CoaXPress Range Extender Over Coax II Hardware Reference & Installation Guide

May 2024
Rev 1.0

KAYA INSTRUMENTS

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Version	Date	Notes
1.0	05.24	Initial Release

Table 1 – Revision History

3 Introduction

3.1 Safety precautions

With your **CoaXPress Range Extender over Coax II** in hand, please take the time to read through the precautions listed below to prevent preventable and unnecessary injuries and damage to you, other personnel, or property. Read these safety instructions carefully before your first use of the product, as these precautions contain safety instructions that must be observed. Be sure to follow this manual to prevent misuse of the product.

⚠️ **Caution! Read Carefully and do not disregard these instructions.**
In the event of a failure, disconnect the power supply. Disconnect the power supply immediately and contact our sales personnel for repair. Continuing to use the product in this state may result in a fire or electric shock.
If an unpleasant smell or smoking occurs, disconnect the power supply. Disconnect the power supply immediately! Continuing to use the product in this state may result in a fire or electric shock. After verifying that no smoking is observed, contact our sales personnel for repair.
Do not disassemble, repair or modify the product. This may result in a fire or electric shock due to a circuit shortage or heat generation. Contact our sales personnel before inspection, modification, or repair.
Do not place the product on unstable surfaces. Otherwise, it may drop or fall, resulting in injury to persons or the camera.
Do not use the product if dropped or damaged. Otherwise, a fire or electric shock may occur.
Do not touch the product with metallic objects. Otherwise, a fire or electric shock may occur.
Do not place the product in dusty or humid environments, nor where water may splash. Otherwise, a fire or electric shock may occur.
Do not wet the product or touch it with wet hands. Otherwise, the product may fail or it may cause a fire, smoking, or electric shock.
Do not touch the gold-plated sections of the connectors on the product. Otherwise, the surface of the connector may be contaminated by sweat or skin oil, resulting in contact failure of a connector, malfunction, fire or electric shock due to static electricity discharge.
Do not use or place the product in the following locations. ▪ Unventilated areas such as closets or bookshelves. ▪ Near oils, smoke or steam. ▪ Next to heat sources. ▪ A closed (and not running) car where the temperature becomes high. ▪ Static electricity replete locations ▪ Near water or chemicals. Otherwise, a fire, electric shock, accident or deformation may occur due to a short circuit or heat generation.
Do not place heavy objects on the product. Otherwise, the product may be damaged.
Be sure to discharge static electricity from the body before touching any sensitive electronic components. The electronic circuits in your computer and the circuits on the **KY-EXT-II** device are sensitive to static electricity and surges. Improper handling may seriously damage the circuits. In addition, do not let your clothing come in contact with the circuit boards or components. Otherwise, the product may be damaged.

3.2   Disclaimer

KAYA Instruments will assume no responsibility for any damage that may ensue by the use of this product for any purpose other than intended, as previously stated. Without detracting from what was previously written, please be advised that the company will take no responsibility for any damages caused by:

- Earthquake, thunderstrike, natural disasters, a fire caused by use beyond our control, willful and/or accidental misuse and/or use under other abnormal and/or unreasonable conditions.
- Secondary damages caused by the use of this product or its unusable state (business interruption or others).
- Use of this product in any manner that contradicts this manual or malfunctions that may occur due to connection to other devices. Damage to this product that is out of our control or failure due to modification.
- Accidents and/or third parties that may be involved.

Additionally, **KAYA Instruments** assumes no responsibility or liability for:

- Erasure or corruption of data caused by the use of this product.

- Any consequences or other abnormalities following the use of this product.

Repairs to this product are carried out by replacing it on a chargeable basis and not by repairing the faulty device. Non-chargeable replacement is offered for the initial failure, as long as it is reported no later than two weeks post-delivery of the product.

4   Key Features

4.1   Overview

KAYA Instruments' **CoaXPress Range Extender over Coax II (KY-EXT-II)** provides a high resolution CoaXPesss v2.1 interface extension over distances of up to 300 m over standard coaxial cable. A single extender box extends the connection length to twice the length. The extender can either receive his power from CoaXPress link.

The system operates in the next simple topology: a single extender box connected between the camera and a standard CoaXPress frame grabber.

4.2   Features

- Extends of 1 CoaXPress channel
- Supported bitrates with up to 12 Gbps downlink and 40.8 Mbps uplink
- Extension for distances up to 2 times
- Bidirectional CoaXPress communication
- Micro-BNC Connectors for CoaXPress link
- Plug and Play, no need to configure
- Power over CoaXPress (PoCXP) support
- 0 °C to +50 °C operating environment temperature
- -40°C to +70°C operating environment temperature (industrial grade)

4.3   Product Applications

- Sports
- Traffic
- Surveillance
- Robotics
- Machine Vision
- High-Speed Inspection
- Factory Automation
- Defence

5 Hardware Reference

5.1 LED

The CoaXPress Range Extender over Coax II has a system status LED.

The system status LED states are described in the following table:

	LED state	Indication
◯	Off	Device is not powered
(🟢)	Slow pulse green	Device is on

Table 2 – System status LED

6   Installation and Configuration

6.1   Installation procedure

The KY-EXT-II extender uses a single unit to extend a CoaXPress range twice. The camera side of the extender must be connected to the camera, while the FG side to the frame grabber, as described in Figure 1:
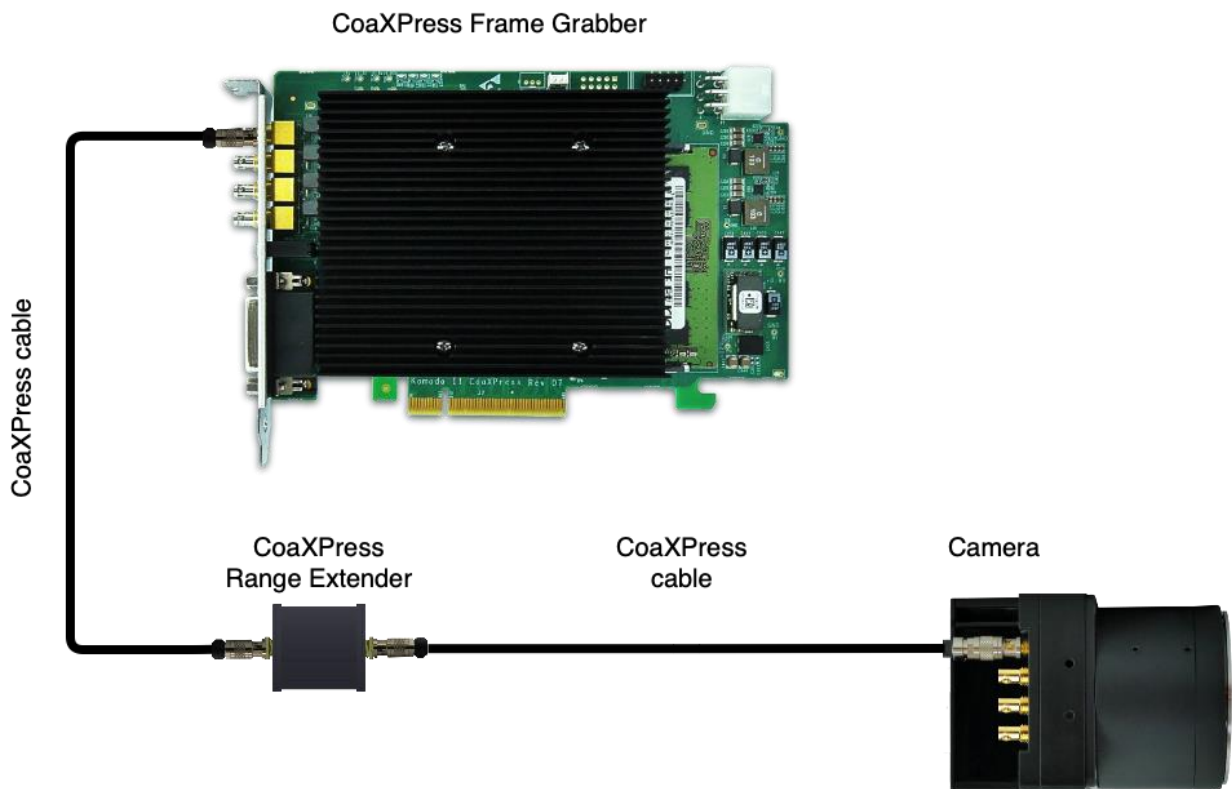

Figure 1 – KY-EXT-II connection diagram

In order to properly use the KY-EXT-II extender, the following steps must be taken for initial power up:

1. Connect the camera to the KY-EXT-II from the camera side.
2. Connect the frame grabber to the KY-EXT-II from the frame grabber side.
3. Turn the camera and the frame grabber on and start your application software.

6.2 Micro-BNC Cables

To connect the Micro-BNC cable, first need to align the pin on the male end with the "L" shaped track on the female-connector of the Coaxial cable. Once aligned, the connector should be pushed in place (see Figure 2). Only mild pressure should be applied to achieve this operation, otherwise it may cause unnecessary damage to the cable or the card.
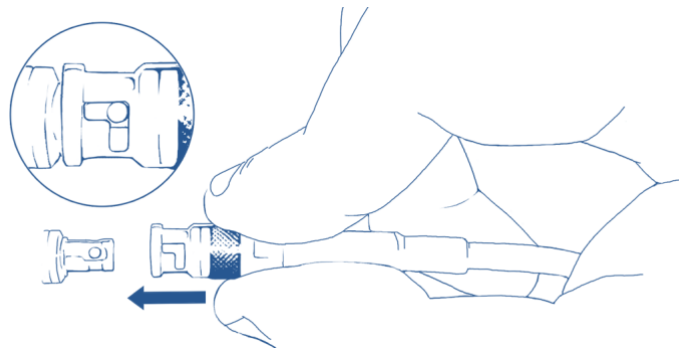

Figure 2 – Pushing the Micro-BNC connector into place

Once pushed all the way through, twist the connector clock-wise. The pin will move in the track locking the connector in position:
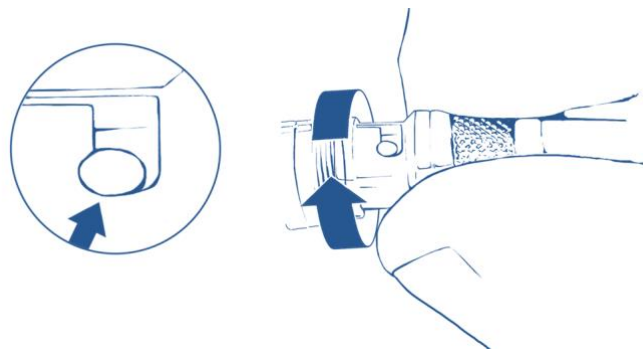

Figure 3 – Twisting the connector and securing it in position

The cable can be removed by reversing the steps: twisting the connector counter-clock-wise and pulling it out (see Figure 3).

Do not force the cable out! In case of resistance check for the pin location in relation to the track. Adjust as needed and only then pull the cable out.

7 Ordering information

Item name	Item part number
CoaXPress Range Extender over Coax II	KY-EXT-II
CoaXPress cables	KY-CCA-XXX -XXX.X

Table 3 – Ordering Information

(*) Please contact Sky Blue Microsystems GmbH for exact Part Number or refer to our website at: https://www.skyblue.de

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.

International Distributor

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