

KEY FEATURES

- ❖ Fully supports base Camera Link™ cameras/frame grabbers
- ❖ Direct plug – no electrical cable needed
- ❖ Broad bandwidth – up to 2.5 Gb/s supporting 24 bits image data at 85 MHz pixel clock
- ❖ Transparent operation – plug and play with no changes required for camera and/or frame grabber
- ❖ Standard LC duplex fiber interface
- ❖ Single 5V~24V DC power supply
- ❖ Exchangeable optical module – easy to upgrade
- ❖ Transmission distance - up to 10 km (standard), 80 km available
- ❖ Available for 18 CWDM wavelengths
- ❖ Available with -40~85C industrial grade components
- ❖ **PoCL compatible**
- ❖ **Compact size – 59L x 39.4W x 17H mm (2.326L x 1.551W x 0.669H inch)**

TARGET APPLICATIONS

- ❖ Solar panel or glass panel inspection
- ❖ Semiconductor wafer inspection
- ❖ High speed printing inspection
- ❖ High precision surface inspection (e.g. airplane surface or automobile painting)
- ❖ Automated product inspection (e.g. food, drinking or pharmaceutical products)
- ❖ High resolution and real-time analysis for science, sports, automobile tests, and 3-D animation.
- ❖ High precision security surveillance (e.g. border control, airport)
- ❖ Traffic surveillance/control and vehicle license plate reading/recording (e.g. toll booth)
- ❖ Cameras placed in harsh environment (e.g. nuclear plant, steel mill or undersea monitoring)
- ❖ Other Machine Vision Applications

PHRONTIER™
TECHNOLOGIES

PHIRE™ Camera Link Fiber Adapter

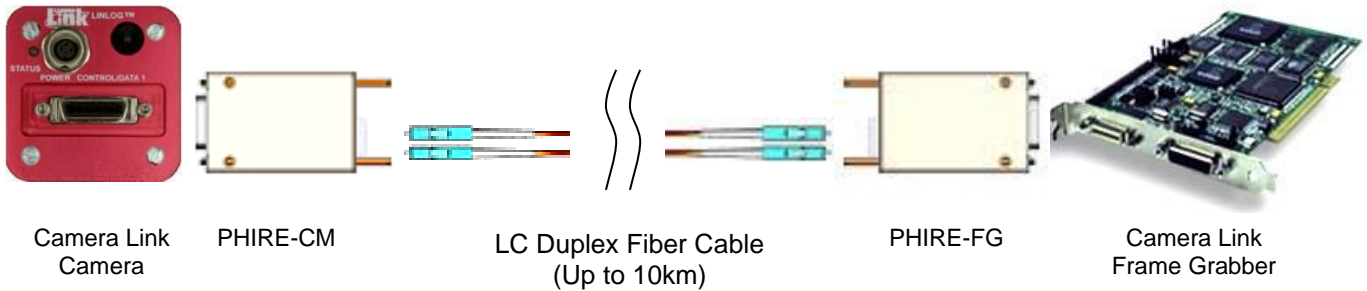
Base Configuration

PHR-68-M025/S10-x
PHR-85-M025/S10-x
PHR-85-M020/S07-x
PHR-68-C24-xx-xx
PHR-85-C16-xx-xx
PHR-85-C24-xx-xx



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TYPICAL SET UP DIAGRAM



Camera Link
Camera

PHIRE-CM

LC Duplex Fiber Cable
(Up to 10km)

PHIRE-FG

Camera Link
Frame Grabber

TECHNICAL SPECIFICATIONS

General Specification

Standard Operating Temperature	Ambient	0 ~ 50 °C	Case	0 ~ 60 °C
Extended Operating Temperature	Ambient	-40~70 °C	Case	-40~80 °C
Storage Temperature	-40 ~ 85 °C			
Operating Humidity	20 ~ 80% (non-condensing)			
Input Voltage	DC 5 ~ 24 V			
Supply Current @25 °C	0.160 A @12V each module			
Typical Power Consumption	1.9 W each module			
Connector Type	Micro USB type B with custom pin assignment			
Approx. Weight (each module)	75 gram			

Camera Link Interface

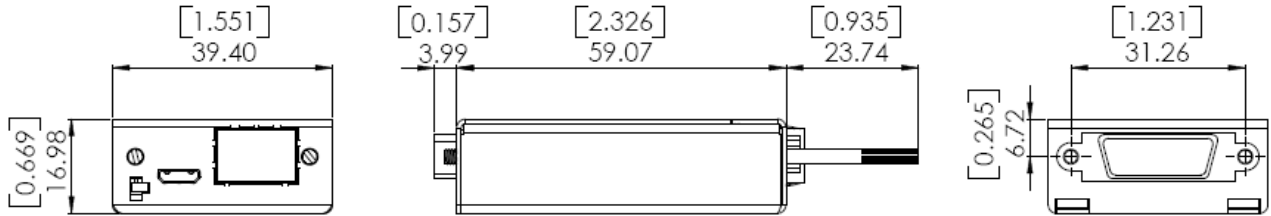
	PHR-68-M025 PHR-68-S10 PHR-68-C24-xx-xx	PHR-85-M025 PHR-85-S10 PHR-85-C16-xx-xx	PHR-85-M020 PHR-85-S07 PHR-85-C24-xx-xx
Max Pixel Clock	68 MHz	85 MHz	85 MHz
Max Image Data Width	24 bits	16 bits	24 bits
Transport Bandwidth	2 Gb/s	2 Gb/s	2.5 Gb/s
Connector Type	MDR26 plug		

Optical Interface (users specify CWDM wavelength for CM and FG modules)

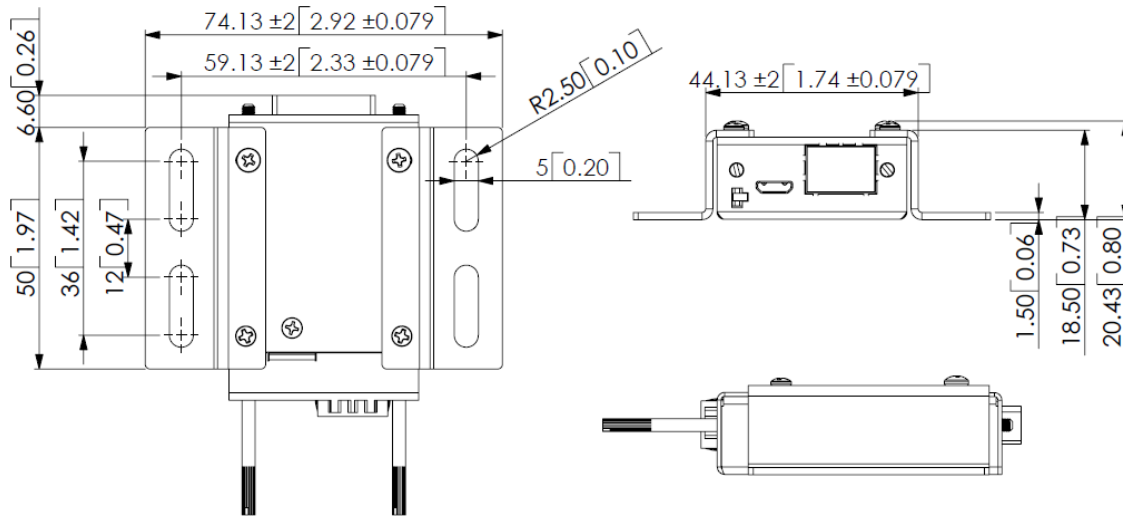
	PHR-68-M025 PHR-85-M025 PHR-85-M020	PHR-68-S10 PHR-85-S10 PHR-85-S07	PHR-68-C24-xx-xx PHR-85-C16-xx-xx PHR-85-C24-xx-xx
Operating Wavelength	850 nm	1310 nm	1270 ~ 1610 nm with 20nm spacing
Min Optical Tx Output Power	-9.5 dBm	-9 dBm	-2 dBm
Min Optical Rx Power	-17 dBm	-18 dBm	-20dBm
Connector Type	LC duplex	LC duplex	LC duplex
Fiber Type	50/125 μm or 62.5/125 μm MM fibers	9/125 μm SM fibers	9/125 μm SM fibers

MECHANICAL INFORMATION (mm [inch])

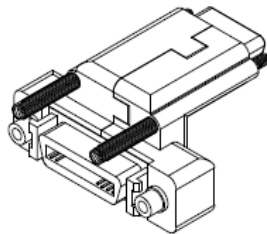
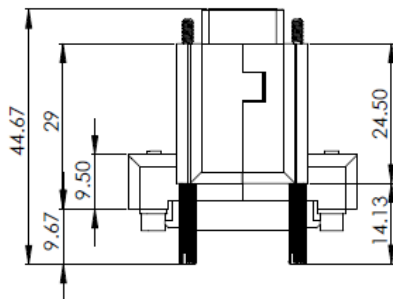
Module dimensions



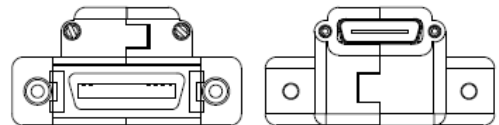
With Mounting Flange Options



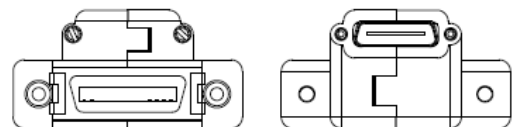
SDR plug to MDR receptacle adapter



Down angle configuration



Up angle configuration



ORDERING INFORMATION

Standard models

Model #	Data Width	Max. Pixel Clock Rate	Fiber Type & Estimated Link Distance *1		Items Provided
PHR-68-M025	24 bits	68MHz	OM3	600 m (1800 ft)	1x PHIRE-CM (transmitter) 1x PHIRE-FG (receiver) 2x 12V DC output international wall mount AC/DC adapters (LC duplex fiber cable not included)
			OM2	250 m (900 ft)	
			OM1	150 m (450 ft)	
PHR-85-M025	16 bits	85MHz	OM3	600 m (1800 ft)	
			OM2	250 m (900 ft)	
			OM1	150 m (450 ft)	
PHR-85-M020	24 bits	85MHz	OM3	550 m (1650 ft)	
			OM2	200 m (700 ft)	
			OM1	100 m (300 ft)	
PHR-68-S10	24 bits	68MHz	10 km (6.25 miles)		
PHR-85-S10	16 bits	85MHz	10 km (6.25 miles)		
PHR-85-S07	24 bits	85MHz	7 km (4.38 miles)		

* 1. OM1 is 62.5/125um MM fiber and OM2 and OM3 are 50/125um MM fiber. Distance depending on fiber type and system design. Extra optical losses in the system will reduce the transmission distance.

Extended temperature models

Model #	Data Width	Max. Pixel Clock Rate	Fiber Type & Estimated Link Distance *2		Items Provided
PHR-68-M025-T	24 bits	68MHz	OM3	600 m (1800 ft)	1x PHIRE-CM (transmitter) 1x PHIRE-FG (receiver)
PHR-85-M025-T	16 bits	85MHz	OM3	600 m (1800 ft)	
PHR-85-M020-T	24 bits	85MHz	OM3	550 m (1650 ft)	
PHR-68-S10-T	24 bits	68MHz	10 km (6.25 miles)		2x 12V DC output international wall mount AC/DC adapters (fiber cable not included)
PHR-85-S10-T	16 bits	85MHz	10 km (6.25 miles)		
PHR-85-S07-T	24 bits	85MHz	7 km (4.38 miles)		

*2. Distance depending on fiber type and system design. Extra optical losses in the system will reduce the transmission distance.

CWDM models (users need to specify wavelengths for CM and FG modules)

Model #	Data Width	Max. Pixel Clock Rate	Optical Wavelengths	Items Provided
PHR-68-C24-CM-xx or PHR-68-C24-FG-xx	24 bits	68MHz	xx=27 for 1270 nm xx=29 for 1290 nm xx=31 for 1310 nm xx=33 for 1330 nm xx=35 for 1350 nm	1x PHIRE-CM (transmitter) 1x PHIRE-FG (receiver) 2x 12V DC output international wall mount

PHIRE Series

PHR-85-C16-CM-xx or PHR-85-C16-FG-xx	16 bits	85MHz	xx=37 for 1370 nm xx=39 for 1390 nm xx=41 for 1410 nm xx=43 for 1430 nm xx=45 for 1450 nm xx=47 for 1470 nm	AC/DC adapters (LC duplex fiber cable not included)
PHR-85-C24-CM-xx or PHR-85-C24-FG-xx	24 bits	85MHz	xx=49 for 1490 nm xx=51 for 1510 nm xx=53 for 1530 nm xx=55 for 1550 nm xx=57 for 1570 nm xx=59 for 1590 nm xx=61 for 1610 nm	

Accessory

Part #	Description
618-TRG10R-MUSB-1	12V DC international wall mount AC/DC adapter with micro-USB plug
LC-LC-MD-xxM2	LC to LC duplex 50/125 μ m OM2 MM fiber. xx = desired length in meters.
LC-LC-MD-xxM3	LC to LC duplex 50/125 μ m OM3 MM fiber. xx = desired length in meters.
PHIRE-W	1 pair of mounting flanges
SDR-MDR-D	SDR plug to MDR receptacle adapter – DOWN configuration
SDR-MDR-U	SDR plug to MDR receptacle adapter – UP configuration



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