Aegis ELECTRONIC GROUP, INC
(888)687-6877

iPORT CL-U3 External Frame Grabbers

Simple to integrate USB3 Vision video interface for Camera Link cameras

Overview

Pleora's iPORT™ CL-U3 External Frame Grabbers provide systems manufacturers and integrators with cost and design flexibility advantages by converting Camera Link® cameras into native USB3 Vision™ cameras. With these external frame grabbers, Camera Link® cameras can transport high-speed imaging and video data over the widely available USB 3.0 bus. The cameras can also be used with a broader selection of smaller form factor, low-power computing platforms to help reduce system costs.

Based on a field-proven design, the CL-U3 delivers additional benefits including high bandwidth output, extended operating temperature range, and extensive GPIO functionality enabling real-time, low-jitter triggering of cameras, and synchronization of other vision system elements.

The CL-U3 transmits video from Base and Medium mode Camera Link cameras with low, predictable latency over a USB 3.0 link. The connection at the workstation is a standard USB 3.0 port, eliminating the need for a desktop computer with an available peripheral card slot for a traditional frame grabber. As a result, designers can reduce system size, cost, and power consumption by using computing platforms with smaller form factors, such as laptops, embedded computers, and single-board computers.

Pleora's CL-U3 External Frame Grabbers help manufacturers and integrators leverage the high-bandwidth output and simplified cabling of USB 3.0 to lower system costs and design complexity. Following initial set-up, the external frame grabbers provide end-users with a straightforward plug-and-play USB interface to receive and display video over a wide range of computing platforms.

In addition, the frame grabbers support flexible configurations allowing multiple cameras to be aggregated to a single USB 3.0 port when using an off-the-shelf USB 3.0 hub. The CL-U3 complies fully with the USB3 Vision and GenICam™ standards, ensuring interoperability with third-party equipment in multi-vendor environments.

Features

- Transmits video from Camera Link Base or Medium mode cameras over USB 3.0, with low, predictable latency
- Plugs into a wide range of computing platforms without needing a PCI/PCIe frame grabber
- Compact and low power
- Available in mountable enclosure and OEM board set
- Line scan and area scan modes
- 120 MB frame buffer to accommodate multi-mega pixel sensor sizes
- Throughput approaching 3 Gb/s
- Record and playback functionality
- USB3 Vision and GenICam compatible
- Power, control, and video over the same USB 3.0 cable
- Power over Camera Link (PoCL) with models CL-U3B-IND and CL-U3M-IND (external power supply required)
- Sophisticated on-board programmable logic controller (PLC) allows users to precisely measure, synchronize, trigger, and control the operation of other vision system elements
- Bundled with Pleora's feature-rich eBUS™ SDK application toolkit

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For more information, visit www.pleora.com

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Video Connectivity Solutions

iPORT External Frame Grabber	• Highly reliable, 3 Gb/s data transfer rate with low, end-to-end latency • Surface-mountable enclosure
eBUS SDK	• eBUS Universal Pro driver • Sample applications and documentation • Support for CLProtocol
USB3 Vision and GenICam	• Fully compatible firmware load • Guarantees delivery of all packets • Comprehensive data transfer diagnostics

Video Formats

Tap Support	• Base mode: 1 and 2 taps • Medium mode: 1,2, and 4 taps
Tap Geometry	• 1X_1Y, 1X, 1X2_1Y, 1X2, 1X4_1Y, 1X4
Video Modes	• Mono, BayerGR, BayerRG, BayerGB, BayerBG, RGB, BGR, Sparse Color Filter pattern
Pixel Depth	• 8, 10, 12, 14, 16 bits, 24-bit RGB

Features

Pixel Clock	• 20 MHz to 85 MHz
Frame Buffer	• 120 MB
USB 3.0-Based	• Connection to low-cost, easy-to-use equipment • USB3 Vision 1.0 compliant
Programmable Logic Controller	• Advanced image capture control • Integrated with GPIO
GPIO	• 4 TTL/LVCMOS inputs • 3 TTL/LVCMOS outputs
GPIO (CL-U3 industrial models only)	• 2 LVDS/RS-422/HVTTL/±24V/±30V differential or single-ended inputs • 2 TTL/LVCMOS inputs • 3 TTL/LVCMOS outputs

Connectors

Video	• SDR-26 (Mini CL) for Camera Link
USB	• 10-pin USB 3.0 micro-B Receptacle with locking screw connectors
GPIO	• 12-pin circular connector
Power In	• Power over USB cable • GPIO Connector (CL-U3 industrial models only)
Power Out (CL-U3 industrial models only)	• PoCL • SDR-26 Connector

Characteristics

Size (L x W x H)	• 38 mm X 83 mm X 51 mm
Weight	• Up to 132 g
Operating Temperature	• 0°C to 45°C • -40°C to 60°C (CL-U3 industrial models only) • -40°C to 85°C* (CL-U3 OEM board set, industrial models only)
Storage Temperature	• -40°C to 85°C
External Power Supply	• 11.6V to 13.0V (CL-U3 industrial models only)
Power Consumption	• 3.5 W maximum for all models
MTBF @ 40°C	• 1 135 333 hours • 958 332 hours (CL-U3 industrial models only)

*The product is specified for operation within the stated ambient and case temperature range of its components.

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iPORT CL-U3 External Frame Grabbers

Ordering Information

903-0007*	• iPORT CL-U3B External Frame Grabber **in mountable enclosure** for Camera Link Base mode.
903-0011*	• iPORT CL-U3B Development Kit including 903-0007, USB 3.0 cable, and eBUS SDK USB stick.
903-0009**	• iPORT CL-U3B-IND External Frame Grabber (industrial use) **in mountable enclosure** for Camera Link Base mode, extended operating temperature range, extensive GPIO, and power over Camera Link (PoCL).
903-0019**	• iPORT CL-U3B-IND External Frame Grabber (industrial use) **OEM board set** without enclosure for Camera Link Base mode with extended operating temperature range, extensive GPIO, and power over Camera Link (PoCL).
903-0013	• iPORT CL-U3B-IND Development Kit including 903-0009, **power supply**, USB 3.0 cable, and eBUS SDK USB stick.
903-0008*	• iPORT CL-U3M External Frame Grabber **in mountable enclosure** for Camera Link Medium mode.
903-0012*	• iPORT CL-U3M Development Kit including 903-0008,USB 3.0 cable, and eBUS SDK USB stick.
903-0010**	• iPORT CL-U3M-IND External Frame Grabber (industrial use) **in mountable enclosure** for Camera Link Medium mode, extended operating temperature range, extensive GPIO, and power over Camera Link (PoCL).
903-0020**	• iPORT CL-U3M-IND External Frame Grabber (industrial use) **OEM board set** without enclosure for Camera Link Medium mode with extended operating temperature range, extensive GPIO, and power over Camera Link (PoCL).
903-0014	• iPORT CL-U3M-IND Development Kit including 903-0010, **power supply,** USB 3.0 cable, and eBUS SDK USB stick.

* No external power supply required.
** External power supply required. Order from Pleora Technologies. For more information, see the CL-U3 External Frame Grabbers product page on the Pleora Technologies website.

iPORT CL-U3-IND External Frame Grabber
OEM Board Set (903-0019)
for Camera Link Base Mode

iPORT CL-U3-IND External Frame Grabber
OEM Board Set (903-0020)
for Camera Link Medium Mode

iPORT CL-U3-IND External Frame Grabber OEM Board Set
for Camera Link Base and Medium Mode

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