iPORT CL-Ten External Frame Grabbers

High-performance GigE Vision connectivity for Camera Link Full and Medium cameras over 10 GigE links

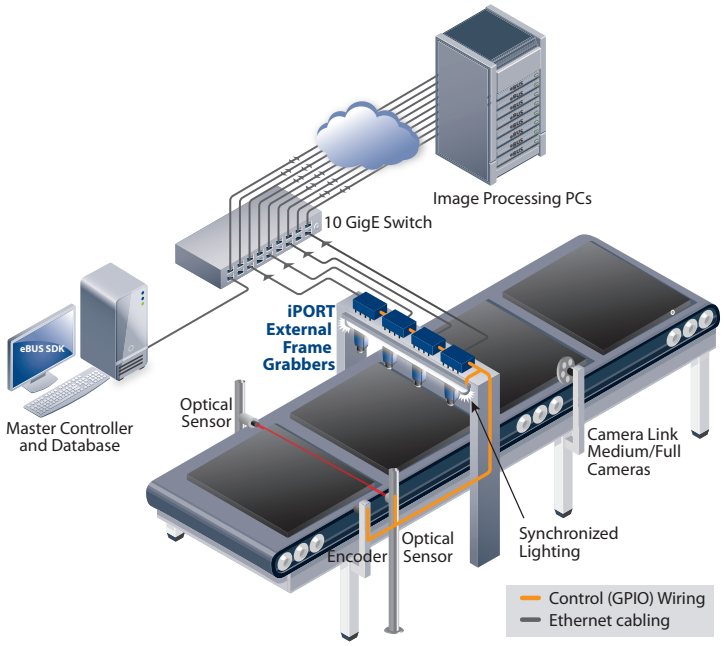
Overview

Pleora's **iPORT™ CL-Ten External Frame Grabbers** use a high-performance GigE Vision® 2.0 over 10 Gigabit Ethernet (10 GigE) link to transmit video simultaneously from two Camera Link Base or Medium cameras, or a single Camera Link Full camera at maximum data rates, with low, predictable latency.

These external frame grabbers allow designers to extend and aggregate system cabling, and integrate Camera Link cameras into a networked environment. The CL-Ten converts video data to packets and sends them over a 10 GigE link to receiving software or hardware. The CL-Ten is compatible with industry-standard fiber-based links via an SFP+ (small form-factor pluggable) connector, and can be easily connected to off-the-shelf 10 GigE components such as network cards and switches.

A sophisticated on-board programmable logic controller (PLC) allows users to precisely measure, synchronize, trigger, and control the operation of other vision system elements. The frame grabbers also comply fully with the GigE Vision and GenICam™ standards, enabling interoperation with third-party equipment in multi-vendor environments and designed into multi-speed systems alongside GigE Vision cameras operating at 1 Gbps with no software modifications.

The iPORT CL-Ten is supported by Pleora's feature-rich eBUS™ SDK application tool kit, which allows designers to develop and modify production-ready software applications while avoiding supporting multiple APIs from different vendors.



Features

- Highly reliable up to 8.16 Gbps data transfer rate with low, end-to-end latency
- Product options for designers to meet system requirements:
  - iPORT CL-Ten Full supports transmission from a single Full (including Deca and 80-bit) mode camera
  - iPORT CL-Ten Dual Medium supports simultaneous transmission of 2 Medium or Base mode cameras
- Provides power to cameras utilizing the Power over Camera Link (PoCL) standard
- Programmable logic controller (PLC) allows users to precisely measure, synchronize, trigger, and control the operation of other vision system elements
- RS-232 and GPIO to control external devices
- GigE Vision and GenICam compliant, enabling interoperability in multi-vendor environments

GENICAM GIGE VISION

Pleora Technologies

iPORT CL-Ten External Frame Grabbers

Software and Standards

eBUS SDK	• **eBUS SDK:** Single API to receive video over GigE, 10 GigE, and USB that is portable across Windows, Mac, and Linux • **eBUS Tx:** Software implementation of a full device level GigE Vision transmitter • **eBUS Rx:** High-speed reception of images or data for hand-off to the end application • **eBUS Player Toolkit:** View streams and develop, test and evaluate advanced features
GigE Vision® 2.0	• Fully-compatible firmware load • Guarantees delivery of all packets • Comprehensive data transfer diagnostics

Camera Compatibility

Camera Link® cameras	• iPORT CL-Ten Dual Medium compatible with Base and Medium mode cameras at up to 85 MHz • iPORT CL-Ten Full compatible with Full (including Deca/80-bit) mode cameras at up to 85MHz • Supports Power over Camera Link (PoCL) • Supports CLProtocol
Tap Geometry	1X_1Y, 1X2_1Y, 1X, 1X2, 1X4_1Y, 1X4, 2X2E, 1X8_1Y, 1X8, 1X10_1Y, 1X10

Programmable Logic Controller Features

4 x TTL inputs **2 x TTL outputs**	• Provides a flexible, general-purpose interface • Allows synchronization of multiple devices or system elements
Delayer, rescaler, general-purpose counter	• Allows synchronized capture between multiple area and line scan cameras • Allows camera acquisition to track changing speeds on conveyor belts and webs
IEEE 1588	Synchronized triggering of multiple network devices via IEEE 1588 Precision Time Protocol and Scheduled Action Command
UART and RS-232 serial links	Serial control of camera and other devices via PC application over the GigE link

Networking Features

10 Gigabit Ethernet-based	• Industry standard, easy-to-use equipment • Supports IGMPv2 and ICMP • Supports IEEE 1588 Precision Time Protocol
Multicast capability	• Standards-based, IGMPv2 • Enables advanced distributed processing and control architectures

Connectors

Power	6-pin circular, male
Network	Supports 10GBASE-SR, -LR, and –LRM using linear or limiting SFP+ modules
Video interface	Miniature Camera Link® (MiniCL)
Inputs/Outputs and serial control interface	12-pin circular, female

Characteristics

Size (L x W x H)	• 125.4 mm x 100 mm x 83.5 mm (enclosed, CL-Ten Dual Medium) • 125.4 mm x 100 mm x 71.7 mm (enclosed, CL-Ten Full)
Operating temperature	0°C to 70°C (enclosed)*
Storage temperature	-40°C to 85°C
External power supply	12 V
Power consumption	11.5 W
MTBF @ 40°C	• iPORT CL-Ten Dual Medium: 586 855 hours • iPORT CL-Ten Full: 731 249 hours
ECCN	5A991.b.4.a

* If using industrial temperature SFP+ module; otherwise 0°C to 55°C. The product is specified for operation within the stated ambient and case temperature range of its components.

Ordering Information

905-0001	**iPORT CL-Ten Dual Medium External Frame Grabber in mountable enclosure**.
905-0003	**iPORT CL-Ten Dual Medium Fiber Development Kit** includes 905-0001, power supply, 10 GigE NIC, two SFP+ fiber modules, 2m of fiber optic cabling, and an eBUS SDK USB stick.
905-0008	**iPORT CL-Ten Full External Frame Grabber in mountable enclosure.**
905-0009	**iPORT CL-Ten Full Fiber Development Kit** includes 905-0008, power supply, 10 GigE NIC, two SFP+ fiber modules, 2m of fiber optic cabling, and an eBUS SDK USB stick.
905-0017	**iPORT CL-Ten Dual Medium Fiber Developer Bundle** includes iPORT CL-Ten Dual Medium in mountable enclosure (905-0001), plus power supply, 10 GigE NIC, two SFP+ modules, 2m of fiber optic cabling, eBUS SDK USB stick, and one year of eBUS SDK Developer Annual Maintenance and Support.
905-0016	**iPORT CL-Ten Full Fiber Developer Bundle** includes iPORT CL-Ten Full in mountable enclosure (905-0008), power supply, 10 GigE NIC, two SFP+ modules, 2m of fiber optic cabling, eBUS SDK USB stick, and one year of eBUS SDK Developer Annual Maintenance and Support.

Pleora Technologies Inc.
Email: info@pleora.com
pleora.com