



CoaXPress™ Range Extender over Fiber



Datasheet
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Revision History

Version	Date	Notes
1.0	07.02.19	Initial Release

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2.1 Features

- Fully CoaXPress V1.1.1 compatible
- Support all the standard high speed link rates: 1.25G,2.5G,3.125G , 5G and 6.25G
- Supports 20.83 Mbps low speed uplink
- Extension for distances up to 80km with single-mode optic fiber and up to 300m with multi-mode optic fiber
- Bidirectional CoaXPress communication
- Flexible SFP+ module for optic fiber connection
- Standard LC fiber interface connectors
- DIN 1.0/2.3 Connector for CoaXPress link
- Plug and Play, no configuration required
- Power over CoaXPress (PoCXP) support for both camera and frame grabber side
- LED indicators for system status
- Compact size
- 0°C to 50°C operating environment temperature (commercial grade)
- -40°C to 70°C operating environment temperature (industrial grade) (optional)

2.2 Product Applications

- ✓ High speed cameras
- ✓ High definition cameras
- ✓ real-time analysis
- ✓ Panoramic cameras
- ✓ High speed printing inspection
- ✓ High precision surface inspection
- ✓ Defense remote systems
- ✓ Security and traffic surveillance
- ✓ Automated product inspection
- ✓ Robotic Vision
- ✓ Machine Vision applications

- ✓ Solar or glass panel inspection
- ✓ Semiconductor wafer inspection

2.3 Related documents

- Japan Industrial Imaging Association (JIIA NIF-001-2010)
- CoaXPress_Extender_over_Fiber_user_manual

3.1 Set Up Diagram

A typical system diagram of the *KY-FEXT* is described below. The *KY-FEXT* system, on the host side (*KY-FEXT-H* unit), is connected to the Komodo Frame Grabber. On the device side (*KY-FEXT-D* unit), the system is connected to a single or quad CoaXPress cameras.

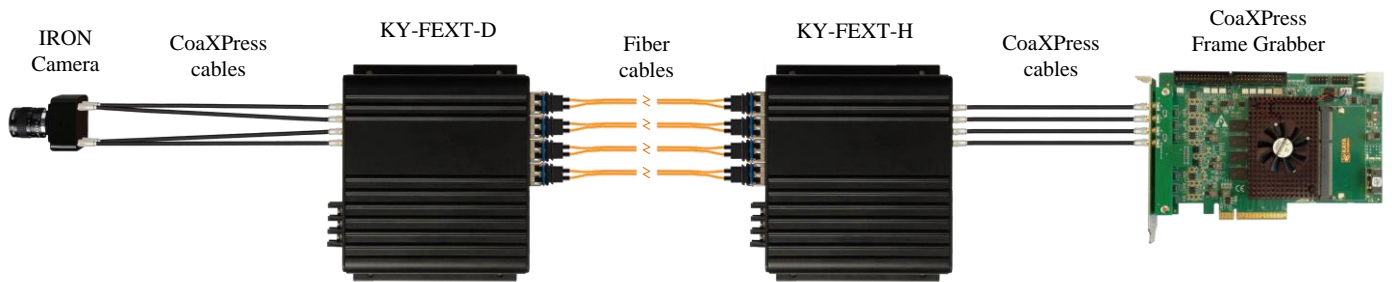


Figure 1 : KY-FEXT single camera over quad CoaXPress channels connection diagram

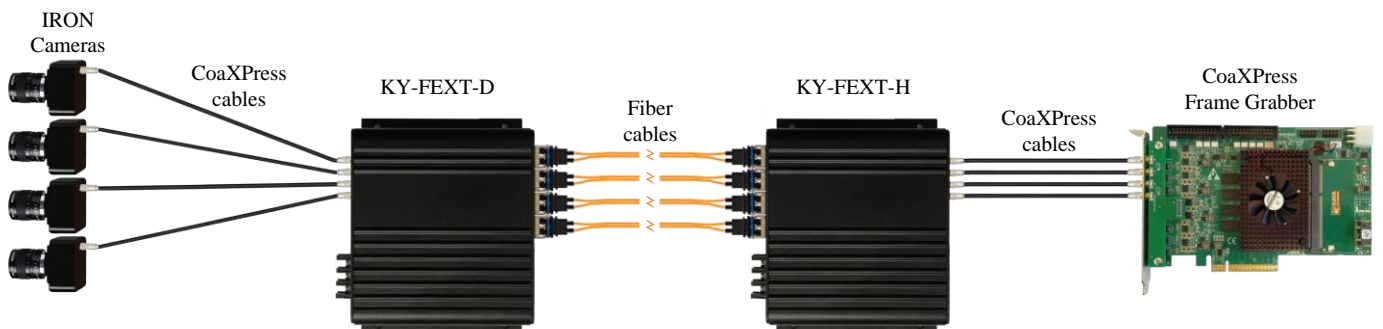


Figure 2 : KY-FEXT quad cameras over single CoaXPress channel connection diagram

Please refer to CoaXPress_Extender_over_Fiber_user_manual document for available configurations.

4.1 Absolute maximum ratings

Specification	Values
Power supply voltage	DC 0V to 30V
Storage Temperature	-40°C to 85°C
Operating Temperature	0°C to 50°C (commercial grade) -40°C to 70°C (industrial grade) (optional)
Operating Humidity	10 ~ 90% (non-condensing)

Table 1 : Absolute maximum ratings

4.2 Operating conditions

Parameter	Description	Minimum	Typical	Maximum
V _{cc}	Supply voltage	20.3V	24V	26 V
I _{cc} (Host)	Supply Current from PoCXP or external power supply (4 active channels)	-	0.25A	0.33A
I _{cc} (Device)	Supply Current from external power supply (4 active channels)	-	0.25A	2.61A ⁽¹⁾
I _{PoCXP}	PoCXP Output current per link	0A	-	0.57A

Table 2 : Operating conditions

(1) In case all the 4 CXP channels supply 13.5W of power to connected camera/s

4.3 CoaXPress Interface

Specification	Values
Downlink Data Rate	CXP-1, CXP-2, CXP-3, CXP-5, CXP-6
Uplink Data Rate	20.83 Mb/s
Connector Type	DIN1.0/2.3
PoCXP Output Voltage	24V
PoCXP Supply Power	13.5W/Ch

Table 3 : CoaXPress Interface specifications

4.4 Optical Interface

Model	Single Mode	Multi Mode	Bidirectional	Coarse Wavelength Division Multiplexing
Operating Wavelength	1310nm	850nm	1270nm/1330nm	CWDM grid
Optical Tx Output	-8.2 dBm	-6 dBm	-5 dBm	-5 dBm
Min Optical Rx Input	-14.4 dBm	-11.1 dBm	-14 dBm	-15 dBm
Connector	LC duplex	LC duplex	LC simplex	LC simplex
Fiber type	SM	MM	SM	SM
Distance	up to 10km	up to 300m	up to 10km	up to 10km
Number of fiber cables required	5	5	4	1

Table 4 : Optical Interface specifications

4.5 Power Connector specification

The device requires 24V power supply for proper function. The Host side of is compatible with PoCXP standard and therefore doesn't require external power supply, once the Frame Grabber supports this feature too. The connector used in the unit is DT-2C-B14W-3 (Dinkle) and shown in Figure 3. The pinout can be found in Table 5.

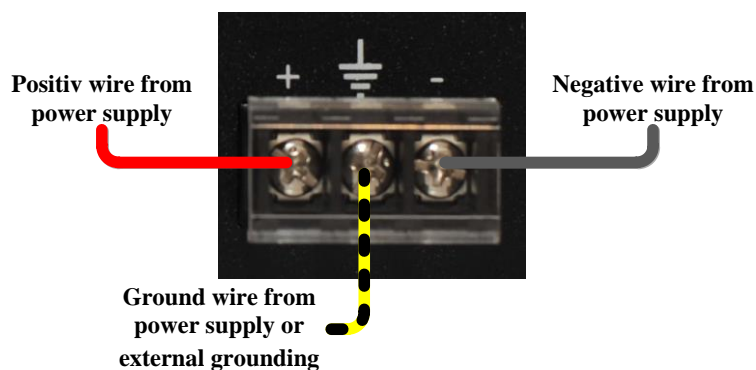


Figure 3 : KY-FEXT power connector

To reduce the risk of ground current loops the device side unit and the camera should be connected to the same ground.

Pin description	Pin number
-24V	1
GND	2
+24V	3

Table 5 : Power connector DT-2C-B14W-3 pinout

5.1 Dimensions

Each *KY-FEXT* unit is housed in a metal enclosure which dimension (in units of mm) are shown in Figure 4 and Figure 5:

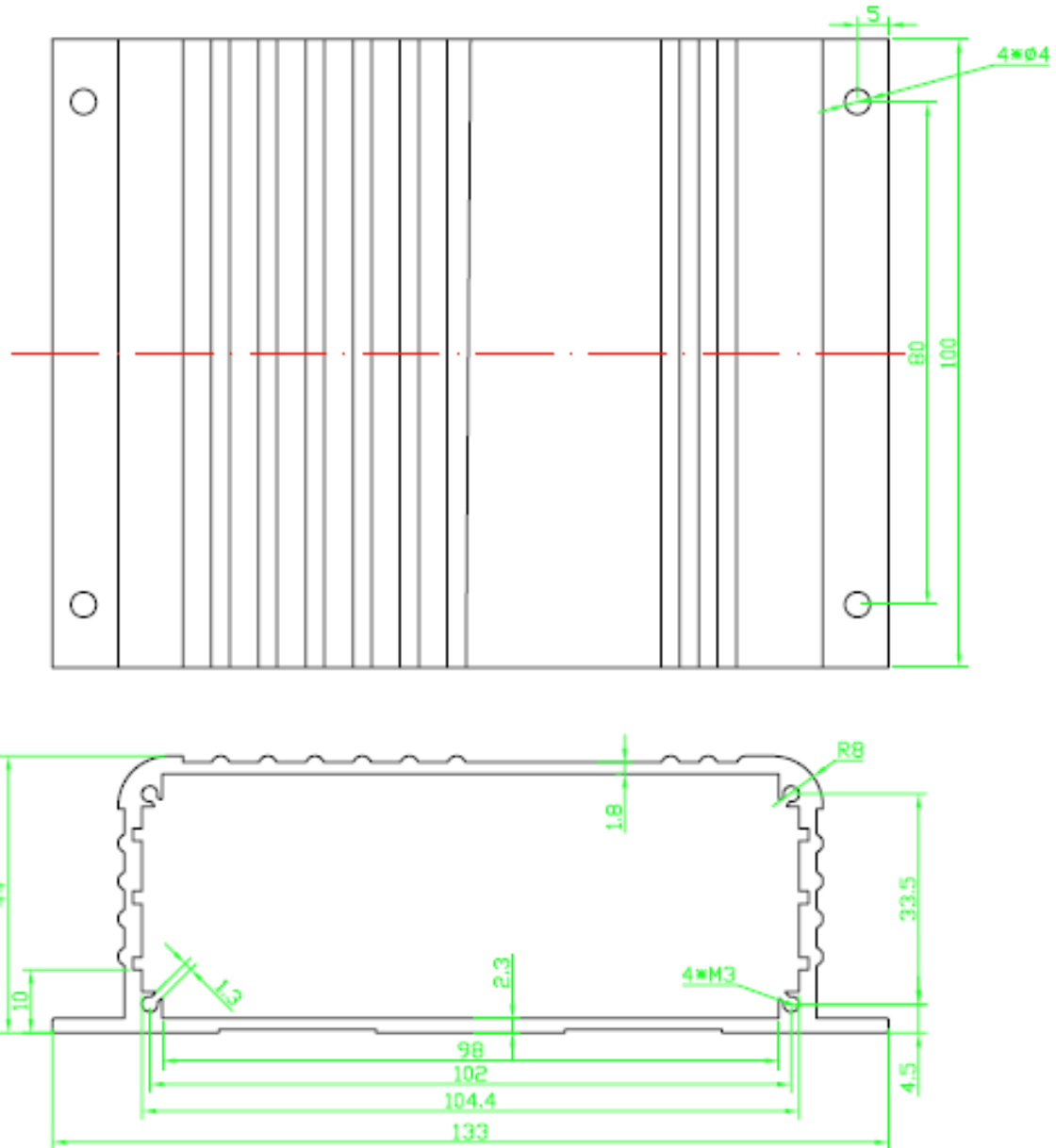


Figure 4 : External dimensions of the KY-FEXT enclosure box

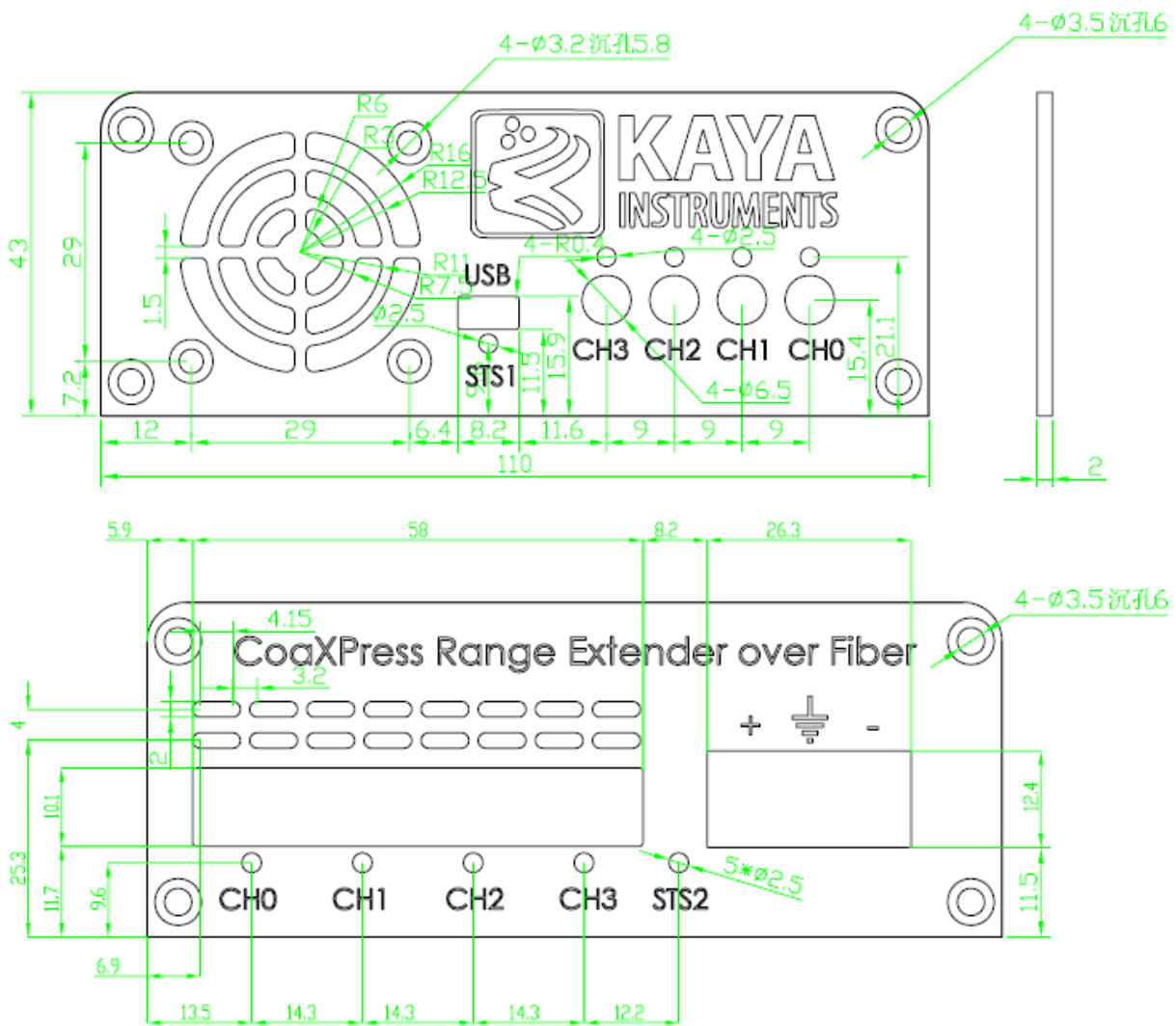


Figure 5 : External dimensions of the KY-FEXT unit front and rear panel

5.2 Weight

Parameter	Description	Weight (in units of g.)
Approx. Weight (each unit)	Unit with metal enclosure	356g.
	Metal enclosure	235g

Table 6 : Weight

6.1 Extender module types

Item name	Item part number
CoaXPress Range Extender over Fiber – Host and Device units	KY-FEXT
CoaXPress Range Extender over Fiber – Host unit	KY-FEXT-H
CoaXPress Range Extender over Fiber – Device unit	KY-FEXT-D

Table 7 : Extender module types

6.2 SFP+ standard module types

Specification	Model	Fiber Type	Distance	Fiber Count
Up to 300m connection over multi-mode fiber cable	KY-SFP-10G85-3M	MM	300 m (1000 ft)	5
Up to 10km connection over single mode fiber cable (duplex)	KY-SFP-10G31-10	SM	10 km (6.25 mile)	5
Up to 10km bidirectional connection over single fiber cable.	KY-BSFP-10G23-10	SM	10 km (6.25 mile)	4
Up to 10km in CWDM mode over Dual fiber	See Table 9	SM	10 km (6.25 mile)	2

Table 8 : SFP+ standard module types

6.3 CWDM model types

Model	Fiber Type	Distance	Description
		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	

KY-CWDM-SFP-XX	SM	xx = 39 for 1390 nm	The wavelengths for CWDM modules must be specified by the user. * Fiber cable is not included.
		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	

Table 9 : CWDM models types

6.4 Optional Accessories

Item name	Item part number
Fiber cable - single-mode x meter	KY-FCA-S-SM-LC-LC-XXX.X
Fiber cable - multi-mode x meter	KY-FCA-S-MM-LC-LC-XXX.X
Coaxial cable x meter	KY-FCC-000-XXX.X
DC 24V 72W Power adapter	KY-PWR-24

Table 10 : Accessories

We are offering variety of modules and customized cable assembly, to fit your application exact needs.

Please, Contact KAYA Instruments' representative for any question and services. We have the expertise and experiences to develop a suitable solution dedicated to customer's application, prototypes or production.