PHORCE (standalone version)

PRODUCT BRIEF

The PHORCE product family is designed to extend the SuperSpeed USB3.1 Gen1 connections beyond the typical 3 meter reach of copper cables. The standalone version of PHORCE consists of two individual modules. A PC module directly connects to any USB3.1 Gen1 port on a host such as a PC. A separate RE module (remote module) connects to user's USB 3.1 Gen1 devices such as a camera, external hard drive, control panel, or any other USB3.1 Gen1 compatible devices. By placing an optical fiber between the PC and RE modules, the PHORCE system can achieve a 300m link distance with a choice of SM or MM fibers. By incorporating swappable optical transceivers, PHORCE can be deployed to any existing fiber networks without opening walls or digging trenches.

KEY FEATURES

- Provide 5Gb/s transmission bandwidth for up to three USB3.1 Gen1 devices
- Supports 3 ports of USB3.1 Gen1 (USB3.0) and USB2.0 devices
- Compatible with MM, SM fibers and CWDM technologies
- Available for one fiber solution (LC simplex)
- Plug and Play, no drivers required
- LED indicators for system status
- Provide USB bus power for USB devices
- Secure power connector with locking mechanism
- Secure USB connectors with thumbscrew locking mechanism
- Secure installation with mounting wings
- Provide optical isolation
- Compact size

APPLICATIONS

- Long distance USB3.1 Gen1 and USB2.0 accessories connections
- USB3Vision applications
- Machine vision applications
- Intelligent traffic control systems
- Security surveillance systems
- Remote data storage systems
- Automation inspection systems
- High resolution images and real-time analysis for science, sports and automobile tests

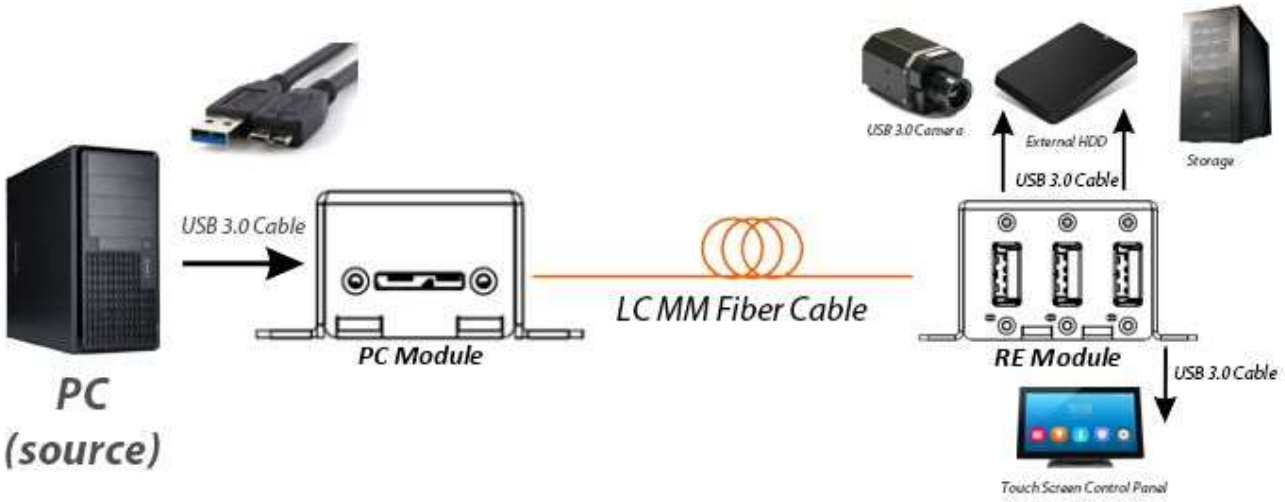
PHRONTIER™ TECHNOLOGIES

PHORCE

USB 3.1 Gen1 (USB3.0/2.0) Optical Fiber Extender

PHU321-M
PHU321-S
PHU321-SL
PHU321-Cxx

TYPICAL SET UP DIAGRAM



TECHNICAL SPECIFICATIONS

Module Specifications

Available Models		PHU321-M	PHU321-S	PHU321-SL	PHU321-Cxx
Max Link Distance[*1]		150 ~ 300 m (500 ~ 1000 ft)			
Wavelength		850nm	1310nm	1270/1330nm	CWDM grid
Optical Output Power[*2]		-6.5 ~ -1 dBm	-8.2 ~ +0.5 dBm	-8.2 ~ +0.5 dBm	-4 ~ +3 dBm
Optical Receiver Sensitivity[*2]		-11.1 dBm	-14.4 dBm	-14.4 dBm	-14.4 dBm
Required Number of Fibers		2	2	1	2
Optical Connector Type		LC Duplex	LC Duplex	LC Simplex	LC Duplex
Fiber Type		OM2, OM3, OM4	9/125 um SM		
Input Voltage on RE-module		10~ 24V DC			
USB connectors	PC-module	USB 3.0 Micro-B receptacle			
	RE-module	USB 3.0 Type-A receptacle			
Power Consumption of RE-module with 1 USB device[*3]		3.4W excluding USB bus powered devices			
Power Consumption of RE-module with 2 USB devices[*3]		3.8W excluding USB bus powered devices			
Operating Temperature	Case	0 ~ 65 °C			
	Ambient	0 ~ 50 °C			
Operating Humidity		20~80% Non-condensing			
Storage Temperature		-40 ~ 85°C			
Storage Humidity		10~90% Non-condensing			

Dimensions (excluding mounting wings)	PC-module	72 x 39 x 24 mm 2.85 x 1.54 x 24.3 inches
	RE module	87 x 43 x 30 mm 3.43 x 1.68 x 1.17 inches
Weight (PHU321)		PC module: 60g ; RE module: 94g

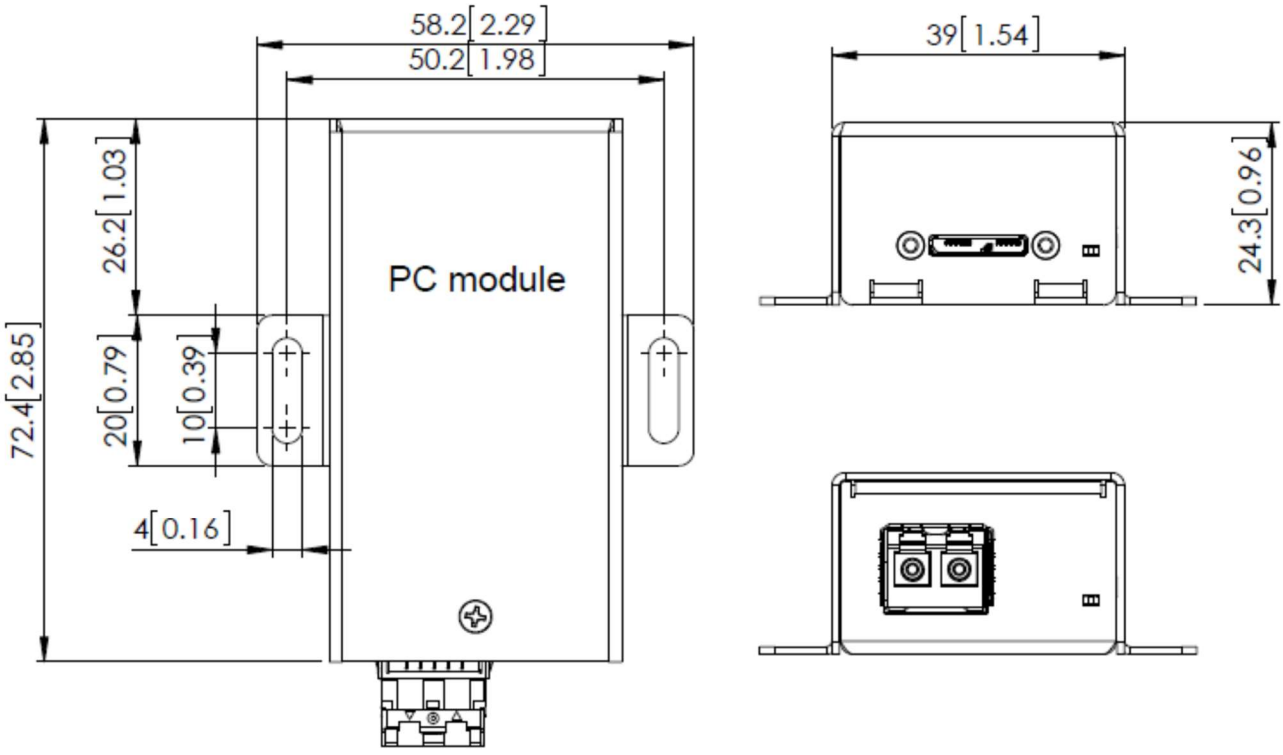
*1 The maximum link distance will strongly depend on USB host controller, USB device controller and device firmware.
*2 Measured with average optical power
*3 The power consumption was measured with PHU321-M-RE at 25C.

Power Supply Specifications (only apply to RE module)

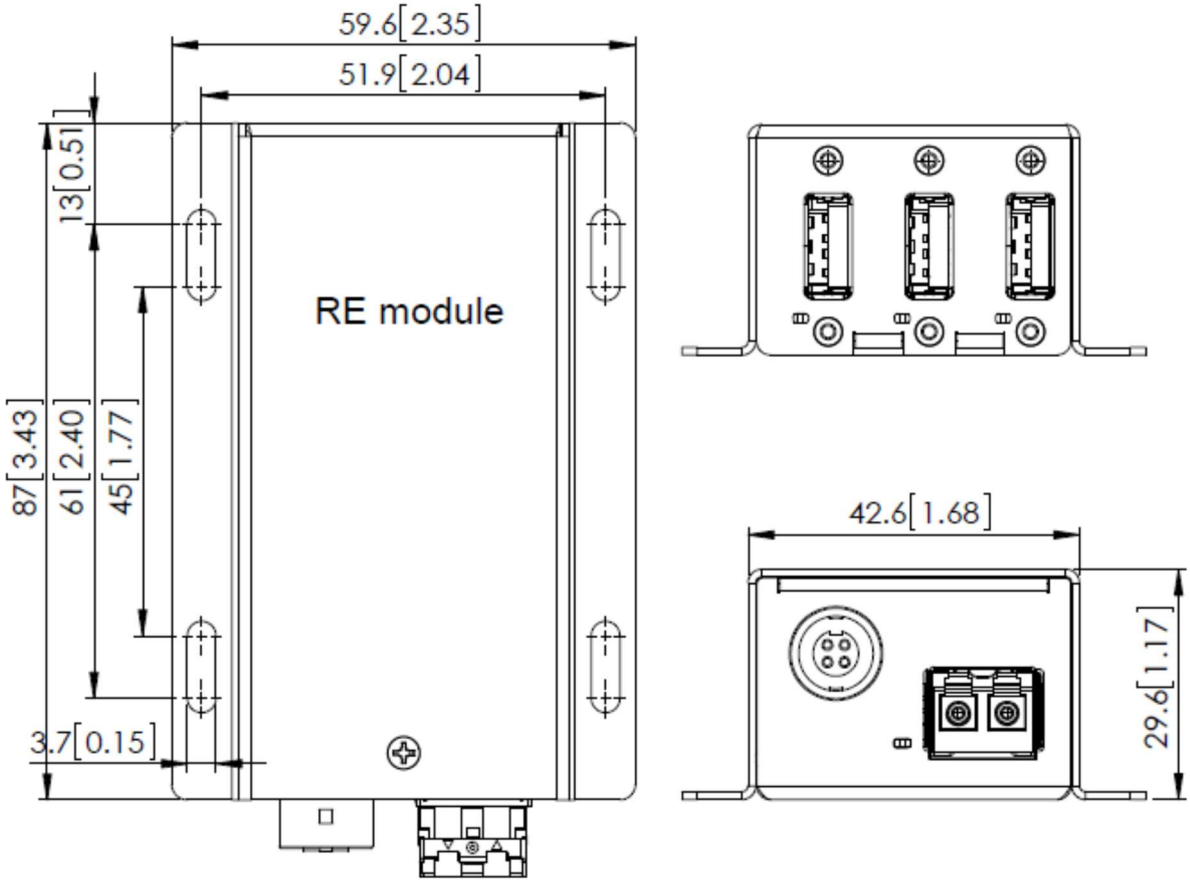
AC Input	100 ~ 240V AC
DC Output	1.0 A @ 24V DC
DC Plug Part Number	Binder 99-0979-100-04

MECHANICAL INFORMATION (mm)[inch]

PC Module



RE Module



RDERING INFORMATION

Standard models

Ordering Part #	Max. link Distance*	Fiber type	Connector type	Items included
PHU321-M	150 ~ 300 m (500 ~ 1000 ft)	OM2 or OM3 or OM4 fiber	LC duplex	1x PHU31B-M-PC module 1x PHU321-M-RE module 1x 24W wall mount power supply
PHU321-S	150 ~ 300 m (500 ~ 1000 ft)	SM fiber	LC duplex	1x PHU31B-S-PC module 1x PHU321-S-RE module 1x 24W wall mount power supply
PHU321-SL	150 ~ 300 m (500 ~ 1000 ft)	SM fiber	LC simplex	1x PHU31B-SL-PC module 1x PHU321-SL-RE module 1x 24W wall mount power supply

*1 The maximum link distance will strongly depend on USB host controller, USB device controller and device firmware.

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
PHU321-C27-xx	1270 nm	1260 ~ 1620 nm	LC duplex	1x PHU31B-Cxx-PC module 1x PHU321-Cxx-RE module 1x 24W wall mount power supply
PHU321-C29-xx	1290 nm			
PHU321-C31-xx	1310 nm			
PHU321-C33-xx	1330 nm			
PHU321-C35-xx	1350 nm			
PHU321-C37-xx	1370 nm			
PHU321-C39-xx	1390 nm			
PHU321-C41-xx	1410 nm			
PHU321-C43-xx	1430 nm			
PHU321-C45-xx	1450 nm			
PHU321-C47-xx	1470 nm			
PHU321-C49-xx	1490 nm			
PHU321-C51-xx	1510 nm			
PHU321-C53-xx	1530 nm			
PHU321-C55-xx	1550 nm			
PHU321-C57-xx	1570 nm			
PHU321-C59-xx	1590 nm			
PHU321-C61-xx	1610 nm			

Accessory

Part #	Description
618-GE24I24-BD	24W, DC 24V international wall mount AC/DC adapter with Binder plug
PTUSB3-A-MB-3	3 ft USB3.0 cable type A plug to Micro-B plug
LC-LC-M-D-xxxM	LC to LC duplex 50/125 μm OM2 MM fiber. xxx = desired length in meters.
LC-LC-G-D-xxxM	LC to LC duplex 50/125 μm OM3 MM fiber. xxx = desired length in meters.
LC-LC-S-D-xxxM	LC to LC duplex 9/125 SM fiber. xxx = desired length in meters.

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