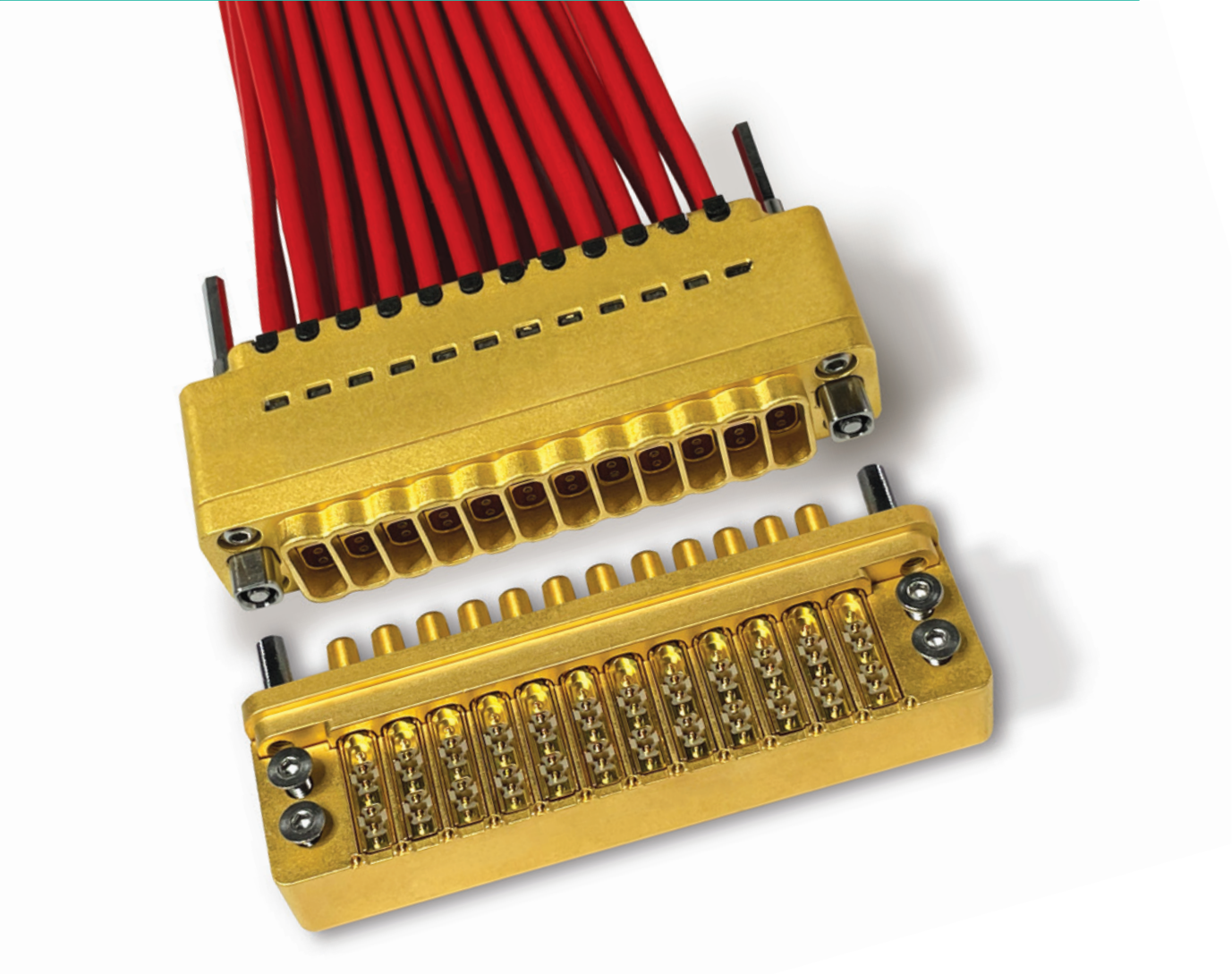


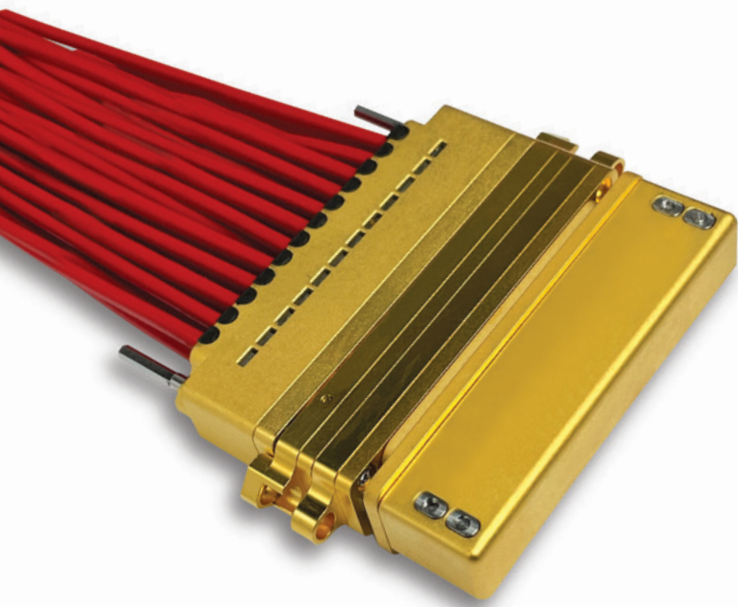
# NXS Series

Ultra-High Density, Space Qualified Interconnect



# NXS Series

Ultra-High Density, Space Qualified Interconnect



Today, space satellites are moving away from RF Analog based payloads providing low speed telecommunication signaling, to a new Digital Transparent Processor architecture for high throughput satellites. Those architectures increase the demand for rugged and higher speed connectivity.

To meet those industry needs, Smiths Interconnect has developed the NXS Series, an advanced high speed, high density interconnect to provide next generation data on demand.

Equipped with the Hypertac® hyperboloid contact technology the NXS system can withstand data rate application up to 50 Gbps (per bay) requirements, including extreme levels of vibration, shock and climatic testing above 2100G. The NXS Series is designed in a robust construction with 4 or 12 high speed quadrax (dual-twinax) modules.

Each ultra-high density quadrax module contains 2 dual twinax at 100  $\Omega$  each pair. It is blind mateable, hot pluggable, with ultra-low mating forces and low outgassing materials.

In addition, the solderless PCB mount design reduces the customer's risk and cost of ownership. The connector is mounted after reflow and has no impact on nearby components. Each product is engineered using 3D electromagnetic simulation (EM) software to provide excellent performance in a total thin film process.

Specifically designed and tested for High Speed Space applications up to 50 Gbps per bay.

## Features

- Low outgassing materials
- Hyperboloid contact technology
- Solderless PCB Termination
- 4 and 12 bay configurations

## Benefits

- Weight savings
- Ultra high contact density
- Ultra low mating force
- Withstands high shock and vibration space environments

## Designed to exceed the requirements of:

- ESCC 3401
- ESCC 3402
- ECSS-Q-ST-70C
- ECSS-Q-ST-70-02
- ECSS-Q-ST-70-08C
- ECSS-Q-ST-70-38C
- ECSS-Q-70-71

# Technical Characteristics

## Materials and Finish

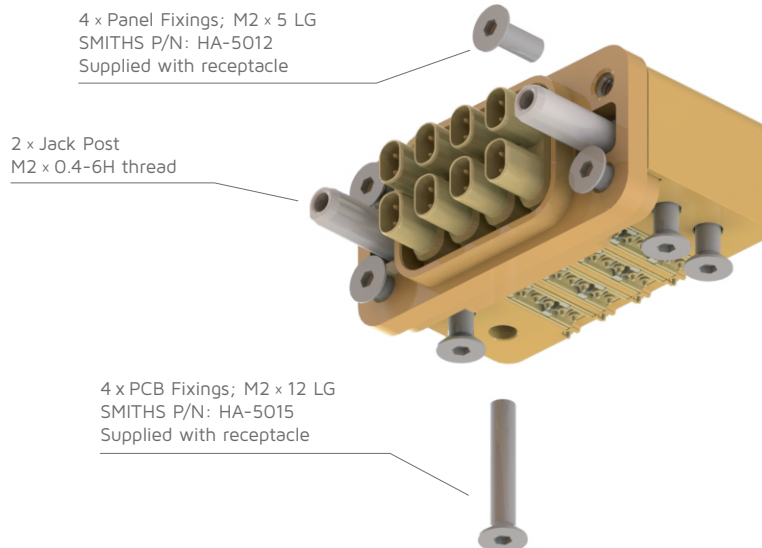
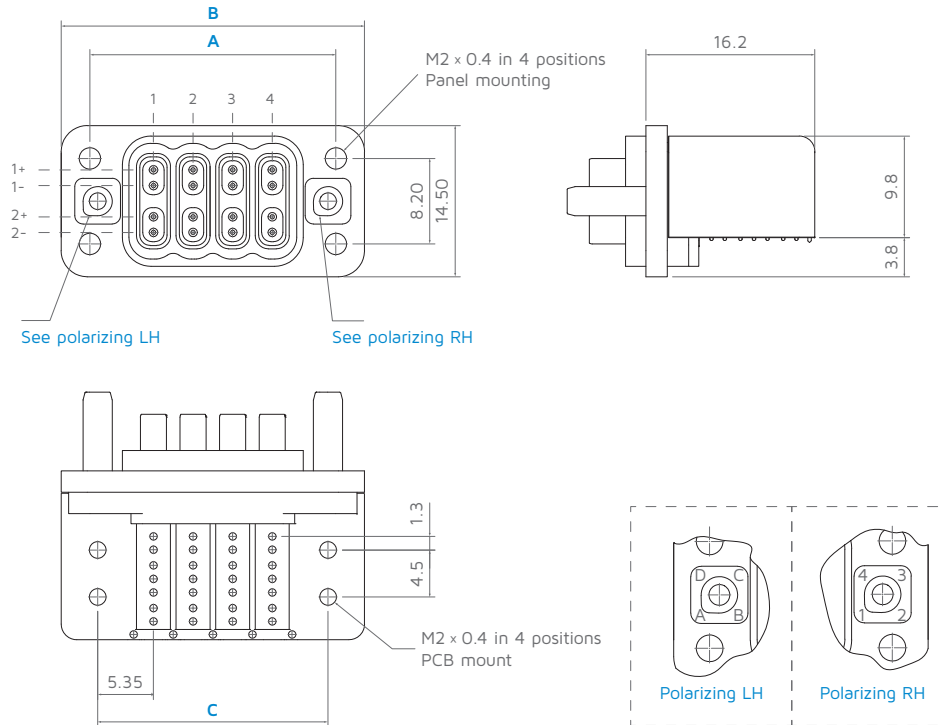
	Materials and Finish
Connector Plug/Receptacle Shells	Composite – (base material: PEEK 30% carbon filled) Finish: Gold over nickel
Inner Shell (Quad module)	Aluminum alloy Finish: Gold over nickel
Saver Shells	Aluminum alloy Finish: Gold over nickel
Contacts	Copper alloy Finish: Gold over nickel
Insulators/Dielectric	PEEK
Guide Hardware	Stainless steel and titanium alloy
Fasteners	Stainless steel

## Specification

Parameter	Level
Working Voltage	50 V RMS
Current	1 A
Data Transmission Rate	Up to 50 Gbps per bay
Impedance	100 $\Omega$ $\pm$ 10%
Contact Resistance	150 m $\Omega$
Insulation Resistance (minimum)	1 G $\Omega$
Operating Temperature Range	-40 °C to 125 °C
Durability (mate/unmate with Saver fitted)	500 cycles
EMI Shielding Effectiveness (Receptacle / Bulkhead)	-65 dB up to 10 GHz

# Connector Outline Drawings

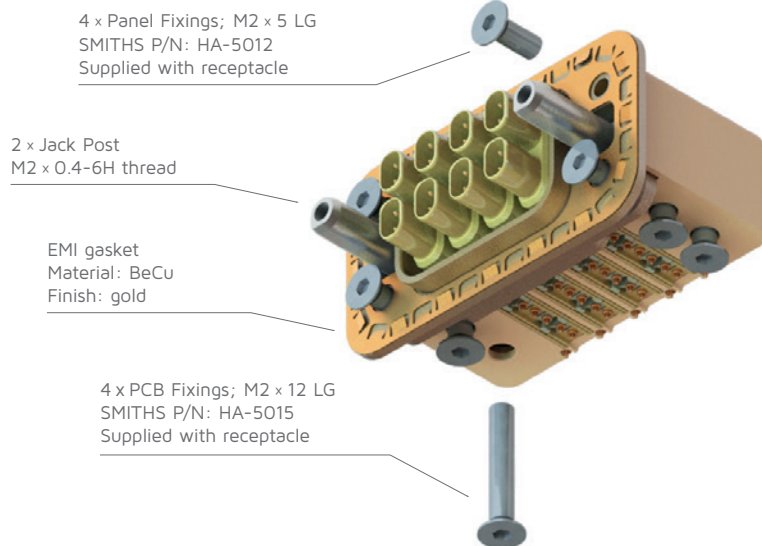
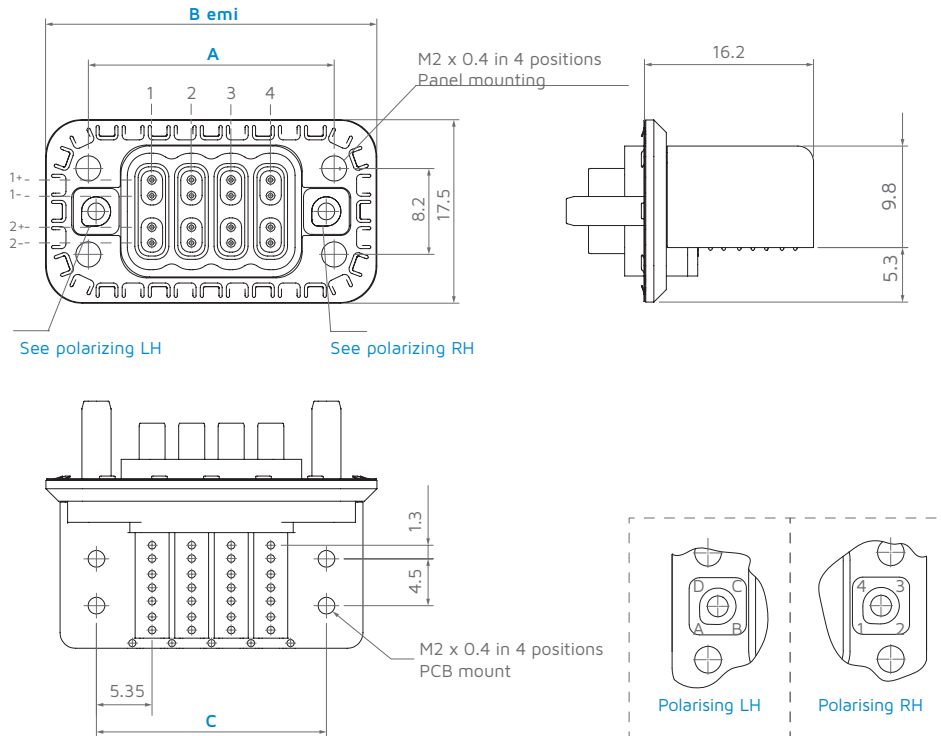
## NXS Receptacle



### Note

Contacts supplied fitted – each quadrax module contains 2 x 100 Ω differential pair.  
Dimensions are in mm.

# NXS Receptacle EMI version

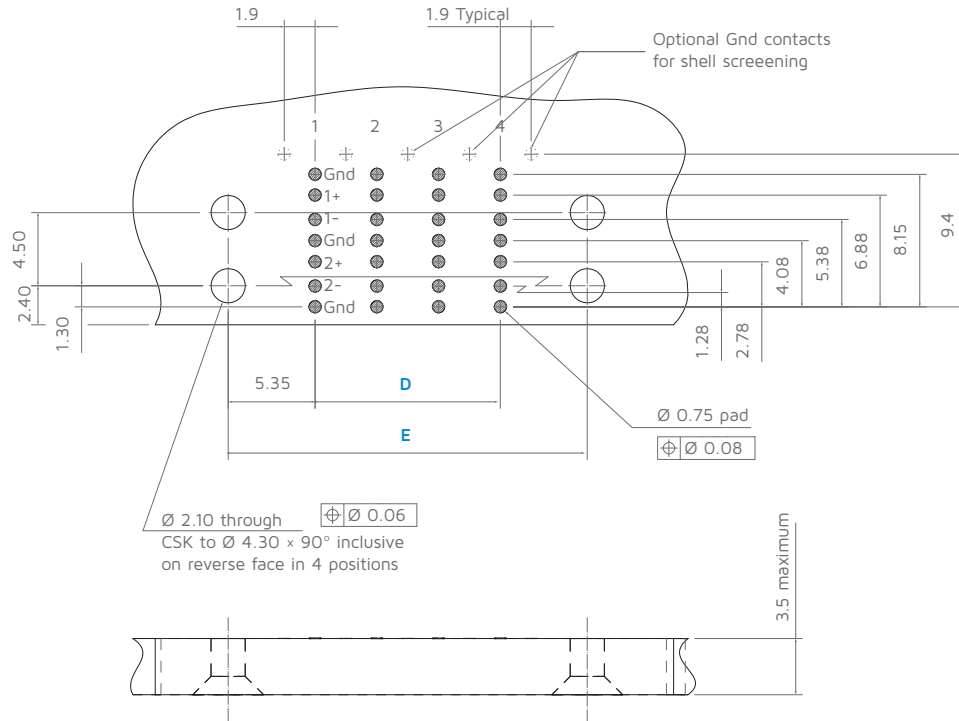


## Note

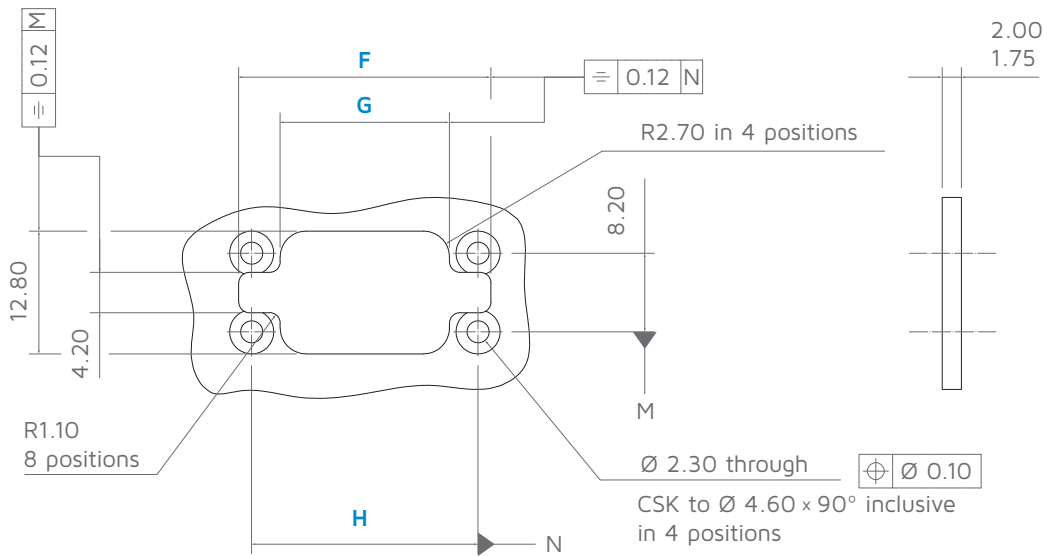
Contacts supplied fitted – each quadrax module contains 2 x 100 Ω differential pair.

Dimensions are in mm.

## Recommended PCB Footprint



## Recommended Panel Cut-out

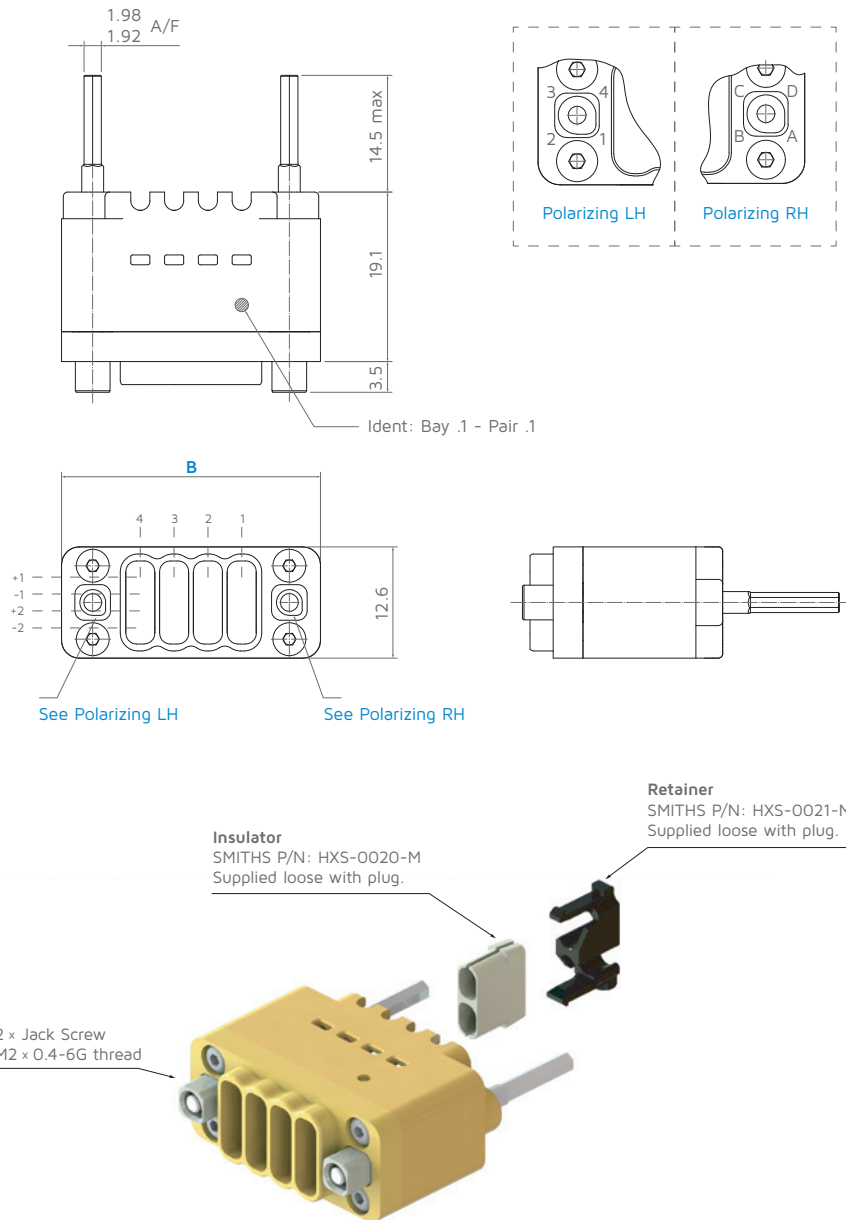


## Variable Dimensions

Number of ways	A	B	B EMI	C	D	E	F	G	H	Mass	
										STD	EMI
4	23.6	29.1	31.9	22.1	3x3.8 = 11.4	22.1	26.3	17.65	23.6		
12	54.0	59.5	62.3	52.5	11x3.8 = 41.8	52.5	56.7	48.05	54.0		

Dimensions are in mm.

# NXS Plug



## Variable Dimensions

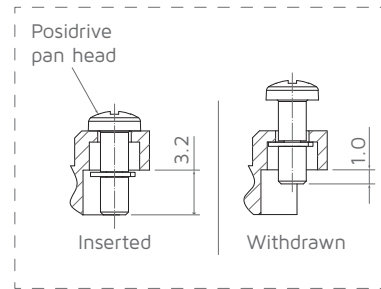
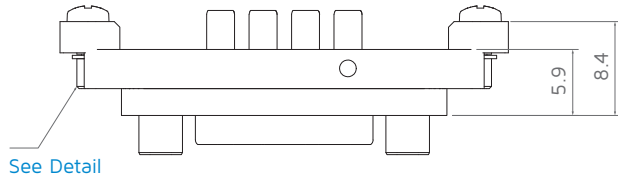
Number of ways	A	B	C
4	-	29.2	-
12	-	59.6	-

### Note

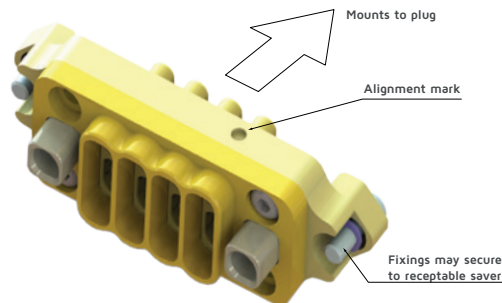
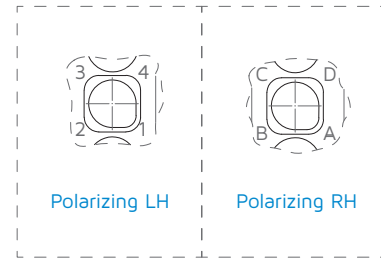
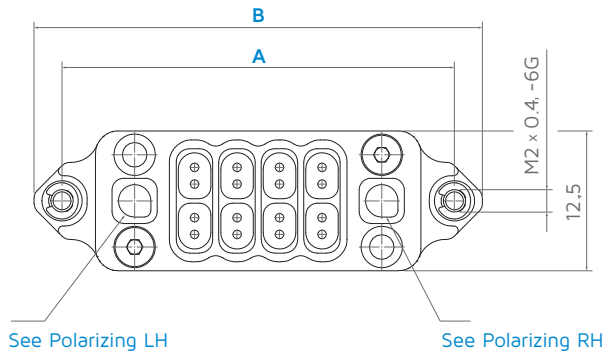
- Plug is supplied with relevant 'support insulators' and 'retention clips' for recommended cable.
- For cable termination details, please refer to "Accessories", on page 10.
- Recommended cable (100 Ω differential, 50 Ω signal to shield):
  - WL GORE GSC-05-83111-00
  - TENSOLITE 540-1153-000
  - AXON AM526-A07

Dimensions are in mm.

# NXS Saver (Plug)



**Detail**  
Showing range of captive fixing



## Variable Dimensions

Number of ways	A	B	C
4	35.1	40.1	-
12	65.5	70.5	-

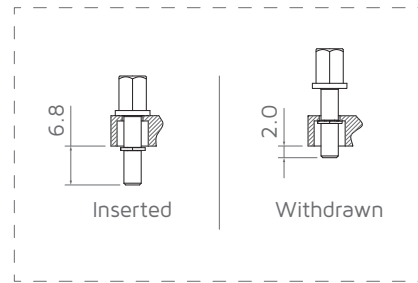
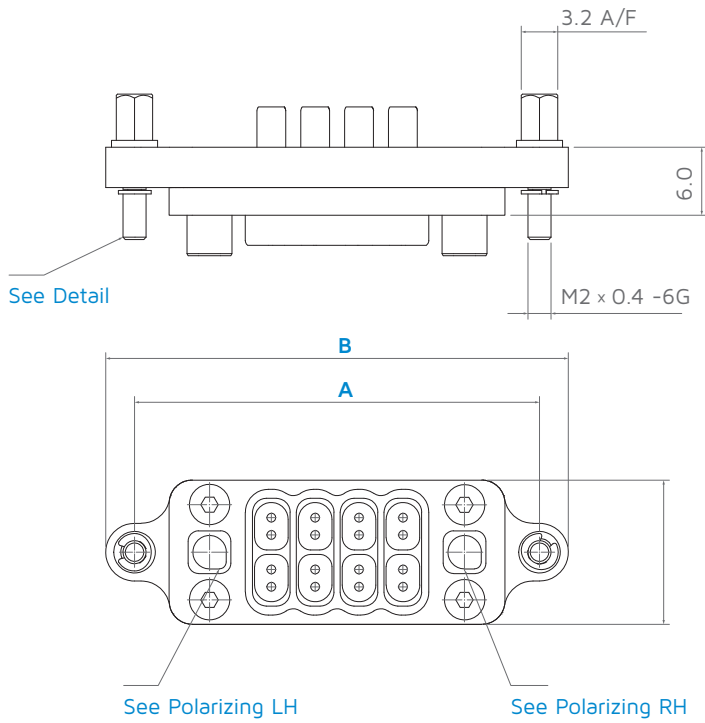
### Note

See application guide for mounting details.

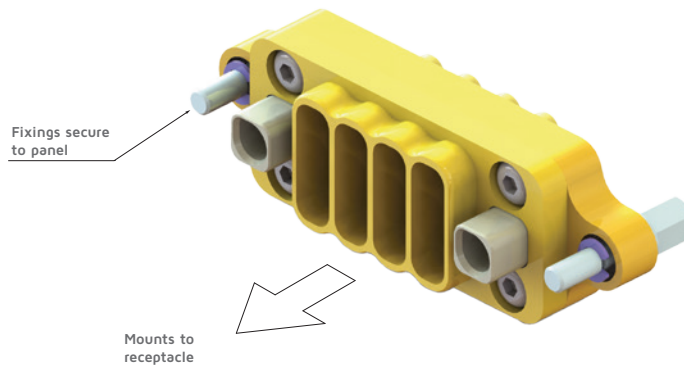
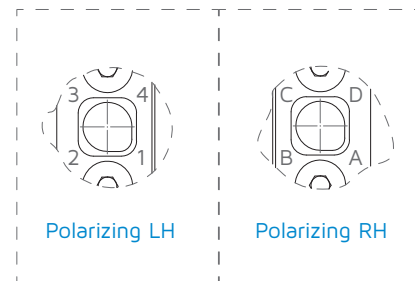
Dimensions are in mm.



# NXS Saver (Receptacle)



**Detail**  
Showing range of captive fixing



## Variable Dimensions

Number of ways	A	B	C
4	35.1	40.1	-
12	65.5	70.5	-

### Note

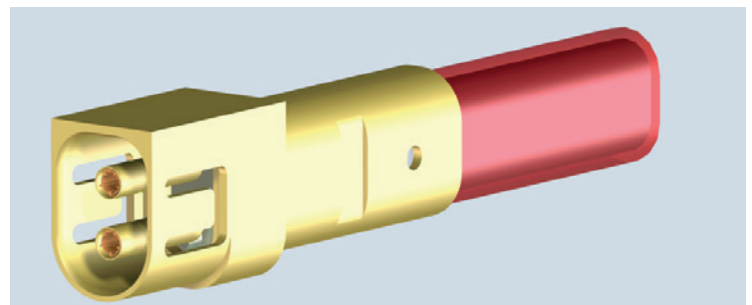
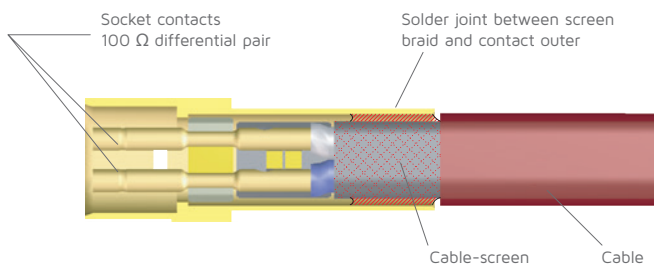
See application guide for mounting details.

Dimensions are in mm.

# Accessories

Description	Smiths Interconnect Part Number	
Cavity filler	HXS-0060-107	
Clip, cable retention	HXS-0021-M	
EMI Gasket	210-1024931-004 (4 way)	
	210-1024931-012 (12 way)	
Termination Kit	HXS-7009 Parts may be supplied individually in bulk orders to suit customer stock and build process. See below for breakdown of Kit:	
Contact outer Shell	HYP-7049-H-117 (x2 if supplied in kit)	
Socket Contact	HHSC-0156-100 (x4 if supplied in kit)	
Insulator / Dielectric	HYP-6944-M (x2 if supplied in kit)	
Spacer	HXS-0065 (x4 if supplied in kit)	

## Plug Cable Termination (Twinax – as detailed above)



### Note

Please refer to Application guide for stripping details.

# How to Order



<b>1</b>	<b>Series</b>	<b>N</b> <b>X</b> <b>S</b> (Series -fixed)																
<b>2</b>	<b>No. of ways</b>	<table border="0"> <tr> <td><b>0</b> <b>0</b> <b>4</b></td> <td>4-Bay high speed quadrax (dual twinax)</td> </tr> <tr> <td><b>0</b> <b>1</b> <b>2</b></td> <td>12-Bay high speed quadrax (dual twinax)</td> </tr> </table>	<b>0</b> <b>0</b> <b>4</b>	4-Bay high speed quadrax (dual twinax)	<b>0</b> <b>1</b> <b>2</b>	12-Bay high speed quadrax (dual twinax)												
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<b>3</b>	<b>Shell gender</b>	<table border="0"> <tr> <td><b>R</b> <b>0</b></td> <td>Receptacle</td> <td><b>R</b> <b>S</b></td> <td>Saver (Receptacle mount)</td> </tr> <tr> <td><b>P</b> <b>0</b></td> <td>Plug</td> <td><b>P</b> <b>S</b></td> <td>Saver (Plug mount)</td> </tr> </table>	<b>R</b> <b>0</b>	Receptacle	<b>R</b> <b>S</b>	Saver (Receptacle mount)	<b>P</b> <b>0</b>	Plug	<b>P</b> <b>S</b>	Saver (Plug mount)								
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<b>4</b>	<b>Termination style<sup>1</sup></b>	<table border="0"> <tr> <td><b>R</b> <b>A</b></td> <td>Right angle solderless PC (Receptacle only)</td> </tr> <tr> <td><b>0</b> <b>0</b></td> <td>Supplied without contacts (Plug)</td> </tr> <tr> <td><b>1</b> <b>1</b></td> <td>Connector Saver's</td> </tr> </table>	<b>R</b> <b>A</b>	Right angle solderless PC (Receptacle only)	<b>0</b> <b>0</b>	Supplied without contacts (Plug)	<b>1</b> <b>1</b>	Connector Saver's										
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<b>5</b>	<b>Shell material/Finish<sup>2</sup></b>	<table border="0"> <tr> <td><b>C</b></td> <td>Composite shell (PEEK 30% carbon filled / gold over nickel)</td> </tr> <tr> <td><b>M</b></td> <td>Aluminum alloy / gold over nickel (std for savers)<sup>4</sup></td> </tr> </table>	<b>C</b>	Composite shell (PEEK 30% carbon filled / gold over nickel)	<b>M</b>	Aluminum alloy / gold over nickel (std for savers) <sup>4</sup>												
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<b>6</b>	<b>Polarising/Guides<sup>3</sup></b>	<table border="0"> <tr> <td><b>A</b></td> <td>Guide position A</td> <td><b>1</b></td> <td>Guide position 1</td> </tr> <tr> <td><b>B</b></td> <td>Guide position B</td> <td><b>2</b></td> <td>Guide position 2</td> </tr> <tr> <td><b>C</b></td> <td>Guide position C</td> <td><b>3</b></td> <td>Guide position 3</td> </tr> <tr> <td><b>D</b></td> <td>Guide position D</td> <td><b>4</b></td> <td>Guide position 4</td> </tr> </table>	<b>A</b>	Guide position A	<b>1</b>	Guide position 1	<b>B</b>	Guide position B	<b>2</b>	Guide position 2	<b>C</b>	Guide position C	<b>3</b>	Guide position 3	<b>D</b>	Guide position D	<b>4</b>	Guide position 4
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<b>D</b>	Guide position D	<b>4</b>	Guide position 4															
<b>7</b>	<b>Custom variations</b>	<table border="0"> <tr> <td><b>0</b></td> <td>Standard</td> <td><b>E</b></td> <td>EMI bulkhead receptacle<sup>4</sup></td> </tr> </table>	<b>0</b>	Standard	<b>E</b>	EMI bulkhead receptacle <sup>4</sup>												
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## Notes

- (1) Plug is supplied without contacts. See "Accessories", on page 10 for cable termination kit. For custom variation termination style, please contact your local sales representative.
- (2) Connector Savers are only supplied in aluminum with gold over nickel finish.
- (3) Default guide position is 'A1'.
- (4) EMI variation 'E' is only supplied with aluminum shell 'M'.

## Disclaimer 2023

All of the information included in this catalogue is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.

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## Connectors

### Americas

#### Sales

connectors.uscsr@smithsinterconnect.com

#### Technical Support

connectors.ustechsupport@smithsinterconnect.com

### Europe

#### Sales

connectors.emeacsr@smithsinterconnect.com

#### Technical Support

connectors.emeatechsupport@smithsinterconnect.com

### Asia

#### Sales

asiacsr@smithsinterconnect.com

#### Technical Support

asiatechsupport@smithsinterconnect.com

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## Fiber Optics & RF Components

### Americas

#### Sales

focom.uscsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

### Europe

#### Sales

focom.emeacsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

### Asia

#### Sales

focom.asiacsr@smithsinterconnect.com

#### Technical Support

focom.techsupport@smithsinterconnect.com

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## Semiconductor Test

### Americas

#### Sales

semi.uscsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

### Europe

#### Sales

semi.emeacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

### Asia

#### Sales

semi.asiacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

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## RF/MW Subsystems

### Americas, Europe & Asia

#### Sales

subsystems.csr@smithsinterconnect.com

#### Technical Support

subsystems.techsupport@smithsinterconnect.com

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