

KEY FEATURES

- ❖ Fully supports CoaXPress standard with high speed downlink and low speed uplink
- ❖ Supports all high speed bit rates – 1.25G, 2.5G, 3.125G, 5G and 6.25Gb/s
- ❖ Supports PoCXP function to supply power to camera and receive power from grabber
- ❖ Optional AUX channels for additional RS232, RS422 and GPIO channels
- ❖ Optional remote operating status monitoring
- ❖ Transparent operation – plug and play with no configuration required
- ❖ Extends link distance up to 10km or longer if needed
- ❖ Standard DIN 1.0/2.3 connector
- ❖ Standard LC duplex fiber interface with optional 1-fiber bi-directional connection
- ❖ Available with extended operating temperature
- ❖ Accepts wide range of DC input 10V~24V DC
- ❖ Power connector with secure locking mechanism
- ❖ LED indicators for operating status
- ❖ Compact size
PHT1 (excludes heatsink) – 72L x 62W x 18H mm
PHT4 – 88L x 147W x 41.25H mm

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

PHORTE™ 1, 2 and 4ch CoaXPress Fiber Extender

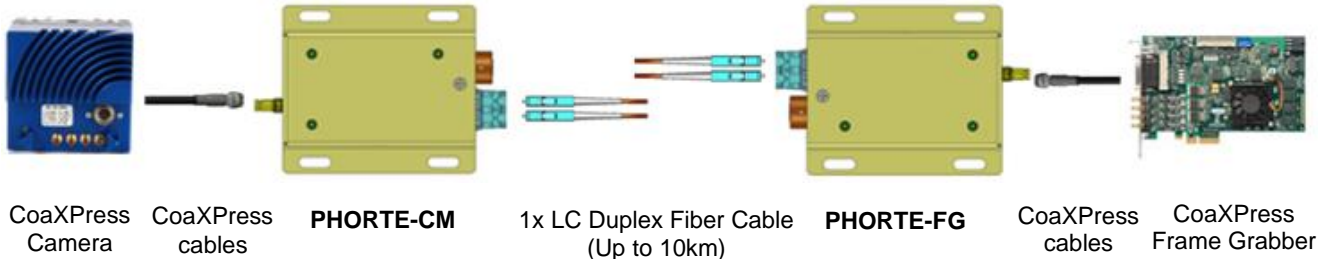
PHT1-x, PHT1-Cxx
PHT2-x-x, PHT2-Cxx
PHT4-x-x, PHT4-Cxx



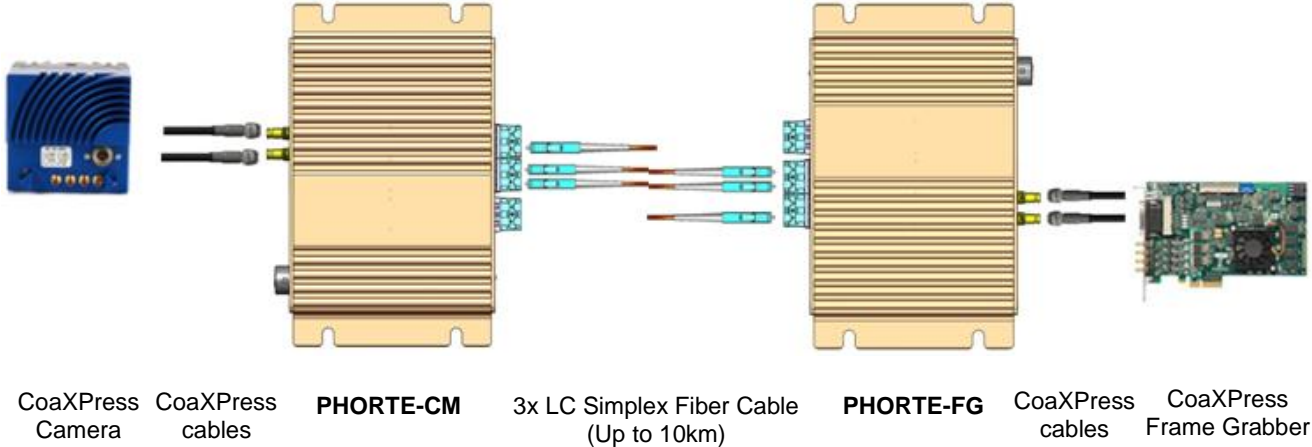
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TYPICAL SET UP DIAGRAM

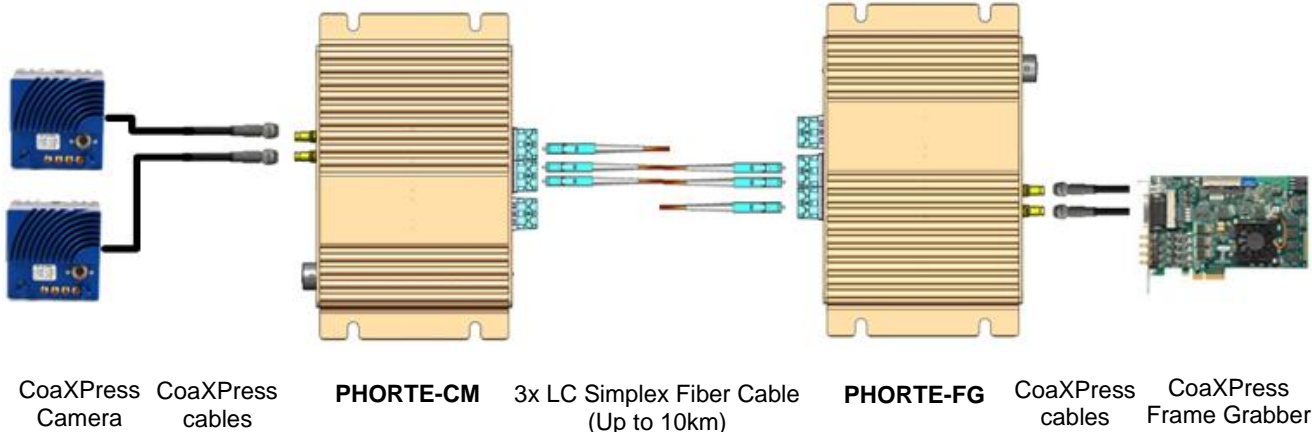
PHT1 with 1ch CXP system



PHT2 with 2ch CXP system
(Drawing shows optical ports for AUX options)

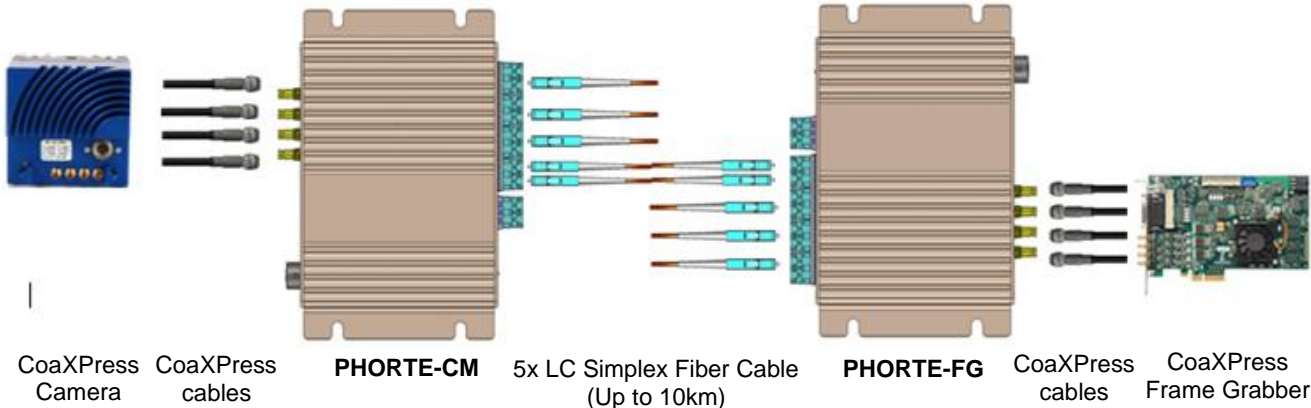


PHT2 with 2x 1ch CXP system
(Drawing shows optical ports for AUX options)



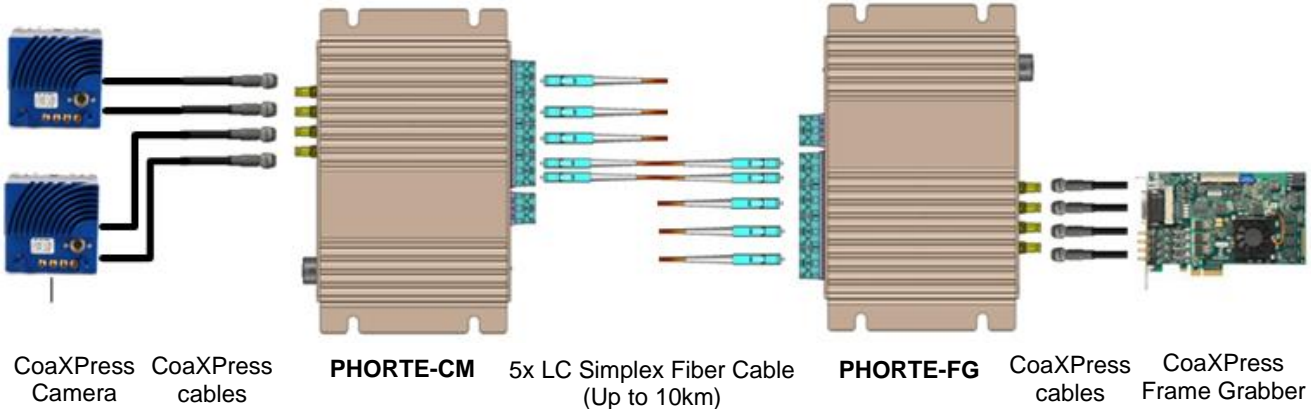
PHT4 with 4ch CXP system

(Drawing shows optical ports for AUX options)



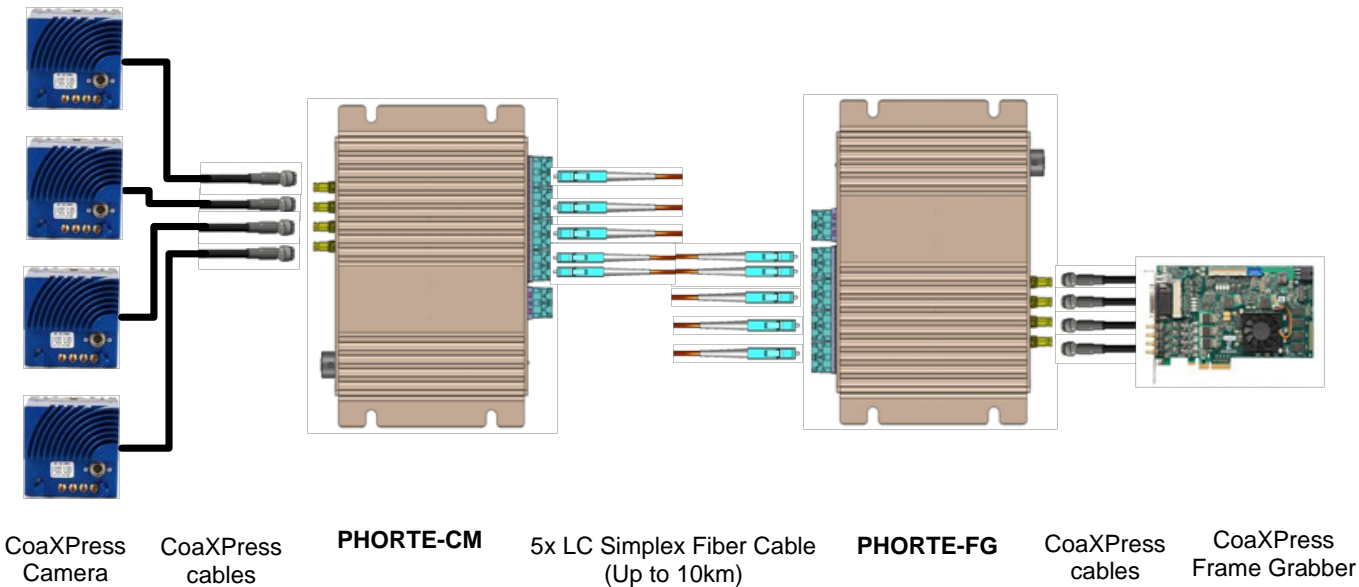
PHT4 with 2x 2ch CXP system

(Drawing shows optical ports for AUX options)



PHT4 with 4x 1ch CXP system

(Drawing shows I/O ports for AUX options)



PHT1 TECHNICAL SPECIFICATIONS

General Specification – PHT1

Storage Temperature		-40 ~ 85 °C
Operating Temperature Without PoCXP, With 11mm Heatsink	Ambient	0 ~ 45 °C
	Case	0 ~ 60 °C
Extended Operating Temperature Without PoCXP, With 11 mm heatsink	Ambient	-40 ~ 55 °C
	Case	-40 ~ 75 °C
Operating Humidity		20 ~ 80% (non-condensing)
Input Voltage		DC 10 ~ 24 V
Typical Supply Current Per Module @24V ^{*1}		0.13 A
Typical Power Consumption Per Module ^{*1}		3.2 W
Power Connector on Module		Binder 09-0982-00-04
Approx. Weight (each module)		67 gram without heatsink 93 gram with 11mm heatsink

^{*1} Measurements are done with PHT1-M @ 25C

CoaXPress Interface – PHT1

Downlink Data Rate	CXP-1, CXP-2 ,CXP-3, CXP-5, CXP-6
Uplink Data Rate	20.83 Mb/s
Connector	DIN1.0/2.3
PoCXP Output Voltage	24 V
PoCXP Supply Power	17W/Ch

Optical Interface – PHT1

	PHT1-M	PHT1-S	PHT1-B	PHT1-Cxx
Operating Wavelength	850nm	1310nm	CM Tx: 1270nm FG Tx: 1330nm	CWDM grid
Min Optical Tx Output Power ^{*2}	-5 dBm	-8.2 dBm	-6.5 dBm	-4 dBm
Min Optical Rx Power ^{*2}	-11.1 dBm	-12.6 dBm	-12 dBm	-15 dBm
Max Optical Rx Input	0.5 dBm	0.5 dBm	0.5 dBm	0.5 dBm
Connector Type	LC duplex	LC duplex	LC simplex	LC duplex
Fiber Type	MM	SM	SM	SM

^{*2} More optical power options are available upon requests

PHT2 and PHT4 TECHNICAL SPECIFICATIONS

General Specification – PHT2 and PHT4

Storage Temperature		-40 ~ 85 °C
Operating Temperature Without PoCXP	Ambient	0 ~ 55 °C
	Case	0 ~ 65 °C
Extended Operating Temperature ^{*3} Without PoCXP	Ambient	-40 ~ 70 °C
	Case	-40 ~ 80 °C
Operating Humidity		20 ~ 80% (non-condensing)
Input Voltage		DC 10 ~ 24 V
Typical Power Consumption Per Module ^{*4}	PHT2	3.6W for CM, 3.5W for FG
	PHT4	5W for CM, 5W for FG
Power Connector on Module		Binder 09-0982-00-04
Approx. Weight (each module)		365 gram

^{*3} For PHT1-Cxx, the extended ambient temperature range is -20 ~ 60C and the extended case temperature is -20 ~ 70C

^{*4} Measurements are done with PHT2-M and PHT4-M @ 25C

CoaXPress Interface – PHT2 and PHT4

Downlink Data Rate	CXP-1, CXP-2 ,CXP-3, CXP-5, CXP-6
Uplink Data Rate	20.83 Mb/s
Connector	DIN1.0/2.3
PoCXP Output Voltage	24 V
PoCXP Supply Power	17W/Ch

Optical Interface for CXP channels – PHT2

	PHT2-M	PHT2-S	PHT2-B	PHT2-Cxx
Operating Wavelength ^{*5}	850nm	1310nm	CM Ch1 Tx: 1270nm FG Ch1 Tx: 1330nm Ch2 Tx: 1310nm	CWDM grid
Min Optical Tx Output ^{*6}	-5 dBm	-8.2 dBm	-6.5 dBm	-4 dBm
Min Optical Rx Input	-11.1 dBm	-12.6 dBm	-12 dBm	-15 dBm
Max Optical Rx Input	0.5 dBm	0.5 dBm	0.5 dBm	0.5 dBm
Connector Type	LC simplex	LC simplex	LC simplex	LC duplex
Fiber Counts	3	3	2	3
Fiber Type	MM	SM	SM	SM

Optical Interface for CXP channels – PHT4

	PHT4-M	PHT4-S	PHT4-B	PHT4-Cxx
Operating Wavelength ^{*5}	850nm	1310nm	CM Ch1 Tx: 1270nm FG Ch1 Tx: 1330nm Ch2,3,4 Tx: 1310nm	CWDM grid

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Min Optical Tx Output* ⁶	-5 dBm	-8.2 dBm	-6.5 dBm	-4 dBm
Min Optical Rx Input	-11.1 dBm	-12.6 dBm	-12 dBm	-15 dBm
Max Optical Rx Input	0.5 dBm	0.5 dBm	0.5 dBm	0.5 dBm
Connector Type	LC simplex	LC simplex	LC simplex	LC duplex
Fiber Counts	5	5	4	5
Fiber Type	MM	SM	SM	SM

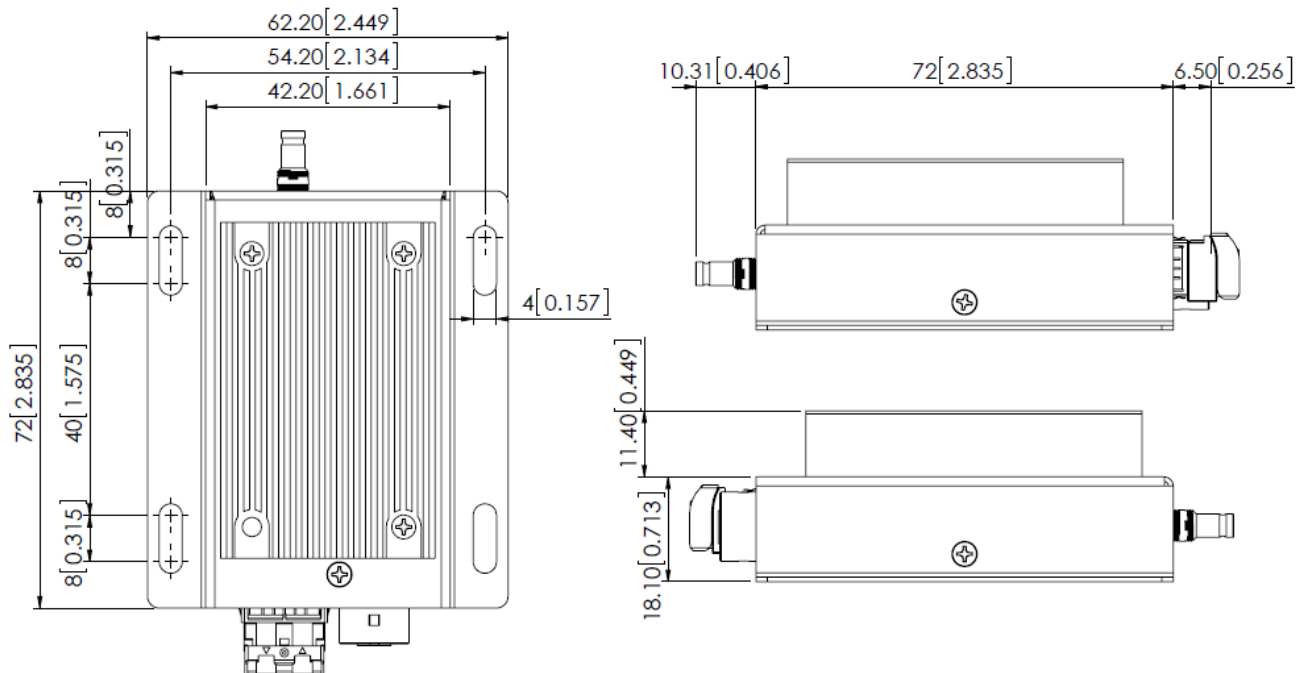
*⁵ CWDM options are available in the ordering information

*⁶ More optical power options are available upon requests

Optical Interface for optional AUX channel – PHT2 and PHT4

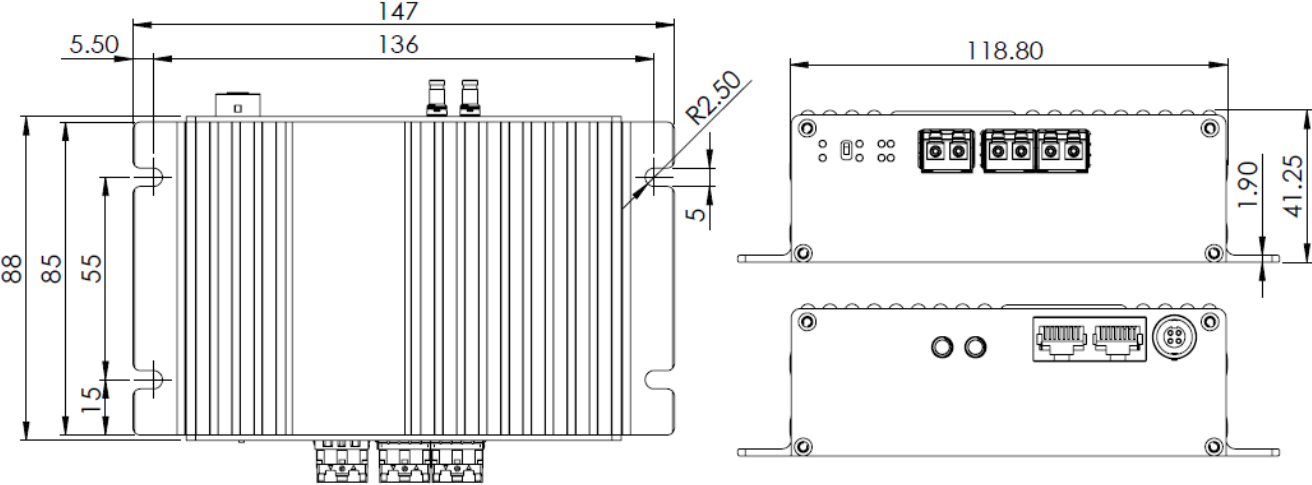
	PHTx-M-A	PHTx-S-A	PHTx-B-B
Operating Wavelength	850nm	1310nm	CM Tx: 1310nm FG Tx: 1550nm
Min Optical Tx Output	-9 dBm	-3 dBm	-3 dBm
Min Optical Rx Input	-17 dBm	-20 dBm	-20 dBm
Max Optical Rx Input	0.5 dBm	0.5 dBm	0.5 dBm
Connector Type	LC duplex	LC duplex	LC simplex
Fiber Counts	2	2	1
Fiber Type	MM	SM	SM

PHT1-x MECHANICAL INFORMATION (mm [inch])



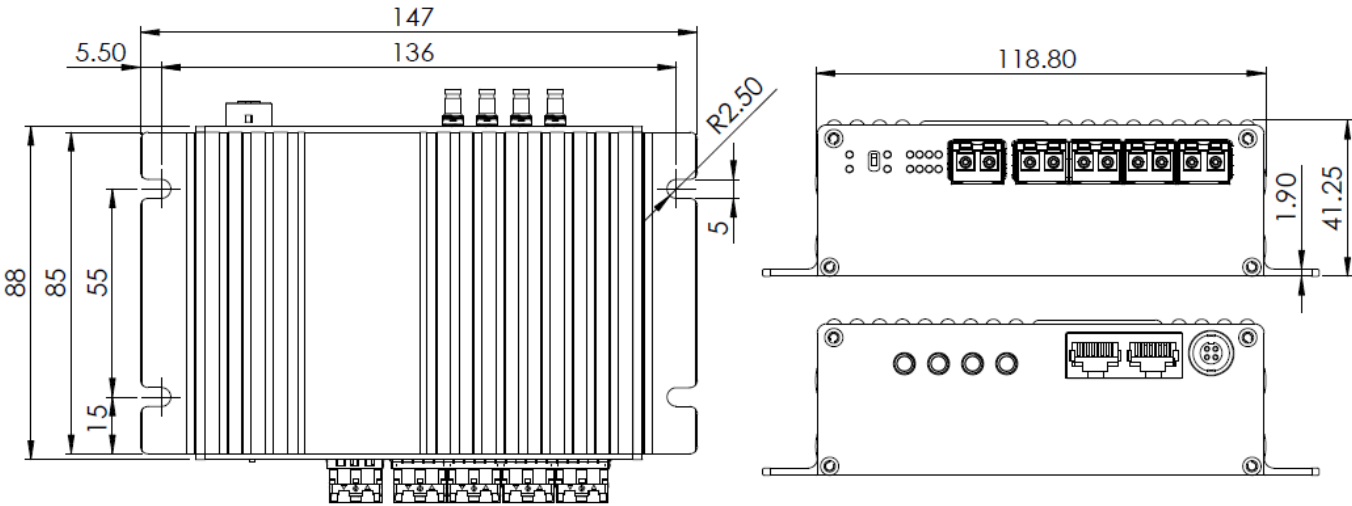
PHT2-x-x MECHANICAL INFORMATION (mm)

(Drawing shows I/O ports for AUX options)



PHT4-x-x MECHANICAL INFORMATION (mm)

(Drawing shows I/O ports for AUX options)



ORDERING INFORMATION

PHT1 Standard models

Model #	Fiber Type & Estimated Link Distance *		Fiber count	Items Provided
PHT1-M	OM2 MM	80 m (250 ft)	2	1x PHORTE-CM 1x PHORTE-FG
	OM3 MM	300 m (1000 ft)	2	
	OM4 MM	400 m (1300 ft)	2	

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PHT1-S	SM	10 km (6.25 mile)	2	1x 24W, DC 24V international wall mount AC/DC adapter (fiber cable not included)
PHT1-B	SM	10 km (6.25 mile)	1	

* Distance depending on fiber type and system design. Extra optical losses in the system will reduce the transmission distance. Longer link distance is available upon request.

PHT1 Temperature and Heatsink options

Model #	Options
Standard # -T	Extended temperature
Standard # -L	Large heatsink (22.9mm height)
Standard # -T-L	Extended temperature with large heatsink

PHT1 CWDM models (users need to specify wavelengths for CM and FG modules)

Model #	Fiber Type	Optical Wavelengths	Items Provided
PHT1-Cxx-CM or PHT1-Cxx-FG	SM	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 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 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	1x PHORTE-CM 1x PHORTE-FG 1x 24W, DC 24V international wall mount AC/DC adapters (fiber cable not included)

PHT2 Standard models

Model #	Fiber Type & Estimated Link Distance *		Fiber count	Items Provided
PHT2-M	OM2 MM	80 m (250 ft)	3	1x PHORTE-CM 1x PHORTE-FG 1x 24W, DC 24V international wall
	OM3 MM	300 m (1000 ft)	3	
	OM4 MM	400 m (1300 ft)	3	
PHT2-S	SM	10 km (6.25 mile)	3	

PHORTE Series

PHT2-B	SM	10 km (6.25 mile)	2	mount AC/DC adapter (fiber cable not included)
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* Distance depending on fiber type and system design. Extra optical losses in the system will reduce the transmission distance. Longer link distance is available upon request.

PHT2 Standard models + AUX option

Model #	Fiber Type & Estimated Link Distance *		Fiber count	Items Provided
PHT2-M-A	OM2 MM	80 m (250 ft)	5	1x PHORTE-CM
	OM3 MM	300 m (1000 ft)	5	1x PHORTE-FG
	OM4 MM	400 m (1300 ft)	5	1x 24W, DC 24V international wall
PHT2-S-A	SM	10 km (6.25 mile)	5	mount AC/DC adapter
PHT2-B-B	SM	10 km (6.25 mile)	3	(fiber cable not included)

PHT4 Standard models

Model #	Fiber Type & Estimated Link Distance *		Fiber count	Items Provided
PHT4-M	OM2 MM	80 m (250 ft)	5	1x PHORTE-CM
	OM3 MM	300 m (1000 ft)	5	1x PHORTE-FG
	OM4 MM	400 m (1300 ft)	5	1x 24W, DC 24V international wall
PHT4-S	SM	10 km (6.25 mile)	5	mount AC/DC adapter
PHT4-B	SM	10 km (6.25 mile)	4	(fiber cable not included)

* Distance depending on fiber type and system design. Extra optical losses in the system will reduce the transmission distance. Longer link distance is available upon request.

PHT4 Standard models + AUX option

Model #	Fiber Type & Estimated Link Distance *		Fiber count	Items Provided
PHT4-M-A	OM2 MM	80 m (250 ft)	7	1x PHORTE-CM
	OM3 MM	300 m (1000 ft)	7	1x PHORTE-FG
	OM4 MM	400 m (1300 ft)	7	1x 24W, DC 24V international wall
PHT4-S-A	SM	10 km (6.25 mile)	7	mount AC/DC adapter
PHT4-B-B	SM	10 km (6.25 mile)	5	(fiber cable not included)

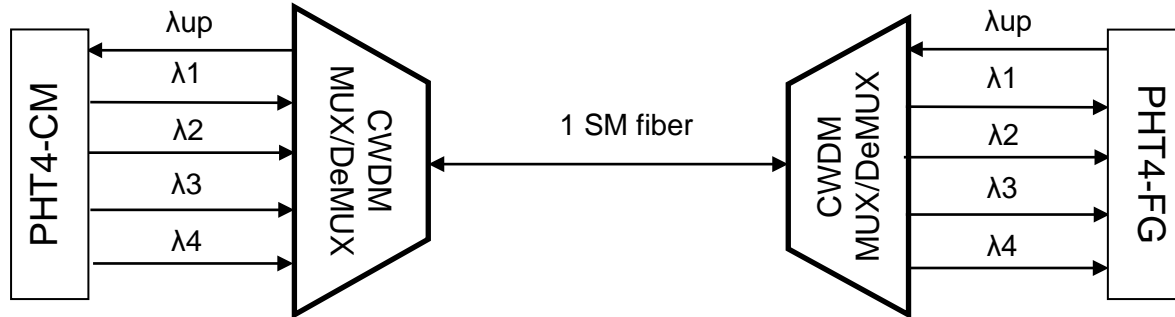
PHT2 and PHT4 Temperature option

Model #	Options
Standard # -T	Extended temperature (ex: PHT4-M-T or PHT4-S-A-T)

PHT2 and PHT4 PoCXP disable option

Model #	Options
Standard # -D	Disable PoCXP function on the CM module (ex: PHT2-M-D or PHT4-S-T-D)

PHT2 and PHT4 CWDM models (users need to specify 3 wavelengths for PHT2 and 5 wavelengths for PHT4 in the order of Ch1, Ch2, Ch3, Ch4 and the uplink channel. For example: PHT4-C27-29-31-33-55 will have Ch1=1270nm, Ch2=1290nm, Ch3=1310nm, CH4=1330nm, uplink=1550nm), CWDM Mux/DeMux modules are not included in our products



Model #	Fiber Type	Optical Wavelengths	Items Provided
PHT2-Cxx-xx-xx or PHT4-Cxx-xx-xx- xx-xx	SM	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 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 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	1x PHORTE-CM 1x PHORTE-FG 1x 24W, DC 24V international wall mount AC/DC adapters (fiber cable not included)

Accessory

Part #	Description
618-GE24I24-BD	24W, DC 24V international wall mount AC/DC adapter with Binder plug

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618-VES90-BD	90W, DC 24V international wall mount AC/DC adapter with Binder plug
LC-LC-M-D-xxxM	LC to LC duplex 50/125 μ m OM2 MM fiber. xxx = desired length in meters.
LC-LC-G-D-xxxM	LC to LC duplex 50/125 μ m 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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