

Welcome to Avago Technologies' Webinar: "Fiber Optics Solutions for High Galvanic Isolation"

We will begin shortly.

For audio during the presentation, please call:
US Toll: +1-719-325-4840
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Fiber Optics Solutions for High Galvanic Isolation

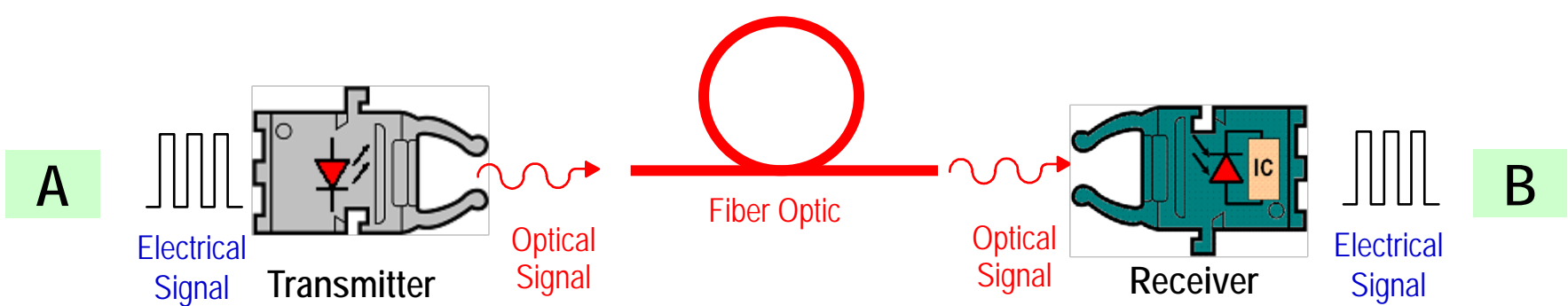
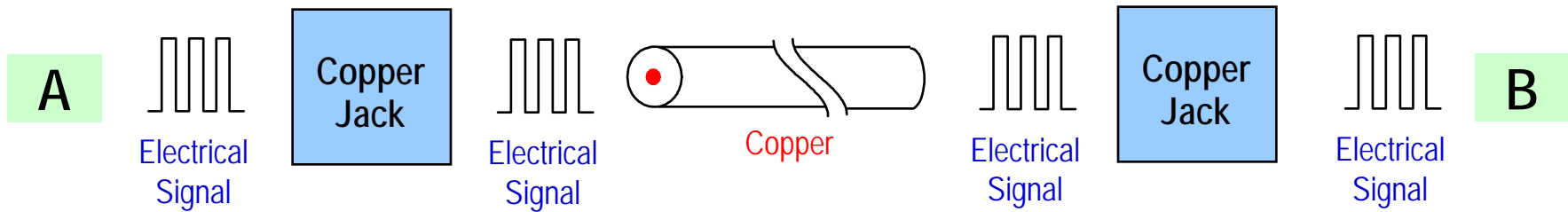
Eric Kiefer
Americas Marketing Manager
Industrial Fiber Optics Product Division



What you will learn:

- Why high galvanic isolation is important
- Fiber optic devices vs. copper-based devices
- Avago Technologies' industrial fiber portfolio
- Typical applications

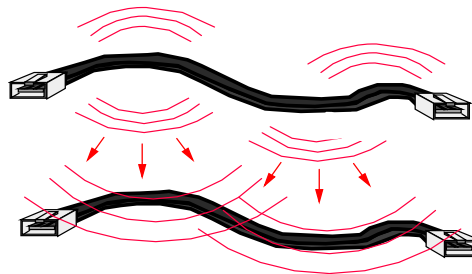
Fiber Optics vs. Copper, Wireless Links



IFPD Products

Galvanic Isolation & Data Communication

- Data Communication
 - Current technology for short distances allows operation up to 200 Mbps
 - FO technology is most suitable for Ethernet protocol (100 Mbps)
- Optical Fiber Media = *dielectric material* (≠ metallic conductor)
 - Totally immune to EMI (electromagnetic interference)
 - No electromagnetic emissions
 - ✓ No crosstalk between lines → secure data transmission
 - ✓ Optical fiber lines can be routed regardless of high power conductors
 - ✓ No problem to comply with EMC directives



World-wide Market Focus



Renewable Energies

- Wind Turbines
- Solar Photovoltaic Farms



Frequency Inverters



Power Transmission & Distribution – Smart Metering

- HVC
- SVC
- Smart Metering



Factory Automation



Transportation

- Train / Tramways
- Railway Infrastructure Powerline Monitoring

Industrial Fiber Optics Portfolio



**Automotive
MOST**

650nm POF/HCS

820/1310nm MM/HCS

Fieldbus/FE Family
HFBR-0505Z/06Z
AFBR-5978Z

Versatile Link
HFBR-0500Z series

FO Short Link
HFBR-3810xxZ

Connectorless
SFH series

Miniature Link
HFBR-0400Z/0300Z

Transceiver
MM



- Designed for SERCOS, PROFIBUS & INTERBUS-S
- SMA and ST ports
- Specified for 1mm POF and 200um HCS
- FE transceiver

- Horizontal and vertical PCB mounting
- Analog and Digital 40 kBd to 160MBd
- Plastic snap-in connectors
- Specified for 1mm POF and 200um HCS

- Distance pin-to-pin: 24.96 mm
- Transient voltage suppression, up to 12kV according IEC 60664-1
- DC – 10 MBd
- Rx shielding available: HFBR-3810MSZ

- Highest-ease of field connectorization
- Cost effective design
- Analog/ TTL digital input/ output
- 15 kBd to 125 MBd
- Available in housed/ discrete packaging

- Ideal for longer distances
- Specified for MM GOF
- ST, ST Threaded and SC connectorization
- VCSEL 850 nm Transmitter
- 1310nm LED

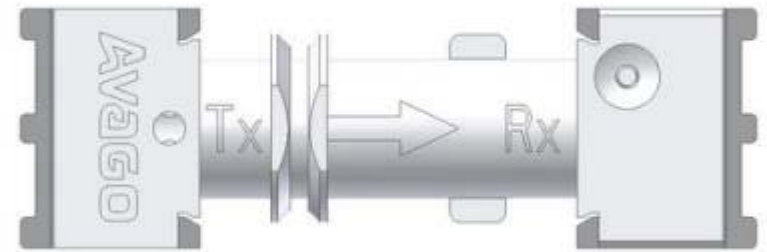
Fiber Optic (FO) Short Link – HFBR-3810Z

Features:

- Compact form factor
- Data transmission at signal rates of DC to 10 MBd
- Operating temperature: -40°C - +85°C
- Supply voltage: up to 5V Vcc
- Pin to pin distance (Tx-Rx): 24.96 mm
- High-voltage isolation, 12 kV
- Transient voltage suppression, up to 12kV (per IEC 60664-1)
- Galvanic isolation on a single PCB

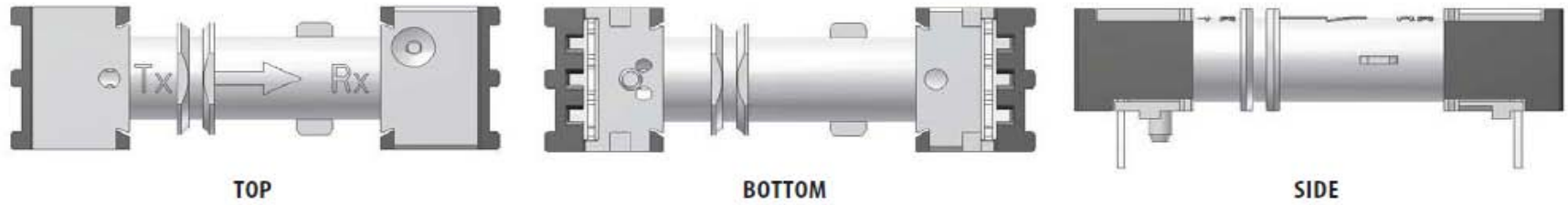
Applications:

- Wind turbine generators
- Frequency inverters
- X-ray devices
- Locomotives, railway infrastructure

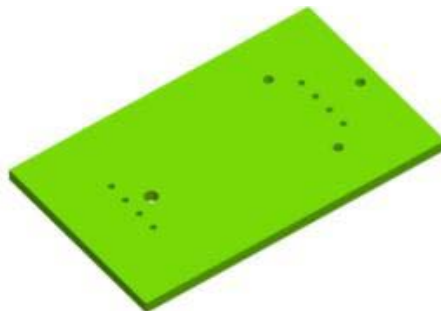
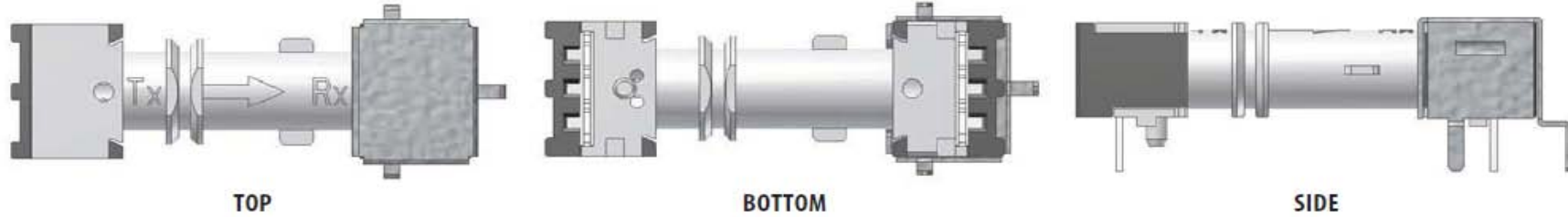


FO Short Link Package Options

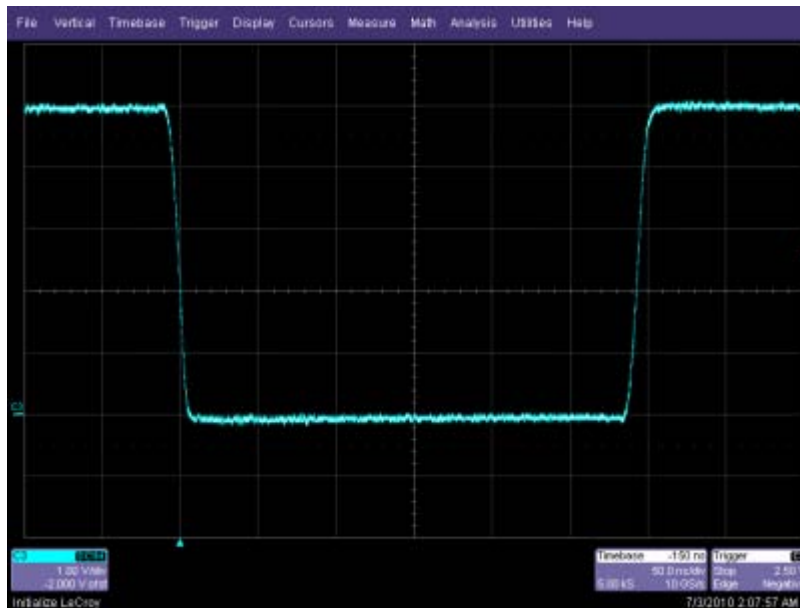
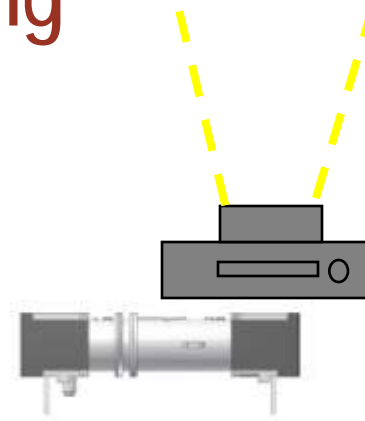
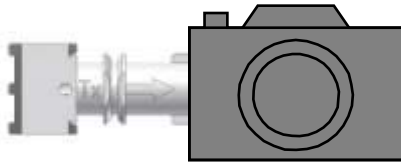
HFBR-3810Z View



HFBR-3810MSZ View

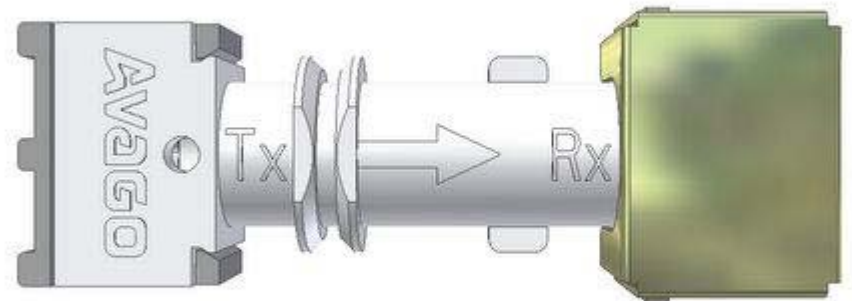
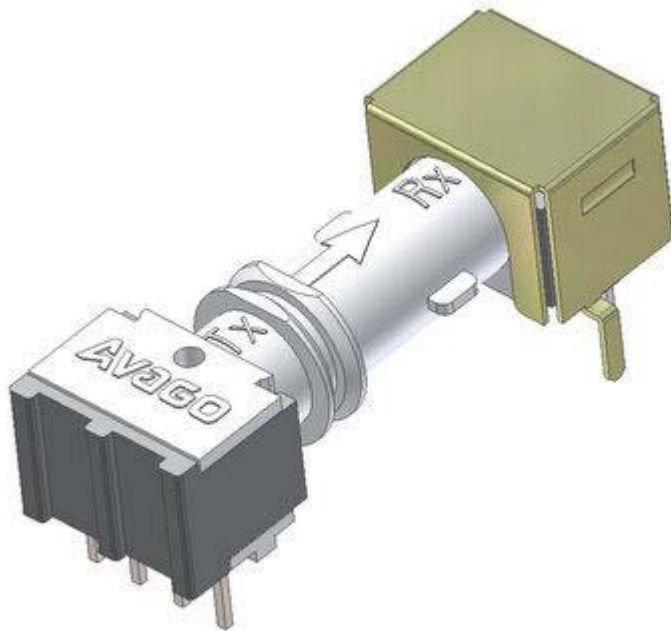


HFBR-3810Z – no shielding

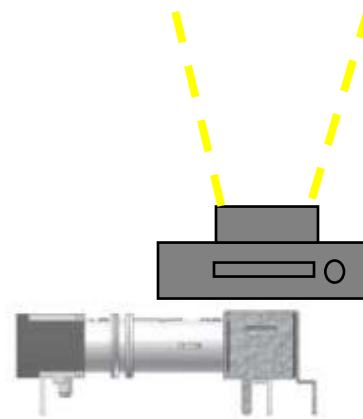
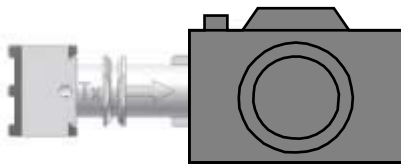


When flashing, a capacitor in the camera is discharged and causes EMI, which generates an unwanted pulse at the HFBR-3810Z receiver

HFBR-3810MSZ – with metal shielding



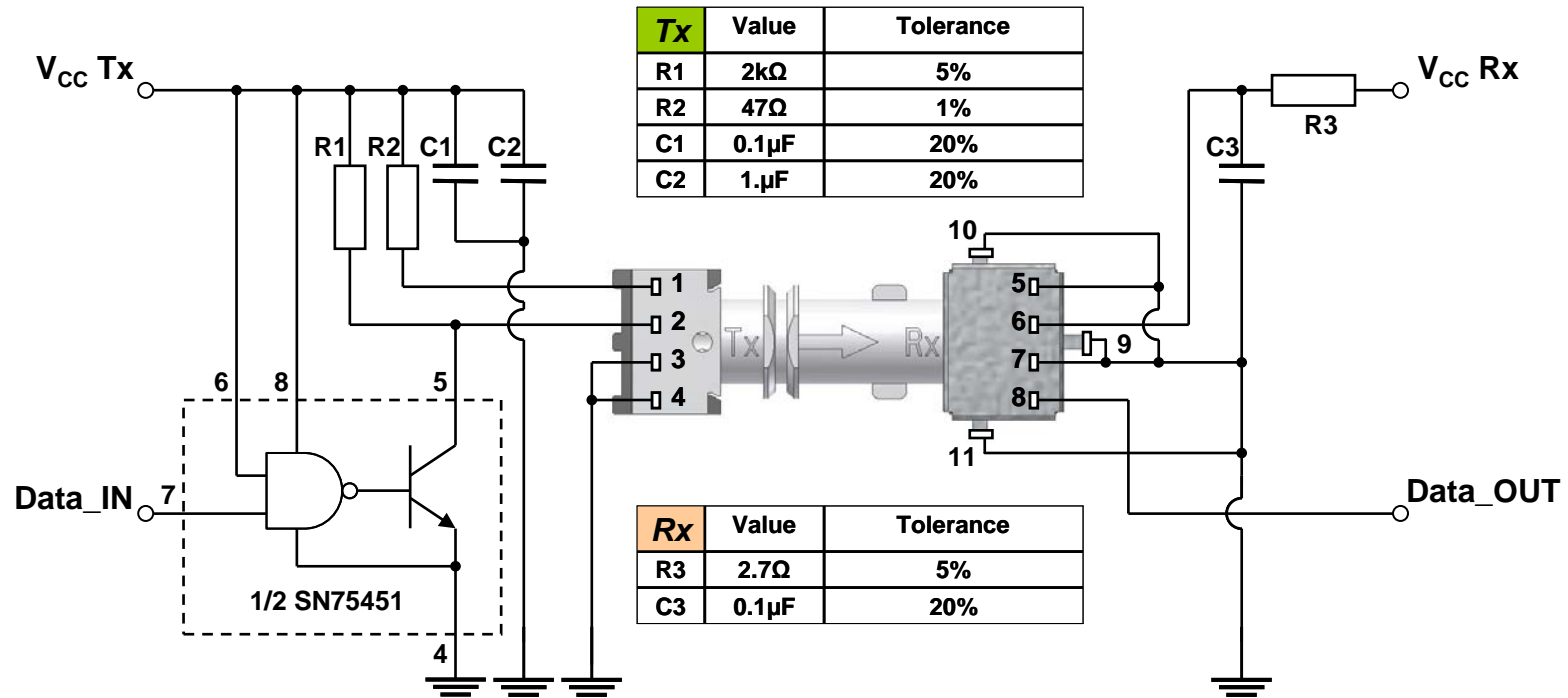
HFBR-3810MSZ – with metal shielding



The metal shield absorbs the EMI, caused by the flash. No unwanted pulse can be triggered.



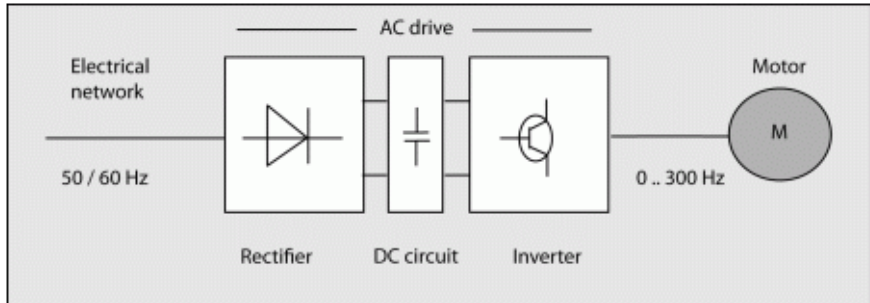
Testboard Schematic



Applications Requiring High Galvanic Isolation



MV Converters for Wind Turbines



X-Ray Medical Devices



Power Electronics IGCT/IGBT
Traction (Train) Converter

Alternative Solutions to FO Short Link?

Optocouplers

- Avago offers a wide range of optocouplers
- No optocoupler on the market offers minimum 18.1 mm creepage and clearance distances

Transformers

- Difficult to design
- No DC possible, encoding is a must
- Housing size is big

Shipment & Pricing for FO Short Link

➤ Shipment Information

- Incremental shipping amount: 20 pieces/tray
- Minimum Order Quantity: 20 pieces

➤ Sample Availability

- Now! Please contact your Avago Sales Representative or your Distribution Partner

➤ Pricing Information for Small Quantities

- HFBR-3810Z: \$9.00USD
- HFBR-3810MSZ: \$10.25USD (metal shielding on Rx)

Shipping now from any Avago Technologies authorized Distributor.

Questions?

Thank you for joining us today.

For more information, please contact either:

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