CLEVER ™

PHRONTIER™
T E C H N O L O G I E S

CLEVER™ Camera Link Splitter/Switch/ Repeater

CLEVER-SP
CLEVER-M
CLEVER-F
CLEVER-RP
CLEVER-SW

PRODUCT BRIEF

The CLEVER product family consists of 4 individual products with different functionalities to provide flexible routing topology for Camera Link (hereinafter as "CL") applications where multiplexing, switching, splitting or repeating image data are required. Each product is fully compatible with Camera Link standard with up to 85MHz pixel clock rate. Since all signals are re-generated, all CLEVER products have inherent repeater function to double the link distance. In addition, CLEVER products provide flexible power supply options of PoCL pass-through, PoCL sharing, PoCL enable functions for PoCL compatible cameras and frame grabbers.

KEY FEATURES

❖ Fully supports Camera Link cameras/framegrabbers up to 85MHz pixel clock

❖ Switching connections between two Base CL cameras and two framegrabbers

❖ Time division multiplexing images from two Base CL cameras to one framegrabber

❖ Controlling two Base CL cameras synchronously from one framegrabber

❖ Splitting and repeating images for Base or Medium or Full or dual Base CL camera configurations

❖ PoCL pass-through function allows PoCL compatible cameras to withdraw power from frame grabbers while CLEVER power is supplied by its own DC input

❖ PoCL sharing function allows PoCL compatible cameras and CLEVER to share power from frame grabbers

❖ PoCL enable function allows CLEVER to withdraw power from frame grabber while camera is not compatible to PoCL

❖ Single 5V~24V DC power supply

❖ Locking power supply connector

❖ Can be seamlessly used with our PHOX, PHIRE and PHAST fiber extenders for long distance transmission

CLEVER-SP

CLEVER-M/F

CLEVER-RP/SW

Phrontier Technologies, LLC
www.phrontier-tech.com
info@phrontier-tech.com
Toll Free: 1-866-389-2829
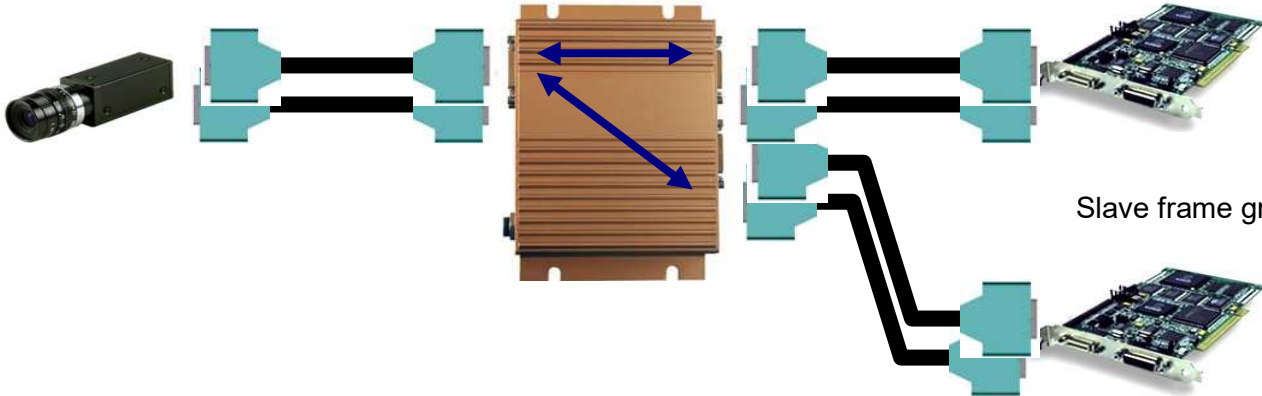**Fax: 1-801-998-1855**

EXAMPLES OF TYPICAL SETUP

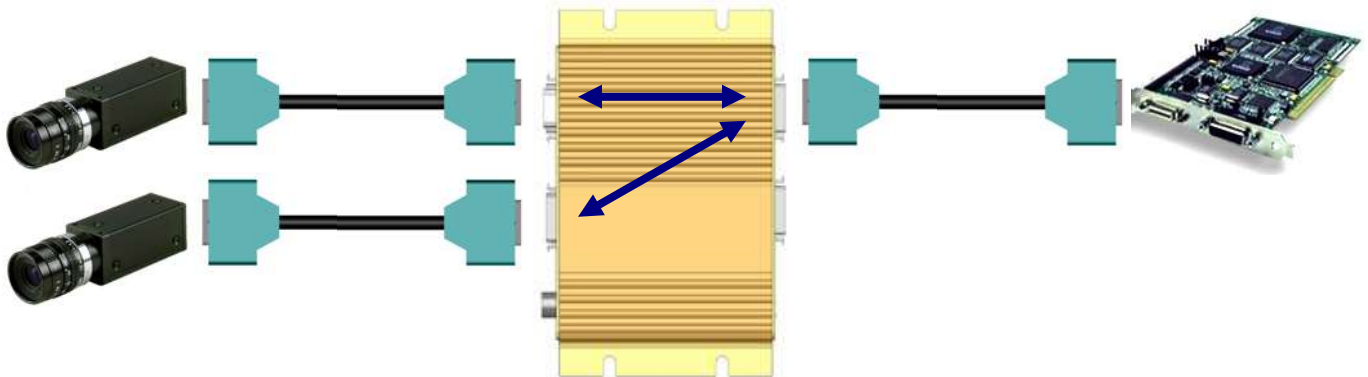### 1. As an image splitter for Base/Medium/Full cameras

CL camera with Base,
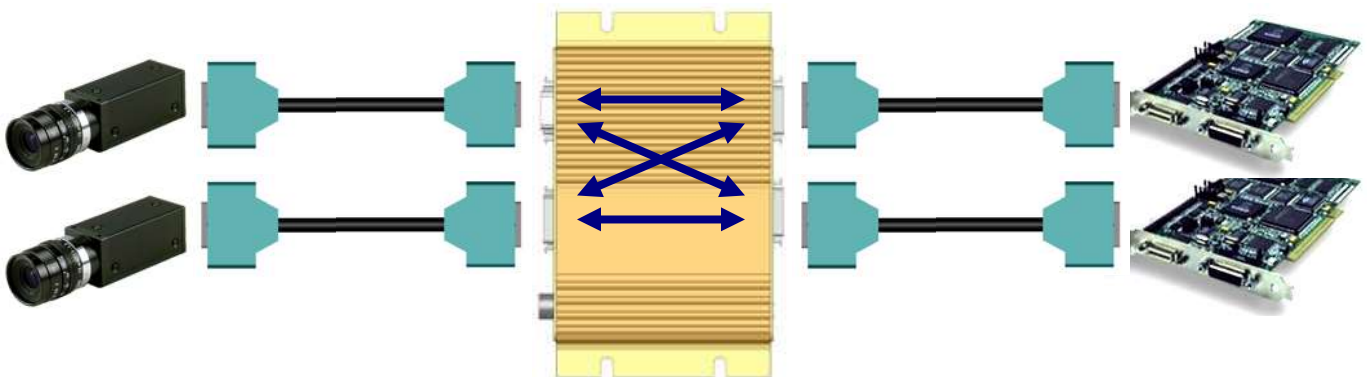Medium or Full configurations

Master frame grabber

Slave frame grabber

2. As an image multiplexer for Base cameras (requires one CLever-SW)

3. As a 2x2 circuit switch for Base cameras (requires one CLever-SW)

TECHNICAL SPECIFICATIONS

General Specification

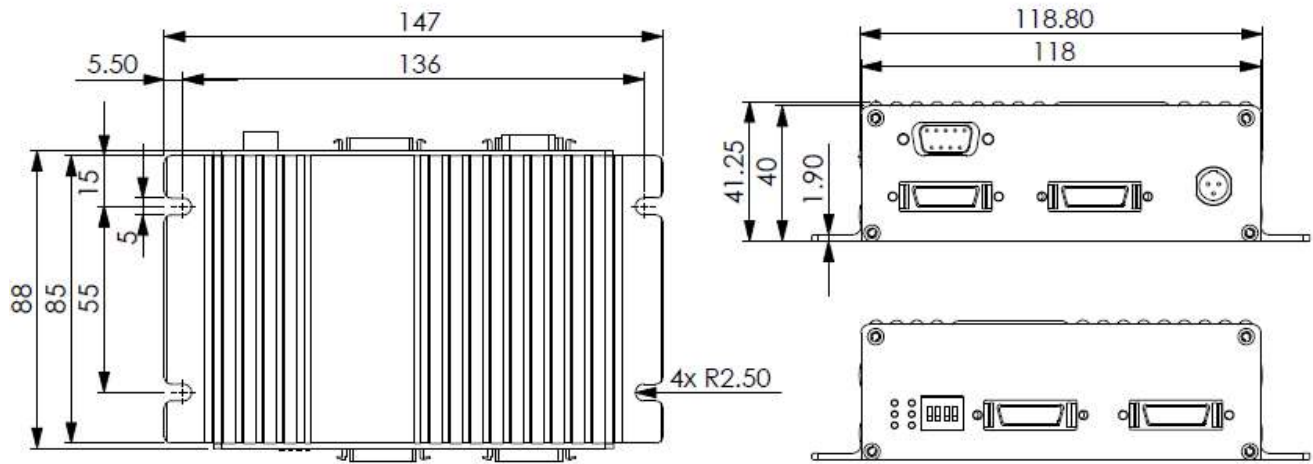| Operating Case Temperature		0 ~ 70 °C
Input Voltage		DC 5 ~ 24 V
Supply Current @ 12V	CLEVER-SP	Typical 0.08A
	CLEVER-M	Typical 0.15A
	CLEVER-RP CLEVER-SW CLEVER-F	Typical 0.2A
Typical Power Consumption @25 °C	CLEVER-SP	0.96W
	CLEVER-M	1.8W
	CLEVER-RP CLEVER-SW CLEVER-F	2.4W
AC/DC Power Supply Connector		Switchcraft TA3FX locking connector plug
Weight (approx.)		300 g for CLEVER-SP/RP/SW 350 g for CLEVER-M/F

Camera Link Interface

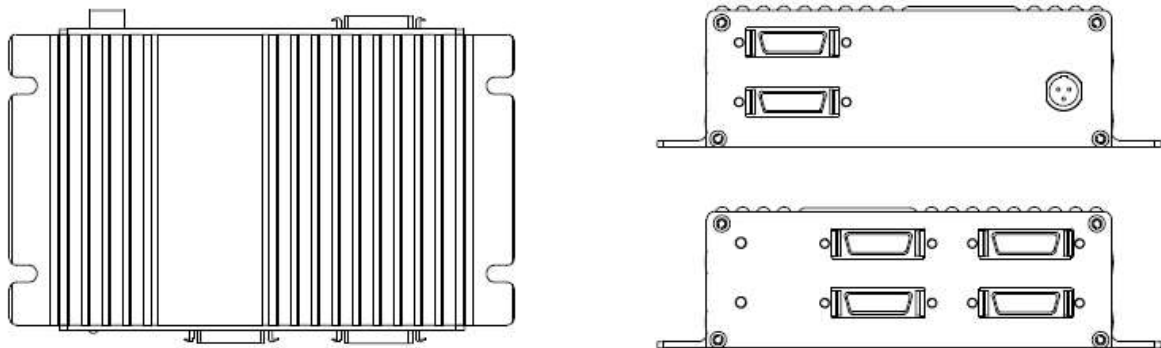| Pixel Clock	20 to 85MHz
Supported Camera Link Configuration	Base/Dual Base/Medium/Full/Extended Full
Image Enables	FVAL, LVAL, DVAL, spare
Camera Control	CC1, CC2, CC3, CC4
Communication	SerTC, SerTFG
Connector Type	MDR26 receptacle
PoCL compatibility	CLEVER-SP/M/F are PoCL compatible CLEVER-RP/SW are not PoCL compatible

MECHANICAL INFORMATION (mm)

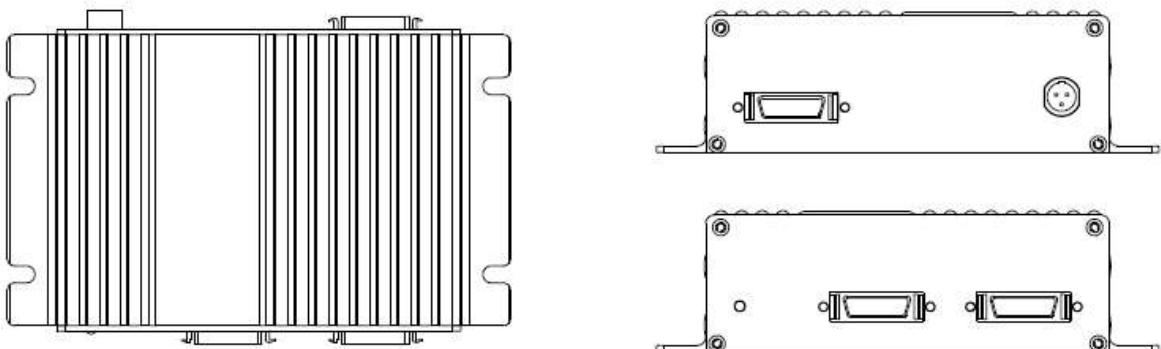### CLEVER-RP and CLEVER-SW

CLEVER-M and CLEVER-F

CLEVER-SP

ORDERING INFORMATION

Available models:

Functionalities	Part Numbers				
	CLEVER-SP	**CLEVER-M**	**CLEVER-F**	**CLEVER-RP**	**CLEVER-SW**
Base CL 2x2 Switch	--	--	--	--	√
Base CL Multiplexer	--	--	--	--	√
Base CL Splitter/Repeater	√	√	√	--	√
Dual Base CL Repeater	--	√	--	√	√
Dual Base CL Splitter	--	√	--	--	--
Medium CL Repeater	--	√	√	√	√
Medium CL Splitter	--	√	√	--	--
Full CL Splitter/Repeater	--	--	√	--	--

Accessory:

Part Numbers	Description
TR10R120-12A03	12V DC international wall mount AC/DC adapter with Switchcraft TA3FX plug

PoCL enable option:

Standard CLEVER-SP/M/F models provide PoCL pass-through and PoCL sharing function. For PoCL enable function, add "E" at the end of model part number. For example: **CLEVER-SPE**. CLEVER-RP and CLEVER-SW.are not PoCL compatible.

PACKING LIST

Part Numbers	Check List
CLEVER-SP/M/F/SP/RP	1x CLEVER box 1x 12V DC international wall mount AC/DC power adapter with locking plug 1x User manual
CLEVER-SW	With all above items and add 1x DB9 6 ft. female-female null modem cable

www.phrontier-tech.com

info@phrontier-tech.com
Toll Free: 1-866-389-2829
Fax: 1-801-998-1855