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PRODUCT BRIEF

The PHORCE product family is designed to extend the SuperSpeed USB3.0 connections beyond the typical 3 meter reach of copper cables. The unique feature of PHORCE family is its transparent operation. The connected remote USB devices appear as local devices to the host PC. PHORCE system consists of a PHORCE-PC card, which is installed in the PCIe slots in the host computer, and a PHORCE-RE box, which provides two USB3.0 root hub ports at the remote site of the application. The remote USB ports comply with USB3.0 specifications and are backward compatible with USB2.0 devices and platforms. PHORCE also works with USB3 Vision cameras for machine vision applications.

KEY FEATURES

- Supports the following USB data rate
  - Super-Speed 5Gb/s
  - High- Speed 480Mb/s
  - Full-Speed 12Mb/s
  - Low-Speed 1.5Mb/s
- Up to 150 meter over OM2 MM duplex fiber cable
- Up to 100 meter over OM2 MM simplex fiber cable
- Available for longer distance with single mode fiber
- Low power consumption <1.75W
- Secure power connector with locking mechanism
- Provide optical isolation
- Compact size

APPLICATIONS

- Solar panel or glass panel inspection
- Semiconductor wafer inspection
- High speed printing inspection
- Precision surface inspection
- High resolution and intelligent security surveillance
- Intelligent traffic control and license plate reading
- High resolution images and real-time analysis for science, sports and automobile tests
- Remote data storage

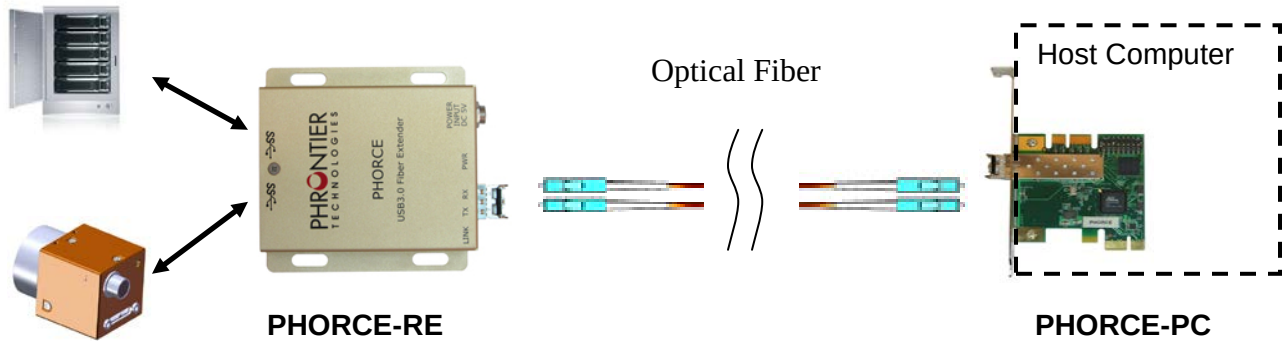
PHRONTIER™ TECHNOLOGIES

PHORCE

USB 3.0
Optical Fiber Extender

PHP-M
PHP-S
PHP-SL
PHP-Cxx

TYPICAL SET UP DIAGRAM



TECHNICAL SPECIFICATIONS

PHORCE-RE Module

Operating Temperature	0 ~ 70 ^{o}C
Input Voltage	DC 5V
Typical Power Consumption	1.65W for PHORCE-RE only, excluding user's USB devices
Power Supply Current Requirement	0.35A + user's bus powered USB devices
AC/DC Power Supply Connector	Switchcraft S760K locking plug
AC/DC Power Supply Rating	5V with max. 3A
Number of USB3.0 Root Hubs	2
Required USB3.0 Host Controller Driver	Microsoft WHQL certified xHCI compliant driver
Module weight	109 gram

PHORCE-PC Card

Operating Temperature	0 ~ 70 ^{o}C
Computer Interface	Support PCIe Gen1 and Gen2
PCIe Connector	PCIe x1 lane operable in x1,x4,x8,x16 slots
Power Consumption	Max. 4.95W

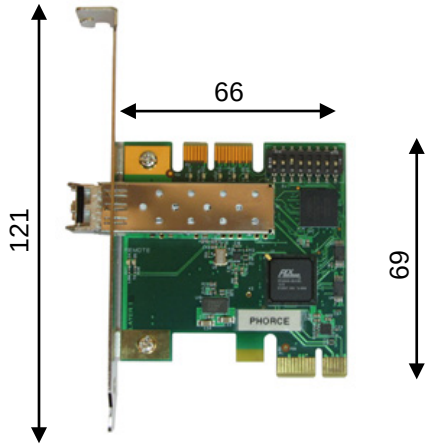
Optical Interface

Model Number	PHP-M	PHP-S	PHP-SL	PHP-Cxx
Wavelength	850 nm	1310 nm	1310/1550 nm	CWDM grid
Required number of fiber	2	2	1	2
Estimated Link Distance	150 m for OM2 MM fiber	1km SM fiber	1km SM fiber	1km SM fiber
Min Optical Tx Output Power	-9 dBm	-8.4 dBm	-8 dBm	-5 dBm
Min Optical Rx Power	-15 dBm	-18 dBm	-16 dBm	-18 dBm
Connector Type	LC duplex	LC duplex	LC simplex	LC duplex

MECHANICAL INFORMATION (mm)

RE Module (mm)

PCIe Card (mm)



ORDERING INFORMATION

Standard models

Ordering Part #	Link Distance	Fiber type	Connector type	Items included
PHP-M	150 m (500 ft)	2x OM2 MM fiber	LC duplex	1x PHP-M-PC PCIe card 1x PHP-M-RE module 1x 15W AC/DC adapter with 5V DC output.
PHP-S	>150 m (500 ft)	2x SM fiber	LC duplex	1x PHP-S-PC PCIe card 1x PHP-S-RE module 1x 15W AC/DC adapter with 5V DC output

PHP-SL	>150 m (500 ft)	1x SM fiber	LC simplex	1x PHP-SL-PC PCIe card 1x PHP-SL-RE module 1x 15W AC/DC adapter with 5V DC output

CWDM models (user needs to specify wavelength for both -PC and -RE device)

Ordering Part #	Tx Optical Wavelength	Rx Optical range	Connector type	Items included
PHP-C27-xx	1270 nm	1260 ~ 1620 nm	LC duplex	1x PHP-Cxx-PC PCIe card 1x PHP-Cxx-RE module 1x 15W AC/DC adapter with 5V DC output
PHP-C29-xx	1290 nm			
PHP-C31-xx	1310 nm			
PHP-C33-xx	1330 nm			
PHP-C35-xx	1350 nm			
PHP-C37-xx	1370 nm			
PHP-C39-xx	1390 nm			
PHP-C41-xx	1410 nm			
PHP-C43-xx	1430 nm			
PHP-C45-xx	1450 nm			
PHP-C47-xx	1470 nm			
PHP-C49-xx	1490 nm			
PHP-C51-xx	1510 nm			
PHP-C53-xx	1530 nm			
PHP-C55-xx	1550 nm			
PHP-C57-xx	1570 nm			
PHP-C59-xx	1590 nm			
PHP-C61-xx	1610 nm			

Accessory

Part #	Description
618-TR15-SW	15W AC/DC adapter with 5V DC output
PHP-BR	Low profile PCIe bracket
LC-LC-M-D-xxM	LC to LC duplex 50/125 μm OM2 MM fiber. xx = desired length in meters.

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