HeliosPRO Laser DAC

Product Type: Network-enabled ILDA Digital-to-Analog Converter for show lasers.

Product Overview

The HeliosPRO Laser DAC is a digital to analog converter with ILDA (ISP-DB25) protocol output, commonly used on laser show projectors. It supports real-time streaming from a host computer over either network or USB, as well as standalone playback of ILD files.

Available as:

- In external enclosure, packaged with accessories* (US plug): GTIN 07090067330021
- In external enclosure, packaged with accessories* (EU plug): GTIN 07090067330038
- Unenclosed, with mounting kit for internal mounting: GTIN unassigned

*See chapter "Package Contents".

Key Features

- Ethernet and USB-C connectivity
- Offline playback of .ILD files from internal storage
- Standard ILDA (DB25) output
- 2 x 16-bit + 7 x 12-bit output channels at max 100kSPS sample rate
- Extensible hardware via extra USB port, SPI, and GPIO
- Open-source firmware and SDK

Technical Specifications

Parameter	Specification
Maximum output rate	100 kpps
X / Y output channels	16-bit resolution (nominal), 2 channels.
Color & auxiliary output channels	12-bit resolution (nominal), 7 channels (R, G, B, Intensity, User1–3)
Shutter output channel	12-bit resolution (nominal), 1 channel, updated once per frame
Internal storage	8 GB gross capacity, approx. 7 GB net usable capacity
Embedded system specifications	RK3308B (4-core Cortex-A35) CPU, 512 MB DDR3 RAM, 8 GB eMMC, Armbian Linux
Power consumption	Approx. 300 mA @ 5 V, not including connected auxiliary devices. Powered over USB or from internal header (2-pin PH connector).

Connectivity / interfaces

External:

- 10/100 Ethernet (primary streaming interface)
- USB-C 2.0 (power and alternative streaming interface)
- USB-A 2.0 (accessories or secondary Helios DAC)
- DB-25 female ILDA output
- WiFi 4, (frequency range 2.400 GHz ~ 2.4835 GHz) (disabled by default)
- Bluetooth 5.0 with BLE (frequency range 2.402 GHz ~ 2.480 GHz) (disabled by default, reserved for future use)
- 3x push buttons for controlling software without a host computer, such as selecting/playing .ILD files
- 2x LED indicators.
- Optional: 0.96 inch monochrome OLED screen for status/menu display

Internal:

- 2-pin PH connector for 5V power input
- 6-pin ZH connector for differential X,Y output
- 8-pin ZH connector for single-ended R,G,B,User1,User2,User3,Shutter output
- I2C port (used for connecting to screen)
- 5 GPIO pins. Can be configured as 1x SPI port, PWM output, and/or 1x UART input
- Unused microSD card port

Software Compatibility / Communication Protocol

Supported protocol	Details
IDN (ILDA Digital Network)	Continuous Graphic Mode and Discrete Graphic Mode supported. One main service routed to ILDA output, plus up to two optional services routed to any Helios DACs connected via USB to the device's AUX port. Expects channel tags defined in the chapter "ISP-DB25 Backwards Compatibility Tags" of the ILDA Digital Network Stream Specification: 0x4200 (X), 0x4210 (Y), 0x527E (Red), 0x5214 (Green), 0x51CC (Blue), 0x5C10 (intensity), 0x51BD (User1), 0x5241 (User2), 0x51E8 (User3), with up to 16-bit precision.
USB	Backwards compatible with the Helios Laser DAC.
DMX512	Support for various DMX512 network protocols including sACN, Art-Net, physical adapters connected to the AUX port, is reserved for the future. Functionality is not yet implemented in software.
.ILD file	Playback of offline .ILD files in ILDA format 0, 1, 4, and 5 is supported. Playback speed can be set using .PRG comma-separated files.

Mechanical & Environmental

Parameter	Specification
Enclosure	Anodized aluminium housing with anti-slip rubber feet
Dimensions (W × D × H)	145 × 87 × 29 mm
Compliance	RoHS (lead-free). Contains no battery.
Mounting options	Sold either in external enclosue, or for internal laser mounting using optional kit

Package Contents

- HeliosPRO Laser DAC
- USB-C power supply (US plug: GTIN 07090067330021, EU plug: GTIN 07090067330038)
- USB-C cable (1 m)
- Ethernet cable (1 m)
- Getting Started documentation

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