex cable length

The DMD extension boards of all SuperSpeed V-Modules are connected by flexible flat cables. ViALUX has now qualified three length options for these flex cables. The available combinations are given in the table below.

Cable lenght	V-7001	V-9501	V-9601	V-6501	V-9001 @ 400 MHz	V-9001 @ 480 MHz
5.2"	✓	✓	✓	✓	✓	✓
12.2"	✓	✓	✓	✓	✓	(✓)
24.4"	✓	✓	✓	✓	-	-

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