



## 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.

CL-Ten External Frame Grabbers interact seamlessly with Pleora's other products in networked or point-to-point digital video systems. The frame grabbers also comply fully with the GigE Vision and GenICam™ standards, enabling interoperation with third-party equipment in multi-vendor environments. The GigE Vision and GenICam standards are agnostic to Ethernet link speed, which means the CL-Ten can be designed into multi-speed systems alongside GigE Vision cameras operating at 1 Gb/s, with no software modifications. Deploying the CL-Ten, manufacturers and integrators can shorten time-to-market, reduce development and deployment risk, and lower design and system costs.

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 copper or 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 CL-Ten is bundled with Pleora's feature-rich application toolkit, eBUS™ SDK.

### Features

- Transmits video from Camera Link cameras over 10 GigE with low, consistent latency
- Product options for designers to meet system requirements:
  - iPORT CL-Ten Full supports transmission of 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
- RS-232 and GPIO to control external accessories

### Ordering Information

905-0001	• iPORT CL-Ten Dual Medium External Frame Grabber in mountable enclosure
905-0003	• iPORT CL-Ten Dual Medium Fiber Evaluation Kit, which includes 905-0001, power supply, 10 GigE NIC, two SFP+ fiber modules, 2m of fiber optic cabling, and an eBUS SDK USB stick
905-0004	• iPORT CL-Ten Dual Medium Copper Evaluation Kit, which includes 905-0001, power supply, 10 GigE NIC, 2m of Direct Attach copper cabling, and eBUS SDK USB stick
905-0008	• iPORT CL-Ten Full External Frame Grabber in mountable enclosure
905-0009	• iPORT CL-Ten Full Fiber Evaluation Kit, which includes 905-0008, power supply, 10 GigE NIC, two SFP+ fiber modules, 2m of fiber optic cabling, and an eBUS SDK USB stick
905-0010	• iPORT CL-Ten Full Copper Evaluation Kit, which includes 905-0008, power supply, 10 GigE NIC, 2m of Direct Attach copper cabling, and eBUS SDK USB stick

For more information, visit [www.pleora.com](http://www.pleora.com)

## iPORT CL-Ten External Frame Grabbers

### Networked Video Connectivity Solutions

<b>iPORT™ External Frame Grabbers</b>	<ul style="list-style-type: none"> <li>Highly reliable, up to 8.16 Gb/s data transfer rate with low, end-to-end latency</li> <li>Enclosed unit</li> </ul>
<b>eBUS™ SDK</b>	<ul style="list-style-type: none"> <li>eBUS Universal Pro driver</li> <li>Support for CLProtocol</li> <li>Sample applications, including NetCommand™, a demonstration of multi-device network connectivity</li> <li>Driver installation tool</li> <li>Documentation</li> </ul>
<b>GigE Vision® 2.0</b>	<ul style="list-style-type: none"> <li>Fully-compatible firmware load</li> <li>Guarantees delivery of all packets</li> <li>Comprehensive data transfer diagnostics</li> </ul>

### Camera Compatibility

<b>Camera Link® cameras</b>	<ul style="list-style-type: none"> <li>iPORT CL-Ten Dual Medium compatible with Base and Medium mode cameras at up to 85 MHz</li> <li>iPORT CL-Ten Full compatible with Full (including Deca/80-bit) mode cameras at up to 85MHz</li> <li>Supports Power over Camera Link (PoCL)</li> <li>Supports CLProtocol</li> </ul>
<b>Hardware tap reconstruction</b>	<ul style="list-style-type: none"> <li>Supports interleaved 2, 4, 8 and 10-tap configurations, as well as RGB</li> <li>Support for key non-interleaved tap configurations</li> </ul>

### Connectors

<b>Power</b>	<ul style="list-style-type: none"> <li>6-pin circular, male</li> </ul>
<b>Network</b>	<ul style="list-style-type: none"> <li>Supports 10GBASE-SR, -LR, and -LRM using linear or limiting SFP+ modules</li> <li>Supports SFP+ Direct-Attach copper (passive, 7m maximum length)</li> </ul>
<b>Video interface</b>	<ul style="list-style-type: none"> <li>Miniature Camera Link® (MiniCL)</li> </ul>
<b>Inputs/Outputs and serial control interface</b>	<ul style="list-style-type: none"> <li>12-pin circular, female</li> </ul>

### Programmable Logic Controller Features

<b>4 x TTL inputs</b>	<ul style="list-style-type: none"> <li>Provides a flexible, general-purpose interface</li> </ul>
<b>2 x TTL outputs</b>	<ul style="list-style-type: none"> <li>Allows synchronization of multiple devices or system elements</li> <li>Synchronized triggering of multiple network devices via IEEE 1588 Precision Time Protocol and Scheduled Action Command</li> </ul>
<b>Delayer, rescaler, general-purpose counter</b>	<ul style="list-style-type: none"> <li>Allows full synchronization to line scan cameras</li> <li>Allows synchronized capture between multiple cameras</li> <li>Allows camera acquisition to track changing speeds on conveyor belts</li> </ul>
<b>UART and RS-232 serial links (LVCMOS/LVTTL)</b>	<ul style="list-style-type: none"> <li>Serial control of camera and other devices via PC application over the GigE link</li> </ul>

### Characteristics

<b>Size (L x W x H)</b>	<ul style="list-style-type: none"> <li>117mm x 100mm x 83.5mm</li> </ul>
<b>Operating temperature</b>	<ul style="list-style-type: none"> <li>0°C to 65°C*</li> </ul>
<b>Storage temperature</b>	<ul style="list-style-type: none"> <li>-40°C to 85°C</li> </ul>
<b>Power supply</b>	<ul style="list-style-type: none"> <li>12 V</li> </ul>

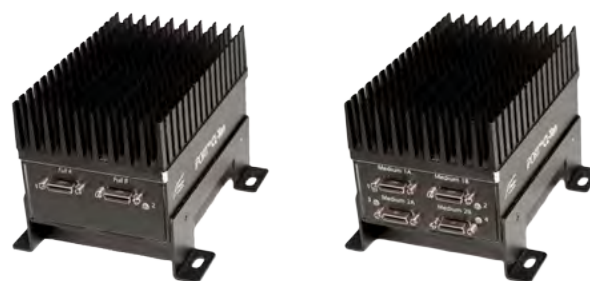
\*If using industrial temperature SFP+ module; otherwise 0°C to 55°C.

### Networking Features

<b>10 Gigabit Ethernet-based</b>	<ul style="list-style-type: none"> <li>Industry standard, easy-to-use equipment</li> <li>Supports IGMPv2 and ICMP</li> <li>Supports IEEE 1588 Precision Time Protocol</li> </ul>
<b>Multicast capability</b>	<ul style="list-style-type: none"> <li>Standards-based, IGMPv2</li> <li>Enables advanced distributed processing and control architectures</li> </ul>



**GEN<i>CAM**



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