RAD-Phobos Series

Serializer and Deserializer Media Converter / Repeater

The RAD-Phobos series converts, repeats, splits and aggregates SerDes links. RAD-Phobos helps equalize the GMSL2 or FPD-Link III interface to extend the usable range from sensor to controller. The device also allows you to monitor the lock and link status for the input and output video ports.

The RAD-Phobos allows you to duplicate or translate a SerDes stream to another video port with the industry's best latency for such video duplication. Custom device examples include sensor data using shielded twisted pair to Coax conversion. Configurable address and link speed are achieved at power up for forward channel linking.

When paired with Intrepid devices the Vehicle Spy Enterprise software can time align the I2C bus reading, writing and polling of data with CAN-FD, Ethernet and Video images.

Use Cases

• Extend range over Coax or STP
• Convert between SerDes technologies
• Split single camera to multiple outputs
• Power over Coax Injector
• Perform and validate cable integrity for optimal link performance
• Aggregate multiple cameras onto a single output
• Pattern Generator to validate pixel formats or bandwidth
• Access to GPIO and Frame Sync signal*
• Physical re-mapping of GPIO, evaluate multiple vendors' devices*
• External Frame Sync Generation / Validation*

A completely standalone mode is possible using Texas Instruments Analog LaunchPad (ALP) software or Maximum Integrated GMSL SerDes GUI tools with respective 3rd party hardware interfaces.

Features

• Input and Output: FAKRA Code Z (Water Blue)
• Configurable I2C addresses and link modes
• GPIO passthrough or remapped between deserializer and serializer possible
• Power over Coax Injector (not supported on all versions)
• Input Voltage Range: 5-40V
• Supports full bandwidth across SerDes link
• Status LEDs report Link/Lock and Error states
• Compact for portability
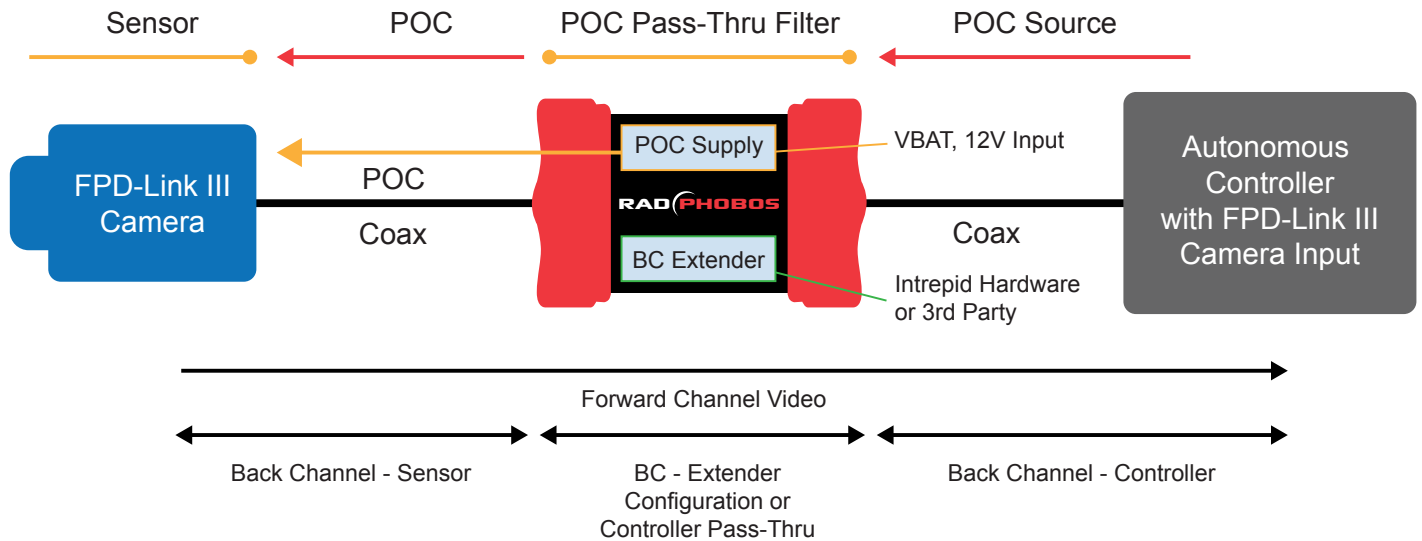• Rugged extruded aluminum enclosure
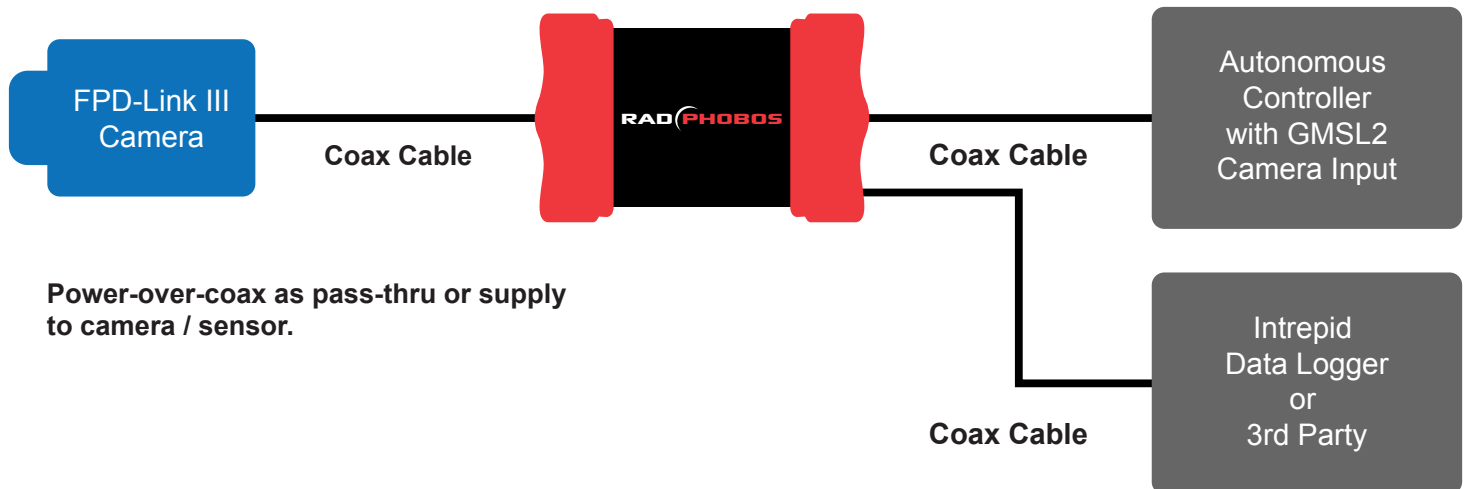
*Optional use cases check with Intrepid

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Use Case: Extend Coax Working Distance Between Camera / Controller

Power-Over-Coax as Pass-Thru or Supply to Camera/Sensor

Sensor   POC   POC Pass-Thru Filter   POC Source

FPD-Link III Camera

POC Supply — VBAT, 12V Input

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POC

Coax

BC Extender — Intrepid Hardware or 3rd Party

Autonomous Controller with FPD-Link III Camera Input

Coax

Forward Channel Video

Back Channel - Sensor   BC - Extender Configuration or Controller Pass-Thru   Back Channel - Controller

Use Case: Camera Splitter / Camera TAP to Data Logger - FPD or GMSL

FPD-Link III Camera

Coax Cable

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Coax Cable

Autonomous Controller with GMSL2 Camera Input

Power-over-coax as pass-thru or supply to camera / sensor.

Coax Cable

Intrepid Data Logger or 3rd Party

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Use Case: Virtual Cable Tester, Vendor Application

Vehicle Harness with In-Line Connectors

FPD-Link III Camera

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I2C

Vendor HW

Perform test with vendor HW/SW to help determine best set point to sample the eye of a digital transition and best equalization set point.

Customer PC

USB
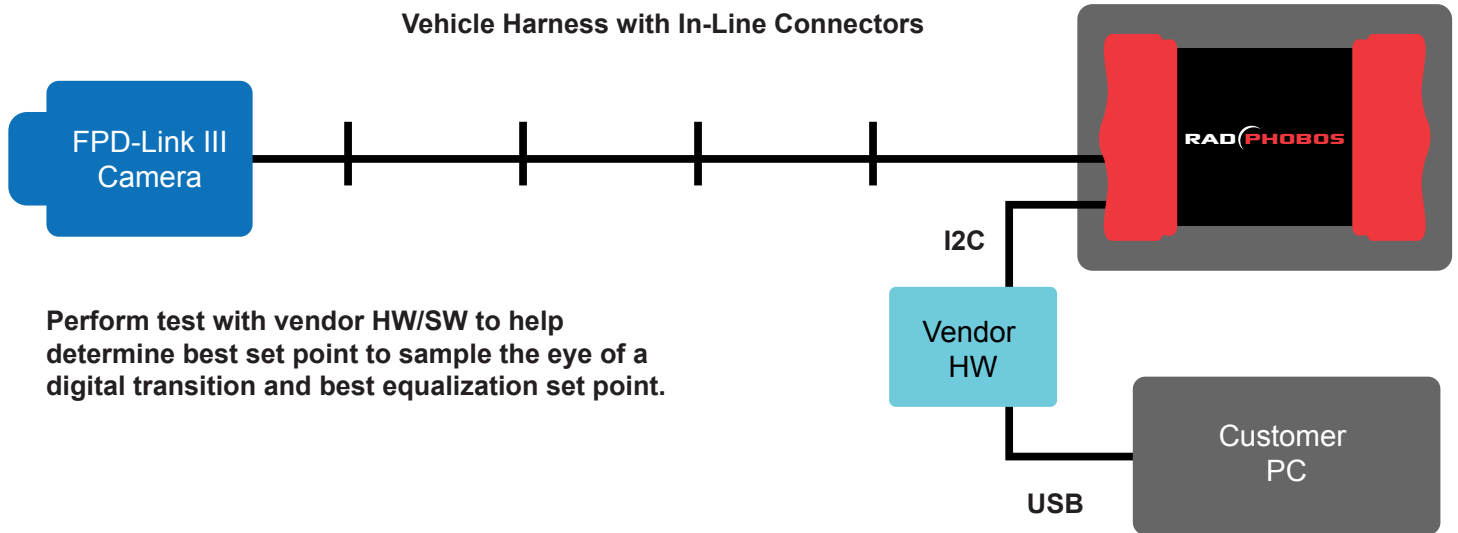
Use Case: Convert between FPD Link III STP and GMSL2 Coax

FPD-Link III Camera

STP/STQ

RAD PHOBOS

Coax Cable

Autonomous Controller with GMSL2 Camera Input

Power-over-coax as pass-thru or supply to camera / sensor.

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Use Case: Pattern Generator to Validate Pixel Formats or Bandwidth

Coax cable or I2C possible to configure back channel of serializer inside camera to generate pattern generator
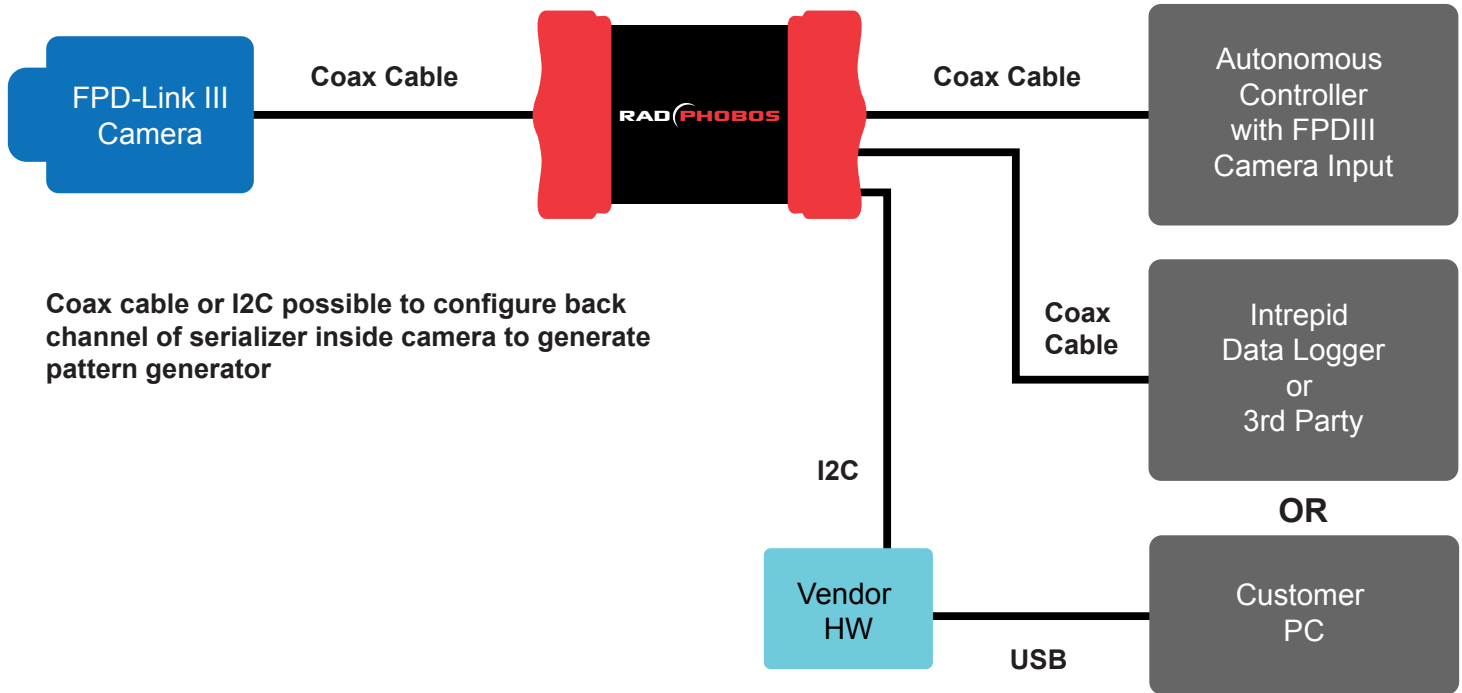
Use Case: Aggregating Multiple Cameras onto a Single Output
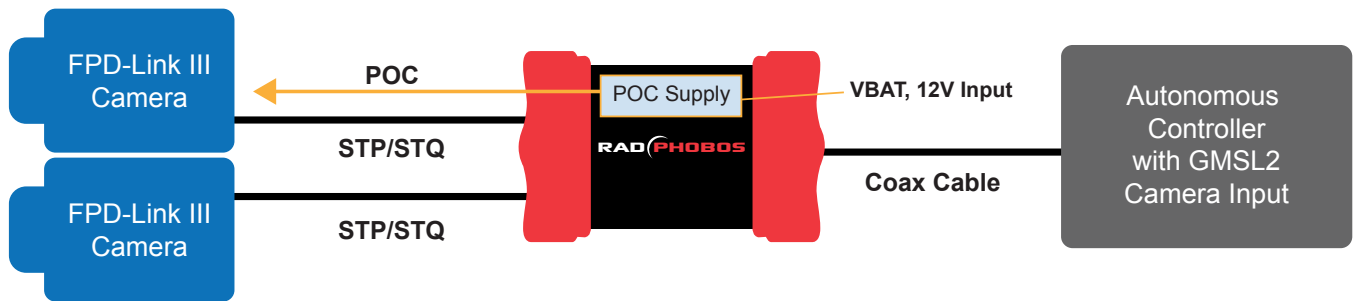
Power-over-coax from VBAT to camera / sensor.

Ordering Information

Part Number	Description
RAD-PHOBOS-F3-JAE-GL2-FRA	FPD-Link III to GMSL2 Media Converter
RAD-PHOBOS-GL2-FRA-GL2-FRA	GMSL2 Coax Media Converter

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