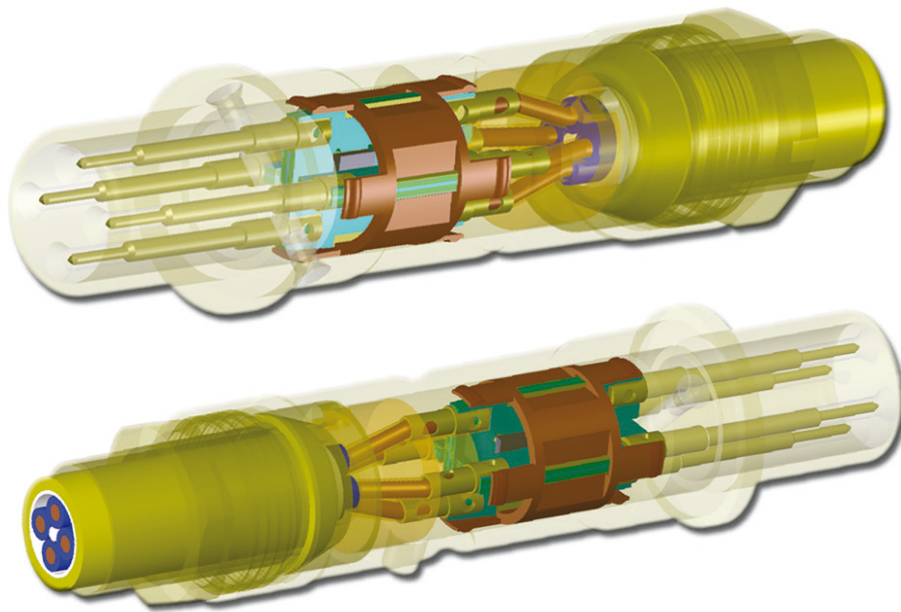


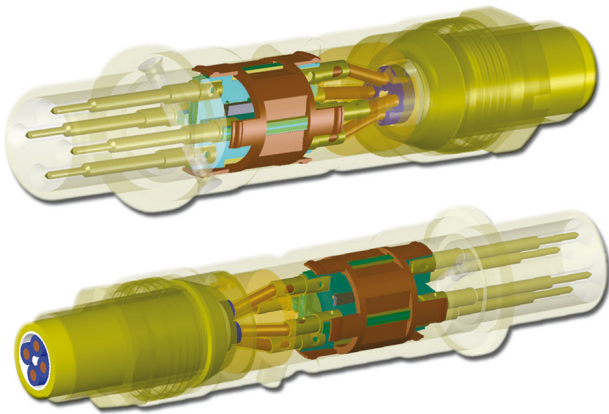
# Passive Equalizer & In-Line Quadsplitter Technologies

Passive Equalizer Technology Size 8 Twinax/Quadax Contact



# Passive Equalizer Technology

## Size 8 Twinax/Quadrx Contact

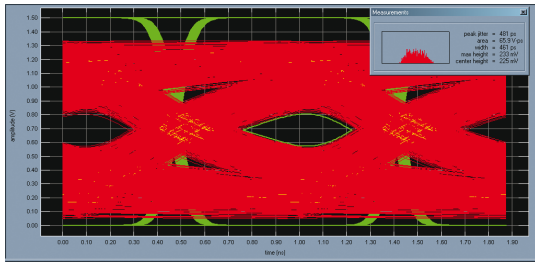


- Up to 50% increase in high-speed signaling cable length
- Up to two times increase in data rate for given interconnect length
- Improves margin at the receiver end for a given signal performance
- Reuse existing wire and cable to drive higher data rate signals
- Entirely passive (no extra power required)
- Self contained in the contact; no board real estate used
- Applicable for a wide range of data rates and transmission types
- Decrease the wire gauge size to save weight and improve routability
- Decrease the wire gauge size where there is a high volume of conductors in tight space constraints
- Helps reduce ISI and deterministic jitter
- Can open up the eye pattern over an extended length of 100 Ohm Twinax/Quadrx Cable
- Temperature range -40°C to +125°

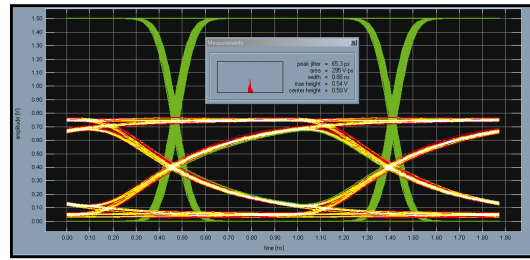
Smiths Interconnect's Passive Equalizer contacts operate up to 12.5 Gbps and fits inside a standard Size 8 Twinax/Quadrx contact cavity for all connector formats. The passive equalizer requires no external power and acts like a high pass filter operating over an extreme temperature range. This compensates for the frequency dependant cable loss and helps to re-open the eye pattern on long cable runs allowing for higher data rates passing over a given cable length, or extending the cable length at existing data rates.

Equalization is an important tool in any digital engineer's toolkit. The robust 'invisible to the user' device will extend the reach of high speed digital signals without using any external system power or PCB real estate. It is intended for use in high speed (>2 Gbps) 100 Ohm differential pair interconnect applications. The unique design helps to offset those high frequency losses endemic to high speed digital interconnect paths that are primarily dispersive in nature. As an added benefit of its high pass characteristics, Inter Symbol Interference (ISI) is reduced as well as deterministic jitter. This is invaluable when trying to squeeze the last meter out of a cabling system that had been previously designed for slower data rate signals. Additionally, because of the nature of the equalizer, it can be placed anywhere in the transmission path that is convenient to the system designer.

## Passive Equalizer Typical Operating Characteristics



The Eye height and total jitter without Equalization is .225V, 481pS respectively.

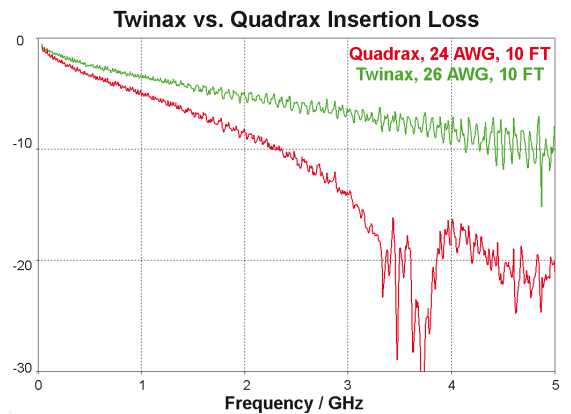


The Eye height and total jitter with Equalization is .500V, 65pS jitter. N.B. An added benefit to maximizing the eye height parameter is that the deterministic jitter also gets significantly reduced, as shown.

## In-Line Quadsplitter Contact

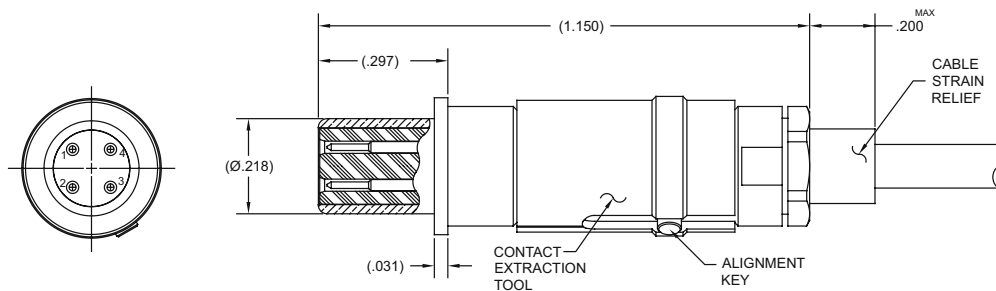
Smiths Interconnect is now able to offer the best of both worlds with our In-Line Quadsplitter which offers another solution for extending the distance that High Speed signals can be sent over a Quadrax architecture. We can combine the signal integrity of Twinax cables and the connection density of Quadrax contacts by incorporating two 26 AWG Twinax cables into a standard Size 8 Quadrax contact. The resulting cable assembly is about the same size and weight as a 24 AWG Quadrax cable assembly offering the same flexibility and ease of use.

The In-Line Quadsplitter can be used alone or in conjunction with the In-Line Equalizer. Many customers prefer the connection density and ease of use of Quadrax cables and connectors. Quadrax cables are limited in performance at the higher data rates used today due to the orthogonal construction of the quadrax cable due to crosstalk. Higher losses and frequency drop outs may adversely affect the integrity of the signal as compared to Twinax cables of similar size and construction.



## Typical In-Line Equalizer and/or Quadsplitter Packaging in Size 8 Quadrax Contacts

\*Patent Pending



Sample Cable Part Numbers*				
Contact Type	Part Number	Cable Type	Cable	Size
Equalizer	019635-8027	Differential Quad	540-1183-000	24 AWG

Please consult factory for additional cable types and contact configurations. All connector formats are available for pin/socket Quadrax and Twinax contacts.

# Global Support

## Americas

- Kansas City, KS  
+1 913 342 5544  
info.us@smithsinterconnect.com
- Tampa, FL  
+ 1 813 901 7200  
info.tampa@smithsinterconnectinc.com
- Milpitas, CA  
+1 408 957 9607 x-1125  
info.us@smithsinterconnect.com
- Kirkland, QC, Canada  
+1 514 842 5179  
info.us@smithsinterconnect.com
- Salisbury, MD  
+1 800 780 2169  
info.us@smithsinterconnect.com

## Europe

- Deggendorf, Germany  
+49 991 250 120  
info.de@smithsinterconnect.com
- Rouen, France  
+33 2 3296 9176  
info.fr@smithsinterconnect.com
- Dundee, UK  
+44 1382 427 200  
info.dundee@smithsinterconnect.com
- Genova, Italy  
+39 0 10 60361  
info.it@smithsinterconnect.com

## Asia

- Bangalore, India  
+91 080 4241 0529  
info.in@smithsinterconnect.com
- Singapore  
+65 6846 1655  
info.asia@smithsinterconnect.com
- Mianyang, China  
+86 816 231 5566  
HSICSR@hf-smiths.com
- Suzhou, China  
+86 512 6273 1188  
info.asia@smithsinterconnect.com
- Shanghai, China  
+86 21 2283 8008  
info.asia@smithsinterconnect.com

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