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Camera Link™ Optical eXtender

■PHOX ™
Camera Link Optical eXtender system

INTRODUCTION

Camera Link™ is a high-speed camera/frame grabber interface designed for high performance vision applications. However, normal copper links can only deliver the signal for 10 meters or shorter, which prevents it from being used in many applications where longer distance image transmission is required between the camera and the frame grabber. To overcome such limitations, we designed our high-performance Camera Link™ Optical eXtender (**PHOX**) product to extend the data transmission distance up to 50 kilometers over fiber-optic links without any kind of repeaters or amplifiers in between. **PHOX** provides an excellent solution for applications that use Camera Link™ standard and require long-haul image data transmission.

KEY FEATURES

- Fully supports Camera Link™ base configuration
- Provides 2Gb/s transport bandwidth - 24b/pixel and pixel clock rate up to 66MHz
- Zero loss and transparent transport – no changes required for camera and/or frame grabber
- 2 fibers LC interface
- 4 opto-isolated GPIO channels (2 inputs and 2 outputs) for external trigger and control
- Full duplex RS232 for remote instrument control
- Single 5V~24V DC power supply on both ends
- Locking AC/DC power adapter
- Transmission distance depending on your choice of fiber:
  Multi-mode fiber – up to 250m
  Single-mode fiber – up to 50km

DESCRIPTION

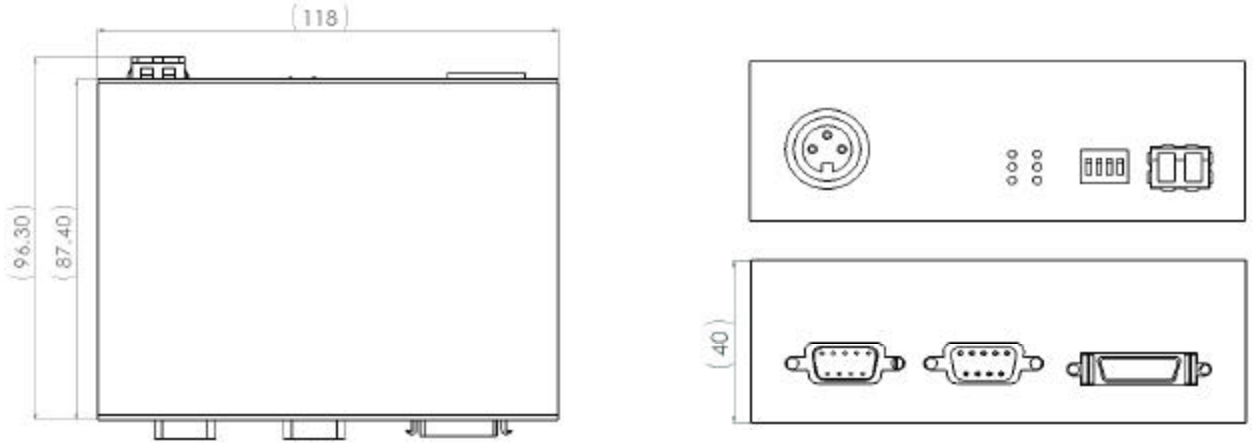
The PHOX system consists of a pairs of extender modules, PHOX-CM connecting to camera and PHOX-FG connecting to the frame grabber (or PC) side. The PHOX-CM receives video data from the camera through copper Camera Link cable, converts the data into optical signals and sends them out through optical fiber. The PHOX-FG receives the optical signals, converts them back into video data and sends them out to the frame grabber through the copper Camera Link cable. With the PHOX system, the signal transmission distance between the camera and the frame grabber can be extended up to 50 kilometers without any repeaters or amplifiers in between. Most importantly, the PHOX system is totally transparent to the camera and the frame grabber, which means seamless and easy system integration.

TECHNICAL SPECIFICATIONS

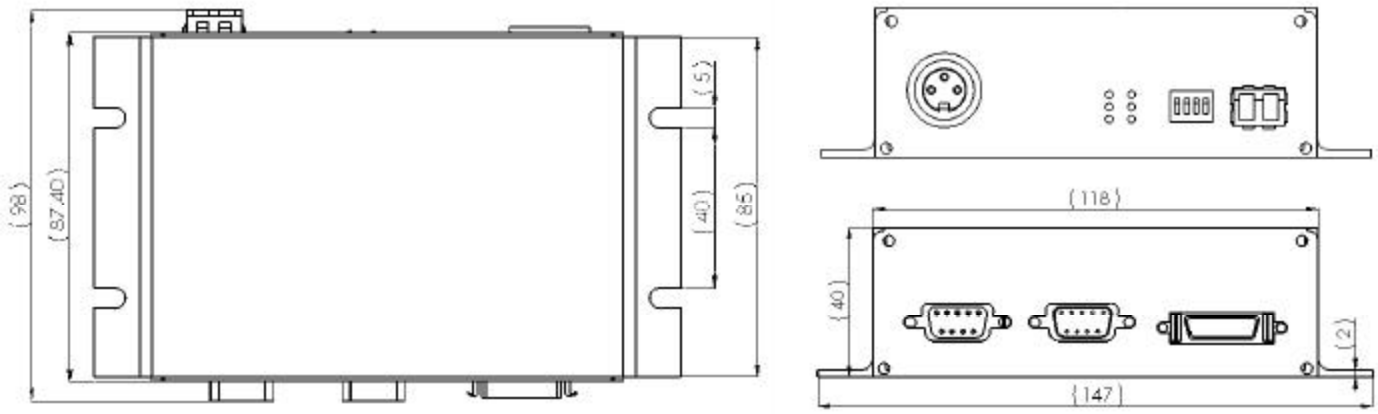
Camera Link Interface		
Max Pixel Clock		66 MHz
Max Data Width per Pixel		24 bits
Compatibility		Full Camera Link base mode
Connector Type		MDR 26 pin
Opto-isolated GPIO Interface		
Number of I/O Channels		2 input and 2 output (both are opto-isolated)
Operating Voltage		0~3.3V (0~5.0V optional)
Max. Data Rate		1 Mbps
Connector Type		DB9 male
RS232 Interface		
Number of Data Channels		4 – RxD TxD RTS CTS
Operating Voltage		Input: +/- 25V, Output: +/- 6V
Max Data Rate		250 Kbps
Connector Type		DB9 female
Optical Interface		
Operating Wavelength	PHOX-BM-00250	850 nm
	PHOX-BL-10	1310 nm
	PHOX-BL-20	1310 nm
	PHOX-BL-40	1550 nm
	PHOX-BL-50	1550 nm
Optical Tx Output Power	PHOX-BM-00250	-9.5 to -4 dBm
	PHOX-BL-10	-10 to –3 dBm
	PHOX-BL-20	-5 to 0 dBm
	PHOX-BL-40	-5 to 0 dBm
	PHOX-BL-50	-2 to +3 dBm
Min Optical Rx Power	PHOX-BM-00250	-17 dBm
	PHOX-BL-10	-18 dBm
	PHOX-BL-20	-18 dBm
	PHOX-BL-40	-18 dBm
	PHOX-BL-50	-18 dBm
Connector Type		LC duplex
Fiber Type	PHOX-BM series	62.5/125 μm or 50/125 μm multimode fiber
	PHOX-BL series	9/125 μm single mode fiber
General Electrical Specification		
Input Voltage		DC 5 ~ 24 V
Supply Current		300 mA each module
Typical Power Consumption		3.6 W each module
Connector Type		Switchcraft TA3F locking connector

MECHANICAL INFORMATION (mm)

Option 1 – without mounting wings

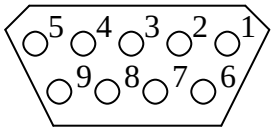


Option 2 – with mounting wings



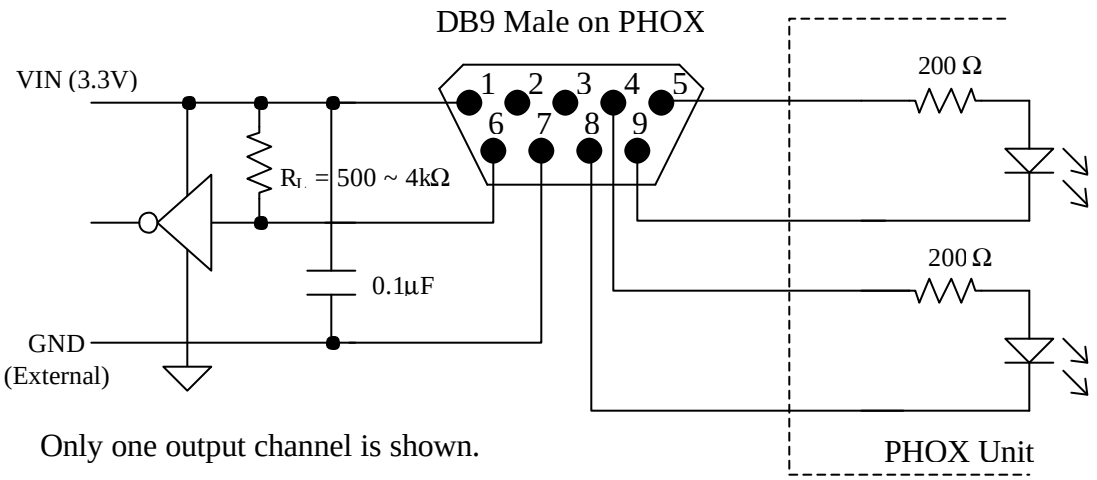
RS232 PIN ASSIGNMENT (FEMALE DB9)

DB9 Female on PHOX



1: N/C
2: Data Tx
3: Data Rx
4: N/C
5: GND
6: N/C
7: CTS (Clear To Send)
8: RTS (Request To Send)
9: N/C

GPIO PIN ASSIGNMENT (MALE DB9)



PIN Assignment
1: VIN (3.3V)
2: TX1
3: VOUT (3.3V)
4: ANODE1
5: ANODE0
6: TX0
7: GND (External)
8: CATHODE1
9: CATHODE0

ORDERING INFORMATION

System Model #	Transport Distance	Check List
PHOX-BM-00250	Up to 250 meters*	1x PHOX-CM 1x PHOX-FG 2x DB9 M/F RS232 cable (6ft) 2x 120AC/12DC power adapters with locking plug (Multi-mode fiber LC duplex not included)
PHOX-BL-XX	Up to 50 kilometers*	1x PHOX-CM 1x PHOX-FG 2x DB9 M/F RS232 cable (6ft) 2x 120AC/12DC power adapters with locking plug (Single-mode fiber LC duplex not included)

- Note: xx = Maximum transporting distance in kilometers.
- * Distance depending on fiber type and system design. 250 m transmission distance for PHOX-BM is based on 50/125 MM fiber. Extra optical losses in the system will reduce the maximum transmission distance.

To Place An Order, please call or email us.

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