Wintech®

A Texas Instruments Authorized DLP®
Design House

PRO4500

Wintech Production Ready Optical Engine

Wintech's Production Ready Optical Engine (PRO4500) is a high brightness modular DLP®-based projector designed for industrial applications. The PRO4500 is based on Texas Instrument's DLP® LightCrafter 4500 that utilizes the 0.45" WXGA DMD and is compatible with both the s241 (150 lumens) and s310 (500 lumens) DMDs. With a form factor of only 210x84x54mm, the PRO4500 is ideal for confined spaces that are typically required for 3D Measurement, 3D Printing and certain display applications.

The PRO4500's modular architecture allows for quick, low cost modifications to the base PRO4500 Engine that minimize both expense and time to get to series production. The PRO4500 will accept various Luminus Devices LEDs including the CBT-39, PT-39, PT-40, and also Osram RGB LEDs. An all glass optical architecture was chosen and optical coatings are optimized for 381-650nm. Optics are 0% offset. Wintech extended the length of the projection lens barrel for easy field swapping of numerous lenses that are available or that can be custom designed. Thermal management is provided by heat sinking and a fan, however liquid cooling adaptations are available.

The PRO4500 multi-PCB stack was also designed with modularity as the top priority and is functionally equivalent to the LightCrafter 4500 control electronics. All system critical components are located on the DMD driver PCB, allowing for low cost electronics modifications to the LED driver PCB. The multi-PCB stack provides a mini-HDMI connection for data transfer, a USB connection for system control, and an I^2C interface for LED control. Compatibility with the PandaBoard ES platform, through the Wintech NSP4500, is also provided with the PRO4500. Two camera input and two camera output triggers are included in the multi-PCB stack.

Since the PRO4500 is based on the LightCrafter 4500's DLPC350 chipset, performance and control are identical. The PRO4500 utilizes the DLP® LightCrafter 4500 firmware and software. The PRO4500 will allow for 2,880Hz binary streaming frames per second and 120Hz 8-bit grayscale streaming frames per second over mini-HDMI. Predetermined patterns stored in the 32MB onboard memory provide up to 4,255Hz binary and 120Hz 8-bit grayscale frames per second.

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System Highlights

- Modular all in one DLP®-based production ready industrial projector
- Attractive pricing at any volume
- All glass 0% offset optics, optimized for 381-650nm
- WXGA (912x1140) diamond pixel DMD
- Compatible with s241 and s310 DMDs
- Various Luminus LED (CBT-39, PT-39, and PT-40) and Osram LED (RGB) compatibility
- Less than 3 month turn around on modifications
- Low NRE for modifications to base PRO4500
- Accepts numerous field swappable projection lenses
- Compatible with Wintech PandaBoard (NSP4500)

PRO4500 System Specifications

	PRO4500 LED Dominant Wavelength (nm)					
	385	**405**	**460**	**525**	**613**	**RGB**
Application(s)	3D Printing	3D Printing	3D Printing/3D Measurement	3D Measurement	3D Measurement	3D Measurement/ Display
Minimum System Output Power	300mW	700mW	600mW	200lm	60lm	130lm
Available Lens Working Distances (mm)	92 184	92 184	92 184 700	700	700	700
Field of View (mm)	65.6x41 131.2x82	65.6x41 131.2x82	65.6x41 131.2x82 400x250	400x250	400x250	400x250
Projected Pixel Size (um)	50 100	50 100	50 100 305	305	305	305
Distortion (%)	< 1	< 1	0.1-1	0.1-0.5	0.1-0.5	0.1-0.5