

# Board Level Products

Board to Board Interconnect Solutions

Amphenol



Connecting people + technology

[www.pcb-interconnect.com](http://www.pcb-interconnect.com)

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## Amphenol in brief

**Amphenol** is one of the largest manufacturers of interconnect products in the world. The Company designs, manufactures and markets electrical, electronic and fiber optic connectors, coaxial and flat-ribbon cable, and interconnect systems.

The primary end markets for the Company's products are communications and information processing markets, including cable television, cellular telephone and data communication and information processing systems; aerospace and military electronics; and automotive, rail and other transportation and industrial applications.



## Amphenol Socapex in brief

**Amphenol Socapex** is part of Amphenol Corporate. The company has subsidiaries in France, India, China, and in the United States. Amphenol Socapex is a market leader of MIL-DTL-38999 and derived products, high density board level connectors, field bus and rugged Ethernet solutions, harsh environment optical connectors, MIL-DTL-26482 Series I rugged industrial solutions and EN2997 connectors.

Amphenol Socapex is able to meet customer satisfaction through:

- Agile & Lean Organization
- Global Sourcing
- State-of-the-Art Manufacturing
- Custom design capability
- Competitive Independent Workshops

Amphenol Socapex is aware of environmental issues. Indeed, most of our product solutions are compliant with the European RoHS directive concerning electrical and electronic equipment.



# Amphenol Socapex Markets

## Military & Aerospace markets:

- Military and commercial avionics and airframe: engines, airframes, cockpit, landing gears...
- C4ISR Land: communication systems, radio...
- Ground vehicles
- Marine applications
- Weapons / Munitions
- Space: communications satellites



## Industrial markets:








- Oil & Gas: geophysics, drilling, production
- Small Urban Electrical Vehicle
- Mining: surface and underground mining, ...
- Factory Automation: Machine tool, Networks, Field Buses,...
- Railway: Signaling, Ground and On Board Equipments,...
- Homeland security: CCTV (video), access control,...
- Entertainment











# Quick Selection Guide

					
HiLinX	HDAS	SMASH	SIAL	SIHD	HE8/127

## MARKETS

	INDUSTRIAL	X	X				X
	COMMERCIAL AVIONICS & AIRFRAME	X	X	X	X	X	X
	MILITARY AVIONICS & AIRFRAME	X	X	X	X	X	X
	GROUND VEHICLE		X				X
	C4ISR	X	X	X			X
	NAVY	X	X			X	
	SPACE				X	X	

## APPLICATIONS

	RADAR			X	X	X	
	ON BOARD COMPUTER		X		X	X	X
	DISPLAY UNITS	X	X				X
	ACTUATORS		X		X	X	
	ENGINE	X	X	X			
	POWER UNITS	X	X				X
	LANDING GEAR / BRAKING SYSTEMS	X	X				X
	ORDNANCE	X		X			

## GENERAL CHARACTERISTICS

PLUG/RECEPTACLE GENDER	Male / Female	Male / Female	Male / Female	Male / Female	Male / Female	All possible
CONTACT TECHNOLOGY	Female Starclip / Male Turned	Female Starclip / Male Turned	Female Starclip / Male Turned	Female cross cavity / Male lateral displacement	Female cross cavity / Male lateral displacement	Female Tuning fork / Male Blade
PLUG CONTACT TERMINATION	90° & straight PC tail / Solder cup / Crimping tail	90° & straight PC tail / Solder cup	SMT straddle mount	90° & straight PC tail / SMT	90° & straight PC tail / SMT / Crimping tail	SMT / 90° & straight PC tail / Crimp / Solder cup
RECEPTACLE CONTACT TERMINATION	90° & Straight PC tail / Solder cup / Press fit / Crimping tail	90° & Straight PC tail / Press fit	Straight PC tail / Press fit	Straight PC tail	Straight PC tail / Wire wrap	SMT / 90° & straight PC tail / Crimp / Solder cup
MODULARITY	Yes	No	Yes	Yes	No	No
HF / POWER / OPTICAL OPTION	Coax Size16 / Power 20A / Radsok® / Amphelux™	No	Coax Size16 / Power 20A / Radsok® / Amphelux™	Coax Size 12 or 16	No	Coax Size16 / Power 20A
DENSITY	HiLinX <sup>1.905</sup> : 0.16cts / mm <sup>2</sup> [103 cts / in <sup>2</sup> ] HiLinX <sup>2.54</sup> : 0.11 cts / mm <sup>2</sup> [71 cts / in <sup>2</sup> ]	0,16 cts / mm <sup>2</sup> [103cts / inch <sup>2</sup> ]	0,34cts / mm <sup>2</sup> [130cts / inch <sup>2</sup> ]	0.14 cts / mm <sup>2</sup> [90 cts / inch <sup>2</sup> ]	0.14 cts / mm <sup>2</sup> [90 cts / inch <sup>2</sup> ]	0,11 cts / mm <sup>2</sup> [71cts / inch <sup>2</sup> ]
SIGNAL CONTACTS COUNT	0-206	50-402	132-450	18-392	102-390	17-144
LATERAL FLOATMENT FEATURE	Consult us	Consult us	Yes	Yes	Yes	No

## SEE PAGE

8

52

66

80

98

110

# Amphenol Socapex Box Capabilities

1

## HiLinX Series (see page 8)

Unique M55302 modular interconnect. System of interlocking signal, power, fiber optics, and HF modules for dedicated board level mixed solution.

2

## HDAS Series (see page 52)

Monolithic high density PCB interconnect. Provides higher current rate capability, and extreme withstanding to harsh environments, such as very high temperature and vibrations level.

3

## SMASH Series (see page 66)

High density rack and panel for rectangular in and out solutions. Possibilities of hybrid inserts, EMI shielding, as well as sealing and rear potting.

4

## SMASH Derivated (see page 66)

High density rack and panel for rectangular in and out solutions. Possibilities of hybrid inserts, EMI shielding, as well as sealing and rear potting.

5

## SIAL Series (see page 80)

Modular PCB interconnect, which provides various combinations of both signal and HF contacts inserts.

6

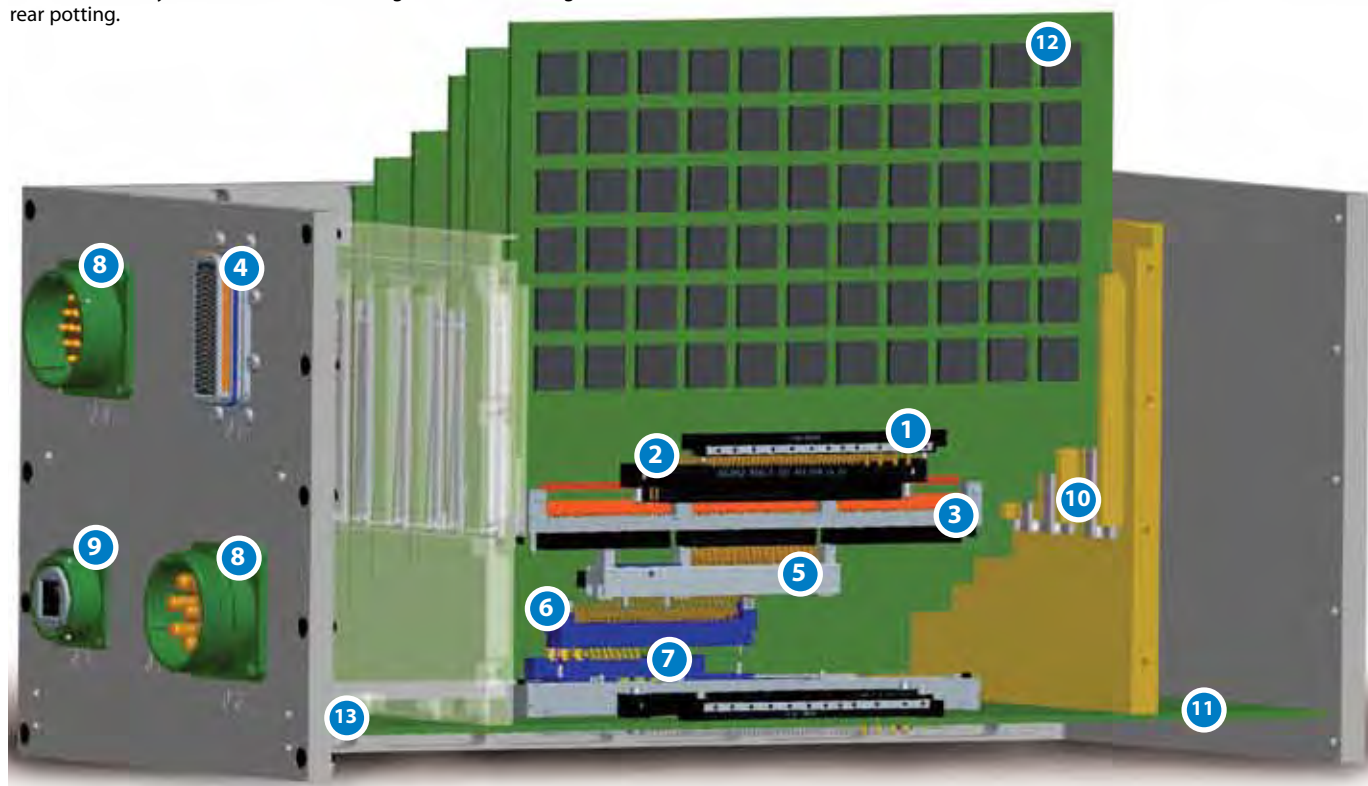
## SIHD Series (see page 98)

Monolithic staggered grid connector, with floating capability feature.

7

## 127 / HE8 Series (see page 110)

Proven legacy product, which meets various worldwide standard. Various features, including a wide range of hardware and locking devices.



8

## I/O Cylindrical connectors (consult us)

Amphenol Socapex provides cylindrical I/O front panel connectors per various standards, including MIL DTL 38999, Series I,II, and III, HE308, EN3645, VG96912 / EN2997 / MIL DTL 26482 Series I, VG95328. Numerous platings and arrangements available, in addition to unique custom design capabilities (snatch release, rack and panel, high density, PC tail stand-offs, HF contacts, hybrid optical / electrical solutions ...).

9

## RJ Field (consult us)

Transforms all standard existing RJ45 Cat5e cordset into an environmental connector, without any cabling operation, and without any tool. Other infocom connectors such as USB, USBB, RJ11, RJ12, IEEE1394, MTRJ, LC, can also be rugged with the same concept.

10

## Thermal Clamps (consult us)

Chassis devices, which both help to dissipate components heating and block the daughter cards into the box slots grooves.

11

12

## Printed Circuit Boards for backplanes & daughter cards (see pages 142 & 143)

Fabrication capabilities include a wide variety of materials to enable increasing signal speeds, deep microvias, buried, blind and backdrilled vias, sequential lamination, panel sizes from 18" x 24" up to 24" x 54", and layer counts up to 60 with a board thickness of 0.400".

13

## Rigid and rigid-flex PCBs (see pages 142 & 143)

Rigid-Flex circuit interconnects featuring blind and buried vias, microvias, bookbinder and other cutting-edge technologies including large format panels.

# HiLinX

Create the connector you need

Amphenol has engineered a complete range of high & medium density, staggered grid, modular connectors with both 1.905x1.905[.075x.075] & 2.54x2.54 [.100x.100] pitches.

The HiLinX range provides a unique choice of solutions by allowing a mix of various contact types: signal, power, fiber optics and coaxial lines.

## The concept

With our HiLinX, build your own connector the way you want it! The HiLinX is a system of modules, metal rails and fittings. Thanks to this modularity, a wide range of contact combinations can be made at the board level. Whatever types of signals required, from power to fiber optics, almost all existing contacts on the market can be adapted to our connector.

Let's maximize the PC board capabilities!

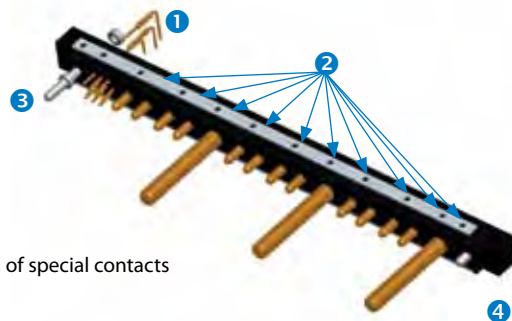
## Modularity for custom connector design!

With the HiLinX series, you specify:

- The density of signal contacts
- The type and number of signal contacts
- The type, the number and the position of special contacts
- The guiding, keying or locking system

With the HiLinX series, the design of the connector is up to you!

With HiLinX, feel free to create your own product. Amphenol remains the only provider of both assembly and delivery.



MIL-DTL-55302  
/190 to /193

MIL-DTL-55302  
/57 to /66, /138, /139

Some HiLinX arrangements are fully compatible with the MIL DTL 55302  
(/57 to /66, /138, /139 & /190 to /193 detailed sheets) (see pages 23 & 45).

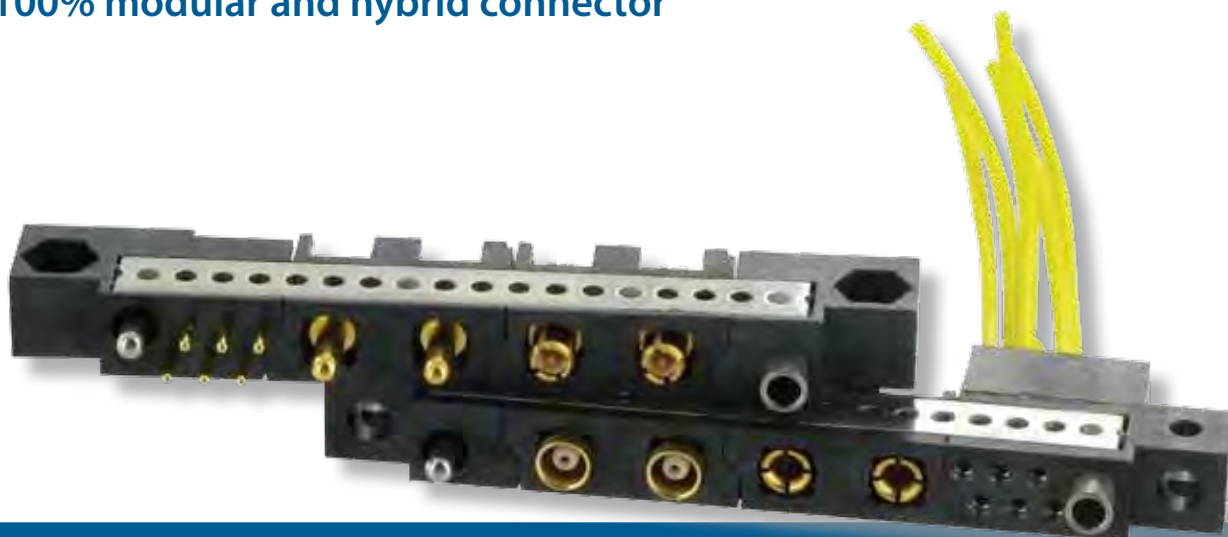
## QUICK SELECTION GUIDE

Density	Signal contacts ①	Special contacts* ②	Guiding, keying & locking ③	Housing ④	See Section
<b>Medium density:</b> <b>HiLinX 2.54</b> 	<div> <b>FEMALE</b>  </div> <div> <b>MALE</b>  </div> <p>For solder cup, SMT, soldering on flex, female right angle PC tail, male straight PC tail, consult us.</p>	<div> <b>POWER 20A</b>  </div> <div> <b>RADSOK® 70A*</b>  </div> <div> <b>AMPHELUX™</b>  </div> <div> <b>COAXIAL</b>  </div> <p>*For RADSOK® contact, consult us.</p>	<b>GUIDING</b> 8 possibilities 65 to 72 <b>KEYING</b> 128 possibilities 01 to 64 & 201 to 264 <b>LOCKING</b> jackscrew, jackset & jacksocket available	<b>2 ROWS</b> 0 to 70* contacts with or without special contacts <b>3 ROWS</b> 0 to 170* contacts with or without special contacts * For further arrangements, consult us.	<b>HiLinX 2.54</b> <b>pages 10 to 31</b>
<b>High density:</b> <b>HiLinX 1.905</b> 	<div> <b>FEMALE</b>  </div> <div> <b>MALE</b>  </div> <p>For solder cup, SMT, soldering on flex, female right angle PC tail, male straight PC tail, consult us.</p>	<div> <b>POWER 20A</b>  </div> <div> <b>RADSOK® 70A</b>  </div> <div> <b>AMPHELUX™</b>  </div> <div> <b>COAXIAL</b>  </div>	<b>GUIDING</b> 8 possibilities 65 to 72 <b>KEYING</b> 64 possibilities 01 to 64 <b>LOCKING</b> jackscrew, jackset & jacksocket available	<b>2 ROWS</b> 10 to 100 contacts <b>3 ROWS</b> 0 to 206 contacts with or without special contacts	<b>HiLinX 1.905</b> <b>pages 32 to 49</b>
PAGES 10 to 31	PAGE 12   PAGE 14	PAGE 16	PAGES 18 to 22	PAGES 24 to 31	
PAGES 32 to 49	PAGE 34   PAGE 36	PAGE 38	PAGES 40 to 44	PAGES 46 to 49	

\*Important note: HiLinX 1.905: special contacts are available for 3-row version only.

# HiLinX Series

The 100% modular and hybrid connector



HiLinX Series

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<b>Tooling .....</b>	<b>50</b>

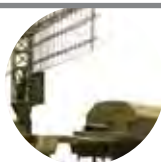
The HiLinX series serves various **markets**, including:



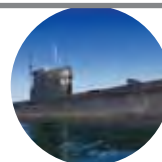
Commercial Avionics  
& Airframe



Military Avionics & Airframe



C4ISR



Navy



Industrial



# HILINX 2.54 >>> GENERAL SPECIFICATIONS

MEDIUM  
DENSITY


- A unique connector, both hybrid and modular
- Cost effective, easy to install, highly reliable
- More current through each contact
- Greater performance and optimal protection in harsh environments
- Compatible with signal connectors on the market (MIL-DTL-55302/57 to /66, /138, /139)
- 2.54 [.100] staggered grid (1.27 [.050] offset), 2.54 [.100] between rows

## Main characteristics

- Medium density: 0.11 cts/mm<sup>2</sup> [71 cts/inch<sup>2</sup>]
- From 2 to 3 rows, 10 to 170\* signal contacts
- 5 A per signal contact (up to 6A current rating available upon request)
- Press-fit solderless attachment technology and crimp contact available
- Some signal contact versions are 100% compatible with the M55302 /57 to /66, /138 & /139

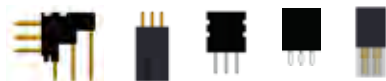
## Markets



## Main applications



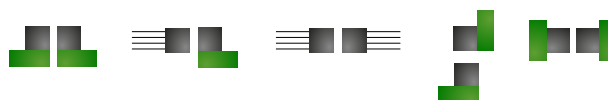
## Terminations



## Special contacts



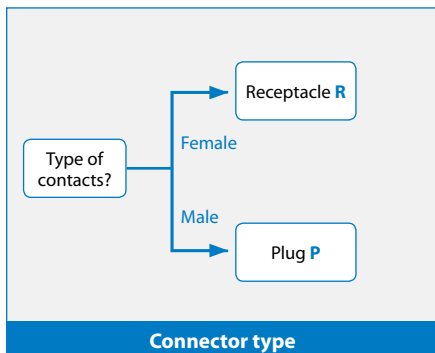
## Recommended configurations



## Standard

MIL-DTL-55302  
/57 to /66, /138, /139

## How to order



2
3
Number of rows

Female	Male	Description
Consult us	YCS	Right angle PC tail short 2.8 [.110]
	YC	Right angle PC tail standard 3.5 [.140]
	YCL	Right angle PC tail long 4.4 [.172]
YDS	For 3-row version only	Straight PC tail short 3.5 or 2.8 [.140 or .110]
YD	Consult us	Straight PC tail standard 4.4 or 3.5 [.172 or .140]
YDL		Straight PC tail long 5.9 or 4.4 [.234 or .172]
YP	/	Press fit
X	X*	Crimp contact *For 3-row version only
		Solder Cup
Consult us		SMT
		Solder tail for flexible circuit
Signal modules contact termination type (see pages 12 to 15)		



Plating
Blank: Standard plating
LF: Lead free plating - RoHS
For receptacle only

## Number of signal contacts (see pages 24 to 31)

	Signal version						Hybrid version
2 rows	010	024	040	056			To be defined Divided by 10
	014	026	044	060			
	016	030	046	064			
	020	034	050	066			
		036	054	070			
3 rows	006*	032	062	092	122	152*	To be defined Divided by 12 or 18
	008*	036*	066*	096*	126*	156*	
	012*	042*	072*	102*	132*	162*	
	014	044	074	104	134	164*	
	018*	048*	078*	108*	138*	168*	
	020*	050	080	110	140	170	
	024*	054*	084*	114*	144*		
	026	056	086	116*	146		
	030*	060*	090*	120*	150*		

## Special module (see page 16)

	Male	Female
POWER 20A*	PM1	PF1
RADSOK 70A	Consult us	
COAXIAL*	CM1	CF1
AMPHELUX™ *	AXM	AXF
* 2 contacts or cavities per module		
Number of special modules (X) + type of the module (XXX)		
X XXX (blank = signal contacts only)		
Ex: 2PM1 3CM1		
2 male power modules and 3 male coaxial modules		

## Keying, guiding, locking (see pages 18 to 22)

D-shape guides ?	YES	01 to 64 201* to 264* according to MIL DTL 55302
Round guides ?	YES	65 to 68 69* to 72*
Locking ?	YES	73* to 96* 101* to 124*
01 by default		

## Deviation

Standard?	YES	-000
	NO - Consult us	
-100* w/o mouting ears		
-200* with middle fitting		
-400* with middle fitting w/o mouting ears		
-800* monolithic version w/o mouting ears		
-900* monolithic version		
-000 by default		

## Important note

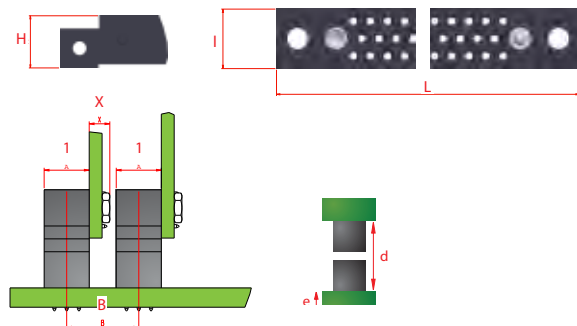
RADSOK®, coaxial and Amphelux™ contacts have to be ordered separately

\* available upon request

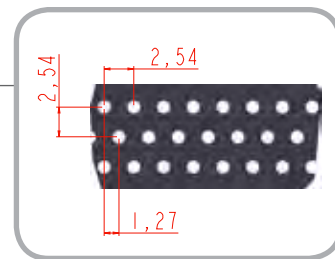
All dimensions are given for information only and are in mm [inch], except as otherwise specified

# HILINX 2.54 >>> TECHNICAL SPECIFICATIONS

## Dimensional characteristics



$H = 8.5$  [.335] for receptacles  
 $H = 10.2_{MAX}$  [.401] for plugs  
 $L = 6.4_{MAX}$  [.252] for 2-row connectors  
 $L = 8.95_{MAX}$  [.352] for 3-row connectors  
 $L = 34.29$  [1.350] to  $110.49$  [4.350] for 2-row connectors  
 $L = 63.5$  [2.500] to  $165.1$  [6.500] for 3-row connectors  
 $B = 7 + X$  [.276 + X] for 2-row connectors  
 $B = 9.55 + X$  [.376 + X] for 3-row connectors  
 $X$  = Board thickness + hardware thickness  
 $d = 17$  [.670]  
 $e = 1.8$  [.071] to  $3.4$  [1.34] or  $2.5_{MIN}$  [.098] (for YP contacts)



## Female contact



### Starclip® female technology: 6 times for better reliability

- 6 contact tines instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors

### Material

- Hood: machined brass alloy
- Starclip: CuBe [BeCu], stamped and formed

### Plating

- Hood: tin lead or lead free
- Starclip: gold over nickel

## Male contact



- **Mating end diameter:**  $\varnothing 0.76$  [.030]
- **Contact section** (mating side):  $0.45 \text{ mm}^2$  [.0007 in<sup>2</sup>]
- **Material:** machined brass alloy
- **Plating:** gold over nickel

## Materials

- **Guiding devices:** electroless nickel plating over brass CuZn or passivated stainless steel 303
- **Rails:** passivated stainless steel 316L
- **Plastic insert:** thermoplastic LCP, 30% glass-fiber filled

MECHANICAL CHARACTERISTICS		MIL-DTL-55302 sections
<b>Backoff<sup>1</sup></b> (mm)	$> 0.9$ [.035]***	N/A
<b>Mating force</b> per contact (N)	$0.98_{MAX}$	§ 4.5.3
<b>Unmating force</b> per contact (N)	$0.981_{MAX}$	§ 4.5.3
<b>Durability</b> cycles	500	§ 4.5.9
<b>Sinusoidal vibrations</b> (10 to 2000 Hz) micro discontinuity 2ns	15 g	§ 4.5.10
<b>Random vibrations</b> (5 to 2000 Hz) micro discontinuity 2ns	$0.5 \text{ g}^2 / \text{Hz}$	§ 4.5.10
<b>Shocks</b> 6ms ½ sinus 2ns	100 g	§ 4.5.10
ENVIRONMENTAL CHARACTERISTICS		
<b>Thermal shocks</b> (°C)	-65 / +150	§ 4.5.13
<b>Salt Spray</b> (hours)	96	§ 4.5.11
<b>Humidity</b>		
Days	10	§ 4.5.15
Temperature (°C)	25/65	
Humidity rate (%)	90-95	
ELECTRICAL CHARACTERISTICS		
<b>Current rating</b> per contacts (A)	5**	§ 4.5.5
<b>Insulation resistance</b> (at 500Vdc) (GΩ)	$5_{MIN}$	§ 4.5.8
<b>Contact resistance</b> (mΩ)	$10_{MAX}$	§ 4.5.12
<b>Dielectric Withstanding Voltage</b> (Vrms)	$1000_{MIN}$	§ 4.5.7.1

\* Except for crimp contacts

\*\* Other, please consult us

\*\*\*  $0.9$  [.035] for crimp contact

$1.3 \pm 0.1$  [.051 ± .004] for other contacts

<sup>1</sup>: When both connectors are fully mated, the backoff is the maximum distance the connectors can be unmated while functioning properly

## HILINX<sup>2.54</sup> >>> SIGNAL CONTACTS (1)

### FEMALE CONTACTS FOR RECEPTACLES



#### Starclip\*\* female technology

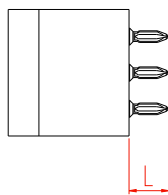


- 6 contact tines instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors

- Size 22: high average current
- Clip for male contact  $\varnothing 0.76 \pm 0.025$  [.030  $\pm$  .001]
- **Plating** on active part (clip)

Cu	Ni	Au
1 [.039]	3.5 [.138]	<b>1.3 [.051]</b>

#### Press-fit



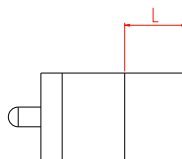
- Solderless assembly
- Mother board or mezzanine connection
- PCB thickness: 2.5<sub>MIN</sub> [.098]
- Insertion forces: 65 N typical



Termination style

YP

#### Crimp barrel



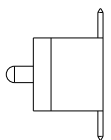
- Crimping on wire
- AWG gauge 22 to 24 recommended
- Terminations protected by a casing cemented to the moulding



Termination style

X

#### SMT\*

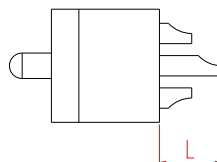


- SMT soldering
- PCB thickness: specific, *consult us*

*Consult us*

T

#### Solder cup\*



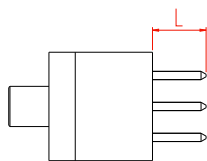
- Hard-soldering on wire
- Mother board
- Cable to board or cable to cable connection
- Solder cup for 20 to 24 AWG wire



*Consult us*

Z

#### Soldering on flex\*



- Hard soldering on flexible circuit
- PCB thickness: specific, *consult us*



*Consult us*

YS/Y

	YP	X	Z*	YS*/Y*
<b>L<sub>MAX</sub></b>	2.8 $\pm$ 0.2 [.110 $\pm$ .008]	6.3 $\pm$ 0.2 [.248 $\pm$ .008]	4.9 $\pm$ 0.2 [.193 $\pm$ .008]	YS: 1.5 $\pm$ 0.2 [.059 $\pm$ .008] Y: 2.4 $\pm$ 0.2 [.093 $\pm$ .008]
<b>Termination section</b>	$\varnothing$ 0.82 [.032]	$\varnothing$ 1.22 [.048]	1.6 <sub>MAX</sub> [.063]	0.45 $\pm$ 0.3 [.018 $\pm$ .001]
<b>Barrel standard termination plating</b> $\mu\text{m}$ [ $\mu\text{in}$ ]	2 [.079] Ni electrolytic + 15.2 [.598] Ni electroless + 10 [.394] Sn Pb	1 [.039] Cu + 3.5 [.138] Ni + <b>1.3 [.051] Au</b>	3 [.118] Ni + 10 [.394] Sn Pb	
<b>Barrel RoHS termination plating**</b> $\mu\text{m}$ [ $\mu\text{in}$ ]	N/A	N/A	2.5 [.089] Ni + 5 [.197] bright pure Sn	

\*\* Except for crimp contacts

\* Consult us

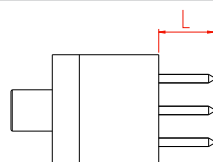
All dimensions are given for information only and are in mm [inch], except as otherwise specified

HILINX<sup>2.54</sup> >>> SIGNAL CONTACTS (1)

## FEMALE CONTACTS FOR RECEPTACLES



## Short straight PC tail



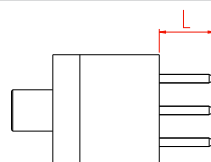
- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 2.5 [.098] for 2-row version  
1.8 [.071] for 3-row version



Termination style

YDS

## Standard straight PC tail



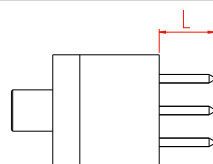
- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 3.5 [.138] for 2-row version  
2.5 [.098] for 3-row version



Termination style

YD

## Long straight PC tail



- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 5 [.197] for 2-row version  
3.5 [.138] for 3-row version



Termination style

YDL

## Short right angle PC tail\*



- Thru hole soldering
- Extender card
- PCB thickness: *consult us*

*Consult us*

YCS

## Standard right angle PC tail\*



- Thru hole soldering
- Extender card
- PCB thickness: *consult us*

*Consult us*

YC

## Long right angle PC tail\*



- Thru hole soldering
- Extender card
- PCB thickness: *consult us*

*Consult us*

YCL

	YDS	YD	YDL	YCS*	YC*	YCL*
L <sub>MAX</sub>	2-row: 3.5 ± 0.20 [.140 ± .010] 3-row: 2.8 ± 0.20 [.110 ± .010]	2-row: 4.4 ± 0.20 [.172 ± .010] 3-row: 3.5 ± 0.20 [.140 ± .010]	2-row: 5.9 ± 0.20 [.234 ± .010] 3-row: 4.4 ± 0.20 [.172 ± .010]	Consult us		
Termination section	Ø 0.68 <sub>MAX</sub> [.027]					
Barrel standard termination plating μm [μ in]	3 [.118] Ni + 10 [.394] Sn Pb					
Barrel RoHS termination plating* μm [μ in]	2.5 [.089] Ni + 6 [.197] bright pure Sn					

\* Consult us

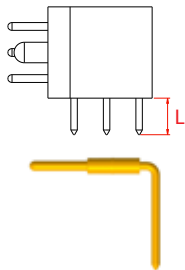
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HILINX 2.54 >>> SIGNAL CONTACTS (1)

### MALE CONTACTS FOR PLUGS



#### Short right angle PC tail

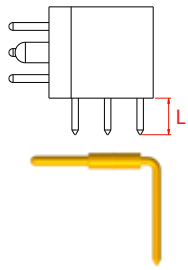


- Thru hole soldering
- Daughter board or extender card
- PCB thickness: 1.8<sub>MAX</sub> [.071]

Termination style

YCS

#### Standard right angle PC tail

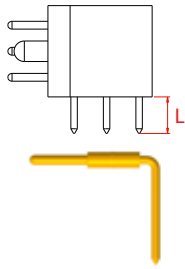


- Thru hole soldering
- Daughter board or extender card
- PCB thickness: 2.5<sub>MAX</sub> [.098]

Termination style

YC

#### Short right angle PC tail

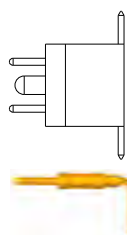


- Thru hole soldering
- Daughter board or extender card
- PCB thickness: 3.5<sub>MAX</sub> [.138]

Termination style

YCL

#### SMT\*



- SMT soldering
- Daughter board or extended card
- PCB thickness: specific, *consult us*

Consult us

T

	YCS	YC	YCL
<b>L<sub>MAX</sub></b>	2.8 ± 0.20 [.110 ± .010]	3.5 ± 0.20 [.140 ± .010]	4.4 ± 0.20 [.172 ± .010]
<b>Termination section</b>	Ø 0.68 <sub>MAX</sub> [.027]		
<b>Mating end diameter</b>	Ø 0.76 ± 0.025 [.030 ± .001]		
<b>Plating (µm [µin])</b>	1 [.039] Cu + 3.5 [.138] Ni + <b>1.3 [.051] Au</b>		

\* Consult us

All dimensions are given for information only and are in mm [inch], except as otherwise specified

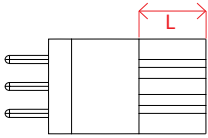


# HILINX<sup>2.54</sup> >>> SIGNAL CONTACTS (1)

## MALE CONTACTS FOR PLUGS



### Crimp barrel



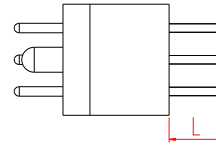
- Crimping on wire
- AWG gauge 22 to 24 recommended
- Terminations protected by a casing cemented to the moulding
- For 3-row version only



Consult us

X

### Short straight PC tail\*



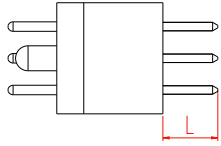
- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 1.8<sub>MAX</sub> [.071]
- For 3-row version only



Consult us

YDS

### Standard straight PC tail\*



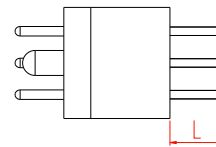
- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 2.5<sub>MAX</sub> [.098]
- For 3-row version only



Consult us

YD

### Long straight PC tail\*



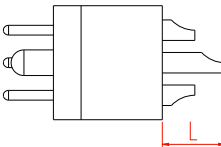
- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 3.5<sub>MAX</sub> [.138]
- For 3-row version only



Consult us

YDL

### Solder cup\*



- Hard soldering on wire
- Daughter board
- Cable to board or cable to cable connection
- Solder cup for 20 to 24 AWG wire
- For 3-row version only



Consult us

Z

	X*	YDS*	YD*	YDL*	Z*
L <sub>MAX</sub>	6.3 ± 0.20 [.248 ± .010]	2.8 ± 0.20 [.110 ± .010]	3.5 ± 0.20 [.140 ± .010]	4.4 ± 0.20 [.172 ± .010]	2.54± 0.25 [.100 ± .010]
Termination section	Ø 1.22 [.048]	Ø 0.68 <sub>MAX</sub> [.027]			Ø 1.6 <sub>MAX</sub> [.063]
Mating end diameter	Ø 0.76 ± 0.025 [.030 ± .001]				
Plating (µm [µin])	1 [.039] Cu + 3.5 [.138] Ni + <b>1.3 [.051] Au</b>				

\* Consult us

All dimensions are given for information only and are in mm [inch], except as otherwise specified

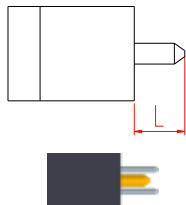
## HILINX<sup>2.54</sup> >>> SPECIAL CONTACTS (2)

### FOR 2-ROW CONNECTORS \*



#### POWER contacts

##### Straight female power contact

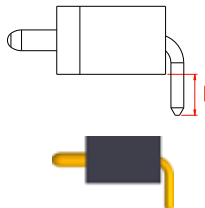


- Thru hole soldering
- Mother board
- 2 straight female contacts
- 20A / contact
- PCB thickness: 1.8 [.071] to 2.5 [.098]
- Termination section Ø 1.4<sub>MAXI</sub> [.055]

Module designation

PF1

##### Right angle male power contact



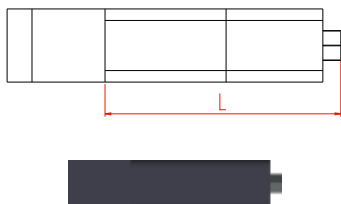
- Thru hole soldering
- Daughter board
- 2 right angle male contacts
- 20A / contact
- PCB thickness: 1.8 [.071] to 2.5 [.098]
- Termination section: Ø 1.2<sub>MAXI</sub> [.047]

Module designation

PM1

#### AMPHELUX™ ARINC 801 termini

##### Female ampixel™ contact

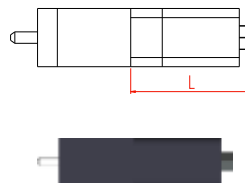


- 2 ampixel™ termini
- Multi-mode
- Modules are supplied less contacts, *consult us*
- Complied with the ARINC 801 specification
- Keyed to provide anti-rotation

Module designation

AXF

##### Male ampixel™ contact



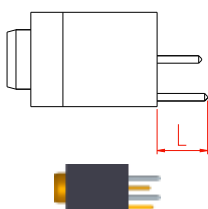
- 2 ampixel™ termini
- Multi-mode
- Modules are supplied less contacts, *consult us*
- Complied with the ARINC 801 specification
- Keyed to provide anti-rotation

Module designation

AXM

#### COAXIAL contacts

##### Straight female coaxial contact

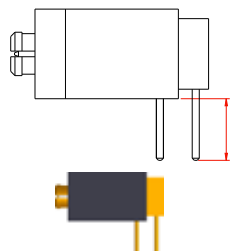


- Thru hole soldering
- Mother board or mezzanine connection
- 2 cavities for straight coaxial female contacts
- For more information, *consult us*
- Modules are supplied less contacts
- Data rate: up to 1.4 GHz / 3 Gbit.s<sup>-1</sup>

Module designation

CF1

##### Right angle male coaxial contact



- Thru hole soldering
- Daughter board or extender card
- 2 cavities for right angle coaxial male contacts
- For more information, *consult us*
- Modules are supplied less contacts
- Data rate: up to 1.4 GHz / 3 Gbit.s<sup>-1</sup>

Module designation

CM1

#### RADSOK® contacts

##### Female cavity module for RADSOK® contact

- 1 cavity for male RADSOK® contact
- Mother board
- 70A / contact
- Termination section: the body shape, the section and the length of the termination are specific to your need: *consult us*

Consult us

-

##### Right angle male RADSOK® contact

- Fixing with retainer
- Daughter board
- 1 male RADSOK® contact
- 70A / contact
- Termination section: the body shape, the section and the length of the termination are specific to your need: *consult us*

Consult us

-

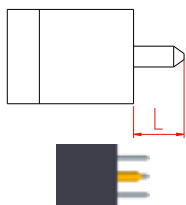
HILINX<sup>2.54</sup> >>> SPECIAL CONTACTS (2)

## FOR 3-ROW CONNECTORS \*



## POWER contacts

## Straight female power contact

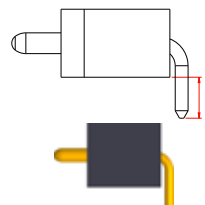


- Thru hole soldering
- Mother board
- 2 straight female contacts
- 20A / contact
- PCB thickness: 1.8 [.071] to 2.5 [.098]
- Termination section Ø 1.4<sub>MAX</sub> [.055]

Module designation

PF1

## Right angle male power contact



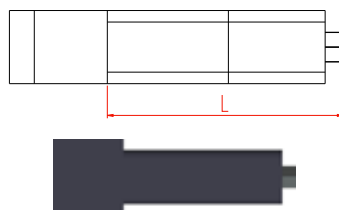
- Thru hole soldering
- Daughter board
- 2 right angle male contacts
- 20A / contact
- PCB thickness: 1.8 [.071] to 2.5 [.098]
- Termination section: Ø 1.2<sub>MAX</sub> [.047]

Module designation

PM1

## AMPHELUX™ ARINC 801 termini

## Female amphenlux™ contact

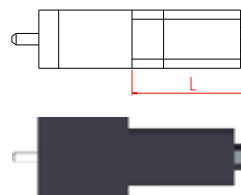


- 2 amphenlux™ termini
- Multi-mode
- Modules are supplied less contacts, *consult us*
- Complied with the ARINC 801 specification
- Keyed to provide anti-rotation

Module designation

AXF

## Male amphenlux™ contact



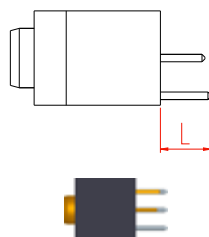
- 2 amphenlux™ termini
- Multi-mode
- Modules are supplied less contacts, *consult us*
- Complied with the ARINC 801 specification
- Keyed to provide anti-rotation

Module designation

AXM

## COAXIAL contacts

## Straight female coaxial contact

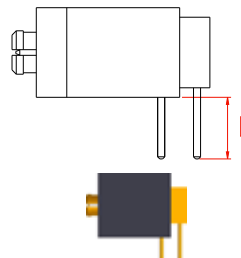


- Thru hole soldering
- Mother board or mezzanine connection
- 2 cavities for straight coaxial female contacts
- For more information, *consult us*
- Modules are supplied less contacts
- Data rate: up to 1.4 GHz / 3 Gbit.s<sup>-1</sup>

Module designation

CF1

## Right angle male coaxial contact



- Thru hole soldering
- Daughter board or extender card
- 2 cavities for right angle coaxial male contacts
- For more information, *consult us*
- Modules are supplied less contacts
- Data rate: up to 1.4 GHz / 3 Gbit.s<sup>-1</sup>

Module designation

CM1

## RADSOK® contacts

## Female cavity module for RADSOK® contact

- 1 cavity for male RADSOK® contact
- Mother board
- 70A / contact
- Termination section: the body shape, the section and the length of the termination are specific to your need: *consult us*

Consult us

-

## Right angle male RADSOK® contact

- Fixing with retainer
- Daughter board
- 1 male RADSOK® contact
- 70A / contact
- Termination section: the body shape, the section and the length of the termination are specific to your need: *consult us*

Consult us

-

L <sub>MAX</sub>	PF1	PM1	AXF	AXM	CF1	CM1
2 rows	3.4 [.134]	3.825 [.151]	20.47 [.806]	13.4 [.528]	3 [.118]	4.365 [.172]
3 rows	3.4 [.134]	3.55 [.140]	20.47 [.806]	13.4 [.528]	3 [.118]	3 [.118]

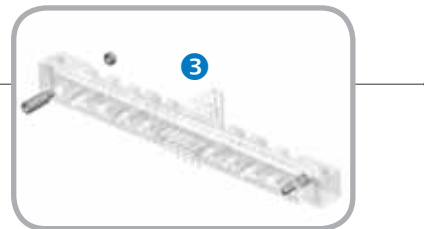
\* Hybrid modules will be preferably positioned on the connector sides

COAXIAL CONTACTS	
Impedance (Ω)	50
Voltage rating (V <sub>RMS</sub> )	180
Current rating (mA)	500
Contact retention (N)	50 <sub>MIN</sub>
Frequency range (GHz)	0 to 1
Contact resistance (mΩ)	12 <sub>MAX</sub>
VSWR at 1 (GHz)	1.3 <sub>MAX</sub>
Insertion and extraction force per contact (N)	1 ≤ F ≤ 15

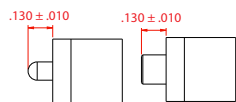
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HILINX 2.54 >>> KEYING & GUIDING (3)

### FULL ROUND GUIDES

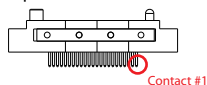


#### Standard



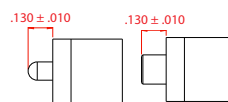
- 1 female socket and 1 male pin
- Non keying
- Nickel over brass
- Mating with 65 or 69 keying
- MIL-DTL-55302 PN: X

For receptacle:



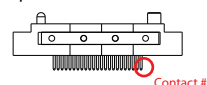
65

#### Reversed



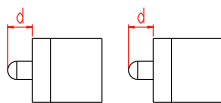
- 1 male pin and 1 female socket
- Non keying
- Nickel over brass
- Mating with 66 or 70 keying

For receptacle:

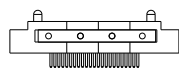


66

#### Two male guide pins

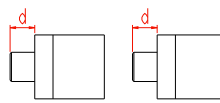


- 2 male guide pins
- Non keying
- Nickel over brass
- Mating with 68 or 72 keying

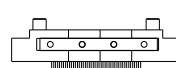


67

#### Two female guide sockets



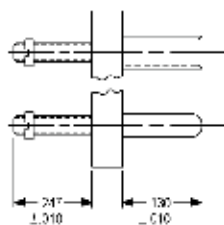
- 2 female guide sockets
- Non keying
- Nickel over brass
- Mating with 67 or 71 keying



68

### LONG FULL ROUND GUIDES

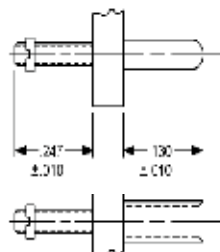
#### 6.2738 [.247] standard



- 1 female socket and 1 male pin
- Non keying
- For receptacle and straight plug w/o mounting ears
- Nickel over brass
- Mating with 69 or 65 keying
- MIL-DTL-55302/63 & /64 P/N: X

69

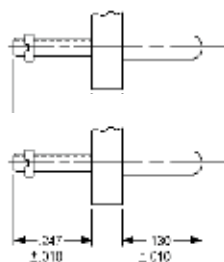
#### 6.2738 [.247] reversed



- 1 male pin and 1 female socket
- Non keying
- For receptacle and straight plug w/o mounting ears
- Nickel over brass
- Mating with 70 or 66 keying

70

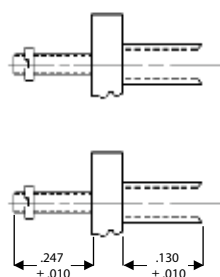
#### 6.2738 [.247] two male guide pins



- Non keying
- For receptacle and straight plug w/o mounting ears
- Nickel over brass
- Mating with 72 or 68 keying

71

#### 6.2738 [.247] two female guide sockets



- Non keying
- For receptacle and straight plug w/o mounting ears
- Nickel over brass
- Mating with 71 or 67 guides

72

**Important note:** all dimensions are in inch, except as otherwise specified.

- 

- 

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- 
- Diagram illustrating the connection of a female guide socket and a male guide pin. The female guide socket is shown with a plug and a contact position. The male guide pin is shown with a contact position. Labels include PLUG, FEMALE GUIDE SOCKET, CONTACT POSITION NO. 1, and RCPT.

-1		-9		-17		-25		-33		-41		-49		-57	
-2		-10		-18		-26		-34		-42		-50		-58	
-3		-11		-19		-27		-35		-43		-51		-59	
-4		-12		-20		-28		-36		-44		-52		-60	
-5		-13		-21		-29		-37		-45		-53		-61	
-6		-14		-22		-30		-38		-46		-54		-62	
-7		-15		-23		-31		-39		-47		-55		-63	
-8		-16		-24		-32		-40		-48		-56		-64	

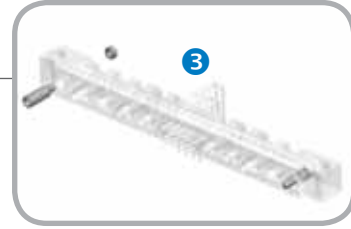
# HiLinX Series



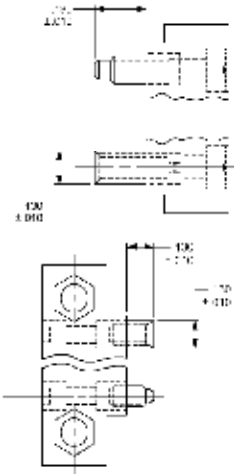
## HILINX 2.54 >>> KEYING & GUIDING (3)

### LOCKING

#### Fixed jacksets



#### Standard fixed jackset



##### 73: standard

- Mating with 81, 85, 89, 93, 101, 105, 109, 113, 117 & 121 fittings
- MIL-DTL-55302/58, /59, /60, /61, /66, /138 & /139 PN: F

##### 74: reversed

- Mating with 82, 86, 90, 94, 102, 106, 110, 114, 118 & 122 fittings

##### 75: two jackscrews

- Mating with 84, 88, 92, 96, 104, 108, 112, 116, 120 & 124 fittings

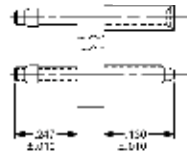
##### 76: two jackscrews

- Mating with 83, 87, 91, 103, 107, 111, 115, 119 & 123 fittings

73 thru 76

#### 6.2738 [.247] Long fixed jackset

For receptacle and straight plug, w/o mounting ears



##### 77: standard

- Mating with 81, 85, 89, 93, 101, 105, 109, 113, 117 & 121 fittings
- MIL-DTL-55302/63 & /64 PN: F

##### 78: reversed

- Mating with 82, 86, 90, 94, 102, 106, 110, 114, 118 & 122 fittings

##### 79: two jackscrews

- Mating with 84, 88, 92, 96, 104, 108, 112, 116, 120, & 124 fittings

##### 80: two jackscrews

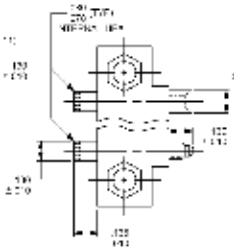
- Mating with 83, 87, 91, 103, 107, 111, 115, 119 & 123 fittings

77 thru 80

#### Hexagonal turning jacksets

#### 3.43 [.135] Xtrashort hexagonal turning jackset

For right angle plug



##### 101: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/57, /59 & /138 PN: H

##### 102: reversed

- Mating with 74 & 78 fittings

##### 103: two jackscrews

- Mating with 76 & 80 fittings

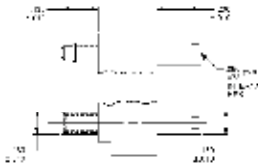
##### 104: two jackscrews

- Mating with 75 & 79 fittings

101 thru 104

#### 5.08 [.200] short hexagonal turning jackset

For straight plug and receptacle, w/o crimp contacts



##### 105: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/58, /60, /62, /63 & /139 PN: H

##### 106: reversed

- Mating with 74 & 78 fittings

##### 107: two jackscrews

- Mating with 76 & 80 fittings

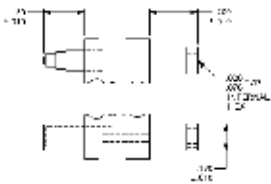
##### 108: two jackscrews

- Mating with 75 & 79 fittings

105 thru 108

#### 5.08 [.200] short hexagonal turning jackset

For crimping version



##### 117: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/65 & /66 PN: H

##### 118: reversed

- Mating with 74 & 78 fittings

##### 119: two jackscrews

- Mating with 76 & 80 fittings

##### 120: two jackscrews

- Mating with 75 & 79 fittings

117 thru 120

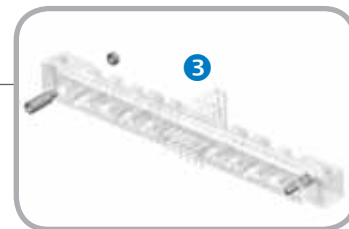
#### Important note

- All dimensions are in inch, except as otherwise specified.
- All the fittings are in passivated stainless except as otherwise specified.

## HILINX <sup>2.54</sup> >>> KEYING & GUIDING (3)

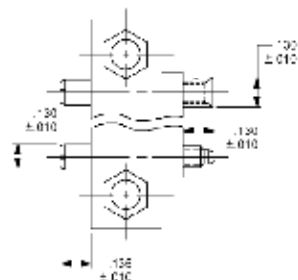
### LOCKING

#### Slotted turning jacksets



#### 3.43 [.135] Xtrashort slotted turning jackset

For right angle plug



##### 89: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/57, /59 & /138 PN: S

##### 90: reversed

- Mating with 74 & 78 fittings

##### 91: two jackscrews

- Mating with 76 & 80 fittings

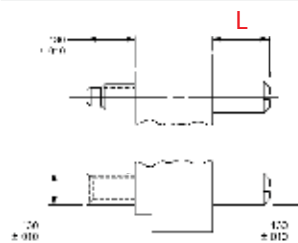
##### 92: two jacksockets

- Mating with 75 & 79 fittings

89 thru 92

#### Standard Slotted turning jackset

For straight plug and receptacle w/o crimp contacts



$L \pm 0.25 [\pm.010]$

93 thru 96 5.08 [.200]

81 thru 84 12.70 [.500]

85 thru 88 17.78 [.700]

##### 5.08 [.200]

##### Short slotted turning jackset

##### 93: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/58, /60, /62, /63 & /139 PN: S

##### 94: reversed

- Mating with 74 & 78 fittings

##### 95: two jackscrews

- Mating with 76 & 80 fittings

##### 96: two jacksockets

- Mating with 75 & 79 fittings

93 thru 96

##### 12.70 [.500]

##### Medium slotted turning jackset

##### 81: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/62 & /63 PN: M

##### 82: reversed

- Mating with 74 & 78 fittings

##### 83: two jackscrews

- Mating with 76 & 80 fittings

##### 84: two jacksockets

- Mating with 75 & 79 fittings

81 thru 84

##### 17.78 [.700]

##### Long slotted turning jackset

##### 85: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/62 & /63 PN: L

##### 86: reversed

- Mating with 74 & 78 fittings

##### 87: two jackscrews

- Mating with 76 & 80 fittings

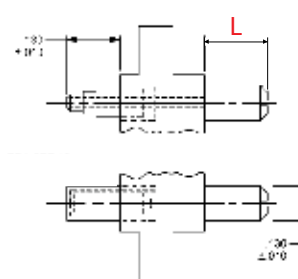
##### 88: two jacksockets

- Mating with 75 & 79 fittings

85 thru 88

#### Crimping version, slotted turning jackset

For crimping connector



$L \pm 0.25 [\pm.010]$

121 thru 124 5.08 [.200]

113 thru 116 12.70 [.500]

109 thru 112 17.78 [.700]

##### 5.08 [.200]

##### Short slotted turning jackset

##### 121: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/65 & /66 PN: S

##### 122: reversed

- Mating with 74 & 78 fittings

##### 123: two jackscrews

- Mating with 76 & 80 fittings

##### 124: two jacksockets

- Mating with 75 & 79 fittings

121 thru 124

##### 12.70 [.500]

##### Medium slotted turning jackset

##### 113: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/66 PN: M

##### 114: reversed

- Mating with 74 & 78 fittings

##### 115: two jackscrews

- Mating with 76 & 80 fittings

##### 116: two jacksockets

- Mating with 75 & 79 fittings

113 thru 116

##### 17.78 [.700]

##### Long slotted turning jackset

##### 109: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/66 PN: L

##### 110: reversed

- Mating with 74 & 78 fittings

##### 111: two jackscrews

- Mating with 76 & 80 fittings

##### 112: two jacksockets

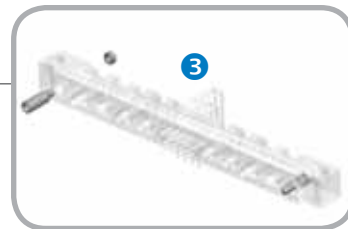
- Mating with 75 & 79 fittings

109 thru 112

#### Important note

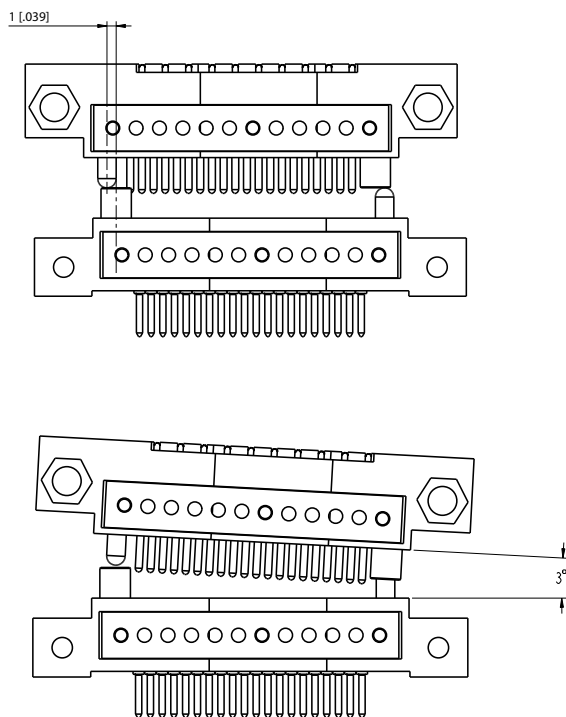
- All dimensions are in inch, except as otherwise specified.
- All the fittings are in passivated stainless except as otherwise specified.

## HILINX 2.54 >>> KEYING & GUIDING (3)

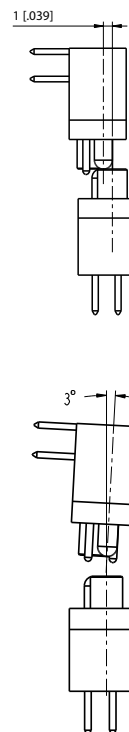


### REALIGNMENT CAPABILITY

#### In the longitudinal axis



#### In the lateral axis



### MATING SEQUENCE\*

Guiding		Signal contact	Mated connector
$6.6 \pm 0.1$ [.260 ± .004]	$5.6 \pm 0.1$ [.220 ± .004]	$1.3 \pm 0.1$ [.051 ± .004]	$1.3 \pm 0.1$ [.051 ± .004]

\* Except for crimp contacts. Backoff is 0.9 [.035] only for crimp contacts.

All dimensions are given for information only and are in mm [inch], except as otherwise specified

HILINX<sup>2.54</sup> >>> SIGNAL VERSION ONLY

MIL-DTL-55302

/57 to /66, /138 &amp; /139

## COMPATIBILITY WITH THE MIL DTL 55302 /57 TO /66, /138 &amp; /139

## Detailed sheets

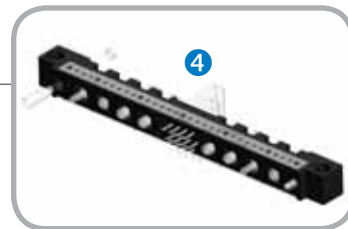
MIL-DTL-55302	Series	Number of contacts	Type of contacts	Hardware	Deviation	Comments
MIL-DTL-55302/57	HLX2 P 2	10, 20, 30, 40, 50, 60, 70 14, 24, 44, 54 26, 36, 56, 66	A = YCS B = YC C = YCL	X = 65 Y[-1 thru -64] = 01 thru 64 S = 89 H = 101	-000	X = full round guides Y = D-shaped S = .135 slotted turning jackset H = .135 hexagonal turning jackset
MIL-DTL-55302/59	HLX2 P 2	90, 100, 120	A = YCS B = YC C = YCL	X = 65 Y[-1 thru -64] = 01 thru 64 F = 73 S = 89 H = 101	-200	X = full round guides Y = D-shaped F = fixed jackset S = .135 slotted turning jackset H = .135 hexagonal turning jackset
MIL-DTL-55302/138	HLX2 P 3	160	A = YCS B = YC C = YCL	X = 65 Y[-1 thru -64] = 01 thru 64 F = 73 S = 89 H = 101	-200	X = full round guides Y = D-shaped F = fixed jackset S = .135 slotted turning jackset H = .135 hexagonal turning jackset
MIL-DTL-55302/61	HLX2 P 2	10, 20, 30, 40, 50, 60, 70 14, 24, 44, 54 26, 36, 56, 66	A = YCS B = YC C = YCL	Blank = 73	-000	Blank = fixed jackset
MIL-DTL-55302/58	HLX2 R 2	10, 20, 30, 40, 50, 60, 70 14, 24, 44, 54 26, 36, 56, 66	A = Z* B = YDS C = YD D = W* E = Y* F = YDL	X = 65 Y[-1 thru -64] = 01 thru 64 F = 73 S = 93 H = 105	-000	X = full round guides Y = D-shaped F = fixed jackset S = .200 slotted turning jackset H = .200 hexagonal turning jackset
MIL-DTL-55302/60	HLX2 R 2	90, 100, 120	A = Z* B = YDS C = YD D = W* E = Y* F = YDL	X = 65 Y[-1 thru -64] = 01 thru 64 F = 73 S = 93 H = 105	-200	X = full round guides Y = D-shaped F = fixed jackset S = .200 slotted turning jackset H = .200 hexagonal turning jackset
MIL-DTL-55302/139	HLX2 R 3	160	A = Z* B = YDS C = YDL D = W* E = YDL F = Y* H = YL*	X = 65 Y[-1 thru -64] = 01 thru 64 F = 73 S = 93 H = 105	-200	X = full round guides Y = D-shaped F = fixed jackset S = .200 slotted turning jackset H = .200 hexagonal turning jackset
MIL-DTL-55302/62 MIL-DTL-55302/62 L	HLX2 R 2	10, 20, 30, 40, 50, 60, 70 14, 24, 44, 54 26, 36, 56, 66	A = Z* B = YDS C = YD D = Y* E = YDL F = YL*	L = 85 M = 81 S = 93 H = 105	-100	L = .700 slotted turning jackset M = .500 slotted turning jackset S = .200 slotted turning jackset H = .200 hexagonal turning jackset <i>Without mounting ears</i>
MIL-DTL-55302/64 MIL-DTL-55302/64 L	HLX2 R 2	10, 20, 30, 40, 50, 60, 70 14, 24, 44, 54 26, 36, 56, 66	A = Z* B = YDS C = YD D = W* E = Y* F = YL*	F = 77 X = 69 Y[-1 thru -64] = 201 thru 264	-100	F = .247 fixed jackset X = .247 full round guides Y = .247 D-shaped <i>Without mounting ears</i>
MIL-DTL-55302/65 MIL-DTL-55302/65 L	HLX2 R 2	10, 20, 30, 40, 50, 60, 70 14, 24, 44, 54 26, 36, 56, 66	Blank = X	X = 65 Y[-1 thru -64] = 01 thru 64 F = 73 S = 121 H = 117	-000	X = full round guides Y = D-shaped F = fixed jackset S = .200 slotted turning jackset H = .200 hexagonal turning jackset
MIL-DTL-55302/66 MIL-DTL-55302/66 L	HLX2 R 2	10, 20, 30, 40, 50, 60, 70 14, 24, 44, 54 26, 36, 56, 66	Blank = X	L = 109 M = 113 F = 73 S = 121 H = 117	-100	L = .700 slotted turning jackset M = .500 slotted turning jackset F = fixed jackset S = .200 slotted turning jackset H = .200 hexagonal turning jackset <i>Without mounting ears</i>

\* Consult us

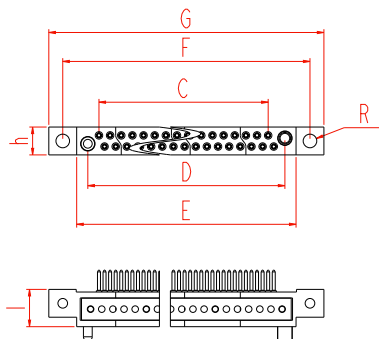
## HILINX 2.54 >>> SIGNAL CONTACT VERSION (4)

### TYPICAL ARRANGEMENTS 2 ROWS

n indicates the total number of signal contacts\*\*



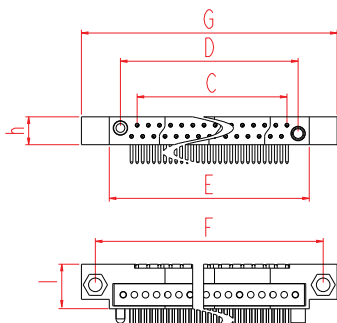
#### 2-row signal contact receptacles, from 10 to 70 contacts\*



n = 10, 14, 16, 20, 24, 26, 30, 34, 36, 40, 44,  
46, 50, 54, 56, 60, 64, 66, 70\*\*

<b>C</b>	n x 1.27 – 2.54
<b>D</b>	C + 6.35
<b>E</b>	D + 5.08
<b>F</b>	E + 6.35
<b>G</b>	F + 6.35
<b>h</b>	6.4 <sub>MAX</sub>
<b>I</b>	8.5 <sub>MAX</sub>
<b>R</b>	3.1

#### 2-row signal contact plugs, from 10 to 70 contacts\*



n = 10, 14, 20, 24, 26, 30, 34, 36, 40, 44,  
46, 50, 54, 56, 60, 64, 66, 70\*\*

<b>C</b>	n x 1.27 -2.54
<b>D</b>	C + 6.35
<b>E</b>	D + 5.08
<b>F</b>	E + 6.35
<b>G</b>	F + 6.35
<b>h</b>	6.4 <sub>MAX</sub>
<b>I</b>	10.2 <sub>MAX</sub>

\* in mm. 1mm = 0.03937 inch

\*\* Further arrangements up to 160 contacts, with or without central fitting, are available, consult us

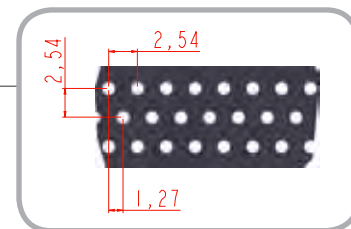
All dimensions are given for information only and are in mm [inch], except as otherwise specified



# HILINX <sup>2.54</sup> >>> SIGNAL CONTACT VERSION (4)

## LAYOUTS 2 ROWS

The boards are shown from the connector side  
All contact locations are equidistant.



2 ROWS

FROM 10 TO 70 CONTACTS\*\*

n

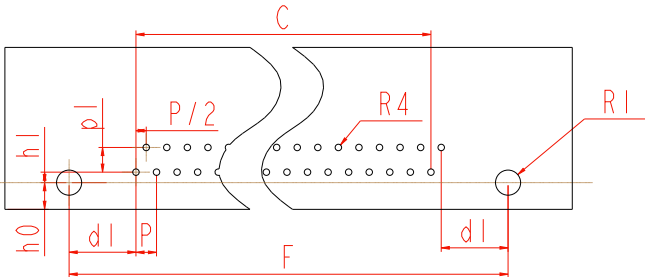
YD/YDS/YDL & YP CONTACT (female for receptacle)\*

n = 10, 14, 20, 24, 26, 30, 34, 36, 40, 44,  
46, 50, 54, 56, 60, 64, 66, 70\*\*

C	$n \times 1.27 - 2.54$
---	------------------------

D	$C + 6.35$
---	------------

F	$C + 17.78$
---	-------------

2 ROWS FROM 10 TO 70 CONTACTS**	n	YC/YCS/YCL CONTACT (male for plug)*			
					
		n = 10, 14, 20, 24, 26, 30, 34, 36, 40, 44, 46, 50, 54, 56, 60, 64, 66, 70**			
		<table><tr><td>C</td><td>n x 1.27 – 2.54</td></tr><tr><td>F</td><td>C + 17.78</td></tr></table>	C	n x 1.27 – 2.54	F
C	n x 1.27 – 2.54				
F	C + 17.78				

p	p/2	p/4	p1	R1	R2	R4	d1	h0	h1
2.54 [.100]	1.27 [.050]	0.635 [.025]	3.05 [.120]	To be defined by customer Hardware is not provided with connector	Not compulsory $3.75 \pm 0.1$ [.150 $\pm$ .004]	$\varnothing 0.8_{\text{MIN}}$ [.031] With metallization	8.255 [.325]	$5.3_{\text{MAX}}$ [.209]	1.27 [.050]

\*in mm. 1mm = 0.03937 inch

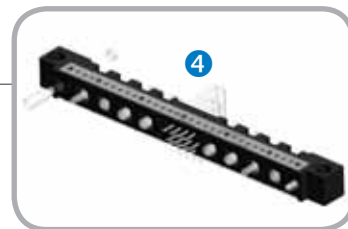
\*\* Further arrangements up to 160 contacts, with or without central fitting, are available, consult us

All dimensions are given for information only and are in mm [inch], except as otherwise specified

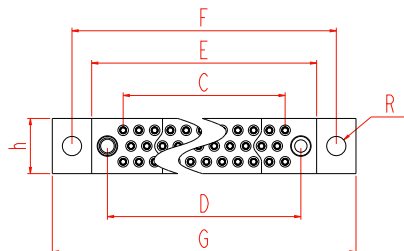
## HILINX 2.54 >>> SIGNAL CONTACT VERSION (4)

### TYPICAL ARRANGEMENTS 3 ROWS

n indicates the total number of signal contacts\*\*

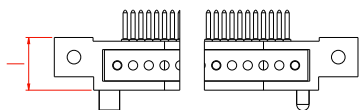


#### 3-row signal contact receptacles, from 50 to 170 contacts\*

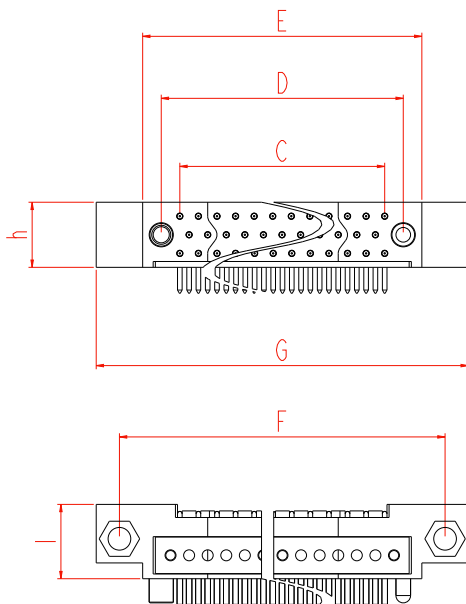


n = 14, 26, 32, 38, 44, 50, 56, 62, 68, 74, 80, 86, 92, 98, 104, 110, 122, 134, 140, 146, 158, 170\*\*

<b>C</b>	$(n - 2) \times 2.54 / 3$
<b>D</b>	$C + 5.08$
<b>E</b>	$D + 5.08$
<b>F</b>	$E + 6.35$
<b>G</b>	$F + 6.35$
<b>h</b>	8.95 <sub>MAX</sub>
<b>I</b>	8.5
<b>R</b>	3.1



#### 3-row signal contact plugs, from 50 to 170 contacts\*



n = 14, 26, 32, 38, 44, 50, 56, 62, 68, 74, 80, 86, 92, 98, 104, 110, 122, 134, 140, 146, 158, 170\*\*

<b>C</b>	$(n - 2) \times 2.54 / 3$
<b>D</b>	$C + 5.08$
<b>E</b>	$D + 5.08$
<b>F</b>	$E + 6.35$
<b>G</b>	$F + 6.35$
<b>h</b>	8.95 <sub>MAX</sub>
<b>I</b>	10.16

\*in mm. 1mm = 0.03937 inch

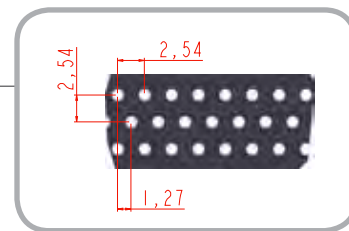
\*\* Further arrangements up to 188 contacts, with or without central fitting, are available, consult us

All dimensions are given for information only and are in mm [inch], except as otherwise specified

# HILINX <sup>2.54</sup> >>> SIGNAL CONTACT VERSION (4)

## LAYOUTS 3 ROWS

The boards are shown from the connector side  
All contact locations are equidistant.



3 ROWS FROM 50 TO 170 CONTACTS**	n	YD/YDS/YDL & YP CONTACT (female for receptacle or male for plug)*							
			n = 14, 26, 32, 38, 44, 50, 56, 62, 68, 74, 80, 86, 92, 98, 104, 110, 122, 134, 140, 146, 158, 170**						
			<table><tr><td>C</td><td>(n - 2) x 2.54 / 3</td></tr><tr><td>D</td><td>C + 5.08</td></tr><tr><td>F</td><td>C + 16.51</td></tr></table>	C	(n - 2) x 2.54 / 3	D	C + 5.08	F	C + 16.51
	C	(n - 2) x 2.54 / 3							
D	C + 5.08								
F	C + 16.51								

3 ROWS FROM 50 TO 170 CONTACTS**	n	YC/YCS/YCL CONTACT (male for plug)*			
		n = 14, 26, 32, 38, 44, 50, 56, 62, 68, 74, 80, 86, 92, 98, 104, 110, 122, 134, 140, 146, 158, 170**			
		<table><tr><td>C</td><td>(n - 2) x 2.54 / 3</td></tr><tr><td>F</td><td>C + 16.51</td></tr></table>	C	(n - 2) x 2.54 / 3	F
C	(n - 2) x 2.54 / 3				
F	C + 16.51				

p	p/2	p1	R1	R2	R4	d1	h0
2.54 [.100]	1.27 [.050]	3.175 [.125]	To be defined by customer Hardware is not provided with connector	Not compulsory $3.75 \pm 0.1$ [.150 $\pm$ .004]	$\varnothing 0.8$ MIN [.031] With metallization	8.255 [.325]	3.5 MIN [.138]

\* in mm: 1mm = 0.03937 inch

\*\* Further arrangements up to 188 contacts, with or without central fitting, are available, consult us

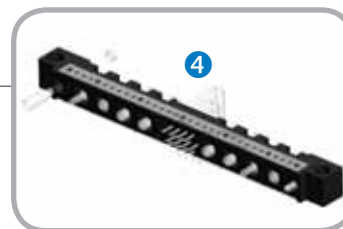
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HILINX 2.54 >>> HYBRID VERSION (4)

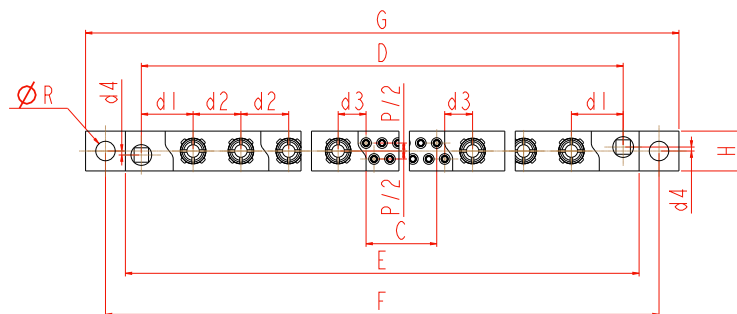
### DIMENSIONS 2 ROWS\*\*

s indicates the total number of special contacts.

n indicates the total number of signal contacts



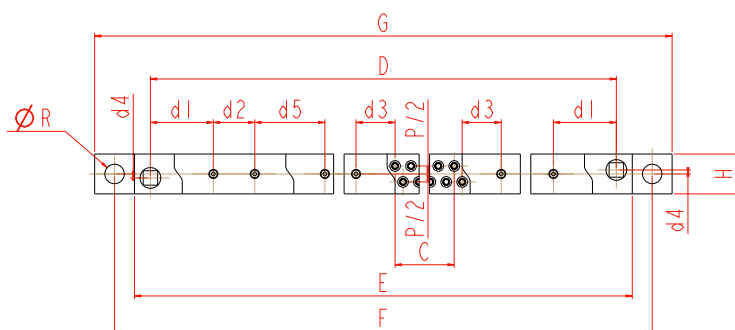
#### Power contacts 20A\*



s = 2, 4, 6...

C	$n \times 1.27 - 2.54$
D	$8.89 + s \times 7.62 + n \times 1.27$
E	$D + 5.08$
F	$E + 6.35$
G	$F + 6.35$
H	$6.4_{MAX}$
d1	$8.25 [ .325 ]$
d2	$7.62 [ .300 ]$
d3	$4.445 [ .175 ]$
d4	$0.635 [ .025 ]$
R	$3.1 + 0.1 [ .122 + .004 ]$
p/2	$1.27 [ .050 ]$

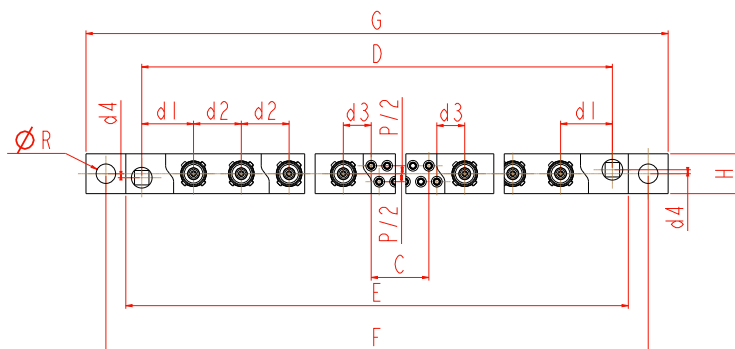
#### AMPHELUX™ contacts\*



s = 2, 4, 6...

C	$n \times 1.27 - 2.54$
D	$8.89 + s \times 8.89 + n \times 1.27$
E	$D + 5.08$
F	$E + 6.35$
G	$F + 6.35$
H	$6.4_{MAX}$
d1	$10.035 [ .395 ]$
d2	$6.6 [ .260 ]$
d3	$6.225 [ .245 ]$
d4	$0.635 [ .025 ]$
d5	$11.18 [ .440 ]$
R	$3.1 + 0.1 [ .122 + .004 ]$
p/2	$1.27 [ .050 ]$

#### Coaxial contacts\*



s = 2, 4, 6...

C	$n \times 1.27 - 2.54$
D	$8.89 + s \times 7.62 + n \times 1.27$
E	$D + 5.08$
F	$E + 6.35$
G	$F + 6.35$
H	$6.4_{MAX}$
d1	$8.25 [ .325 ]$
d2	$7.62 [ .300 ]$
d3	$4.445 [ .175 ]$
d4	$0.635 [ .025 ]$
R	$3.1 + 0.1 [ .122 + .004 ]$
p/2	$1.27 [ .050 ]$

#### RADSOK® contacts 70A\*

Please consult us

\* in mm: 1mm = 0.03937 inch

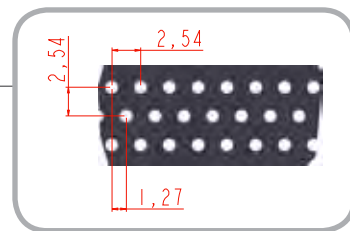
\*\* Hybrid modules will be preferably positioned on the connector sides

All dimensions are given for information only and are in mm [inch], except as otherwise specified

HILINX<sup>2.54</sup> >>> HYBRID VERSION (4)

## LAYOUTS 2 ROWS\*\*

The boards are shown from the connector side  
All contact locations are equidistant.



## With YD/YDS/YDL &amp; YP CONTACT (female for receptacle)\*

WITH POWER CONTACT 20A		<b>C</b>	$n \times 1.27 - 2.54$
		<b>D</b>	$8.89 + s \times 7.62 + n \times 1.27$
		<b>F</b>	$D + 11.43$
WITH AMPHELUX™ CONTACT		<b>C</b>	$n \times 1.27 - 2.54$
		<b>D</b>	$8.89 + s \times 8.89 + n \times 1.27$
		<b>F</b>	$D + 11.43$
WITH COAXIAL CONTACT		<b>C</b>	$n \times 1.27 - 2.54$
		<b>D</b>	$8.89 + s \times 7.62 + n \times 1.27$
		<b>F</b>	$D + 11.43$

YDS/YD/YDL & YP	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>	p/2	p
Power	8.25 [.325]	7.62 [.300]	4.445 [.175]	0.635 [.025]	Not compulsory 3.75 ± 0.1 [.150 ± .004]		1.5 <sub>MIN</sub> [.059]	Ø 0.8 <sub>MIN</sub> [.031] with metallization	1.27 [.050]	2.54 [.100]
Ampelux™	6.61 <sub>MAX</sub> [.260]		2.8 <sub>MAX</sub> [.110]							
Coaxial	8.25 [.325]	7.62 [.300]	4.445 [.175]							

## With YC/YCS/YCL CONTACT (male for plug)\*

WITH POWER CONTACT 20A		<b>C</b>	$n \times 1.27 - 2.54$
		<b>F</b>	$20.32 + s \times 7.62 + n \times 1.27$
WITH AMPHELUX™ CONTACT		<b>C</b>	$n \times 1.27 - 2.54$
		<b>F</b>	$20.32 + s \times 8.89 + n \times 1.27$
WITH COAXIAL CONTACT		<b>C</b>	$n \times 1.27 - 2.54$
		<b>D</b>	$8.89 + s \times 7.62 + n \times 1.27$
		<b>F</b>	$20.32 + s \times 7.62 + n \times 1.27$

YC/YCS/YCL	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	R <sub>1</sub>	R <sub>3</sub>	R <sub>4</sub>	p	p <sub>1</sub>	h <sub>1</sub>	h <sub>0</sub>	h <sub>2</sub>
Power	13.97 [.550]	7.62 [.300]	4.445 [.175]	See Nota below	1.5 <sub>MIN</sub> [.059]	Ø 0.8 <sub>MIN</sub> [.031] with metallization	2.54 [.100]	3.048 [.120]	1.2954 [.051]	3.5 <sub>MIN</sub> [.138]	5.8 [.228]
Ampelux™											
Coaxial	13.97 [.550]	7.62 [.300]	4.445 [.175]								3.39 [.133]

**Nota :** to be defined by the customer. Hardware is not provided with connector.

\* in mm: 1 mm = 0.03937 inch

\*\* Hybrid modules will be preferably positionned on the connector sides

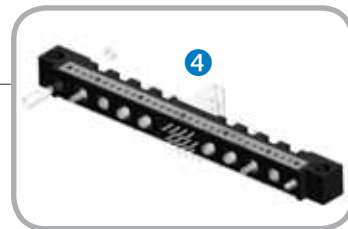
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HILINX 2.54 >>> HYBRID VERSION (4)

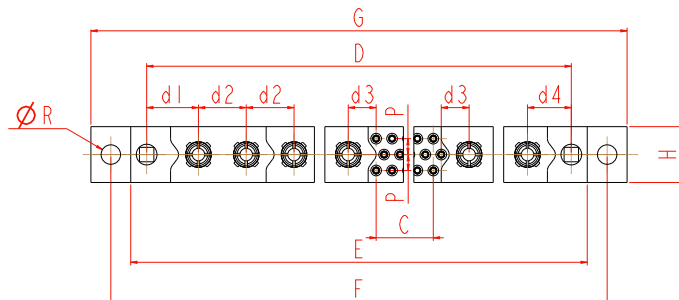
### DIMENSIONS 3 ROWS\*\*

s indicates the total number of special contacts.

n indicates the total number of signal contacts

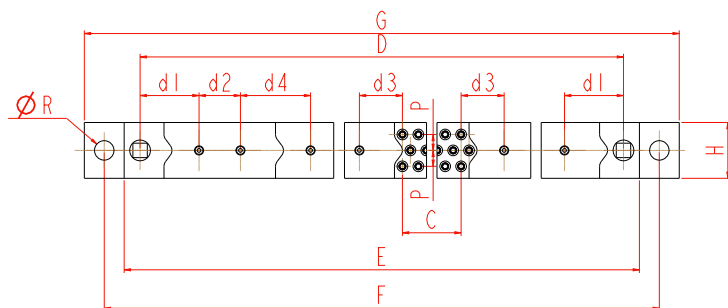


#### Power contacts 20A\*



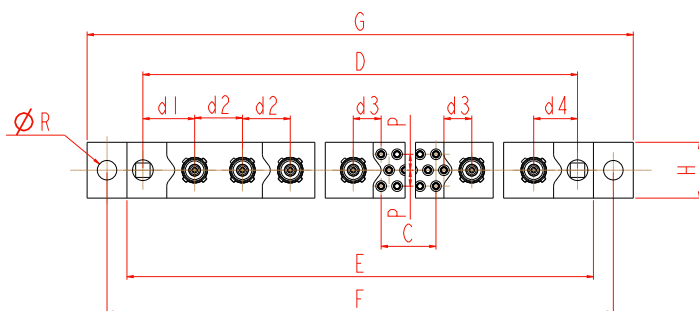
	$s = 2, 4, 6 \dots$
<b>C</b>	$(n - 2) \times 2.54 / 3$
<b>D</b>	$7.62 + s \times 7.62 + n \times 0.847$
<b>E</b>	$D + 5.08$
<b>F</b>	$E + 6.35$
<b>G</b>	$F + 6.35$
<b>H</b>	8.95 <small>MAX</small>
<b>d1</b>	8.255 [.325]
<b>d2</b>	7.62 [.300]
<b>d3</b>	4.445 [.175]
<b>d4</b>	6.985 [.275]
<b>R</b>	$3.1^{+0.1}_{-0.1}$ [.122 $\pm$ .004]
<b>p</b>	2.54 [.100]

#### AMPHELUX™ contacts\*



	$s = 2, 4, 6 \dots$
<b>C</b>	$(n - 2) \times 2.54 / 3$
<b>D</b>	$7.62 + s \times 8.89 + n \times 0.847$
<b>E</b>	$D + 5.08$
<b>F</b>	$E + 6.35$
<b>G</b>	$F + 6.35$
<b>H</b>	8.95 <small>MAX</small>
<b>d1</b>	9.4 [.370]
<b>d2</b>	6.6 [.260]
<b>d3</b>	6.86 [.270]
<b>d4</b>	11.18 [.440]
<b>R</b>	$3.1^{+0.1}_{-0.1}$ [.122 $\pm$ .004]
<b>p</b>	2.54 [.100]

#### Coaxial contacts\*



	$s = 2, 4, 6 \dots$
<b>C</b>	$(n - 2) \times 2.54 / 3$
<b>D</b>	$7.62 + s \times 7.62 + n \times 0.847$
<b>E</b>	$D + 5.08$
<b>F</b>	$E + 6.35$
<b>G</b>	$F + 6.35$
<b>H</b>	8.95 <small>MAX</small>
<b>d1</b>	8.255 [.325]
<b>d2</b>	7.62 [.300]
<b>d3</b>	4.445 [.175]
<b>d4</b>	6.985 [.275]
<b>R</b>	$3.1^{+0.1}_{-0.1}$ [.122 $\pm$ .004]
<b>p</b>	2.54 [.100]

#### RADSOK® contacts 70A\*

Please consult us

\* in mm: 1mm = 0.03937 inch

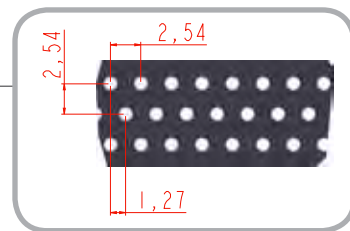
\*\* Hybrid modules will be preferably positionned on the connector sides

All dimensions are given for information only and are in mm [inch], except as otherwise specified

# HILINX<sup>2.54</sup> >>> HYBRID VERSION (4)

## LAYOUTS 3 ROWS\*\*

The boards are shown from the connector side  
All contact locations are equidistant.



### With YD/YDS/YDL & YP CONTACT (female for receptacle)\*

WITH POWER CONTACT 20A		<b>C</b>	$(n - 2) \times 2.54 / 3$
		<b>D</b>	$7.62 + s \times 7.62 + n \times 0.847$
		<b>F</b>	$D + 11.43$
WITH AMPHELUX™ CONTACT		<b>C</b>	$(n - 2) \times 2.54 / 3$
		<b>D</b>	$7.62 + s \times 8.89 + n \times 0.847$
		<b>F</b>	$D + 11.43$
WITH COAXIAL CONTACT		<b>C</b>	$(n - 2) \times 2.54 / 3$
		<b>D</b>	$7.62 + s \times 7.62 + n \times 0.847$
		<b>F</b>	$D + 11.43$

YDS/YD/YDL & YP	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>	p/2	p
Power	8.255 [.325]	7.62 [.300]	4.445 [.175]	6.985 [.275]	Not compulsory 3.75 ± 0.1 [.150 ± .004]	1.5 <sub>MIN</sub> [.059]	Ø 0.8 <sub>MIN</sub> [.031] with metallization	1.27 [.050]	2.54 [.100]	
AmpheLux™	5.55 <sub>MAX</sub> [.219]		3.0 <sub>MAX</sub> [.118]							
Coaxial	8.255 [.325]	7.62 [.300]	4.445 [.175]	6.985 [.275]						

### With YC/YCS/YCL CONTACT (male for plug)\*

WITH POWER CONTACT 20A		<b>C</b>	$(n - 2) \times 2.54 / 3$
		<b>F</b>	$19.05 + s \times 7.62 + n \times 1.27$
WITH AMPHELUX™ CONTACT		<b>C</b>	$(n - 2) \times 2.54 / 3$
		<b>F</b>	$19.05 + s \times 8.89 + n \times 1.27$
WITH COAXIAL CONTACT		<b>C</b>	$(n - 2) \times 2.54 / 3$
		<b>F</b>	$19.05 + s \times 7.62 + n \times 1.27$

YC/YCS/YCL	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	R <sub>1</sub>	R <sub>3</sub>	R <sub>4</sub>	p	p <sub>1</sub>	h <sub>1</sub>	h <sub>0</sub>
Power	13.97 [.550]	7.62 [.300]	4.445 [.175]	12.7 [.500]	See Nota below	1.5 <sub>MIN</sub> [.059]	Ø 0.8 <sub>MIN</sub> [.031] with metallization	2.54 [.100]	3.048 [.120]	5.545 [.218]	5.3 <sub>MIN</sub> [.209]
AmpheLux™											
Coaxial	13.97 [.550]	7.62 [.300]	4.445 [.175]	12.7 [.500]						3.135 [.123]	

**Nota** : to be defined by the customer. Hardware is not provided with connector.

\* in mm: 1mm = 0.03937 inch

\*\* Hybrid modules will be preferably positionned on the connector sides

All dimensions are given for information only and are in mm [inch], except as otherwise specified



# HILINX 1.905 >>> GENERAL SPECIFICATIONS

**HIGH DENSITY**


- A unique connector, both hybrid and modular
- Cost effective, easy to install, highly reliable
- More current through each contact
- Greater performance and optimal protection in harsh environments
- Compatible with signal connectors on the market (MIL-DTL-55302/190 to /193)
- 1.905[.075] staggered grid (0.9525[.0375] offset), 1.905[.075] between rows

## Main characteristics

- High density: 0.16 cts / mm<sup>2</sup> [103 cts / inch<sup>2</sup>]
- From 2 to 3 rows, 10 to 206 signal contacts
- 3A per signal contact (up to 5A current rating available upon request)
- Press-fit solderless attachment technology available
- Some signal contact versions are 100% compatible with the M55302 /190 to /193.

## Markets



## Main applications



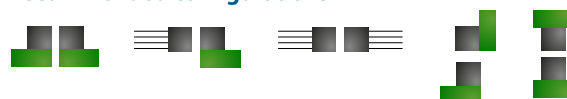
## Terminations



## Special contacts



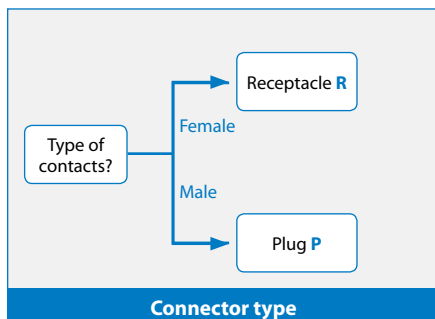
## Recommended configurations



## Standard

**MIL-DTL-55302**  
/190 to /193

## How to order



2
3
<b>Number of rows</b>

Female	Male	Description
<i>Consult us</i>	<b>YCS</b>	Right angle PC tail short 2.8 [.110]
	<b>YC</b>	Right angle PC tail standard 3.5 [.140]
	<b>YCL</b>	Right angle PC tail long 4.4 [.172]
<b>YDS</b>	<b>YDS</b>	Straight PC tail short 2.8 [.110]
<b>YD</b>	<b>YD</b>	Straight PC tail standard 3.5 [.140]
<b>YDL</b>	<b>YDL</b>	Straight PC tail long 4.4 [.172]
<b>YP</b>	/	Press fit
<b>Z</b>	<b>Z</b>	Solder Cup
<i>Consult us</i>		SMT
		Solder tail for flexible circuit
<b>Signal modules contact termination type (see pages 34 to 37)</b>		



## Number of Signal contacts (see pages 46 to 49)

Signal version			Hybrid version
2 rows	010	060	N/A
	020	070	
	030	080	
	040	090	
	050	100	
3 rows	000	092	To be defined. Divided by 9 or 12
	011	104	
	023	122	
	035	140	
	047	152	
	059	182	
	071	206	
	080		

## Special module \* (see page 38)

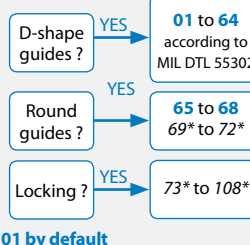
	Male	Female
POWER 20A**	<b>PM1</b>	<b>PF1</b>
RADSOK 70A***	<b>PM2</b>	<b>PF2</b>
COAXIAL**	<b>CM1</b>	<b>CF1</b>
AMPHELUX™ **	<b>AXM</b>	<b>AXF</b>

\*\* 2 contacts or cavities per module  
\*\*\* 1 cavity per module

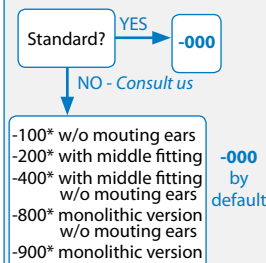
Number of special module (X) + type of the module (XXX)  
X XXX (blank = signal contacts only)  
Ex: 2PM1 3CM1  
2 male power modules and 3 male coaxial modules

## Keying, guiding, locking

(see pages 40 to 44)



## Deviation



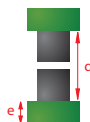
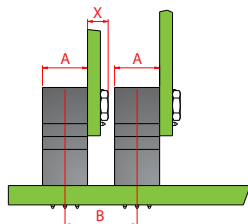
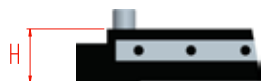
## Important note

- RADSOK®, coaxial and Amphelux™ contacts have to be ordered separately
- \* Special modules are available for 3-row connectors only

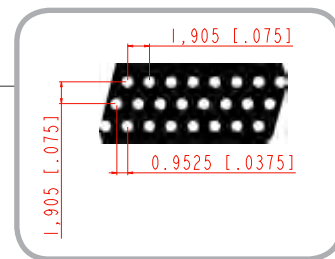
All dimensions are given for information only and are in mm [inch], except as otherwise specified

# HILINX 1.905 >>> TECHNICAL SPECIFICATIONS

## Dimensional characteristics



$H = 7.62_{MAX} [0.300]$   
 $A = 5.12_{MAX} [0.202]$  for 2-row connectors  
 $A = 7_{MAX} [0.276]$  for 3-row connectors  
 $B = 5.72 + X [0.225 + X]$  for 2-row connectors  
 $B = 7.6 + X [0.300 + X]$  for 3-row connectors  
 $X = \text{Board thickness} + \text{hardware thickness}$   
 $d = 15.24_{MAX} [0.600]$   
 $e = 1.8 [0.071]$  to  $3.4 [0.134]$  or  $2.5_{MIN} [0.098]$  (for YP contacts)



## Female contact



### Starclip female technology: 6 times for better reliability

- 6 contact times instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors

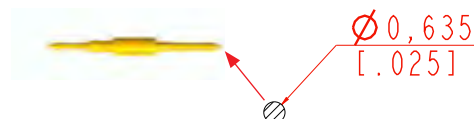
### Material

- Hood: machined brass alloy
- Starclip: CuBe[BeCu], stamped and formed

### Plating

- Hood: tin lead or lead free
- Starclip: gold over nickel

## Male contact



- **Mating end diameter:** Ø 0.635 [0.025]
- **Contact section** (mating side): 0.32 mm<sup>2</sup> [0.0005 in<sup>2</sup>]
- **Material:** machined brass alloy
- **Plating:** gold over nickel

## Materials

- **Guiding devices:** electroless nickel plating over brass CuZn or passivated stainless steel 303
- **Rails:** passivated stainless steel 316L
- **Plastic insert:** thermoplastic LCP, 30% glass-fiber filled

MECHANICAL CHARACTERISTICS		MIL-DTL-55302 sections
Backoff <sup>1</sup> (mm)	0.8 <sub>MAX</sub> [0.031]	N/A
Mating force per contact (N)	0.85 <sub>MAX</sub>	§ 4.5.3
Unmating force per contact (N)	0.35 < F < 0.85	§ 4.5.3
Durability cycles	500	§ 4.5.9
Sinusoidal vibrations (10 to 2000 Hz) micro discontinuity 2ns	15 g	§ 4.5.10
Random vibrations (5 to 2000 Hz) micro discontinuity 2ns	0.5 g <sup>2</sup> / Hz	§ 4.5.10
Shocks 6ms ½ sinus 2ns	100 g	§ 4.5.10
ENVIRONMENTAL CHARACTERISTICS		
Thermal shocks (°C)	-65 / +150	§ 4.5.13
Salt Spray (hours)	96	§ 4.5.11
<b>Humidity</b>		
Days	10	§ 4.5.15
Temperature (°C)	25/65	
Humidity rate (%)	90-95	
ELECTRICAL CHARACTERISTICS		
Current rating per contacts (A)	3*	§ 4.5.5
Insulation resistance (at 500Vdc) (GΩ)	5 <sub>MIN</sub>	§ 4.5.8
Contact resistance (mΩ)	10 <sub>MAX</sub>	§ 4.5.12
Dielectric Withstanding Voltage (Vrms)	750 <sub>MIN</sub>	§ 4.5.7.1

<sup>1</sup>: When both connectors are fully mated, the backoff is the maximum distance the connectors can be unmated while functioning properly

\* Other, please consult us

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HILINX 1.905 >>> SIGNAL CONTACTS (1)

### FEMALE CONTACTS FOR RECEPTACLES



#### Starclip female technology



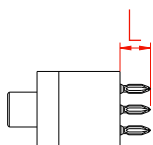
- 6 contact tines instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors



- Size 23: high average current
- Clip for male contact  $\varnothing$  0.635 [.025]
- **Plating** on active part (clip)

Cu	Ni	Au
1 [.039]	3.5 [.138]	<b>1.3 [.051]</b>

#### Press-fit



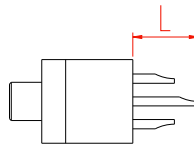
- Solderless assembly
- Mother board or mezzanine connection
- PCB thickness: 2.5 <sub>MIN</sub> [.098]
- Insertion forces: 65 N typical



Termination style

**YP**

#### Solder cup\*



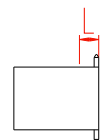
- Hard soldering on wire
- Mother board for cable to board connection
- Solder cup for 24 to 28 AWG wire



Consult us

**Z**

#### SMT\*



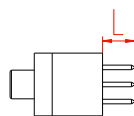
- SMT soldering
- PCB thickness: specific, *consult us*



Consult us

**T**

#### Soldering on flex\*



- Hard soldering on flexible circuit
- PCB thickness: specific, *consult us*



Consult us

**Y**

	YP	Z*	T*	Y*
L <sub>MAX</sub>	2.8 ± 0.2 [.110 ± .008]	5.5 ± 0.2 [.217 ± .008]	1.85 [.073]	2.4 ± 0.2 [.094 ± .008]
Termination section	Ø 0.82 [.032]	Ø 0.75 <sub>MAX</sub> [.030]	Ø 0.51 <sub>MAX</sub> [.020]	
Barrel standard termination plating µm [µin]	2 [.079] Ni electrolytic + 15.2 [.598] Ni electroless + 10 [.394] Sn Pb	3 [.118] Ni + 10 [.394] Sn Pb		
Barrel RoHS termination plating* µm [µin]	N/A	2.5 [.089] Ni + 5 [.197] bright pure Sn		

\* Consult us

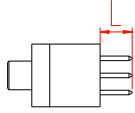
All dimensions are given for information only and are in mm [inch], except as otherwise specified

# HILINX <sup>1.905</sup> >>> SIGNAL CONTACTS (1)

## FEMALE CONTACTS FOR RECEPTACLES



### Short straight PC tail



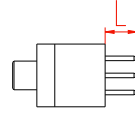
- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 1.8<sub>MAX</sub> [.071]



Termination style

YDS

### Standard straight PC tail



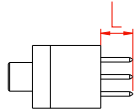
- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 2.5<sub>MAX</sub> [.098]



Termination style

YD

### Long straight PC tail



- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 3.5<sub>MAX</sub> [.138]



Termination style

YDL

### Short right angle PC tail\*



- Thru hole soldering
- Extender card
- PCB thickness: *consult us*

*Consult us*

YCS

### Standard right angle PC tail\*



- Thru hole soldering
- Extender card
- PCB thickness: *consult us*

*Consult us*

YC

### Long right angle PC tail\*



- Thru hole soldering
- Extender card
- PCB thickness: *consult us*

*Consult us*

YCL

	YDS	YD	YDL	YCS*	YC*	YCL*
L <sub>MAX</sub>	2.8 ± 0.2 [.110 ± .008]	3.5 ± 0.2 [.140 ± .008]	4.4 ± 0.2 [.172 ± .008]	Consult us		
Termination section	Ø 0.51 <sub>MAX</sub> [.020]					
Barrel standard termination plating μm [μin]	3 [.118] Ni + 10 [.394] Sn Pb					
Barrel RoHS termination plating* μm [μin]	2.5 [.089] Ni + 6 [.197] bright pure Sn					

\* Consult us

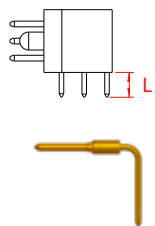
All dimensions are given for information only and are in mm [inch], except as otherwise specified

# HILINX 1.905 >>> SIGNAL CONTACTS (1)

## MALE CONTACTS FOR PLUGS



### Short right angle PC tail

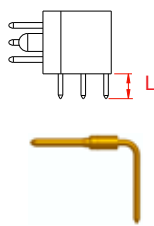


- Thru hole soldering
- Daughter board or extender card
- PCB thickness: 1.8<sub>MAX</sub> [.071]

Termination style

YCS

### Standard right angle PC tail

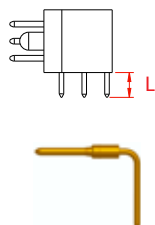


- Thru hole soldering
- Daughter board or extender card
- PCB thickness: 2.5<sub>MAX</sub> [.098]

Termination style

YC

### Long right angle PC tail

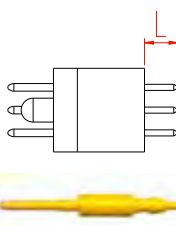


- Thru hole soldering
- Daughter board or extender card
- PCB thickness: 3.5<sub>MAX</sub> [.138]

Termination style

YCL

### Soldering on flex\*



- Hard soldering on flexible circuit
- SMT connection
- PCB thickness: *consult us*

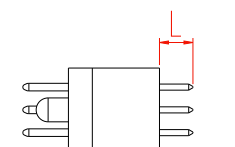
*Consult us*

Y

	YCS	YC	YCL	Y*
<b>L<sub>MAX</sub></b>	2.8 ± 0.2 [.110 ± .008]	3.5 ± 0.2 [.140 ± .008]	4.4 ± 0.2 [.172 ± .008]	2.4 ± 0.2 [.094 ± .008]
<b>Termination section</b>	Ø 0.51 <sub>MAX</sub> [.020]			
<b>Mating end diameter</b>	Ø 0.635 ± 0.02 [.025 ± .001]			
<b>Plating μm [μin]</b>	1 [.039] Cu + 3.5 [.138] Ni + <b>1.3 [.051] Au</b>			

\* Consult us

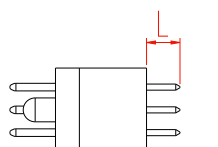
All dimensions are given for information only and are in mm [inch], except as otherwise specified

**HILINX<sup>1.905</sup> >>> SIGNAL CONTACTS (1)****MALE CONTACTS FOR PLUGS****Short straight PC tail\***

- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 1.8<sub>MAX</sub> [.071]



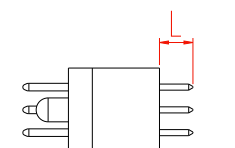
Consult us

**YDS****Standard straight PC tail\***

- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 2.5<sub>MAX</sub> [.098]



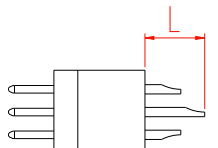
Consult us

**YD****Long straight PC tail\***

- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 3.5<sub>MAX</sub> [.138]



Consult us

**YDL****Solder cup\***

- Hard soldering on wire
- Daughter board for cable to board connection
- Solder cup for 24 to 28 AWG wire



Consult us

**Z**

	YDS*	YD*	YDL*	Z*
<b>L<sub>MAX</sub></b>	2.8 ± 0.2 [.110 ± .008]	3.5 ± 0.2 [.140 ± .008]	4.4 ± 0.2 [.173 ± .008]	5 <sub>MAX</sub> ± 0.2 [.197 ± .008]
<b>Termination section</b>	Ø 0.51 <sub>MAX</sub> [.020]			Ø 0.8 <sub>MAX</sub> [.032]
<b>Mating end diameter</b>	Ø 0.635 ± 0.02 [.025 ± .001]			
<b>Plating μm [μin]</b>	1 [.039] Cu + 3.5 [.138] Ni + <b>1.3 [.051] Au</b>			

\* Consult us

All dimensions are given for information only and are in mm [inch], except as otherwise specified

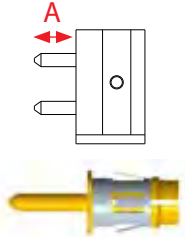
## HILINX<sup>1.905</sup> >>> SPECIAL CONTACTS (2)

### HYBRID MODULES FOR 3-ROW CONNECTORS\*



#### POWER contacts

##### Straight female power module

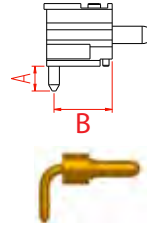


- Thru hole soldering
- Mother board
- 2 straight female contacts
- 20A / contact
- PCB thickness: 1.8 [.071] to 3.4 [.134]
- Termination section  $\varnothing 1.4_{MAX}$  [.055]

Module designation

PF1

##### Right angle male power module



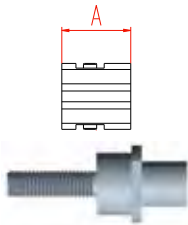
- Thru hole soldering
- Daughter board
- 2 right angle male contacts
- 20A / contact
- PCB thickness: 1.8 [.071] to 3.4 [.134]
- Termination section:  $\varnothing 1.2_{MAX}$  [.047]

Module designation

PM1

#### RADSOK® contacts

##### Female cavity module for RADSOK® contact

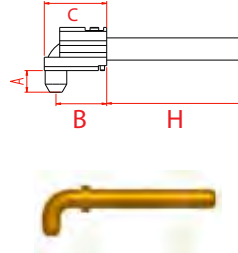


- 1 cavity for male RADSOK® contact
- Mother board
- 70A / contact
- Termination section: the body shape, the section and the length of the termination are specific to your need: *consult us*

Module designation

PF2

##### Right angle male RADSOK® contact



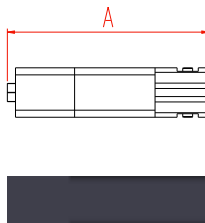
- Fixing with retainer
- Daughter board
- 1 male RADSOK® contact
- 70A / contact
- H: the body shape, the section and the length of the termination are specific to your need: *consult us*

Module designation

PM2

#### AMPHELUX™ ARINC 801 termini

##### Female amphenlux™ module

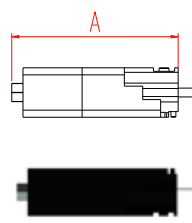


- 2 amphenlux™ termini
- Multimode
- Modules are supplied less contacts, *consult us*
- Complied with the ARINC 801 specification
- Keyed to provide anti-rotation

Module designation

AXF

##### Male amphenlux™ module



- 2 amphenlux™ termini
- Multimode
- Modules are supplied less contacts, *consult us*
- Complied with the ARINC 801 specification
- Keyed to provide anti-rotation

Module designation

AXM

	PF1	PF2	PM1	PM2	AXF	AXM
A	4.1 ± 0.2 [.161 ± .008]	7.62 <sub>MAX</sub> [.300]	2.8 ± 0.2 [.110 ± .008] 3.5 ± 0.2 [.140 ± .008] 4.4 ± 0.2 [.172 ± .008]		28.5 ± 0.2 [1.122 ± .008]	23.6 ± 0.2 [.929 ± .008]
B			6.5 [.256]	8.23 [.324]		
C				10.1 <sub>MAX</sub> [.398]		



## HILINX<sup>1.905</sup> >>> SPECIAL CONTACTS (2)

### HYBRID MODULES FOR 3-ROW CONNECTORS\*



#### COAXIAL contacts

##### Straight female coaxial module



- Thru hole soldering
- Mother board or mezzanine connection
- 2 cavities for straight coaxial female contacts
- For more information, *consult us*
- Modules are supplied less contacts

Module designation **CF1 F041**

##### Straight male coaxial module



- Thru hole soldering
- Mezzanine connection
- 2 cavities for straight coaxial male contacts
- For more information, *consult us*
- Modules are supplied less contacts

Module designation **CF1 M041**

##### Right angle female coaxial module



- Thru hole soldering
- Extended card
- 2 cavities for right angle coaxial female contacts
- For more information, *consult us*
- Modules are supplied less contacts

Module designation **CM1 F032**

##### Right angle male coaxial module



- Thru hole soldering
- Daughter board or extended card
- 2 cavities for right angle coaxial male contacts
- For more information, *consult us*
- Modules are supplied less contacts

Module designation **CM1 M032**

	TECHNICAL CHARACTERISTICS
<b>Impedance</b> (Ω)	50
<b>Voltage rating</b> (V <sub>RMS</sub> )	180
<b>Current rating</b> (mA)	500
<b>Contact retention</b> (N)	50 <sub>MIN</sub>
<b>Frequency range</b> (GHz)	0 to 1
<b>Contact resistance</b> (mΩ)	12 <sub>MAX</sub>
<b>SWR</b> (at 1 GHz)	1.3
<b>Insertion and extraction force per contact</b> (N)	1 ≤ F ≤ 15

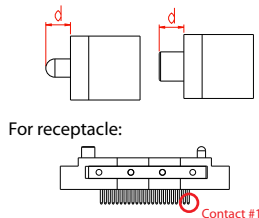
\* Hybrid modules will be preferably positioned on the connector sides

## HILINX 1.905 >>> KEYING & GUIDING (3)



### FULL ROUND GUIDES

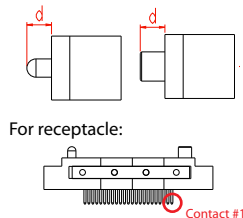
#### Standard



- 1 female socket and 1 male pin
- Non keying
- Nickel over brass
- Mating with 65 or 69 keying
- MIL-DTL-55302 PN: X

65

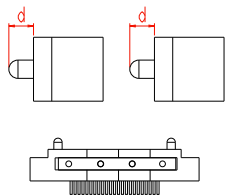
#### Reversed



- 1 male pin and 1 female socket
- Non keying
- Nickel over brass
- Mating with 66 or 70 keying

66

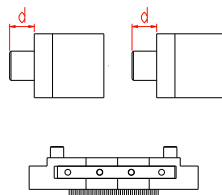
#### Two male guide pins



- 2 male guide pins
- Non keying
- Nickel over brass
- Mating with 68 or 72 keying

67

#### Two female guide sockets



- 2 female guide sockets
- Non keying
- Nickel over brass
- Mating with 67 or 71 keying

68

### LONG FULL ROUND GUIDES

#### Long

- 1 female socket and 1 male pin
- Non keying
- Nickel over brass
- Mating with 69 or 65 keying

69

#### Long reversed

- 1 male pin and 1 female socket
- Non keying
- Nickel over brass
- Mating with 70 or 66 keying

70

#### Long, two male guide pins

- 2 male guide pins
- Non keying
- Nickel over brass
- Mating with 72 or 68 keying

71

#### Long, two female guide sockets

- 2 female guide sockets
- Non keying
- Nickel over brass
- Mating with 71 or 67 keying

72

Non keying male pin guide

Non keying female socket guide

Keying male pin guide

Keying female socket guide

d

2.7 ± 0.2 [.106 ± .008]

#### Important note

All dimensions are in inch, except as otherwise specified.

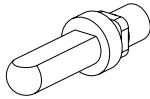
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HILINX 1.905 &gt;&gt;&gt; KEYING &amp; GUIDING (3)



## D SHAPED GUIDES

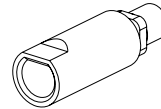
## D shaped male guide pin



- 4 keying possibilities
- Realignment capability: 1 [.039]
- Nickel over brass
- MIL-DTL-55302 PN: Y[-01 thru -64]

01 thru 64

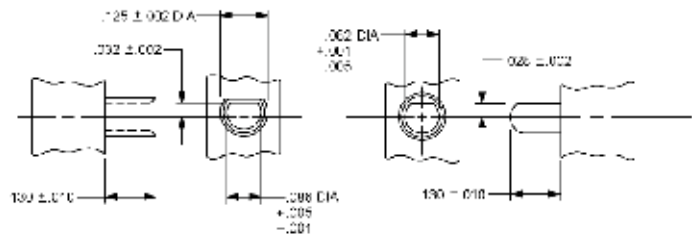
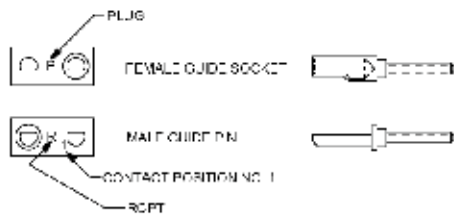
## D shaped female guide socket



- 4 keying possibilities
- Realignment capability: 1 [.039]
- Nickel over brass
- MIL-DTL-55302 PN: Y[-01 thru -64]

01 thru 64

## CONNECTOR POLARIZATION WITH 'D' SHAPED GUIDE PINS AND SOCKETS



-1	-9	-17	-25	-33	-41	-49	-57
-2	-10	-18	-26	-34	-42	-50	-58
-3	-11	-19	-27	-35	-43	-51	-59
-4	-12	-20	-28	-36	-44	-52	-60
-5	-13	-21	-29	-37	-45	-53	-61
-6	-14	-22	-30	-38	-46	-54	-62
-7	-15	-23	-31	-39	-47	-55	-63
-8	-16	-24	-32	-40	-48	-56	-64

## Important note

All dimensions are in inch, except as otherwise specified.

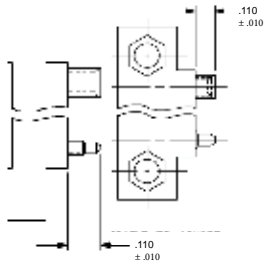
# HILINX 1.905 >>> KEYING & GUIDING (3)

## LOCKING



### Fixed jacksets

#### Standard fixed jackset



##### 73: standard

- Mating with 81, 85, 89, 93, 97, 101 & 105 fittings
- MIL-DTL-55302/190, /191, /192 & /193 PN: F

##### 74: reversed

- Mating with 82, 86, 90, 94, 98, 102 & 106 fittings

##### 75: two jackscrews

- Mating with 84, 88, 92, 96, 100, 104 & 108 fittings

##### 76: two jacksockets

- Mating with 83, 87, 91, 95, 99, 103 & 107 fittings

73 thru 76

#### Long fixed jackset

For receptacle and straight plug, w/o mounting ears

##### 77: standard

- Mating with 81, 85, 89, 93, 97, 101 & 105 fittings

##### 78: reversed

- Mating with 82, 86, 90, 94, 98, 102 & 106 fittings

##### 79: two jackscrews

- Mating with 84, 88, 92, 96, 100, 104 & 108 fittings

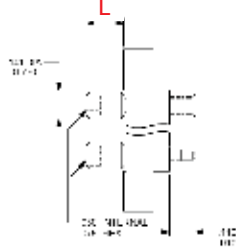
##### 80: two jacksockets

- Mating with 83, 87, 91, 95, 99, 103 & 107 fittings

77 thru 80

### Hexagonal turning jacksets

#### For receptacle



#### 5.08 [.200] short hexagonal turning jackset

##### 105: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/190, /191, /192 & /193 PN: S

##### 106: reversed

- Mating with 74 & 78 fittings

##### 107: two jackscrews

- Mating with 76 & 80 fittings

##### 108: two jacksockets

- Mating with 75 & 79 fittings

#### 12.45 [.490] medium hexagonal turning jackset

##### 93: standard

- Mating with 73 & 77 fittings

##### 94: reversed

- Mating with 74 & 78 fittings

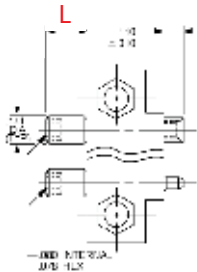
##### 95: two jackscrews

- Mating with 76 & 80 fittings

##### 96: two jacksockets

- Mating with 75 & 79 fittings

#### For plug



105 thru 108

93 thru 96

#### 13.84 [.545] hexagonal turning jackset

##### 97: standard

- Mating with 73 & 77 fittings
- MIL-DTL-55302/190, /191, /192 & /193 PN: N

##### 98: reversed

- Mating with 74 & 78 fittings

##### 99: two jackscrews

- Mating with 76 & 80 fittings

##### 100: two jacksockets

- Mating with 75 & 79 fittings

#### 17.78 [.700] hexagonal turning jackset

##### 101: standard

- Mating with 73 & 77 fittings

##### 102: reversed

- Mating with 74 & 78 fittings

##### 103: two jackscrews

- Mating with 76 & 80 fittings

##### 104: two jacksockets

- Mating with 75 & 79 fittings

97 thru 100

101 thru 104

#### Important note

- All dimensions are in inch, except as otherwise specified.
- All the fittings are in passivated stainless except as otherwise specified.

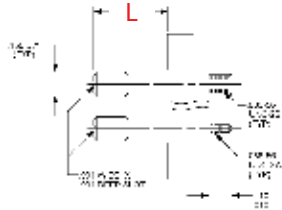
HILINX<sup>1.905</sup> >>> KEYING & GUIDING (3)

## LOCKING



## Slotted turning jacksets

For receptacle



## 12.45 [.490] short slotted turning jackset

**85: standard**

- Mating with 73 & 77 fittings
- MIL-DTL-55302/190, /191, /192 & /193 PN: M

**86: reversed**

- Mating with 74 & 78 fittings

**87: two jackscrews**

- Mating with 76 & 80 fittings

**88: two jackscrews**

- Mating with 75 & 79 fittings

## 13.84 [.545] medium slotted turning jackset

**89: standard**

- Mating with 73 & 77 fittings

**90: reversed**

- Mating with 74 & 78 fittings

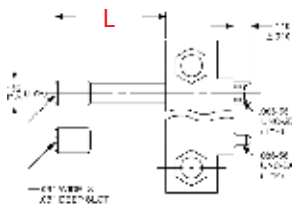
**91: two jackscrews**

- Mating with 76 & 80 fittings

**92: two jackscrews**

- Mating with 75 & 79 fittings

For plug



85 thru 88

89 thru 92

## 17.78 [.700] slotted turning jackset

**81: standard**

- Mating with 73 & 77 fittings
- MIL-DTL-55302/190, /191, /192, & /193 PN: L

**82: reversed**

- Mating with 74 & 78 fittings

**83: two jackscrews**

- Mating with 76 & 80 fittings

**84: two jackscrews**

- Mating with 75 & 79 fittings

**L +0.5 -0.36**  
**[+.020 -.014]**

85 thru 88	12.45 [.490]
89 thru 92	13.84 [.545]
81 thru 84	17.78 [.700]

81 thru 84

## Important note

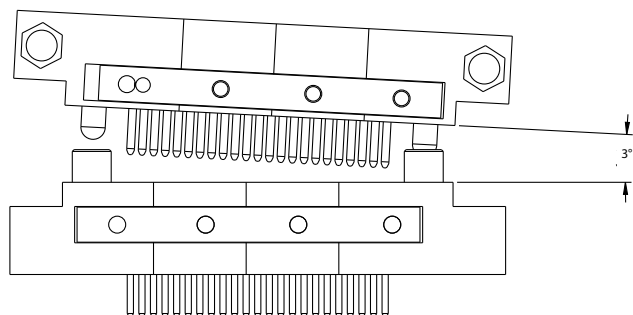
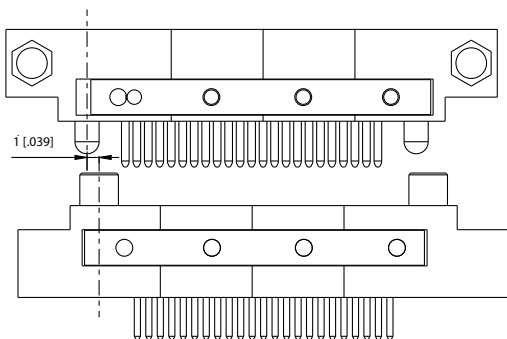
- All dimensions are in inch, except as otherwise specified.
- All the fittings are in passivated stainless except as otherwise specified.

## HILINX 1.905 >>> KEYING & GUIDING (3)

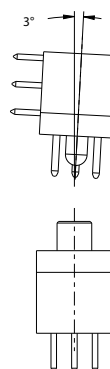
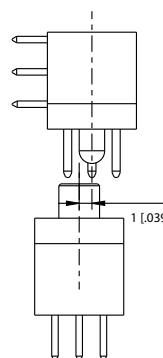


### REALIGNMENT CAPABILITY

#### In the longitudinal axis

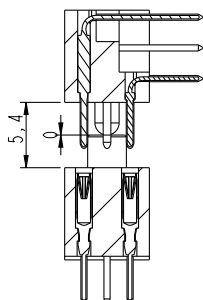


#### In the lateral axis

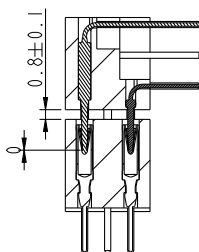


### MATING SEQUENCE

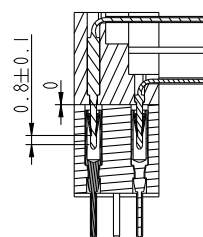
#### Guiding



#### Signal contact



#### Mated connector



5.4 [213]

0.8 ± 0.1 [0.031 ± .004]

0 [0]

**HILINX** <sup>1.905</sup> >>> SIGNAL VERSION ONLY**MIL-DTL-55302**  
/190 to /193**COMPATIBILITY WITH THE MIL DTL 55302 /190 TO /193 DETAILED SHEETS**

MIL-DTL-55302	Series	Number of contacts	Type of contacts	Hardware	Deviation	Comments
MIL-DTL-55302/191	HLX P 2	10, 20, 30, 40, 50, 60, 70 80, 90, 100	A = YDS B = YD C = YDL	X = 65 Y = 01 thru 64 F = 73 S = 105 N = 97 L = 81 M = 85	-000	X = full round guides Y = D-shaped F = fixed jackset S = .200 short turning hexagonal jackset N = .545 turning hexagonal jackset L = .700 turning slotted jackset M = .490 short turning slotted jackset
MIL-DTL-55302/193	HLX P 3	122, 152	A = YCS B = YC C = YCL	X = 65 Y = 01 thru 64 F = 73 S = 105 N = 97 L = 81 M = 85	-000	X = full round guides Y = D-shaped F = fixed jackset S = .200 short turning hexagonal jackset N = .545 turning hexagonal jackset L = .700 turning slotted jackset M = .490 short turning slotted jackset
MIL-DTL-55302/190 MIL-DTL-55302/190 L	HLX R 2	10, 20, 30, 40, 50, 60, 70 80, 90, 100		X = 65 Y = 01 thru 64 F = 73 S = 105 N = 97 L = 81 M = 85	-000	X = full round guides Y = D-shaped F = fixed jackset S = .200 short turning hexagonal jackset N = .545 turning hexagonal jackset L = .700 turning slotted jackset M = .490 short turning slotted jackset
MIL-DTL-55302/192 MIL-DTL-55302/192 L	HLX R 3	122, 152	A = Z* B = YDS C = YD D = YDL E = Y* F = WS* G = W* H = WL *	X = 65 Y = 01 thru 64 F = 73 S = 105 N = 97 L = 81 M = 85	-000	X = full round guides Y = D-shaped F = fixed jackset S = .200 short turning hexagonal jackset N = .545 turning hexagonal jackset L = .700 turning slotted jackset M = .490 short turning slotted jackset

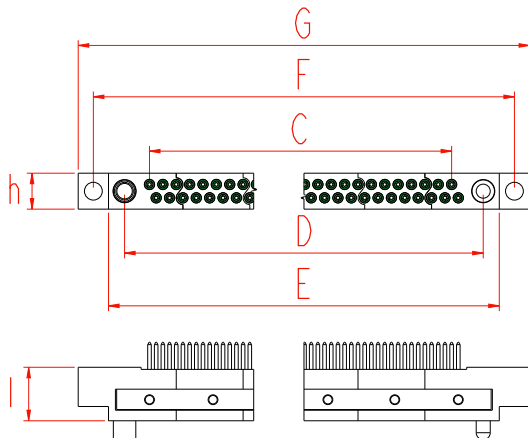


**HILINX** 1.905 >>> SIGNAL CONTACT VERSION (4)**TYPICAL ARRANGEMENTS 2 & 3 ROWS**

n indicates the total number of signal contacts.

**Signal contacts on 2 rows\*, from 10 to 100 contacts\***

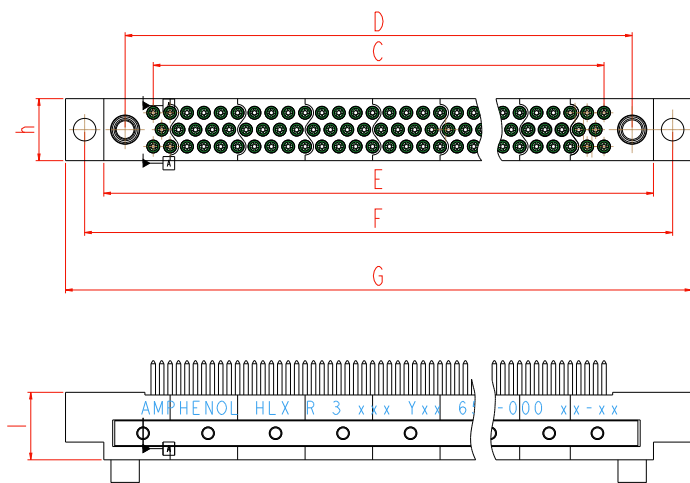
n = 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100



<b>C</b>	$n \times 0.9525 - 1.905$
<b>D</b>	$C + 8.0525$
<b>E</b>	$D + 4.6$
<b>F</b>	$E + 4.29$
<b>G</b>	$F + 4.41$
<b>h</b>	5.12
<b>I</b>	7.62

**Signal contacts on 3 rows from 11 to 206 contacts\***

n = 011, 023, 035, 047, 059, 071, 080, 092, 104, 122, 140, 152, 182 or 206



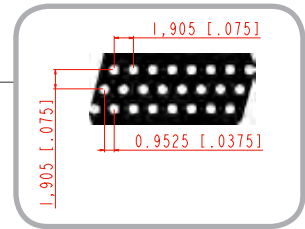
<b>C</b>	$n \times 0.635 - 1.27$
<b>D</b>	$C + 6.35$
<b>E</b>	$D + 4.84$
<b>F</b>	$E + 4.29$
<b>G</b>	$F + 4.41$
<b>h</b>	7
<b>I</b>	7.62

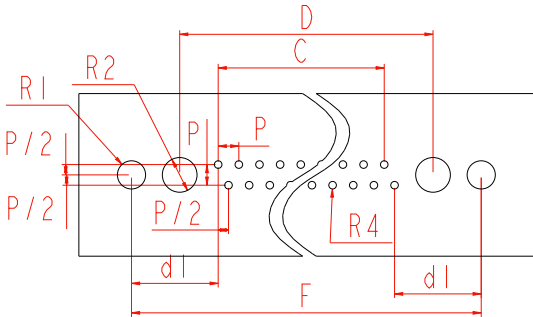
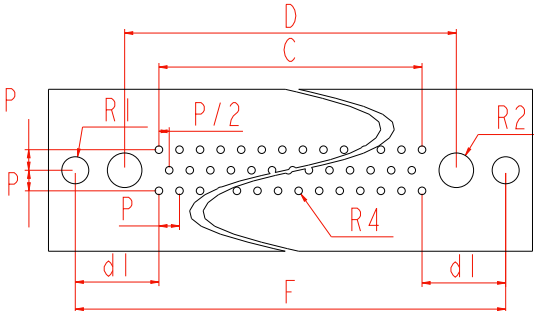
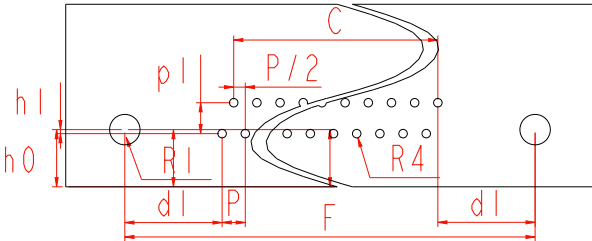
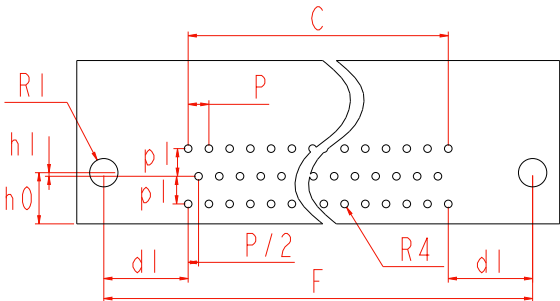
\* in mm: 1mm = 0.03937 inch

All dimensions are given for information only and are in mm [inch], except as otherwise specified

**HILINX<sup>1.905</sup> >>> SIGNAL CONTACT VERSION (4)****LAYOUTS 2 & 3 ROWS**

The boards are shown from the connector side.  
All contact outputs are equidistant.



n		YD/YDS/YDL & YP CONTACT (female for receptacle)*					
2 ROWS FROM 10 TO 100 CONTACTS		<div>n = 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100</div> <table><tr><td>C</td><td>n x 0.9525 - 1.905</td></tr><tr><td>F</td><td>C + 16.9425</td></tr></table>		C	n x 0.9525 - 1.905	F	C + 16.9425
	C	n x 0.9525 - 1.905					
F	C + 16.9425						
3 ROWS FROM 11 TO 206 CONTACTS		<div>n = 011, 023, 035, 047, 059, 071, 080, 092, 104, 122, 140, 152, 182 or 206</div> <table><tr><td>C</td><td>n x 0.635 - 1.27</td></tr><tr><td>F</td><td>C + 15.48</td></tr></table>		C	n x 0.635 - 1.27	F	C + 15.48
	C	n x 0.635 - 1.27					
F	C + 15.48						
n		YC/YCS/YCL CONTACT (male for plug)*					
2 ROWS FROM 10 TO 100 CONTACTS		<div>n = 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100</div> <table><tr><td>C</td><td>n x 0.635 - 1.27</td></tr><tr><td>F</td><td>C + 16.9425</td></tr></table>		C	n x 0.635 - 1.27	F	C + 16.9425
	C	n x 0.635 - 1.27					
F	C + 16.9425						
3 ROWS FROM 11 TO 206 CONTACTS		<div>n = 011, 023, 035, 047, 059, 071, 080, 092, 104, 122, 140, 152, 182 or 206</div> <table><tr><td>C</td><td>n x 0.635 - 1.27</td></tr><tr><td>F</td><td>C + 15.48</td></tr></table>		C	n x 0.635 - 1.27	F	C + 15.48
	C	n x 0.635 - 1.27					
F	C + 15.48						

R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	d <sub>1</sub>	d' <sub>1</sub>	p	p / 2	p <sub>1</sub>	h <sub>0</sub>	h <sub>1</sub>
2.8 [.110]	Not compulsory 3.75 ± 0.1 [.148 ± .004]	0.65 <sub>MIN</sub> [.026]	8 [.315]	7.747 [.305]	1.905 [.075]	0.9525 [.037]	2.54 [.100]	4.7 <sub>MAX</sub> [.185]	0.32 [.013]

\* in mm: 1mm = 0.03937 inch

All dimensions are given for information only and are in mm [inch], except as otherwise specified

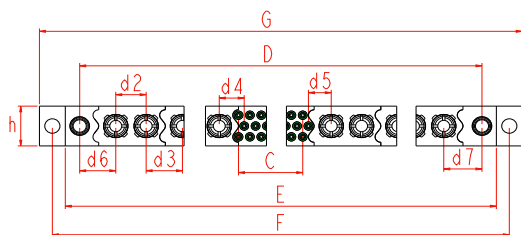
## HILINX 1.905 >>> HYBRID VERSION (4)

### DIMENSIONS 3 ROWS\*\*

s indicates the total number of special contacts.  
n indicates the total number of signal contacts.



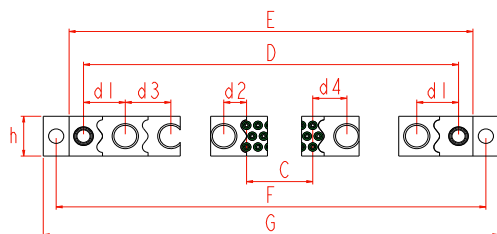
#### Power contacts 20A\*



$$s = 2, 4, 6, \dots$$

C	$0,635 * n - 1,27$
D	$6,985 + s * 5,575 + n * 0,635$
E	$D + 4,84$
F	$E + 4,29$
G	$F + 4,41$
d2	5,08
d3	6,07
d4	4,1625
d5	3,81
d6	6,032
d7	6,39
h	7

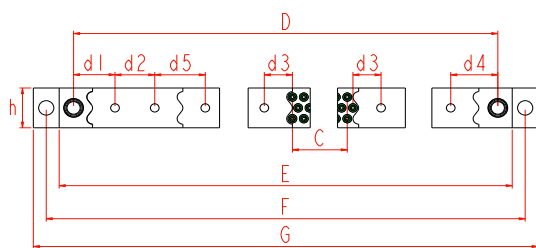
#### RADSOK® contacts 70A\*



$$s = 1, 2, 3, \dots$$

C	$0,635 * n - 1,27$
D	$6,985 + s * 7,62 + n * 0,635$
E	$D + 4,84$
F	$E + 4,29$
G	$F + 4,41$
h	7
d1	6,985
d2	3,81
d3	7,62
d4	5,7155

#### AMPHELUX™ contacts\*



$$s = 2, 4, 6, \dots$$

C	$0,635 * n - 1,27$
D	$6,985 + s * 7,55 + n * 0,635$
E	$D + 4,84$
F	$E + 4,29$
G	$F + 4,41$
h	7
d1	6,924
d2	6,65
d3	4,702
d4	7,876
d5	8,45

#### Coaxial contacts

Please consult us

\* in mm: 1mm = 0.03937 inch

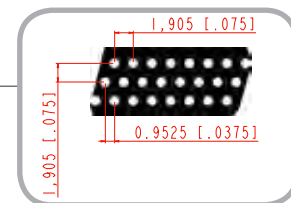
\*\* Hybrid modules will be preferably positioned on the connector sides

All dimensions are given for information only and are in mm [inch], except as otherwise specified

# HILINX 1.905 >>> HYBRID VERSION (4)

## LAYOUTS 3 ROWS\*\*

The boards are illustrated from the connector side  
All contacts outputs are equidistant.



### With YDS/YD/YDL & YP CONTACT (female for receptacle)\*

WITH POWER CONTACT 20A		<b>C</b>	0.635 x n - 1.27
		<b>D</b>	6.985 + n x 0.635 + s x 5.575
		<b>F</b>	D + 9.13
WITH RADSOK® CONTACT 70A		<b>C</b>	0.635 x n - 1.27
		<b>D</b>	6.985 + n x 0.635 + s x 7.62
		<b>F</b>	D + 9.13
		<b>L</b>	(s - 1) x 7.62
		<b>M</b>	6.5 ± 0.1
WITH AMPHELUX™ CONTACT		<b>C</b>	0.635 x n - 1.27
		<b>D</b>	6.985 + n x 0.635 + s x 7.55
		<b>F</b>	D + 9.13
		<b>L</b>	(s - 2) x 7.55
		<b>M</b>	7.8 ± 0.1

YDS/YD/YDL YP	d1	d'1	d2	d3	d4	d5	d8	d9	p	R1	R2	R3	R4
Power		10.605 [.418]	5.080 [.200]	6.072 [.239]		3.810 [.150]	10.963 [.432]	3.210 [.126]	1.905 [.075]	2.8 ± 0.1 [.110 ± 0.004]	3.75 [.148]	1.5 MIN [.059 MIN]	0.65 MIN [.026 MIN]
RADSOK®		11.557 [.455]	3.810 [.150]		7.620 [.300]								
Amphelux™	8 MAX [.315 MAX]		8.8 MAX [.346 MAX]	1.2 MAX [.047 MAX]	1.2 MAX [.047 MAX]								

### With YC/YCS/YCL CONTACT (male for plug)\*

WITH POWER CONTACT 20A		<b>C</b>	0.635 x n - 1.27
		<b>F</b>	16.115 + n x 0.635 + s x 5.575
WITH RADSOK® CONTACT 70A		<b>C</b>	0.635 x n - 1.27
		<b>F</b>	16.115 + n x 0.635 + s x 7.62
WITH AMPHELUX™ CONTACT		<b>C</b>	0.635 x n - 1.27
		<b>F</b>	16.115 + n x 0.635 + s x 7.55

YC/YCS/YCL	h0	h1	h2	d'1	d2	d3	d4	d5	d8	d9	p1	R1	R3	R4	R5
Power			1.680 [.066]	10.605 [.418]	5.080 [.200]	6.072 [.239]	x	3.810 [.150]	10.963 [.432]	3.210 [.126]		2.8 ± 0.1 [.110 ± 0.004]	1.5 MIN [.059 MIN]	0.65 MIN [.026 MIN]	
RADSOK®	4.7 MAX [.185 MAX]	0.320 [.013]		11.557 [.455]	3.810 [.150]	4.763 [.187]	7.620 [.300]								3.8 MIN [.150 MIN]
Amphelux™															

\* in mm: 1mm = 0.03937 inch

\*\* Hybrid modules will be preferably positioned on the connector sides

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HILINX >>> TOOLING

### TOOLING

#### HLX ODP



- Screw driver for guiding devices

Part number

**HLX ODP**

#### 23550



- Removal tool
- For coaxial contacts
- Rear release
- HiLinX<sup>2,54</sup>

Part number

**23550**

### CRIMPING TOOL

#### 809801



- For male and female contacts X
- AWG 26 to 22
- Additional turret for female contacts PN M22520/2-06
- Military reference : M22520/2-01

Part number

**809801**

### INSERTION AND REMOVAL TOOLS

#### 809819 - Insertion tool



- For female contacts X
- Metallic tool (22D)
- Straight type

Part number

**809819**

#### 809856 - Insertion & removal tool



- For male and female contacts X
- Plastic tool (22D)
- Military reference : M81969/14-01

Part number

**809856**

# HiLinX Series

# HDAS

## The high competitive connector

**Amphenol reduces the pitch and increases the density of contacts with the brand new HDAS range. 1.905 x 1.905 [.075 x .075] staggered grid pattern, from 3 to 6 rows\*.**

**With its robust and simple design, high density, and high performance to extreme conditions, HDAS is the right connector when installation, cost, and reliability must be considered.**

### 100% cost effective

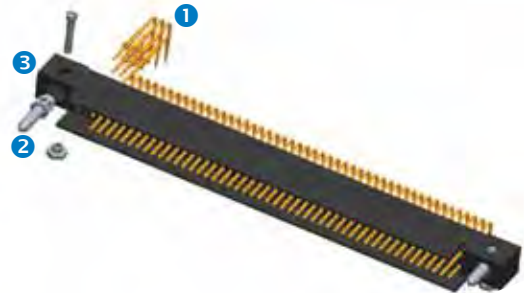
The press-fit technology allows significant assembly cost reduction on the backplane while ensuring an extreme reliability, even for the thickest motherboards. No more solder joints, pre-baking, or cleaning.

### 100% optimized

- The guiding/keying devices can be polarized in 6 positions within their own cavities, i.e. 36 keying possibilities per connector.
- The lateral rails on the male connector provide optimal protection to the contacts.
- The mechanical protection of the female contacts is provided per design.

### 100% performing

- The proven starclip technology of the socket provides a higher current rate, as well as an improved robustness as compare to the traditional technologies.
- LCP material allows all types of soldering processes as well as a higher temperature rating.
- HDAS has surpassed all MIL-DTL-55302 requirements as well as the new demands for military transportation.



## QUICK SELECTION GUIDE

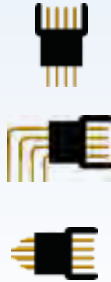
### Signal contacts \*

①

#### FEMALE



#### MALE



### Keying & Guiding \*

②

#### FEMALE FITTING Keying & guiding

#### MALE FITTING Guiding only or Keying & guiding

*Other fitting, guiding or keying devices, consult us.*

### Housing

③

#### 3 ROWS 50, 77, 119, 152

#### 4 ROWS 102, 202

#### 5 ROWS 253

#### 6 ROWS 303\*, 402\*

PAGE 56

PAGE 57

PAGE 58

PAGE 60

\* For special terminations of contacts (SMT, solder-cup, ...), special fittings and guiding devices or special arrangements, do not hesitate to consult us.



# HDAS Series

The high density monolithic connector



HDAS Series

## Table of contents

HDAS product range .....	52
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Layout 5 rows .....	63
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The HDAS series serves various **markets**, including:



Commercial Avionics  
& Airframe

Military Avionics  
& Airframe

C4ISR

Navy

Ground vehicles

Industrial

## HDAS>>> GENERAL SPECIFICATIONS


**HIGH DENSITY**


- Robust technology
- Dedicated to harsh environment (high temperature and vibration levels)
- The most effective
- 1.905[.075] staggered grid (0.9525[.0375] offset), 1.905[.075] between rows

### Main characteristics

- High density: 0.16 cts/mm<sup>2</sup> [103 cts/inch<sup>2</sup>]
- 9 sizes from 3 to 6\* rows, 50 to 402\* signal contacts
- 4.5A per signal contact
- DWV: 750 Vrms
- Press-fit solderless attachment technology available
- Lateral rails to protect male pins from external damage

### Markets



### Main applications



### Terminations



### Recommended configurations

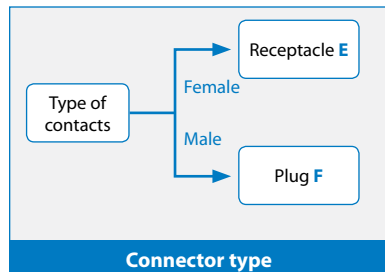


### Standard

Exceeds some MIL-DTL-55302 requirements.

**MIL-DTL-55302**

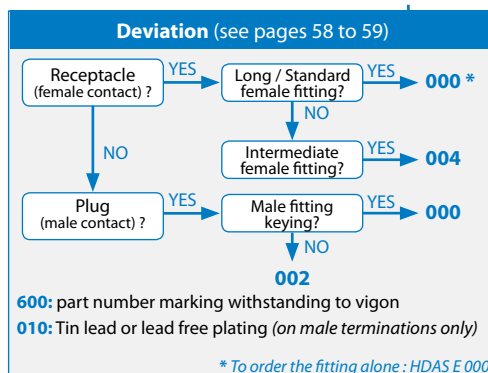
### How to order



Female	Male	Description
Consult us	YC	Right angle PC tail standard length
Consult us	YCS	Right angle PC tail short length
YD		Straight PC tail standard length
YDS		Straight PC tail short length
YP	Consult us	Press fit
Consult us	Z	Solder cup
<b>Signal contact (see pages 56 to 57)</b>		

HDAS - --- --- ---

Number of signal contacts (see pages 60 to 63)	
3 rows	050
	077
	119
	152
4 rows	102
	202
5 rows	253
6 rows	303*
	402*



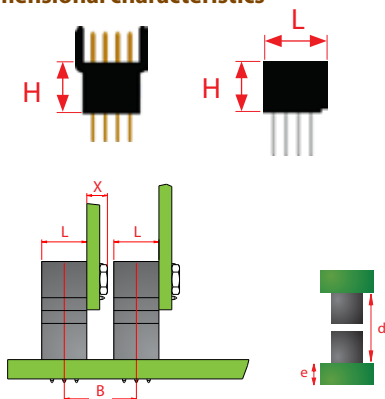
Termination plating
<b>Blank</b>
Tin lead on female terminations
Gold on male terminations
<b>LF</b>
Lead free on female terminations (for receptacle - YD & YDS only)

\* Consult us

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HDAS &gt;&gt;&gt; TECHNICAL SPECIFICATIONS

## Dimensional characteristics



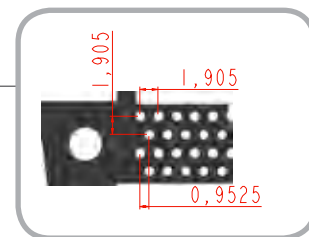
$$H = 8_{MAX} [.315]$$

$$B_{MIN} = L + X$$

X = Board thickness + hardware thickness

$$d = 16_{MAX} [.630]$$

$$e = 1.6 [.063] \text{ to } 5.5 [.217] \text{ or } 2.5_{MIN} [.098] \text{ (for YP contacts)}$$



	3 rows	4 rows	5 rows	6 rows*
L	8.21 <sub>MAX</sub> [.323]	10.11 <sub>MAX</sub> [.398]	12.02 <sub>MAX</sub> [.473]	13.72 <sub>MAX</sub> [.540]

## Female contact



## Starclip female technology: 6 times for better reliability

- 6 contact tines instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors

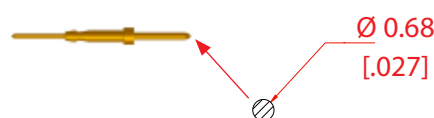
## Material

- Hood: machined brass alloy
- Starclip: CuBe(BeCu), stamped and formed

## Plating

- Hood: tin lead or lead free
- Starclip: gold over nickel

## Male contact



- **Mating end diameter:** Ø 0.68 [.027]
- **Contact section** (mating side): 0.36 mm<sup>2</sup> [.0006 inch<sup>2</sup>]
- **Material:** machined brass alloy
- **Plating:** gold over nickel

## Materials

- **Guiding devices:** electroless nickel plating over brass
- **Plastic insert:** thermoplastic LCP, 30% glass-fiber filled

## MECHANICAL CHARACTERISTICS

<b>Backoff</b> <sup>1</sup> (mm)	1.2 [.0472] <sub>MAX</sub>
<b>Mating force</b> per contact (N)	0.6 < F < 0.8
<b>Unmating force</b> per contact (N)	0.3 < F < 0.5
<b>Durability</b> cycles	500
<b>Sinusoidal vibrations</b> (20 to 2000 Hz) micro discontinuity 2ns	15 g
<b>Random vibrations</b> (600 to 700 Hz) micro discontinuity 2ns	2.682 g <sup>2</sup> / Hz
<b>Shocks</b> micro discontinuity 2ns	100 g

## Recommended tightening torques

- nuts for Ø 2.5mm screws, brass (m.N)	0.25
- nuts for Ø 1.6mm screws, brass (m.N)	0.15

## ENVIRONMENTAL CHARACTERISTICS

<b>Thermal shocks</b> (°C)	-65 / +150
<b>Salt Spray</b> (hours)	96
<b>Humidity</b>	
Days	10
Temperature (°C)	25/65
Humidity rate (%)	90-95

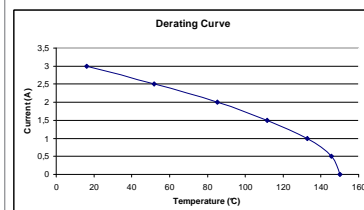
## ELECTRICAL CHARACTERISTICS

<b>Current rating</b> per contacts (A)	4.5 (see derating curve)
<b>Insulation resistance</b> (GΩ)	5 <sub>MIN</sub>
<b>Contact resistance</b> (mΩ)	10 <sub>MAX</sub>
<b>Dielectric Withstanding Voltage</b> (Vrms)	750 <sub>MIN</sub>

## MIL-DTL-55302 sections

N/A
§ 4.5.3
§ 4.5.3
§ 4.5.9
§ 4.5.10
§ 4.5.10
§ 4.5.10
N/A
N/A

<sup>1</sup>: When both connectors are fully mated, the backoff is the maximum distance the connectors can be unmated while functioning properly



## HDAS >>> SIGNAL CONTACTS (1)

### FEMALE CONTACTS FOR RECEPTACLES



#### Starclip female technology



- 6 contact tines instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors

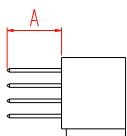


- Size 23: high average current
- Clip for male contact Ø 0.68 [.027]
- **Plating** on active part (clip)

Cu	Ni	Au
1 [.039]	3.5 [.138]	<b>1.3 [.051]</b>

#### Female contacts

##### Standard straight PC tail



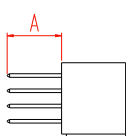
- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 5.5<sub>MAX</sub> [.217]



Termination style

**YD**

##### Short straight PC tail



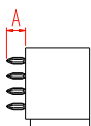
- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: 3.5<sub>MAX</sub> [.138]



Termination style

**YDS**

##### Press-fit



- For solderless assembly
- Mother board or mezzanine connection
- PCB thickness: 2.5<sub>MIN</sub> [.098]



Termination style

**YP**

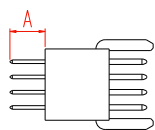
	YD	YDS	YP
<b>A<sub>MAX</sub></b>	6.85 ± 0.2 [.270 ± .008]	4.65 ± 0.2 [.183 ± .008]	2.6 ± 0.2 [.102 ± .008]
<b>Termination section</b>	Ø 0.45 <sub>MAX</sub> [.018]		Ø 0.82 [.032]
<b>Standard termination plating</b> µm [µin]	2.5 [.098] Ni + 5 [.197] Sn Pb		2 [.079] Ni electroless + 2 [.079] Ni electrolytic + 10 [.394] Sn Pb
<b>RoHS termination plating*</b> µm [µin]	3 [.118] Ni + 10 [.394] bright pure Sn		

## HDAS >>> SIGNAL CONTACTS (1)

### MALE CONTACTS FOR PLUGS



#### Standard straight PC tail



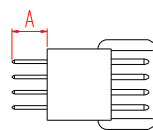
- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 5.5<sub>MAX</sub> [.217]



Termination style

YD

#### Short straight PC tail



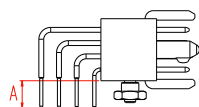
- Thru hole soldering
- Daughter board or mezzanine connection
- PCB thickness: 3.3<sub>MAX</sub> [.130]



Termination style

YDS

#### Standard right angle PC tail



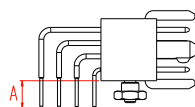
- Thru hole soldering
- Daughter board
- PCB thickness: 2.8<sub>MAX</sub> [.110]



Termination style

YC

#### Short right angle PC tail



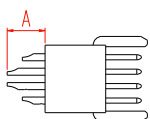
- Thru hole soldering
- Daughter board
- PCB thickness: 1.6<sub>MAX</sub> [.063]



Termination style

YCS

#### Solder cup



- Hard-soldering on wire
- AWG gauge 26 to 22



Termination style

Z

	YD	YDS	YC	YCS	Z
<b>A<sub>MAX</sub></b>	6.6 ± 0.2 [.260 ± .008]	4.4 ± 0.2 [.173 ± .008]	4 ± 0.2 [.157 ± .008]	2.85 ± 0.2 [.112 ± .008]	5 ± 0.2 [.197 ± .008]
<b>Termination section</b>	Ø 0.45 <sub>MAX</sub> [.018]				Ø 0.93 <sub>MAX</sub> [.037]
<b>Mating end diameter</b>	Ø 0.68 <sub>MAX</sub> [.027] 23 (according to MIL DTL 55302)				
<b>Plating μm [μin]</b>	1 [.039] Cu + 3.5 [.138] Ni + 1 [.039] Au				

## HDAS >>> KEYING & GUIDING (2)

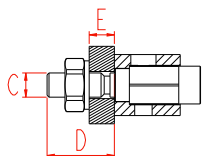
2



### FEMALE FITTINGS FOR RECEPTACLES

#### Keying & guiding

##### 000 style - For YD/YDS/YP female contacts

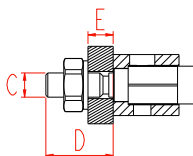


- Standard female fitting
- Chassis or mother board
- Fixed receptacle
- Nickel over brass

HDAS E \*\*\* \*\* -000

To order the fitting alone : HDAS E 000

##### 004 style - For YD/YDS/YP female contacts



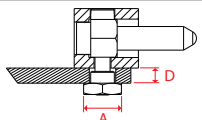
- Intermediate female fitting
- Chassis or mother board
- Fixed receptacle
- Nickel over brass

HDAS E \*\*\* \*\* -004

### MALE FITTINGS FOR PLUGS

#### Guiding only

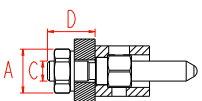
##### 002 style - For YC/YCS male contacts



- Daughter board
- Free plug
- Nickel over brass

HDAS F \*\*\* YC\* -002

##### 002 style - For YD/YDS male contacts

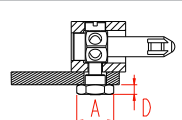


- Daughter board or mezzanine connection
- Nickel over brass

HDAS F \*\*\* YD\* -002

#### Keying & guiding

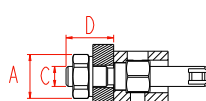
##### 000 style - For YC/YCS male contacts



- Daughter board
- Free plug
- 6 keying positions
- Nickel over brass

HDAS F \*\*\* YC\* -000

##### 000 style - For YD/YDS male contacts



- Daughter board or mezzanine connection
- 6 keying positions
- Nickel over brass

HDAS F \*\*\* YD\* -000

	Female fittings		Male fittings			
	000 style for YD / YDS / YP female contacts	004 style for YD / YDS / YP female contacts	002 style Guiding for YC / YCS male contacts	002 style Guiding for YD / YDS male contacts	000 style Keying for YC / YCS male contacts	000 style Keying for YD / YDS male contacts
A			Hex 4 [.157]	Hex 5 [.197]	Hex 4 [.157]	Hex 5 [.197]
C	M 2.5 [.098]			M 2.5 [.098]		M 2.5 [.098]
D	7.15 ± 0.2 [.281 ± .008]	5.5 ± 0.2 [.217 ± .008]	1.2 <sub>MAX</sub> [.472]	6 <sub>MAX</sub> [.236]	1.2 <sub>MAX</sub> [.472]	6 <sub>MAX</sub> [.236]
E	3.2 <sub>MAX</sub> [.126]	D -2.8 [.117]				

#### Fitting compatibility table

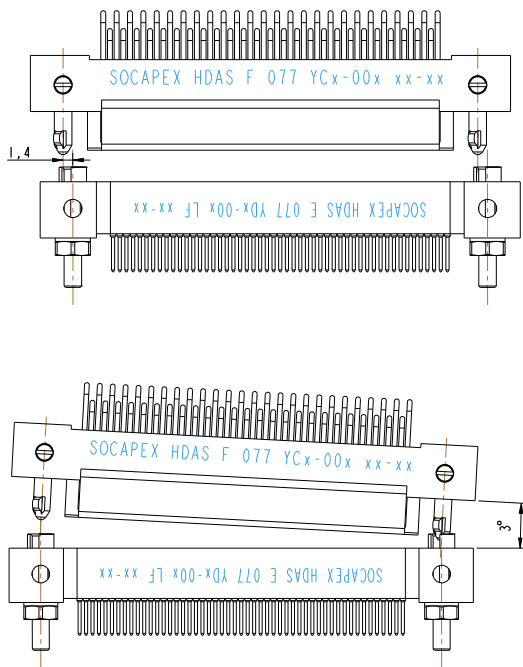
		Male fittings for plugs	
		002	000
Female fittings for receptacles	000	OK	OK
	004	OK	OK

HDAS >>> KEYING & GUIDING (2)

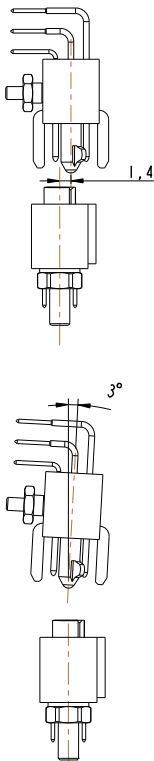


REALIGNMENT CAPABILITY

In the longitudinal axis



In the lateral axis



MATING SEQUENCE

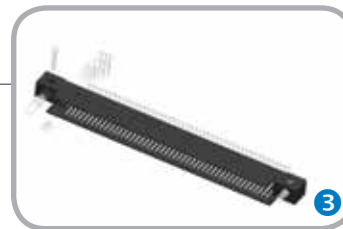
Keying / Guiding	Rails	Electrical contact	Mated connector
1.6 ± 0.35 [.063 ± .014]	1.3 [.051]	0.5 ± 0.3 [.020 ± .012]	1.1 ± 0.3 [.043 ± .012]

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## HDAS >>> 3 & 4 ROWS (3)

### TYPICAL ARRANGEMENTS 3 & 4 ROWS

n is the total number of signal contacts.



#### Signal contacts on 3 rows\*

	receptacle		n	050, 077, 119	152
			C	$(n - 2) \times 0.635$	95.25 [3.750]
			D	$C + 11.43$	106.68 [4.200]
			E	$D + 9.325$	116.5 [4.586]
			$h_3$	7.01 <sub>MAX</sub> [.276]	
			$h_3'$	8.21 <sub>MAX</sub> [.323]	
			$h_3''$	9.36 <sub>MAX</sub> [.369]	
	plug				

#### Signal contacts on 4 rows\*

	receptacle		n	102	202
			C	47.625 [1.875]	95.25 [3.750]
			D	59.175 [2.330]	106.68 [4.200]
			E	68.50 [2.697]	116.5 [4.586]
			$h_4$	8.91 <sub>MAX</sub> [.351]	
			$h_4'$	10.11 <sub>MAX</sub> [.398]	
			$h_4''$	11.26 <sub>MAX</sub> [.443]	
	plug				

\*in mm: 1mm = 0.03937 inch

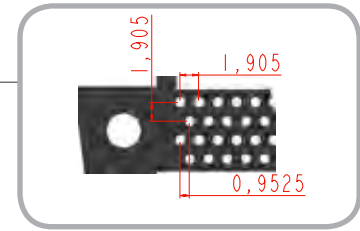
All dimensions are given for information only and are in mm [inch], except as otherwise specified



## HDAS &gt;&gt;&gt; 3 &amp; 4 ROWS (3)

## LAYOUTS 3 &amp; 4 ROWS

The boards are shown from the connector side.  
All contact outputs are equidistant.



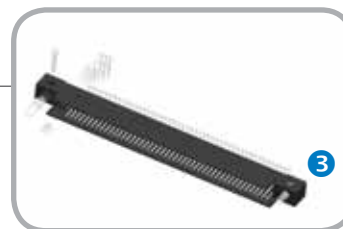
n		YD/YDS CONTACT (male and female for plug and receptacle)* YP CONTACT (female for receptacle)	
50 / 77 / 119 / 152 3 rows		n	050, 077, 119, 152
		C	(n - 2) x 0.635
		D	C + 11.43
102 / 102 4 rows		n	102      202
		C	47.625 [1.875]      95.25 [3.750]
		D	59.175 [2.330]      106.68 [4.200]

		YC/YCS CONTACT (male for plug)*	
50 / 77 / 119 / 152 3 rows		n	050, 077, 119, 152
		C	(n - 2) x 0.635
		D	C + 11.43
102 / 102 4 rows		n	102      202
		C	47.625 [1.875]      95.25 [3.750]
		D	59.175 [2.330]      106.68 [4.200]

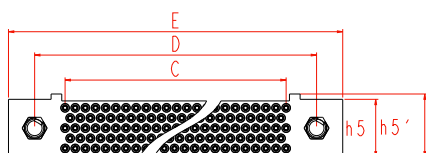
	h <sub>0</sub>	h <sub>1</sub>	d <sub>2</sub>	d <sub>2</sub> /2	p	p/2	d1	2d <sub>1</sub>	R <sub>1</sub>	R <sub>2</sub>
102	2.1 <sup>MAX</sup> [.083]	5.08 [.200]	2.54 [.100]	1.27 [.050]	1.905 [.075]	0.9525 [.0375]	5.7775 [.227]	11.555 [.455]	Ø 2.8 <sup>+0.1 0</sup> <sub>+0.004 0</sub> [.110]	Ø 0.6 <sub>MIN</sub> [.024] with metallization Ø 0.6 ± 0.05 for YP contacts [Ø.024 ± .002]
50, 77, 119										
152										
202										

\*in mm: 1mm = 0.03937 inch

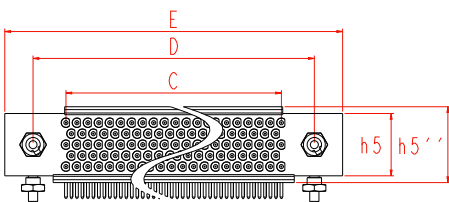
All dimensions are given for information only and are in mm [inch], except as otherwise specified

**HDAS >>> 5 ROWS (3)****TYPICAL ARRANGEMENT 5 ROWS****Signal contacts on 5 rows**

receptacle



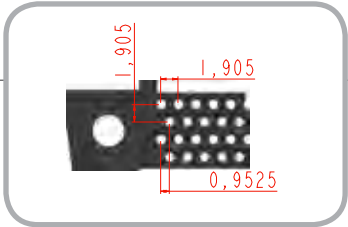
plug



<b>n</b>	<b>253</b>
<b>C</b>	95.25 [3.750]
<b>D</b>	106.68 [4.200]
<b>E</b>	116.5 <sub>MAX</sub> [4.587]
<b>h<sub>5</sub></b>	10.82 <sub>MAX</sub> [.426]
<b>h<sub>5</sub>'</b>	12.02 <sub>MAX</sub> [.473]
<b>h<sub>5</sub>''</b>	13.17 <sub>MAX</sub> [.519]

HDAS >>> 5 ROWS (3)

LAYOUT 5 ROWS

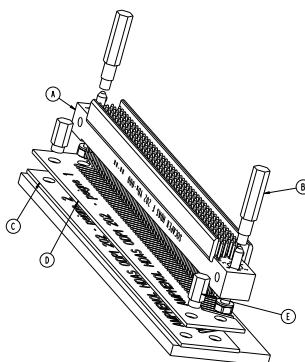
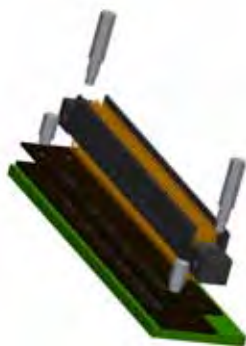


YD/YDS CONTACT (male and female for plug and receptacle) YP CONTACT (female for receptacle)						
253 contacts						
	<table><tr><td>n</td><td>253</td></tr><tr><td>C</td><td>95.25 [3.750]</td></tr><tr><td>D</td><td>106.68 [4.200]</td></tr></table>	n	253	C	95.25 [3.750]	D
n	253					
C	95.25 [3.750]					
D	106.68 [4.200]					
YC/YCS CONTACT (male for plug)						
253 contacts						
	<table><tr><td>n</td><td>253</td></tr><tr><td>C</td><td>95.25 [3.750]</td></tr><tr><td>D</td><td>106.68 [4.200]</td></tr></table>	n	253	C	95.25 [3.750]	D
n	253					
C	95.25 [3.750]					
D	106.68 [4.200]					

$h_0$	$h_1$	$d_2$	$p$	$p/2$	$d1$	$R_1$	$R_2$
2.1 <small>MAXI</small> [.083]	5.08 [.200]	2.54 [.100]	1.905 [.075]	0.9525 [.0375]	5.715 [.225]	$\varnothing 2.8^{+0.1}_0^{+0.004}$ [.110]	$\varnothing 0.6_{MIN}$ [.024] with metallization $\varnothing 0.6 \pm 0.05$ for YP contacts [ $\varnothing 0.024 \pm .002$ ]

## HDAS >>> TOOLING

### MOUNTING OF A STRAIGHT PLUG (YD) ON A BOARD

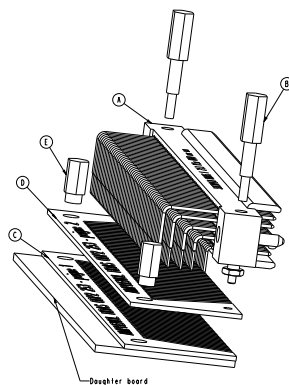


- Assemble alignment spacers (C and D) with tooth chamfers facing up, then insert positioning pins (E) into holes on spacers.
- Align the connector (A) on the spacers using positioning guide (B).
- Exert slight pressure on the connector so the contact tails pass through the spacer cavities and into the PCB holes
- Remove positioning pins (B and E) and alignment spacers (C and D)
- Exert pressure on the connector until it butts against the board and fasten fixing accessories

Part number

HDAS ODP1 xxx

### MOUNTING OF A RIGHT ANGLE (YC) PLUG ON A DAUGHTER BOARD



- Assemble alignment spacers (C and D) with tooth chamfers facing up, then insert positioning pins (E) into holes on spacers.
- Align the connector (A) on the spacers using positioning guide (B).
- Exert slight pressure on the connector so the contact tails pass through the spacer cavities and into the PCB holes
- Remove positioning pins (B and E) and alignment spacers (C and D)
- Exert pressure on the connector until it butts against the board and fasten fixing accessories

Part number

HDAS ODP2 xxx



# SMASH

The high density interconnect system for harsh environment applications

**The SMASH connector offers extremely high robustness where signal integrity is required. Based on an aluminium shell with 1, 2 or 3 bays, the SMASH connector can house up to 450 contacts, with up to 150 contacts per bay. The chevron grid pattern (1.905 x 1.905 [.075 x .075]) provides high contact density for advanced electronics packaging. The metallic shell is equipped with grounding, guide pins, and keying devices to ensure mechanical reliability.**

## The modularity

Within the standard SEM E form factor, the SMASH connector provides a wide array of signal transmission combinations. Various inserts can be housed within the robust, modular shell while meeting the standard board and chassis formats.

## A connector that is adaptable to all types of mounting and soldering processes

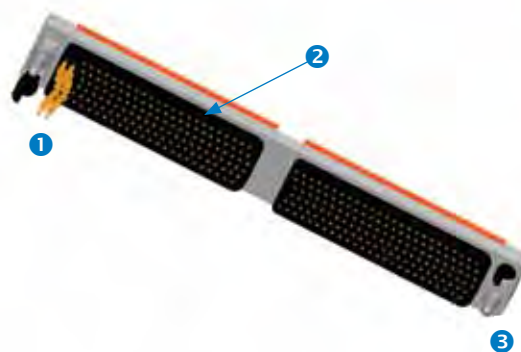
The sculptured flex circuit termination of the daughter card connector can accept the thickest boards. No tooling is required as the design provides good alignment to the solder pads of the daughter card.

## A connector dedicated to harsh environment

The Starclip technology of the socket contact (with a 6 tine clip) offers high mechanical and electrical reliability, combined with low insertion force. The SMASH connector is ruggedized to meet extreme conditions such as salt spray, vibration, and contact resistance.

## Flexibility

From 1 to 3 bays with 150 or 132 signal contacts per bay, the SMASH connector is available in either chevron grid or staggered grid\* patterns. It can provide RF, power, and fiber optic solutions with hybrid arrangements. LVDS signals\* are also available.



## QUICK SELECTION GUIDE

### Signal contacts

①

#### FEMALE



#### MALE



For further terminations of contacts, consult us.

PAGE 70

PAGE 70

### Housing

②

#### GRID

##### Chevron grid



##### Staggered grid



#### NUMBER OF ROWS

6 rows / 8 rows

For specific pitches or arrangements, consult us.

PAGE 72

### Shell

③

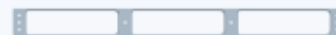
#### 1 BAY



#### 2 BAYS



#### 3 BAYS



With or without ground spring or rackable, consult us.

PAGE 72

\* Consult us

# SMASH Series

Advanced SEM E modular connector



SMASH Series

## Table of contents

<b>SMASH product range .....</b>	<b>66</b>
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Special technology of contacts .....	71
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Typical arrangements & layouts 150 signal contacts .....	74
Typical arrangements & layouts 300 signal contacts .....	75
Typical arrangements & layouts 450 signal contacts .....	76
Typical arrangements & layouts 396 signal contacts .....	77

The SMASH series serves various **markets**, including:



Military Avionics & Airframe



Commercial Avionics  
& Airframe



C4ISR

## SMASH&gt;&gt;&gt; GENERAL SPECIFICATIONS

ULTRA  
HIGH  
DENSITY

- No tooling required. SEM E form factor
- Flexible circuit termination of the plug can be used with daughter cards of various thicknesses. Compatible with all soldering processes.
- Excellent mechanical electrical reliability
- Chevron grid pattern 1.905[.075] spacing along the row with 1.905 [.075] between rows, offset 0.635 [.025]

## Main characteristics

- 3 versions with 1, 2 or 3 bays
- Each insert can house up 132 or 150 signal contacts depending on contacts sizes
- High density: 0.34 cts/mm<sup>2</sup> [130 cts/inch<sup>2</sup>]
- 3 A per contacts / DWV: 1000 Vrms / Insulation resistance: 5Gohms
- Press-fit solderless attachment possible. *Consult us*
- Aluminium shell for electrical enhancements (filters, shell to shell continuity) as well as advanced mechanical robustness.

## Markets



## Main applications



## Terminations



## Recommended configurations

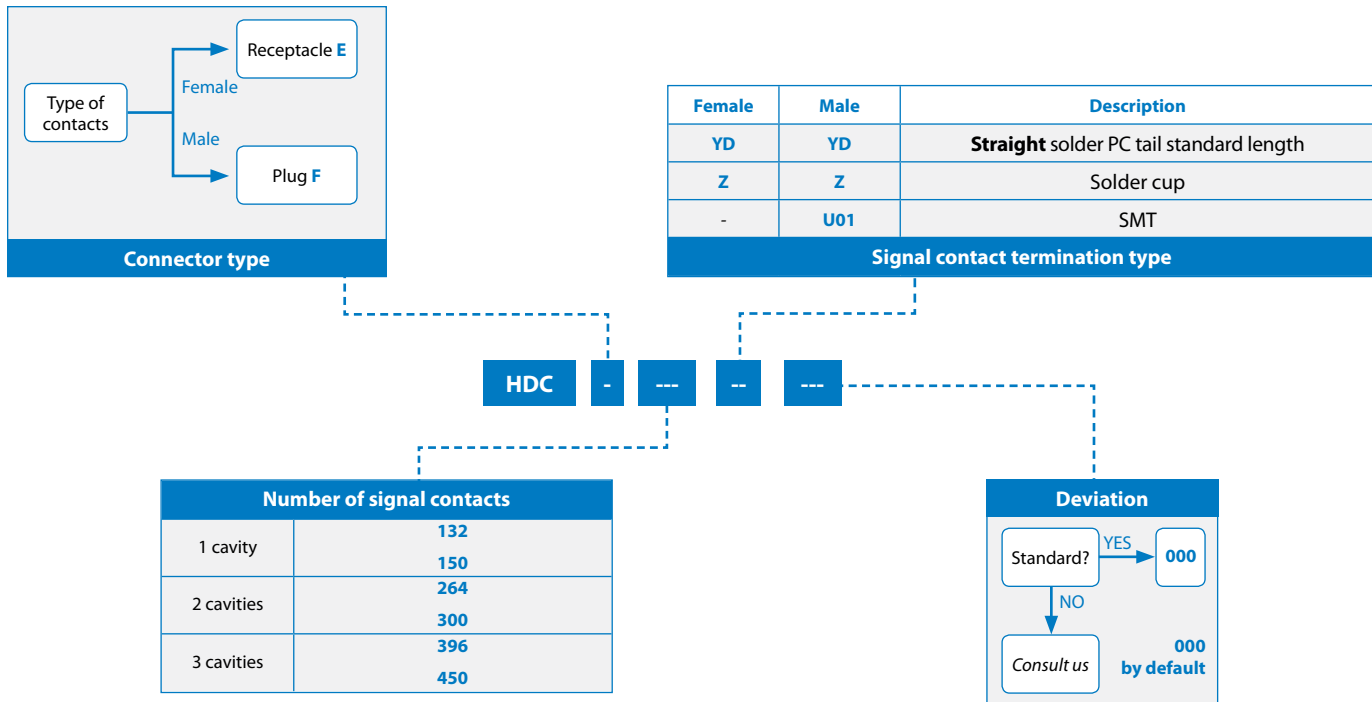


## Standard

Exceeds some MIL-DTL-55302 requirements.

MIL-DTL-55302

## How to order



## Amphenol Socapex capabilities for specific connector design

The metallic shell concept allows Amphenol to design numerous types of shells with various lengths and specific housings, providing:

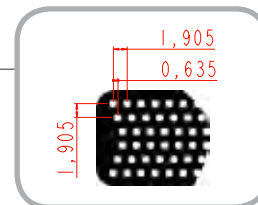
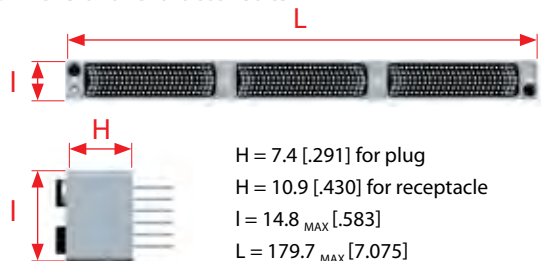
- Insertion of specific contacts (RF, optical termini, power, high power)
- Modification of the height or type of signal contact terminations
- Customization of rack and panel shells or the addition of a ceramic plane for high-frequency filtering
- A variety of grid and footprint styles, to comply with density requirements

All dimensions are given for information only and are in mm [inch], except as otherwise specified



## SMASH &gt;&gt;&gt; TECHNICAL SPECIFICATIONS

## Dimensional characteristics



## Female contact

**Starclip female technology: 6 times for better reliability**

- 6 contact tines instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors

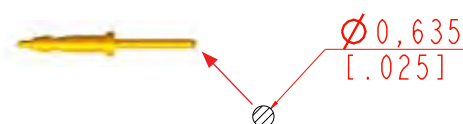
**Material**

- Hood: machined brass alloy
- Starclip: CuBe[BeCu], stamped and formed

**Plating**

- Hood: tin lead or lead free plating
- Starclip: gold over nickel

## Male contact



- **Mating end diameter:** Ø 0.635 [.025]
- **Mating end section** (mating side): 0.32 mm<sup>2</sup> [.0005 inch<sup>2</sup>]
- **Material:** machined brass alloy
- **Plating:** gold over nickel

**Materials**

- **Guiding devices:** passivated stainless steel 303
- **Shells:** aluminum 6060 T6
- **Plating shells:** electroless nickel
- **Plastic insert & coding devices:** thermoplastic LCP, 30% glass-fiber filled

MECHANICAL CHARACTERISTICS		MIL-DTL-55302 sections
<b>Backoff</b> <sup>1</sup> (mm)	1.2 <sub>MAX</sub> [.047]	N/A
<b>Mating force</b> per contact (N)	100g	§ 4.5.4
<b>Unmating force</b> per contact (N)	40g	
<b>Durability</b> cycles	500	§ 4.5.9
<b>Sinusoidal vibrations</b> (10 to 2000 Hz) micro discontinuity 2ns	15 g	§ 4.5.10
<b>Random vibrations</b> (600 to 700 Hz) micro discontinuity 2ns	2.682 g <sup>2</sup> / Hz	Consult us
<b>Shocks</b> micro discontinuity 2ns	100 g / 6s	§ 4.5.14
<b>Recommended tightening torques</b>		
- nuts for M2.5 screws, brass (m.N)	0.25	N/A
- nuts for M2 screws, brass (m.N)	0.2	N/A
ENVIRONMENTAL CHARACTERISTICS		
<b>Thermal shocks</b> (°C)	-65 / +150	
Cycles	5	§ 4.5.13
<b>Salt Spray</b> (hours)	96	§ 4.5.11
ELECTRICAL CHARACTERISTICS		
<b>Current rating</b> per contacts (A)	3 <sub>MAX</sub>	§ 4.5.5
<b>Insulation resistance</b> (GΩ)	5 <sub>MIN</sub>	§ 4.5.8
<b>Contact resistance</b> (mΩ)	10 <sub>MIN</sub>	§ 4.5.12
<b>Dielectric Withstanding Voltage</b> (Vrms)	1000 <sub>MIN</sub>	§ 4.5.7.1
<b>Service voltage</b> (at 50 Hz) (Vrms)	250	N/A

<sup>1</sup>: When both connectors are fully mated, the backoff is the maximum distance the connectors can be unmated while functioning properly

## SMASH &gt;&gt;&gt; STANDARD TECHNOLOGY OF CONTACT (1)

## FEMALE CONTACTS FOR RECEPTACLES



## Starclip female technology

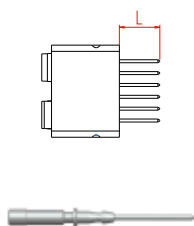


- 6 contact tines instead of 4
- Excellent mechanical and electrical reliability
- Better resistance to high vibrations
- Improved electrical conductivity
- 100% compatible with other connectors

- Size 23: high average current
- Clip for male contact Ø0.635 [.025]
- **Plating** on active part (clip)

Cu	Ni	Au
1 [.039]	3.5 [.138]	<b>1.3 [.051]</b>

## Standard straight PC tail



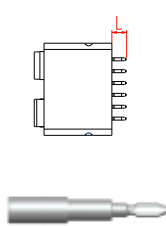
- Thru hole soldering
- Mother board or mezzanine connection
- PCB thickness: up to 5.5 [.217]
- **Plating** (µm [µin])

Version	Ni	Pure Sn	Sn Pb
RoHs	2.5 [.098]	5 [.197]	
Standard	3 [.118]		10 [.394]

Termination style

YD

## Press-fit



- For solderless assembly
- Mother board or mezzanine connection
- PCB thickness: 2.5<sub>MIN</sub> [.098]
- **Plating** (µm [µin])

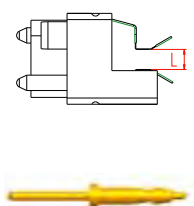
Ni electrolytic	Ni electroless	Sn Pb
2 [.079]	15.2 [.598]	10 [.394]

Termination style

YP

## MALE CONTACT FOR PLUGS

## SMT



- Flexible circuit for double sided SMT mounting
- Daughter card or extended card
- PCB thickness: specific, *consult us*
- **Plating** (µm [µin])

Cu	Ni	Au
1 [.039]	3.5 [.138]	<b>1.3 [.051]</b>

Consult us

U01

	YD	YP	U01
<b>L<sub>MAX</sub></b>	6.5 [.256]	2.5 <sub>MIN</sub> [.098]	2.4 ± 0.3 [.094 ± .012]

## AMPHENOL SIGNAL CONTACTS CAPABILITIES

- Male contacts attached to flexible circuit for double sided SMT mounting on daughter card  
**Consult us**
- Female contacts with straight PC tails for thru hole soldering, with numerous contact lengths available
- Male and female solder cup termination for soldering on a cable
- Specific plating

## SMASH >>> SPECIAL TECHNOLOGY OF CONTACT (1)



### Power contacts 20A



- Thru hole soldering
- Mother board or daughter board
- 20A / contact

[Consult us](#)

### RADSOK® contact 350A



- High power contact
- Mother board or daughter board
- 350A / contact

[Consult us](#)

### Optical contacts



- 2x12 optical channels (MT ferules)

[Consult us](#)

## AMPHENOL CUSTOM DESIGN CAPABILITIES

- Development of housings and shells for specific arrangement or special contacts  
**Consult us**
- Numerous types of special contacts, various lengths and mounting processes
- Various platings (Tin Lead, Gold, Pure bright tin ...)
- Proven knowledge in custom design for tailor-made applications
- Development of coaxial contacts

## SMASH >>> STANDARD HOUSINGS AND SHELLS (② & ③)

### HOUSINGS 6-ROW CHEVRON GRID PATTERN



150 signal contacts insert



132 signal contacts insert



### STANDARD SHELLS WITH 1, 2 OR 3 BAYS

1 bay connector / 150 signal contacts



1 bay connector / 132 signal contacts



2 bays connector / 300 signal contacts



2 bays connector / 264 signal contacts



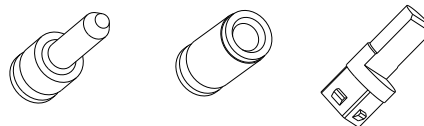
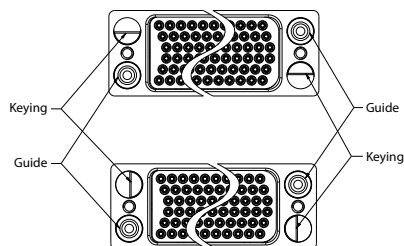
3 bays connector / 450 signal contacts



3 bays connector / 396 signal contacts



### KEYING AND GUIDING



Connectors are supplied with non-assembled keying and guiding devices.

SMASH >>> SPECIAL HOUSINGS AND SHELLS (2 & 3)



AMPHENOL CAPABILITIES: HOUSINGS

Specific grid: Square grid pattern, 1.905 [.075] x 1.905 [.075] staggered grid pattern, 1.588 [.063] x 1.588 [.063] staggered grid pattern, 2.54 mm...



Housings for specific contacts



Consult us

AMPHENOL CAPABILITIES: SHELLS

Rackable shells



Specific shells



Consult us

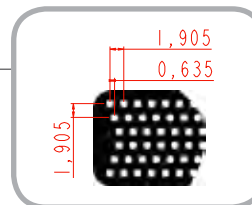
MATING SEQUENCE

Guiding	Insulator	Keying	Electrical engagement	Electrical contact	Mated connector
5.95 ± 0.35	5.9 ± 0.1	5.54 ± 0.2	4.75 ± 0.25	1.75 ± 0.35	0

All dimensions are given for information only and are in mm [inch], except as otherwise specified

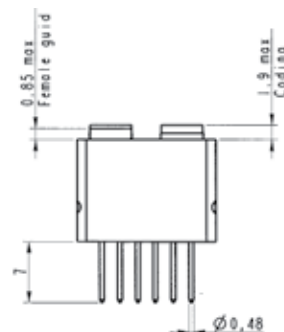
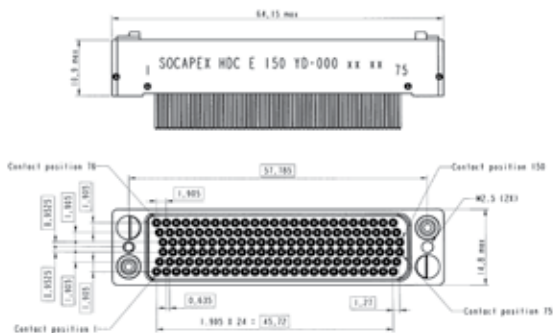
## SMASH &gt;&gt;&gt; 150 SIGNAL CONTACTS

## TYPICAL ARRANGEMENTS &amp; LAYOUTS

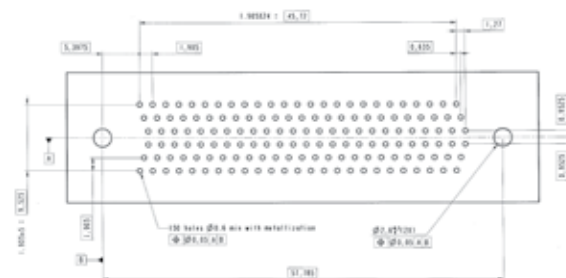


Dimensions are in mm

### Receptacle with straight PC tails YD

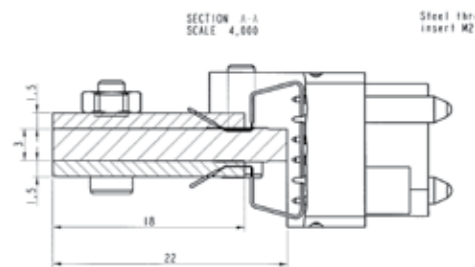
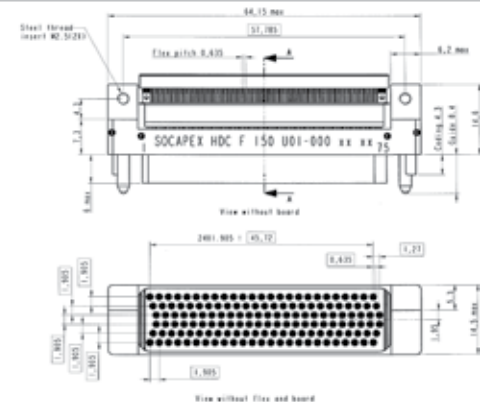


### Layouts for 150 signal contacts connector with YD/YP contacts

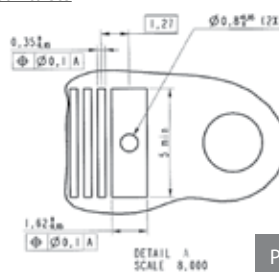


Part number : HDC E 150 YD-000

### Plug with SMT flexible circuit technology U01



### Layouts for 150 signal contacts connector with U01 contacts

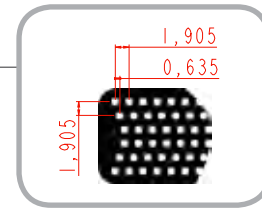


Part number : HDC F 150 U01-000

For further arrangements, consult us

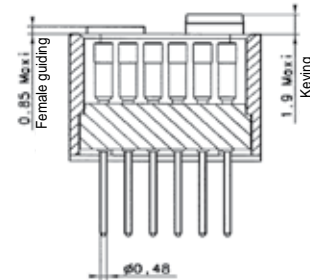
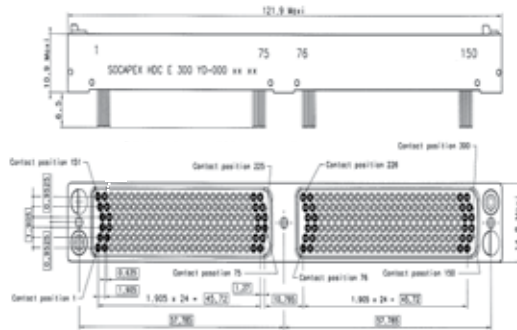
All dimensions are given for information only and are in mm, except as otherwise specified

## TYPICAL ARRANGEMENTS & LAYOUTS

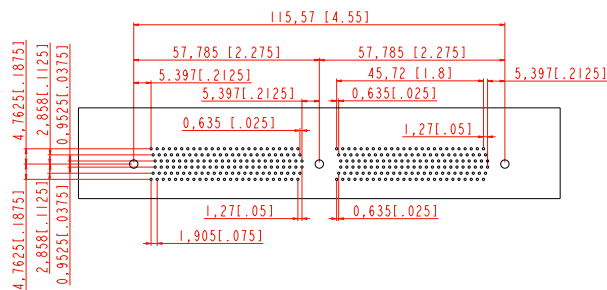


**Dimensions are in mm**

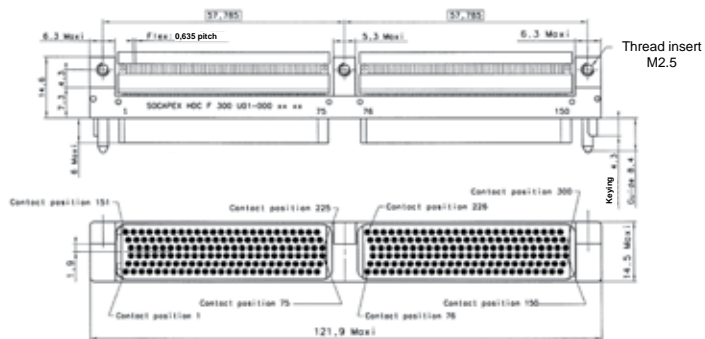
### Receptacle with straight PC tails



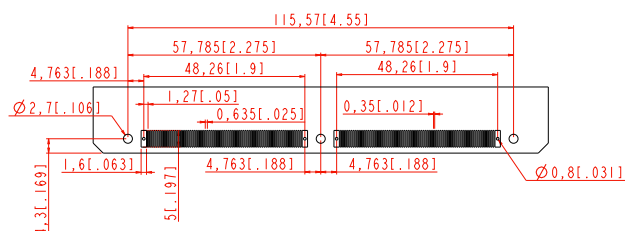
### Layouts for 300 signal contacts connector with YD/YP contacts

Part number : **HDC E 300 YD-000**

## Plug with SMT flexible circuit technology



### Layouts for 300 signal contacts connector with U01 contacts

Part number : **HDC F 300 U01-000**

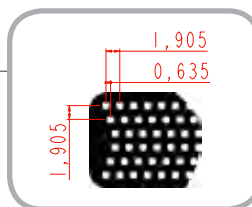
*For further arrangements, consult us*

*All dimensions are given for information only and are in mm, except as otherwise specified*



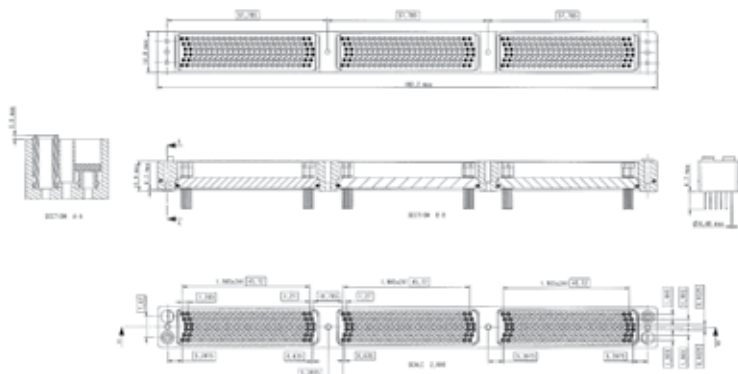
## SMASH &gt;&gt;&gt; 450 SIGNAL CONTACTS

## TYPICAL ARRANGEMENTS &amp; LAYOUTS



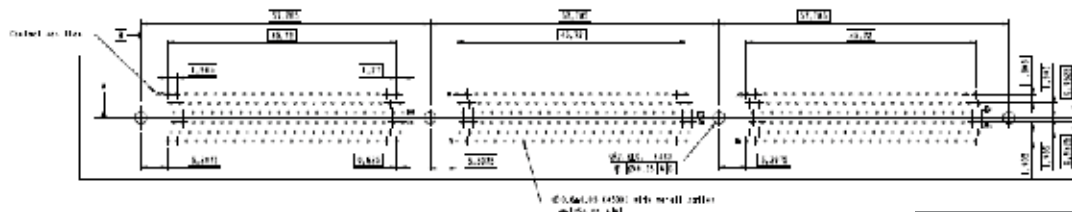
Dimensions are in mm

## Receptacle with straight PC tails YD



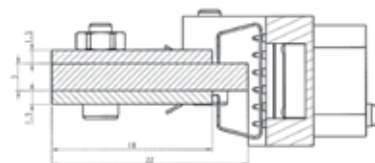
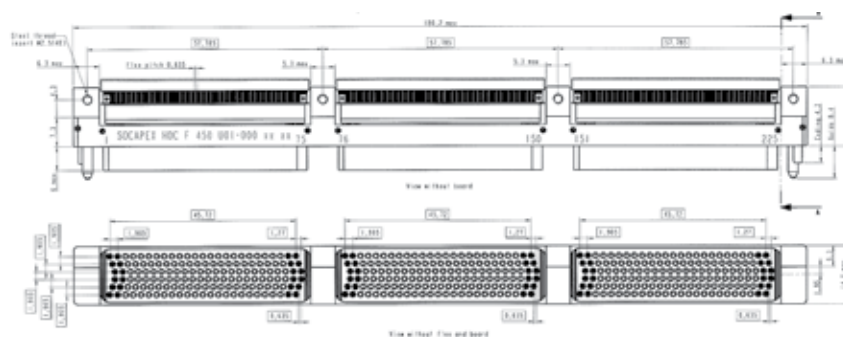
Layouts for 450 signal contacts connector with YD/YP contacts

## PCB FACE A



Part number : HDC E 450 YD-000

## Plug with SMT flexible circuit technology U01



Part number : HDC F 450 U01-000

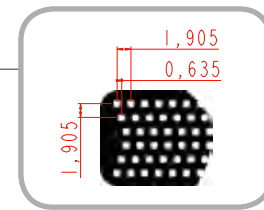
For further arrangements, consult us

All dimensions are given for information only and are in mm, except as otherwise specified



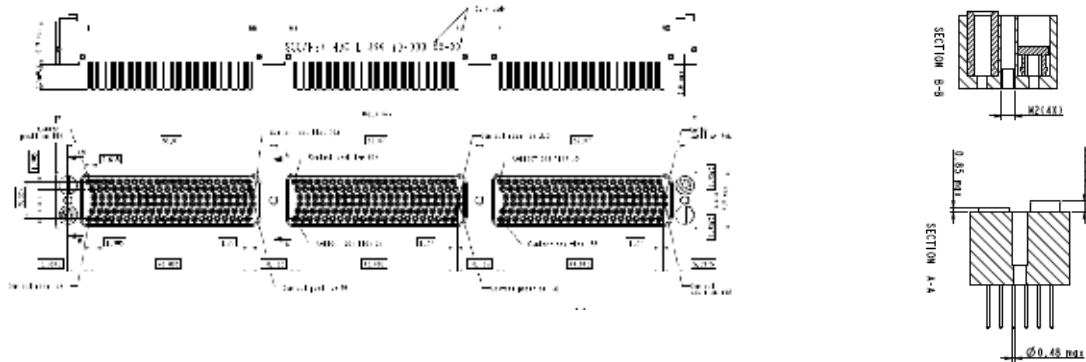
## SMASH &gt;&gt;&gt; 396 SIGNAL CONTACTS

## TYPICAL ARRANGEMENTS &amp; LAYOUTS

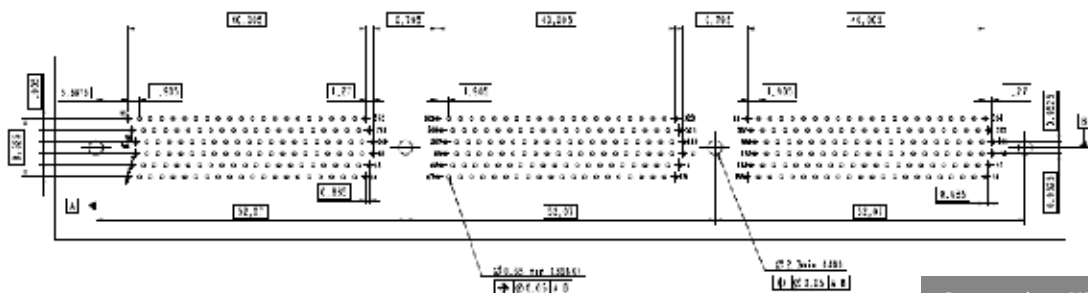


Dimensions are in mm

## Receptacle with straight PC tails YD

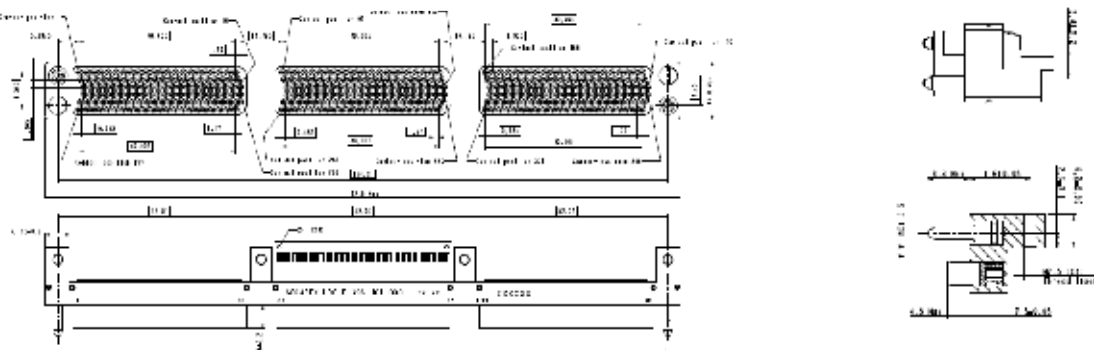


## Layouts for 396\* signal contacts connector with YD/YP contacts

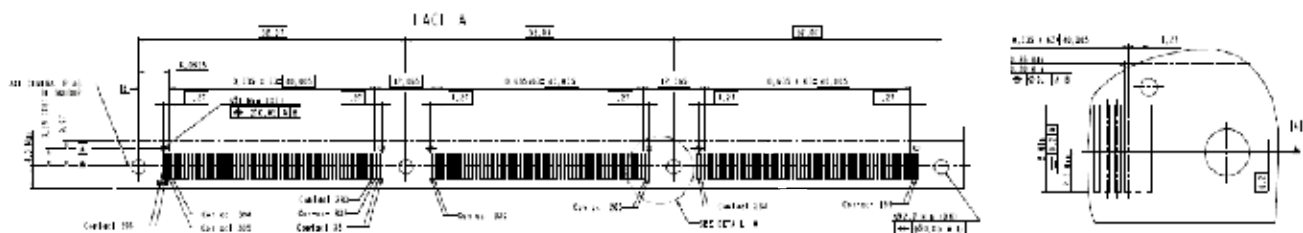


Part number : HDC E 396 YD-000

## Plug with SMT flexible circuit technology U01



## Layouts for 396\* signal contacts connector with U01 contacts



Part number : HDC F 396 U01-000

For further arrangements, consult us

All dimensions are given for information only and are in mm, except as otherwise specified

## NOTES



# SIAL

The hybrid connector for use with thermal clamps

**SIAL is a modular high density interconnection system that has the capability to mix signal and coax contacts. The contact technology developed for this connector allows the use of thermal clamps. With 3 sizes of modules, the SIAL connectors provide the arrangement needed, from 18 to 392 contacts. In a staggered grid pattern (2.54 x 1.905 [.100x.075]), this connector houses 5 rows of contacts in a low profile board to board format. Additionally, SIAL connectors provide shielding on both plug & receptacle, which allows the dissipation of all the electrical charge while mating.**

## The concept

3 standard modules are available with 18, 58 and 98 signal contacts on 5 rows. These allow arrangements up to 392 contacts. The various modules are maintained in a metallic shell, allowing both protection of male contacts on the plug, and a mix of signal and coax modules.

## Compatible with the use of thermal clamps

Its standard contact technology, already used in the monolithic SIHD connector, permits the lateral displacement ( $\pm 0.25$  [.010]) of the pin into the socket without generating any stress on the contact termination on the PCB.

This feature allows the use of thermal clamps to keep the daughter board in position after mating, as well as the dissipation of energy generated by the components on the board from the heat sink (thermal drain) to the cold wall (liquid cooled) or to the chassis. The locking of the thermal clamps provides the lateral movement of the plug into the receptacle. The SIAL allows this lateral displacement of  $\pm 0.25$  [.010] without creating stress on the solder joints or on the contact area.

## A complete range for test, programming, maintenance

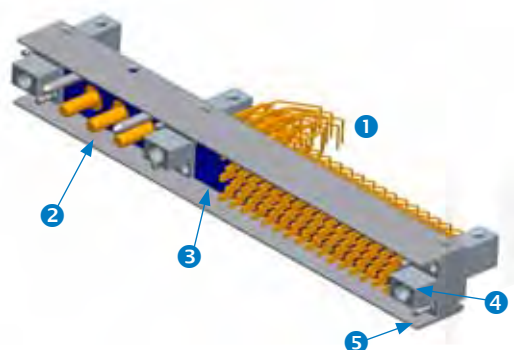
E = Female receptacle for mother board

F = Male plug for daughter board

T = Female test receptacle for daughter board

S = Male test plug

P = Female extender receptacle



## QUICK SELECTION GUIDE

Signal contacts ①	Coax contacts ②	Modules ③	Fittings & Guiding ④	Keying ⑤
<b>FEMALE</b> for receptacles 	<b>COAX SIZE 12</b>  <b>COAX SIZE 16</b>  <b>3 COAX / MODULE</b>  <b>5 COAX / MODULE</b> 	<b>NUMBER OF SIGNAL CONTACTS</b> 018, 036, 058, 076, 098, 116, 156, 196, 214, 254, 312, 370, 392  <b>NUMBER OF COAX CONTACTS</b> Size 12: 03, 06, 09, 12 Size 16: 05, 10	<b>FITTING</b>  <b>FEMALE SOCKET GUIDE</b>  <b>MALE GUIDE PIN</b> 	<b>5 polarizing pins / connector</b> 
PAGE 85   PAGE 84	PAGE 86	PAGE 88	PAGE 89	PAGE 89

The SIAL series serves various markets, including:



Commercial avionics & airframe



Military avionics & airframe



Space

*All dimensions are given for information only and are in mm [inch], except as otherwise specified*

# SIAL Series

Lateral displacement compatibility



SIAL Series

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SIAL coaxial version layouts .....	94
Tooling .....	96

The SIAL series serves various **markets**, including:



Commercial Avionics  
& Airframe



Military Avionics & Airframe



Space

## SIAL&gt;&gt;&gt; GENERAL SPECIFICATIONS

MEDIUM  
DENSITY

- Modular connector mixing signal and coax contacts in many arrangements
- Lateral displacement capability allowing the use of thermal clamps:  $\pm 0.25$  [ $\pm .010$ ]
- Complete range for test, programming and maintenance
- Designed for severe mechanical environments
- 2.54 [.100] staggered grid (1.27 [.050] offset), 1.905 [.075] between rows

## Main characteristics

- Medium density: 0.14 cts/mm<sup>2</sup> [90 cts/inch<sup>2</sup>]
- 13 arrangements on 5 rows of contacts, from 18 to 392 signal contacts
- 5 hybrid arrangements mixing coax and signal contacts
- 3 A per signal contacts / DWV: 750 Vrms
- Lateral rails to protect the male contacts from external damage
- Repairable contacts for easy maintenance

## Markets



## Main applications



## Terminations



## Recommended configurations



## Standard

MIL-DTL-55302

CECC 75101-012

## How to order

E	Female receptacle
F	Male plug
T	Female test receptacle
S	Male test plug
P	Female extender receptacle
Connector type	

C	Conductive fitting Standard version For E and F types
Blank	Non conductive fitting Test versions and specifics
Conductivity of the fitting	

Size	Male plug	Female receptacle
Size 12	<b>KX</b>	<b>KT</b>
Size 16	<b>NX</b>	<b>NT</b>
No coaxial contact	<b>Blank</b>	
<b>Coax module</b>		

000	Standard
001	ASL F or E with 5 right & left coax
010	ASL E with 2.76 <sub>MAX</sub> mm PCB thickness
011	ASL E with heatshrink sleeve
100	ASL S and E 392 screw locking system
102	ASL F with Y01 contacts without lateral displacement
103	ASL S Y04 straight/flex locking system
200	ASL 39758119 space customer specification
300	ASL MA3401 space customer specification
500	ASL F or E with 5 coax after signal contacts
502	ASL F or E with 5 coax before signal contacts
Deviation	



Number of signal contacts (see page 88)		
Signal contacts only		Signal & coaxial contacts
018	156	018 (+3)
036	196	058 (+3)
058	214	098 (+3)
076	254	058 (+5)
098	312	156 (+10)
116	370	196 (+5)
	392	254 (+5)

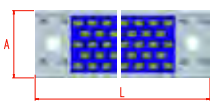
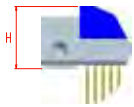
Signal contacts (see pages 84 to 85)		
	Male contact	Female contact
E		Y09, Y19
F	Y01, Y02, Y04, U04, U05, U06, U07, U08	
T		Y01, Y02, Y04, U04, U05, U06, U07, U08
P		Y01, Y02, Y04, U04, U05, U06, U07, U08
S	Y03 Y02 Y04	

Number of coax contacts (see page 93)	
Size	Number of coax
12	03
	06
	09
	12
16	05
	10
No coaxial contact	Blank

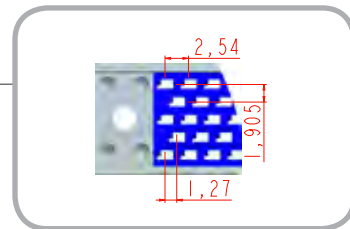
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIAL &gt;&gt;&gt; TECHNICAL SPECIFICATIONS

## Dimensional characteristics



L= 22.86[.900] to 231.14[9.100] for signal version  
 L= 53.34[2.100] to 180.34[7.100] for hybrid version  
 A= 12.1<sub>MAX</sub> [.476]  
 H= 6.41<sub>MAX</sub> [.252] for plug  
 H= 10.26<sub>MAX</sub> [.404]



## Female contact



## Cross cavity by Amphenol: lateral displacement compatible

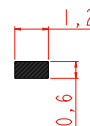
- Cross section of the lateral displacement of the male contact inside the female cavity
- Maintains 2 points of contact
- Allows a  $\pm 0.25$  [ $\pm .010$ ] lateral displacement
- No stress on solder joints or on the contact area

**Material:** beryllium copper (stamped)

## Plating:

- Termination: tin lead or lead free
- Active contact area: gold over nickel

## Male contact



**Mating end size:** 0.6 x 1.2 [.047 x .024]

**Contact section** (mating side): 0.72mm<sup>2</sup> [.001 in<sup>2</sup>]

**Material:** beryllium copper (stamped)

## Plating:

- Termination: tin lead or lead free
- Active contact area: gold over nickel

## Materials

- **Fixing devices:** anodized aluminium
- **Guiding devices:** passivated stainless steel
- **Polarizing pins:** passivated stainless steel
- **Metallic rails:** passivated stainless steel
- **Plastic inserts:** thermoset DAP, 30% glass-fiber filled

## MECHANICAL CHARACTERISTICS

<b>Backoff</b> <sup>1</sup> (mm)	< 0.8 [.031]
<b>Mating force</b> per contact (N)	0.58 <sub>MAX</sub>
<b>Unmating force</b> per contact (N)	0.16 < F < 0.58
<b>Durability</b> cycles	500
<b>Sinusoidal vibrations</b> (10 to 2000 Hz) micro discontinuity 2ns	10 g
<b>Random vibrations</b> (10 to 2000 Hz) micro discontinuity 2ns	0.15 g <sup>2</sup> / Hz
<b>Shocks</b> micro discontinuity 1ns	100 g

## ENVIRONMENTAL CHARACTERISTICS

<b>Thermal shocks</b> (°C)	-55 / +125
<b>Salt Spray</b> (hours)	144* or 96

## ELECTRICAL CHARACTERISTICS

<b>Current rating</b> per contacts (A)	3
<b>Insulation resistance</b> (at 500Vdc) (GΩ)	5 <sub>MIN</sub>
<b>Contact resistance</b> (mΩ)	25 <sub>MAX</sub>
<b>Dielectric Withstanding Voltage</b> (Vrms)	750
<b>Capacitance</b> between contacts (pF)	1.5 <sub>MAX</sub>
<b>Service voltage</b> (at 50 Hz) (Vrms)	250

\* "C" standard version

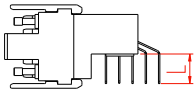
<sup>1</sup>: When both connectors are fully mated, the backoff is the maximum distance the connectors can be unmated while functioning properly

## SIAL &gt;&gt;&gt; SIGNAL CONTACTS (1)

## MALE CONTACTS FOR PLUGS



## Right angle PC tail



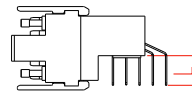
- Thru hole soldering
- Daughter board
- PCB thickness:  $3.1_{\text{MAX}}$  [.122]



Termination style

Y01

## Right angle PC tail



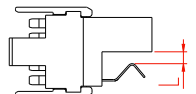
- Thru hole soldering
- Daughter board
- PCB thickness:  $2.6_{\text{MAX}}$  [.102]



Termination style

Y02

## SMT double side PCB, centered



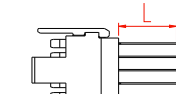
- SMT soldering
- Double-sided daughter board, centered
- PCB thickness:  $2.6 \pm 0.235$  [.102  $\pm$  .009]



Termination style

U04

## Straight PC tail



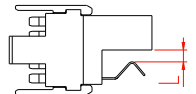
- Thru hole soldering
- Daughter board
- PCB thickness:  $4.5 \pm 0.45$  [.177  $\pm$  .018]



Termination style

Y04

## SMT double side, centered



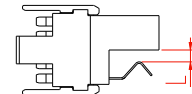
- SMT soldering
- Double-sided daughter board, centered
- PCB thickness:  $1.6 \pm 0.160$  [.063  $\pm$  .006]



Termination style

U06

## SMT double side, centered



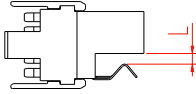
- SMT soldering
- Double-sided daughter board, centered
- PCB thickness:  $2 \pm 0.2$  [.079  $\pm$  .008]



Termination style

U05

## SMT double side, off centered



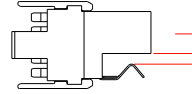
- SMT soldering
- Double-sided daughter board, offset
- PCB thickness:  $2.6 \pm 0.235$  [.102  $\pm$  .009]



Termination style

U08

## SMT double side, off centered



- SMT soldering
- Double-sided daughter board, offset
- PCB thickness:  $2.44 \pm 0.42$  [.096  $\pm$  .016]



Termination style

U07

	Y01	Y02	Y04	U04	U05	U06	U07	U08
L <sub>MAX</sub>	4.2 ± 0.2 [.165 ± .008]	3.7 ± 0.2 [.146 ± .008]	6 [.236]	2.6 ± 0.235 [.102 ± .009]	2 ± 0.2 [.079 ± .008]	1.6 ± 0.160 [.063 ± .006]	2.44 ± 0.42 [.096 ± .016]	2.6 ± 0.235 [.102 ± .009]
Termination section	Ø 0.4 ± 0.03 [.016 ± .001]			0.3 x 0.8 [.012 x .031]				
Mating end size	1.2 x 0.6 [.047 x .024]							
Active contact area plating μm[μin]	2 [.079] Ni + <b>1[.039] Au</b>							
Termination plating μm [μin]	2 [.079] Ni + 3 [.118] SnPb or bright pure Sn for RoHS version			2 [.079] Ni + 7 [.276] SnPb or bright pure Sn for RoHS version				

All dimensions are given for information only and are in mm [inch], except as otherwise specified

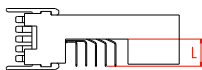


## SIAL &gt;&gt;&gt; SIGNAL CONTACTS (1)

## MALE CONTACT FOR TEST PLUGS



## Right angle PC tail



- Thru hole soldering
- Daughter board
- PCB thickness:  $1.6 \pm 0.16$  [.063  $\pm$  .006]

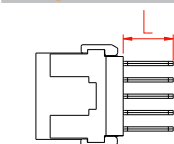


Termination style

Y03

## FEMALE CONTACTS FOR RECEPTACLES

## Straight PC tail, standard length



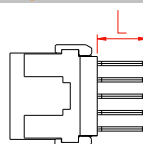
- Thru hole soldering
- Mother board
- PCB thickness:  $3.75 \pm 0.75$  [.148  $\pm$  .030]



Termination style

Y09

## Straight PC tail, short length



- Thru hole soldering
- Mother board
- PCB thickness: up to  $2 \pm 0.2$  [.079  $\pm$  .008]

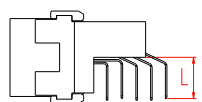


Termination style

Y19

## FEMALE CONTACT FOR EXTENDER RECEPTACLES

## Right angle PC tail, short length

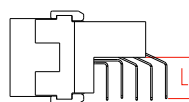


- Thru hole soldering
- Extender card
- PCB thickness:  $2.6_{MAX}$  [.102]

Termination style

Y02

## Right angle PC tail



- Thru hole soldering
- Extender card
- PCB thickness  $3.1_{MAX}$  [.122]

Termination style

Y01

	Y03	Y02	Y01	Y09	Y19
L <sub>MAX</sub>	2.8 ± 0.2 [.165 ± .008]	3.7±0.2 [.146 ± .008]	4.2 ± 0.2 [.165 ± .008]	6 [.236]	4.5 ± 0.2 [.177 ± .008]
Mating end size	1.2 x 0.6 [.047 x .024]				
Termination section	Ø 0.4 ± 0.03 [.016 ± .001]			Ø 0.5 ± 0.03 [.020 ± .001]	
Active contact area plating μm[μin]	2 [.079] Ni + <b>1[.039] Au</b>				
Termination plating μm [μin]	2 [.079] Ni + 3 [.118] SnPb or bright pure Sn for RoHS version				

## SIAL &gt;&gt;&gt; SPECIAL CONTACTS (2)

## SIZE 16 COAXIAL CONTACTS



## Male contacts for plugs – 5-cavity module

## Straight crimp barrel

- For 5-cavity module
- For 2 [.079] cable
- Size 16: 6 GHz depending on cable – 50 Ω

2 [.079]

32008

## Straight PC tail - UT47

- For 5-cavity module
- For UT47 semi-rigid cable
- Size 16: 6 GHz depending on cable – 50 Ω

Consult us

320033

## Right angle PC tail

- For 5-cavity module
- Size 16: 6 GHz depending on cable – 50 Ω

Consult us

320032

## Female contacts for receptacles – 5-cavity module

## Straight crimp barrel

- For 5-cavity module
- For 2, 1.2, 2.7 or 2.4 cable [for .079, .047, .106 or .094 cable]
- Size 16: 6 GHz depending on cable – 50 Ω

2 [.079]

1.2 [.047]

2.7 [.106]

2.4 [.094]

320009

320011

320017

320018

## Straight PC tail - UT47

- For 5-cavity module
- For UT47 semi-rigid cable
- Size 16: 6 GHz depending on cable – 50 Ω

Consult us

320006

## Straight PC tail - Sucoform

- For 5-cavity module
- For Sucoform cable 0.086 [.003]
- Size 16: 6 GHz depending on cable – 50 Ω
- No lateral displacement

Consult us

320021

## SIAL &gt;&gt; SPECIAL CONTACTS (2)

## SIZE 12 COAXIAL CONTACTS



## Male contacts for plugs – 3-cavity module

## Right angle PC tail

- For 3-cavity module
- Size 12: 0 to 3 GHz – 50 Ω

Consult us

320000

## Straight crimp barrel

- For 3-cavity module
- Size 12: 0 to 3 GHz – 50 Ω
- Standard designation: M39029 / 28 - 211

Consult us

900340

## Female contacts for receptacles – 3-cavity module

## Right angle crimp barrel – KX22A

- For 3-cavity module
- For KX22A cable
- Size 12: 0 to 3 GHz – 50 Ω

Consult us

320001

## Right angle crimp barrel – F 1703/66

- For 3-cavity module
- For F 1703 / 66 cable
- Size 12: 0 to 3 GHz – 50 Ω

Consult us

320004

## Straight PC tail

- For 3-cavity module
- For test only, specific application
- Size 12: 0 to 3 GHz – 50 Ω
- No lateral displacement

Consult us

320002

## Straight crimp barrel

- For 3-cavity module
- Standard designation: M39029 / 27 - 210
- Size 12: 0 to 3 GHz – 50 Ω
- With lateral displacement

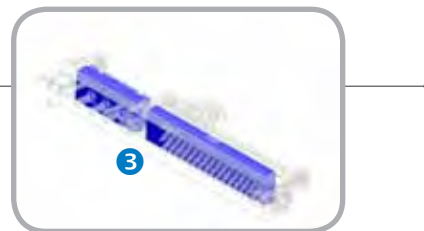
Consult us

900354

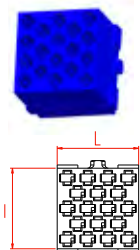
	16-SIZE CONTACT	12-SIZE CONTACT
Impedance Ω	50	50
Voltage rating V	180	180
Current rating mA	500	500
Contact retention N	≥ 50	≥ 50
Frequency range GHz	0 to 1	0 to 1
Contact resistance mΩ	≤ 12	≤ 12
VSWR at 1 GHz	1.3 <sub>MAX</sub>	1.3 <sub>MAX</sub>
Insertion and extraction force per contact N	1 ≤ F ≤ 15	1 ≤ F ≤ 15
Dielectric and extraction force per contact N		at sea level, 1000 V. at 15240 m, 250 V.

## SIAL &gt;&gt; MODULES (3)

## SIGNAL MODULES



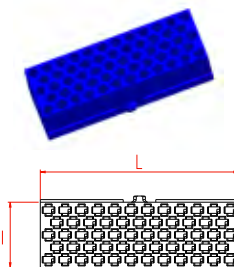
## 18 signal contacts



- Arrangement available:

- 18
- 18 x 2
- 18 + 58

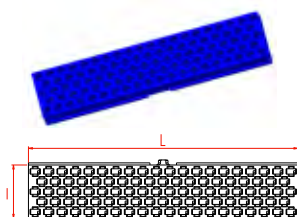
## 58 signal contacts



- Arrangement available:

- 58
- 58 + 18
- 58 x 2
- 58 + 98
- 58 x 2 + 98
- 58 + 98 x 2
- 58 x 2 + 98 x 2
- 58 x 3 + 98 x 2

## 98 signal contacts

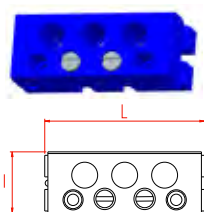


- Arrangement available:

- 98
- 98 + 58
- 98 x 2
- 98 + 2 x 58
- 98 x 2 + 58
- 98 x 2 + 58 x 2
- 98 x 2 + 58 x 3
- 98 x 4

## HYBRID MODULES

## 3 coax contacts – size 12

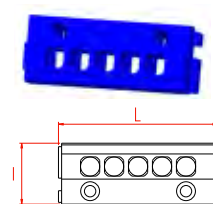


- 3-cavity module for 12-size coaxial contact

- Arrangement available:

- 3 + 18
- 3 + 58

## 5 coax contacts – size 16



- 5-cavity module for 16-size coaxial contact

- Arrangement available:

- 5 + 98
- 5 x 2 + 98 + 58

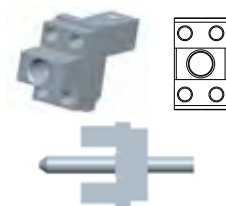
	18 signal contacts	58 signal contacts	98 signal contacts	3 coax contacts	5 coax contacts
L	10.16 [.400]	30.48 [1.200]	50.8 [2.1000]	25.4 <sub>MAX</sub> [1.000]	
I					
Receptacle		10.05 [.396]		9.95 [.392]	
Plug		10.8 [.425]		10.8 [.425]	

## SIAL &gt;&gt;&gt; FITTINGS/GUIDING &amp; KEYING (4 &amp; 5)

## FITTINGS / GUIDING (4)

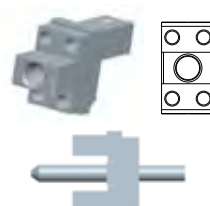


## A- centered end fittings



- 1 centered end fitting at one end of the connector
- Max length: 6, 35 [.250]
- Male guide pin on receptacle
- Female centered hole on plug
- 4 holes for polarizing

## B- end fittings



- 1 end fitting at one end of the connector
- Max length: 6, 35 [.250]
- Male guide pin on receptacle
- Offset hole on plug
- 4 holes for polarizing pin

## Central fittings



- Max length: 6, 35 [.250]
- Guiding device: Male guide pin on receptacle
- 2 holes for polarizing pin
- Signal version**
- 1 fitting for 196, 214, 254 and 312 positions
- 2 fittings for 370 positions
- 3 fittings for 392 positions

## With coaxial contacts

- 1 fitting for 18 + 3, 58 + 3 and 98 + 5 positions
- 2 fittings for 98 + 58 + 5 x 2 positions

## KEYING (5)

## Polarizing pins

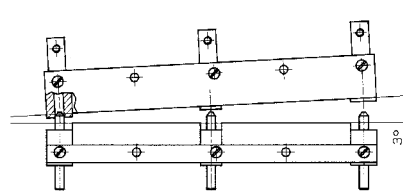
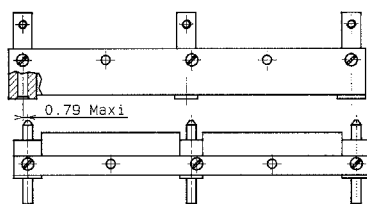


- 2 pins at each end fitting for the plug / 2 pins at each end fitting for the receptacle
- 1 pin at each central fitting for the plug / 1 pin at each central fitting for the receptacle
- Identification of keying cavities: clockwise for the plugs, counterclockwise on the receptacle
- A,B,C,D on A fitting, W,X,Y,Z on B fitting

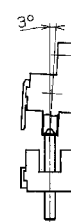
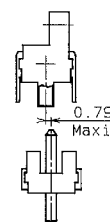


## REALIGNMENT CAPABILITY

## In the longitudinal axis

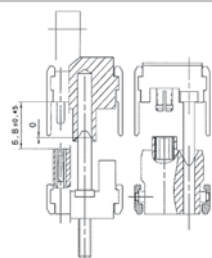


## In the lateral axis



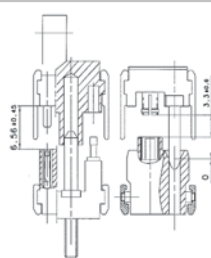
## MATING SEQUENCE

## Shell guiding

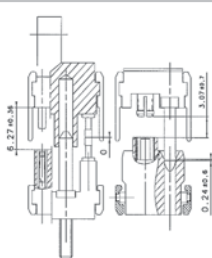


6.8 ± 0.45 [.268 ± .018]

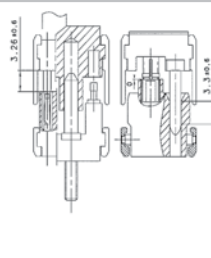
## Coax guiding

6.56 ± 0.45 [.258 ± .018]  
3.3 ± 0.6 [.130 ± .024]

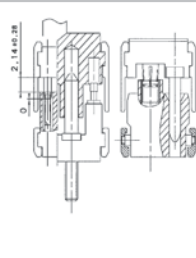
## Keying

6.27 ± 0.36 [.247 ± .014]  
0.24 ± 0.6 [.009 ± .024]  
3.7 ± 0.7 [.121 ± .028]

## Coax contact

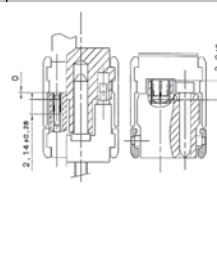
3.26 ± 0.6 [.128 ± .024]  
3.3 ± 0.6 [.130 ± .024]

## Signal contact



2.14 ± 0.28 [.084 ± .011]

## Housing contact

2.14 ± 0.28 [.084 ± .011]  
2.9 ± 0.6 [.114 ± .024]

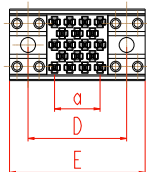
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIAL &gt;&gt; SIGNAL VERSION (3)

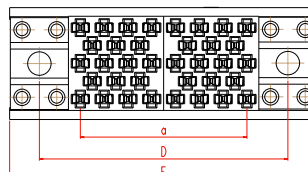
## TYPICAL ARRANGEMENTS



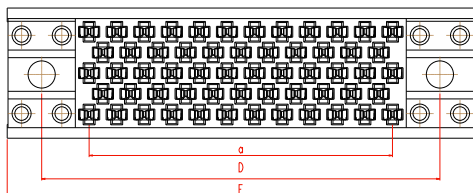
18 signal contacts



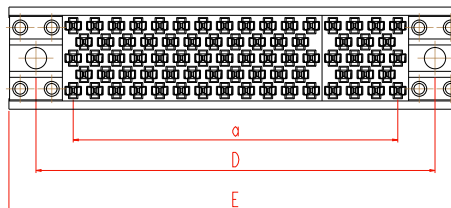
36 signal contacts



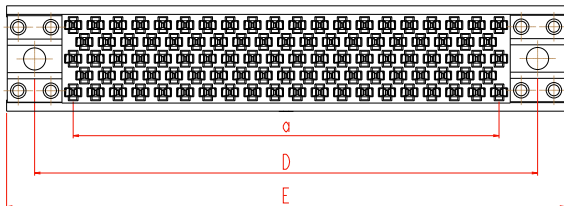
58 signal contacts



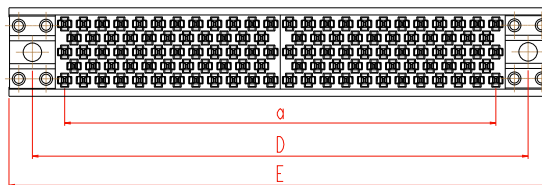
76 signal contacts



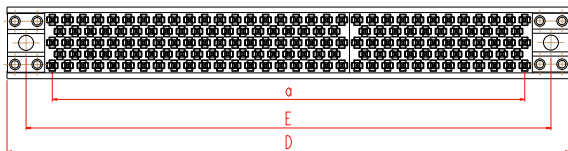
98 signal contacts



116 signal contacts



156 signal contacts



	18	36	58	76	98	116	156
<b>D</b>	16.51 [.650]	26.67 [1.050]	36.83 [1.450]	46.99 [1.850]	57.15 [2.250]	67.31 [2.650]	87.63 [3.450]
<b>E<sub>MAX</sub></b>	22.86 [.900]	33.02 [1.300]	43.18 [1.700]	53.34 [2.100]	63.5 [2.500]	73.66 [2.900]	93.98 [3.700]
<b>a</b>	7.62 [.340]	17.78 [.700]	27.94 [1.100]	38.1 [1.500]	48.26 [1.900]	58.42 [2.300]	81.28 [3.200]

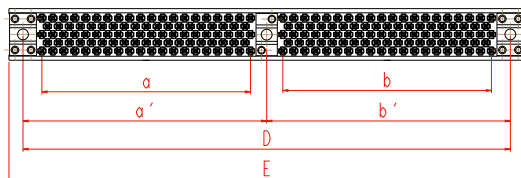
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIAL &gt;&gt; SIGNAL VERSION (3)

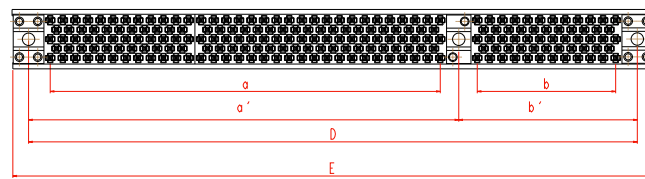
## TYPICAL ARRANGEMENTS



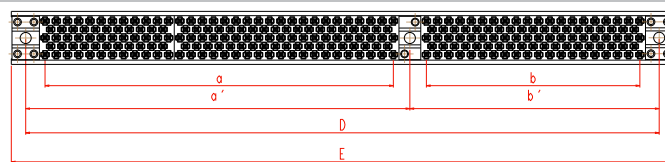
196 signal contacts



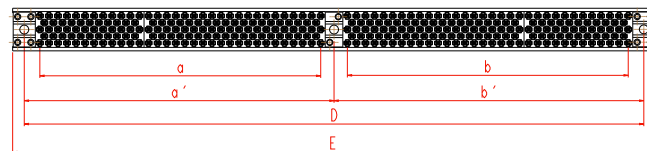
214 signal contacts



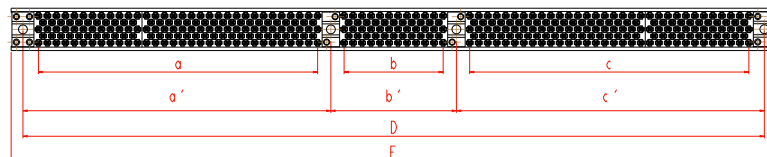
254 signal contacts



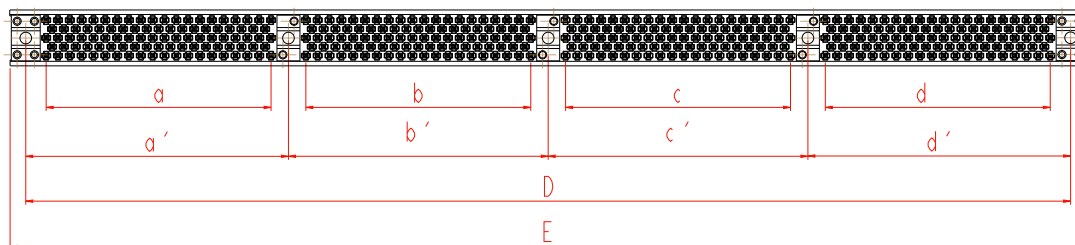
312 signal contacts



370 signal contacts



392 signal contacts



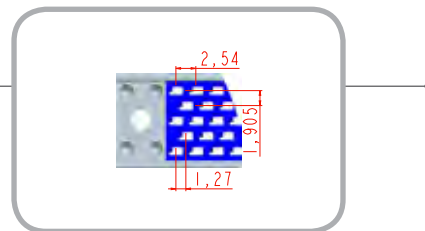
	196	214	254	312	370	392
<b>D</b>	113.03 [4.450]	123.19 [4.850]	143.51 [5.650]	173.99 [6.850]	209.55 [8.250]	224.79 [8.850]
<b>E<sub>MAX</sub></b>	119.38 [4.700]	129.54 [5.100]	149.86 [5.900]	180.34 [7.100]	215.9 [8.500]	231.14 [9.100]
<b>a</b>	48.26 [1.900]	81.28 [3.200]	81.28 [3.200]	81.28 [3.200]	81.28 [3.200]	48.26 [1.900]
<b>a'</b>	56.515 [2.225]	86.995 [3.425]	86.995 [3.425]	86.995 [3.425]	86.995 [3.425]	56.515 [2.225]
<b>b</b>	48.26 [1.900]	27.94 [1.100]	48.26 [1.900]	81.28 [3.200]	27.94 [1.100]	48.26 [1.900]
<b>b'</b>	56.515 [2.225]	36.195 [1.425]	56.515 [2.225]	86.995 [3.425]	35.56 [1.400]	55.88 [2.200]
<b>c</b>					81.28 [3.200]	48.26 [1.900]
<b>c'</b>					86.995 [3.425]	55.88 [2.200]
<b>d</b>						48.26 [1.900]
<b>d'</b>						56.515 [2.225]

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIAL &gt;&gt; SIGNAL VERSION (3)

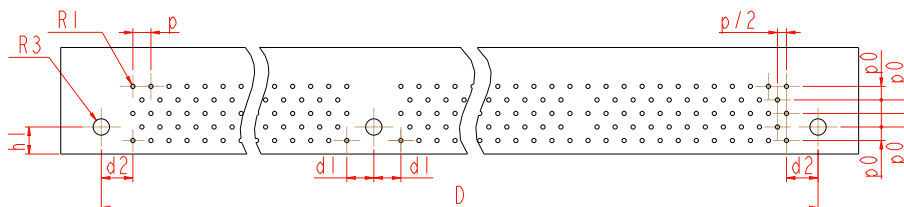
## LAYOUTS

The boards are shown from the connector side  
All contact locations are equidistant.



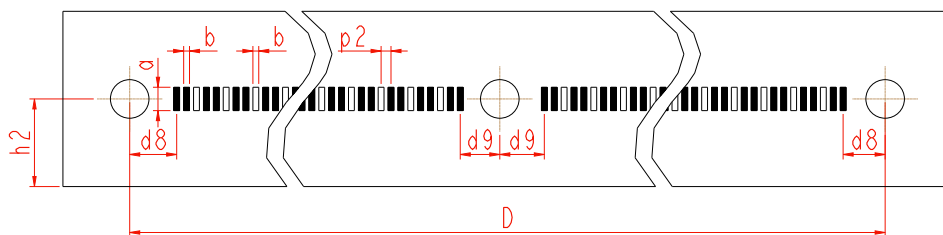
## With YC signal contacts for plug

DAUGHTER BOARD



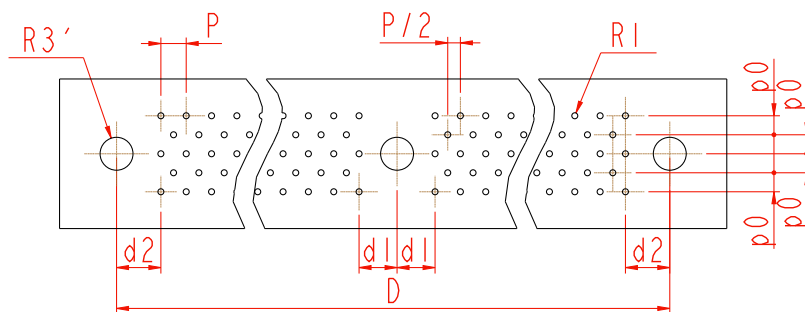
## With U -- signal contacts for plug

DAUGHTER BOARD



## With Y -- signal contacts for receptacle

MOTHER BOARD



$R_1$	$R_3$	$R_3'$	$p$	$p/2$	$p_0$	$p_2$	$d_1$	$d_2$	$d_8$	$d_9$	$a$	$b$	$h_1$	$h_2$
$\varnothing 0.6_{\text{MIN}}$ [.024]	$\varnothing 2.3^{+0.15}_{-0.1}$ [.091 <sup>+.006</sup> <sub>-.004</sub> ]	$\varnothing 3.3$ [.130]	2.54 [.100]	1.27 [.050]	1.905 [.075]	0.85 [.033]	3.81 [.150]	4.445 [.175]	4.02 [.158]	3.39 [.133]	$2_{\text{MAX}}$ [.079]	$0.5_{\text{MAX}}$ [.020]	3.81 [.150]	3.81 [.150]

All dimensions are given for information only and are in mm [inch], except as otherwise specified

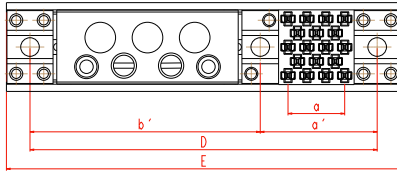


## SIAL &gt;&gt; COAXIAL VERSION (3)

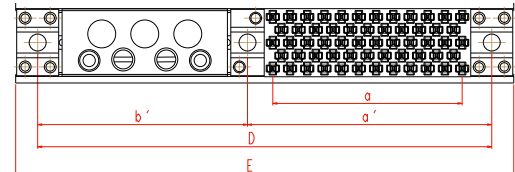
## TYPICAL ARRANGEMENTS



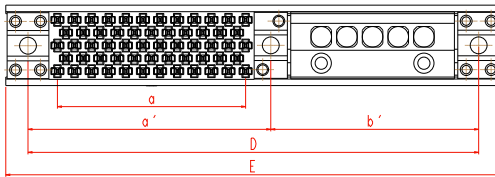
18 signal contacts + 3 coax



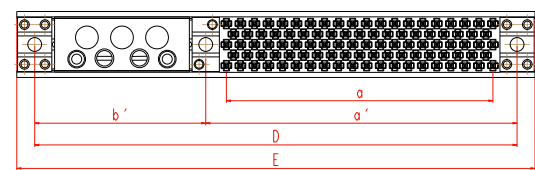
58 signal contacts + 3 coax



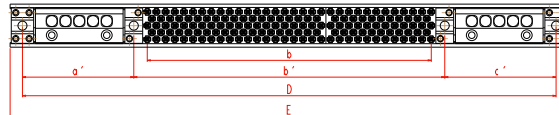
58 signal contacts + 5 coax



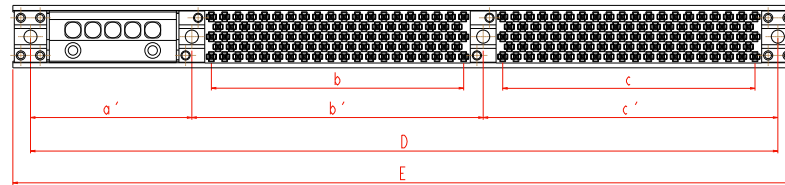
98 signal contacts + 3 coax



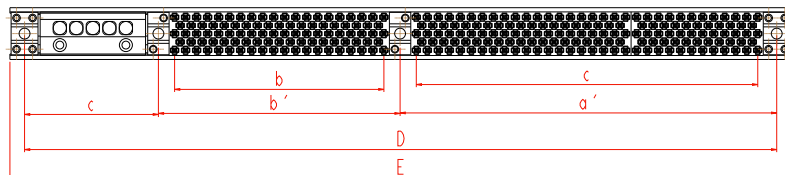
5 coax + 98 + 58 signal contacts + 5 coax



196 signal contacts + 5 coax



254 signal contacts + 5 coax



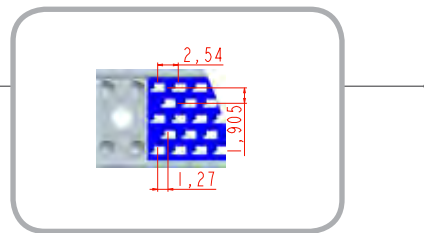
	18 + 3	58 + 3	58 + 5	98 + 3	5 + 98 + 58 + 5	196 + 5	254 + 5
<b>D</b>	46.99 [1.850]	67.31 [2.650]	67.31 [2.650]	87.63 [3.450]	148.59 [5.850]	143.51 [5.650]	173.99 [6.850]
<b>E<sub>MAX</sub></b>	53.34 [2.100]	73.66 [2.900]	73.66 [2.900]	93.98 [3.700]	154.94 [6.100]	149.86 [5.900]	180.34 [7.100]
<b>a</b>	7.62 [.340]	27.94 [1.100]	27.94 [1.100]	48.26 [1.900]	/	48.26 [1.900]	81.28 [3.200]
<b>a'</b>	15.875 [.625]	36.195 [1.425]	36.195 [1.425]	56.515 [2.225]	31.115 [1.225]	56.515 [2.225]	86.995 [3.425]
<b>b</b>	/	/	/	/	81.28 [3.200]	48.26 [1.900]	48.26 [1.900]
<b>b'</b>	31.115 [1.225]	31.115 [1.225]	31.115 [1.225]	31.115 [1.225]	86.36 [3.400]	55.88 [2.200]	55.88 [2.200]
<b>c</b>					31.115 [1.225]	31.115 [1.225]	31.115 [1.225]

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIAL >> SIZE 16 COAXIAL VERSION (3)

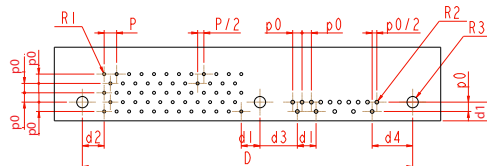
### LAYOUTS

The boards are shown from the connector side  
All contact locations are equidistant.



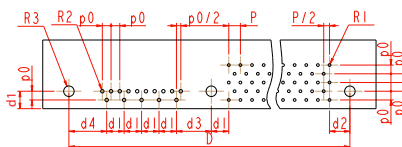
#### With Y0. male signal contacts and 5 coaxial contacts for plug

NX05-002  
DAUGHTER  
BOARD



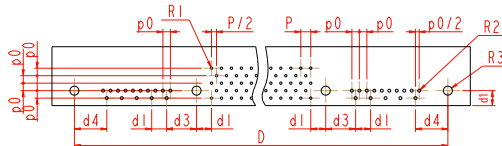
#### With Y0. male signal contacts and 5 coaxial contacts for plug

NX05-000  
DAUGHTER  
BOARD



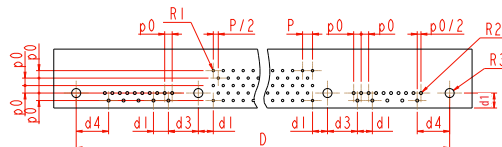
#### With Y0. male signal contacts and 10 coaxial contacts for plug

NX10-001  
DAUGHTER  
BOARD



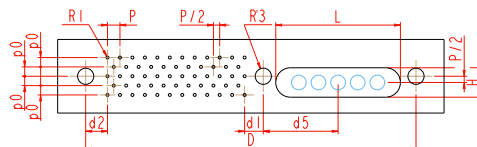
#### With Y0. male signal contacts and 10 coaxial contacts for plug

NX10-000  
DAUGHTER  
BOARD



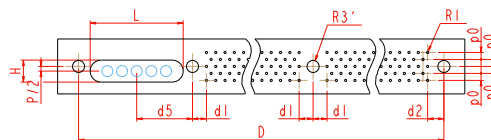
#### With Y09 female signal contacts and 5 coaxial contacts for receptacle

NT05-002  
MOTHER BOARD



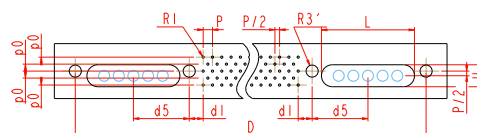
#### With Y09 female signal contacts and 5 coaxial contacts for receptacle

NT05-000  
MOTHER BOARD



#### With Y09 female signal contacts and 10 coaxial contacts for receptacle

NT10-000  
MOTHER BOARD

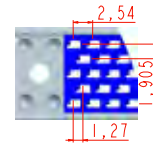


All dimensions are given for information only and are in mm [inch], except as otherwise specified

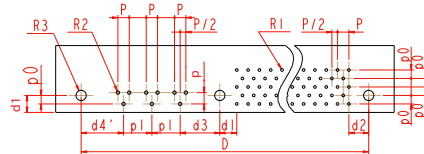
## SIAL &gt;&gt; SIZE 12 COAXIAL VERSION (3)

## LAYOUTS

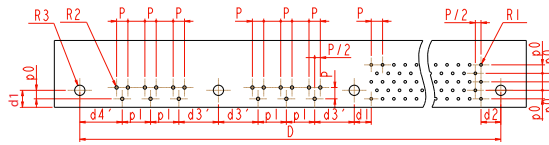
The boards are shown from the connector side  
All contact locations are equidistant.



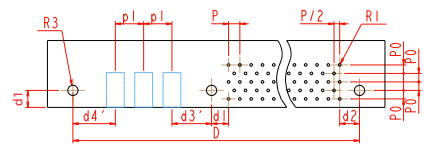
## With Y male signal contacts and 3x320000 right angle dip solder coaxial contacts/plug

K(2)03-000  
DAUGHTER  
BOARD

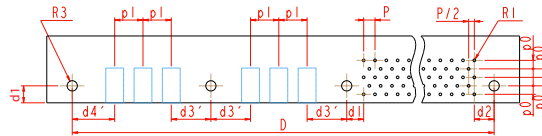
## With Y0 male signal contacts and 6x320000 right angle dip solder coaxial contacts/plug

K(2)06-000  
DAUGHTER  
BOARD

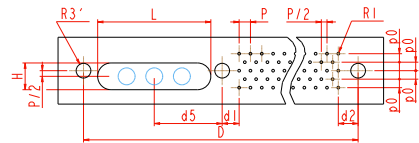
## With Y male signal contacts and 3x900340 crimp coaxial contacts/plug

K(1)03-000  
DAUGHTER  
BOARD

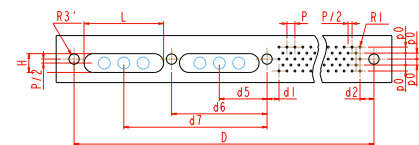
## With Y0 male signal contacts and 6x900340 crimp coaxial contacts/plug

K(1)06-000  
DAUGHTER  
BOARD

## With Y09 female signal contacts and 3 coaxial contacts/receptacle

KT03-000  
MOTHER BOARD

## With Y09 female signal contacts and 6 coaxial contacts/receptacle

KT06-000  
MOTHER BOARD

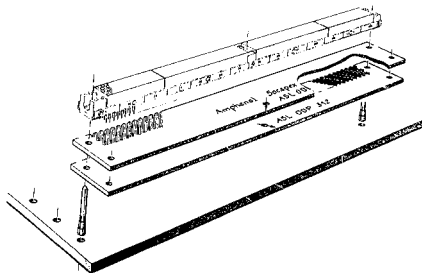
$R_1$	$R_2$	$R_3$	$R_3'$	$p$	$p/2$	$p_1$	$p_0$	$p_0/2$	$L$	$H$
$\emptyset 0.6_{\text{MIN}}$ [.024]	$\emptyset 0.75_{\text{MIN}}$ [.340]	$\emptyset 23^{+0.15}_{-0.1}$ [.091 <sup>+.006</sup> <sub>-.004</sub> ]	$\emptyset 33^{+0.15}_{-0.1}$ [.130 <sup>+.006</sup> <sub>-.004</sub> ]	2.54 [.100]	1.27 [.050]	6.35 [.250]	1.905 [.075]	0.9525 [.037]	$25.4_{\text{MAX}}$ [1.000] $19_{\text{MIN}}$ [.748]	$6_{\text{MIN}}$ [.236]

$d_1$	$d_2$	$d_3$	$d_4$	$d_5$	$d_6$	$d_7$	$d_3'$	$d_4'$
3.81 [.150]	4.445 [.175]	7.62 [.300]	8.255 [.325]	15.24 [.600]	30.48 [1.200]	45.72 [1.800]	8.89 [.350]	9.525 [.375]

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIAL >>> TOOLING

### Receptacle mounting on mother board (Y09)

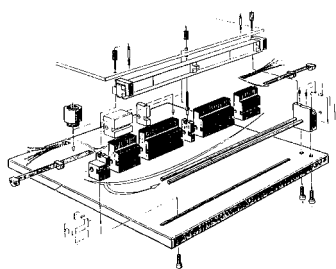


- Insertion of all connector sizes with Y09 dip solder contacts
- Into 0.6 mm [.024] thru plated holes
- Consult us for additional references

ASL ODP 058  
ASL ODP 098  
ASL ODP 116

ASL ODP 156  
ASL ODP 254  
ASL ODP 312

### Plug mounting on daughter board (Y01 or Y02)



- Insertion of all connector sizes with Y01 or Y02 right angle dip solder contacts
- Into 0.6 mm [.024] thru plated holes
- Consult us for additional references

ASL ODI YC 312  
ASL ODI YC 392

### Plug mounting on daughter board (SMT)



- Insertion of all connector sizes with U04, U05, U06, U07 or U08 SMT contacts (Surface Mount Terminations)
- Consult us for additional references

ASL ODI SMT

### Mounting tool for size 16 coax contacts



- On mother board or daughter board
- Consult us for additional references
- For ASLF \*\*\* NX05-002 and ASLF \*\*\* NX05-502 connectors, use the ASL ODP NX10 tool.

ASL ODP NX05

ASL ODP NX10

### Extraction tool for coax contacts

Size 12



809839

Size 16



ASL OD COAX FEMELLE TAILLE 16

SIAL >>> TOOLING

CRIMPING TOOL FOR 12-SIZE COAX CONTACTS

Inner contact crimping tool



- For 12-size coaxial contacts
- Additional turret:  
PN 809932 (M22520/2-34)
- Military reference : M22520/2-01

Part number	809801
-------------	--------

Outer contact crimping tool



- For 12-size coaxial contacts
- Additional turret:  
PN 809927 (M22520/31-02)
- Military reference : M22520/3-1-01

Part number	809926
-------------	--------

INSERTION AND REMOVAL TOOLS FOR 12-SIZE COAX CONTACTS

Insertion tool



- Size 12
- Metallic

Part number	809838
-------------	--------

Removal tool



- Size 12
- Metallic
- For 900340 and 900354 contacts

Part number	809839
-------------	--------

Insertion/Removal tool



- Size 12
- Plastic

Part number	809859
-------------	--------

Removal tool



- Size 12
- Metallic
- For 320001 contact

Part number	809933
-------------	--------

# SIHD

The monolithic connector for use with thermal clamps

The SIHD connector combines excellent electrical performances with high contact density within a robust housing, which can withstand extreme environmental conditions. In addition, the lateral displacement capability allows the use of thermal clamps for heat management, as well as a more relaxed positional tolerance on the backplane. The optional central ground strip provides cross talk protection and permits the routing of differential pairs. Contacts can be repaired and replaced individually.

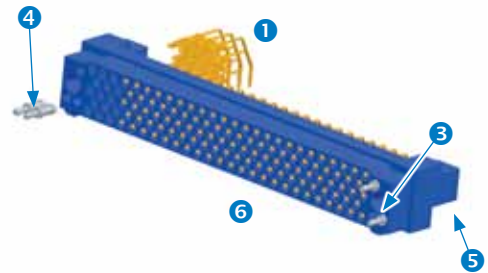
## The ability to include ground strips

- Transmission of high-speed signals made easy by reducing self inductance with the inclusion of central ground strips
- Cross talk and self impedance levels reduced impedance 70Ω to 120Ω
- Capacitance distributed along signal contacts

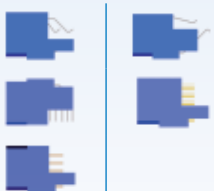





## Compatible with the use of thermal clamps

Its standard contact technology, already used in the SIAL connector, permits the lateral displacement ( $\pm 0.25$  [.010]) of the pin into the socket without generating any stress on the contact termination on the PCB.

This feature allows the use of thermal clamps to keep the daughter board in position after mating, as well as the dissipation of energy generated by the components on the board from the heat sink (thermal drain) to the cold wall (liquid cooled) or to the chassis. The locking of the thermal clamps provides the lateral movement of the plug into the receptacle. The SIHD allows this lateral displacement of  $\pm 0.25$  [.010] without creating stress on the solder joints or on the contact area.

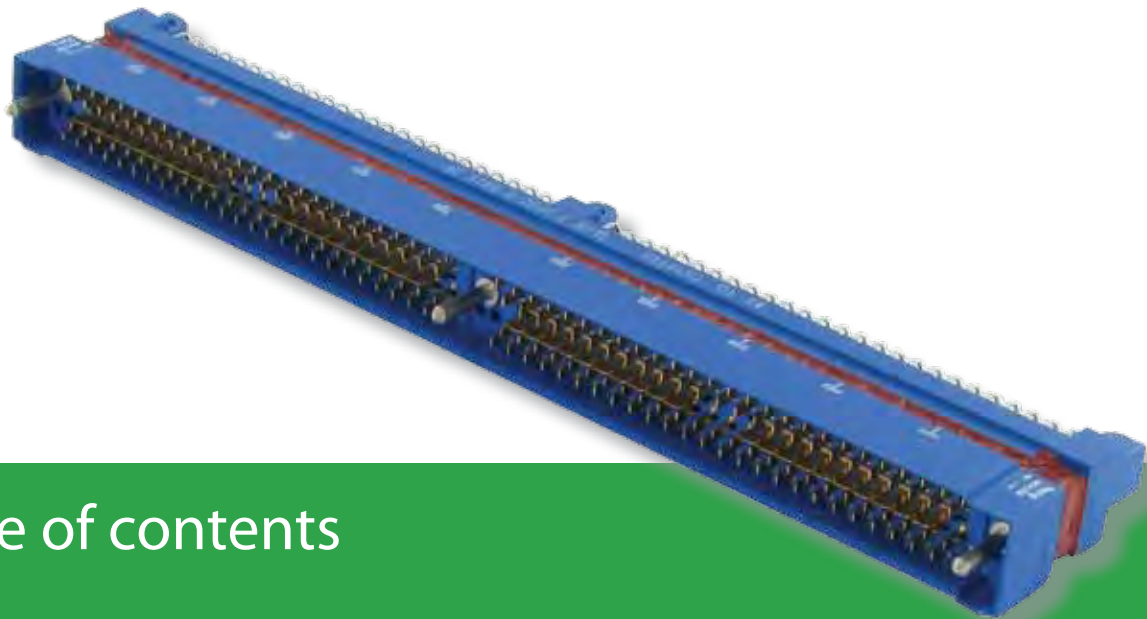


## QUICK SELECTION GUIDE

Signal contacts 1	Ground Strip 2	Guiding 3	Keying 4	Fittings 5	Housings 6
<b>FEMALE</b>  <b>MALE</b> 	 Reduced cross talk level  Reduced self impedance level  Capacitance distributed along signal contacts	<b>A STYLE</b> <b>For M1W3 contacts</b>  <b>B STYLE</b> <b>For M1YD contacts</b>  <i>Fixing of receptacle</i>	<b>250 positions available</b>  10 holes 5 pins on the plug 5 pins on the receptacle	<b>For receptacles:</b> style A and B (guiding)  <b>For plugs:</b> fixing on thermal drain or on PCB	<b>Without ground strip:</b> 128, 158, 256, 390  <b>With ground strip:</b> 102C, 204C, 230C
PAGE 102   PAGE 103	PAGE 103	PAGE 104	PAGE 104	PAGE 105	PAGE 106

# SIHD Series

Lateral displacement compatibility



SIHD Series

## Table of contents

SIHD product range ..... 98

Female signal contacts for plugs ..... 102

Male signal contacts for receptacles..... 103

Ground strips..... 103

Guiding / Keying ..... 104

Mating sequence ..... 104

Realignment capability ..... 104

Fixing accessories ..... 105

SIHD without ground strip: typical arrangements..... 106

SIHD with ground strip: typical arrangements ..... 107

SIHD without ground strip: layouts..... 108

SIHD with ground strip: layouts ..... 109

The SIHD series serves various **markets**, including:



Commercial Avionics  
& Airframe



Military Avionics & Airframe



Navy



Space

## SIHD&gt;&gt;&gt; GENERAL SPECIFICATIONS

MEDIUM  
DENSITY

- 2.54 [.100] staggered grid (1.27 [.050] offset), 1.905 [.075] between rows
- Lateral displacement capability allowing the use of thermal clamps:  $\pm 0.25 [\pm .010]$
- Possibility to have a central ground strip
- Designed for severe mechanical environments
- Low weight

## Main characteristics

- Medium density: 0.14 cts/mm<sup>2</sup> [90 cts / inch<sup>2</sup>]
- 7 variations: 5 rows from 102 to 390 signal contacts
- 3 A per signal contacts / DWV: 750\* Vrms
- Lateral rails to protect the male contact from external damage
- Repairable contacts for easy maintenance

## Markets



## Main applications



## Terminations



## Recommended configurations



## How to order

<b>F</b>	Plug with female contacts
<b>E</b>	Receptacle with male contacts
<b>P</b>	Extender card for M1YC contacts (shroud aluminium)
<b>G</b>	Extender card for M1YC contacts (12.7 pitch)
<b>Connector type</b>	

<b>C</b>	Central ground strip
<b>Ø</b>	No ground strip
<b>Ground strip (see page 103)</b>	

<b>A B C D E F K</b>	F connector
<b>A B</b>	E connector
<b>Fittings (see page 105)</b>	

<b>Ø</b>	Gold on M1W3 terminations
<b>6</b>	Tin on M1W3 terminations
<b>Plating (for M1W3 contacts only)</b>	

SIHD - --- - - ---- -

Number of signal contacts (see pages 106 to 107)	
Without ground strip	With ground strip
128	102 central ground strip
158	204 central ground strip
256	230 half central ground strip
390	

Signal contacts (see pages 102 to 103)			
F connector	E connector	P connector	G connector
SMT double side: <b>F1U1 / F1U2 / F1U3</b>	Wire wrap connections: <b>M1W3</b>	Extender card: <b>M1YC</b>	Extender card: <b>M1YC</b>
SMT single side: <b>F1TS</b>	Straight PC tail: <b>M1YD</b>		
Right angle PC tail: <b>F1YC</b>			
Straight PC tail: <b>F1TS</b>			
Crimping tail: <b>F1X1</b>			

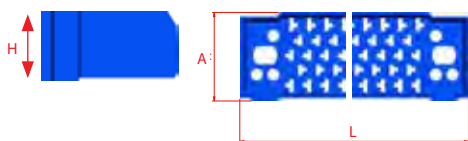
\* 375Vrms only for F1U2 cts

All dimensions are given for information only and are in mm [inch], except as otherwise specified

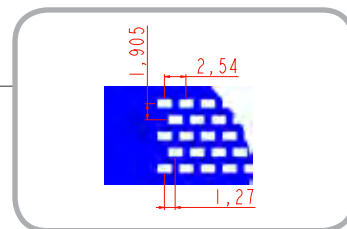


## SIHD &gt;&gt;&gt; TECHNICAL SPECIFICATIONS

## Dimensional characteristics



H = 16.9 to 17.95 [.665 to .707] for plug  
 H = 10.22 to 11.15 [.402 to .439] for receptacle  
 A = 11.6 to 15 [.457 to .591]  
 L = 77.86 to 221 [3.065 to 8.701]



## Female contact



## Cross cavity by Amphenol: lateral displacement compatible

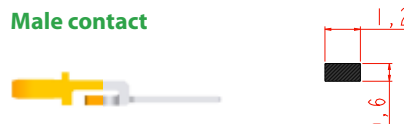
- Cross section of the lateral displacement of the male contact inside the female cavity
- Maintains 2 points of contact
- Allows a  $\pm 0.25$  [ $\pm .010$ ] lateral displacement
- No stress on solder joints or on the contact area

**Material:** beryllium copper (stamped)

## Plating:

- Terminations: gold over nickel on crimp contacts (F1X1)  
tin lead or lead free on other contacts (F1U1, F1U2, F1U3, F1TS, F1YC)
- Active contact area: gold over nickel

## Male contact



**Mating end size:** 0.6 x 1.2 [.047 x .024]

**Contact section** (mating side): 0.72 mm<sup>2</sup> [.001 in<sup>2</sup>]

**Material:** phosphorous bronze (stamped)

## Plating:

- Terminations - gold over nickel on wire-wrap contacts (M1W3)  
- tin lead or lead free on other contacts (M1YD & M1YC)
- Active contact area - gold over nickel

## Materials

- **Guiding devices:** passivated stainless steel 303
- **Polarizing pins:** passivated stainless steel 303
- **Plastic insert:** thermoset DAP, 40% glass fiber filled

## MECHANICAL CHARACTERISTICS

<b>Backoff</b> <sup>1</sup> (mm)	1
<b>Mating force</b> per contact (N)	0.58 <sub>MAX</sub>
<b>Unmating force</b> per contact (N)	0.16 < F < 0.58
<b>Durability</b> cycles	500
<b>Sinusoidal vibrations</b> (10 to 2000 Hz) micro discontinuity 10ns	
- unloaded PCB	20 g
- loaded PCB	10 g
<b>Random vibrations</b> (50 to 2000 Hz) micro discontinuity 10ns	0.1 g <sup>2</sup> / Hz
<b>Shocks</b> 6ms 1/2 sinus micro discontinuity 10ns	100 g
<b>Recommended tightening torques</b>	
- nuts for Ø 2 mm screws, brass m.N	0.2
- nuts for Ø 2.5 mm screws, brass m.N	0.25

## ENVIRONMENTAL CHARACTERISTICS

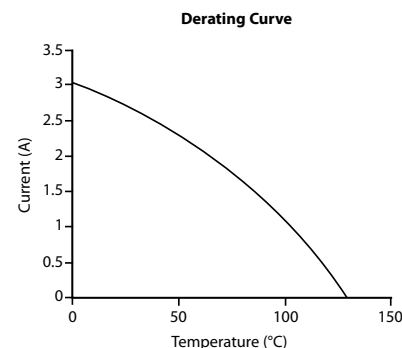
<b>Thermal shocks</b> (°C)	-55 / +125
<b>Salt Spray</b> (hours)	96
<b>Humidity</b>	
<b>Days</b>	56
<b>Temperature</b> (°C)	40
<b>Humidity rate</b> (%)	90-95

## ELECTRICAL CHARACTERISTICS

<b>Current rating</b> per contacts (A)	3 - See derating curve
<b>Insulation resistance</b> (at 500Vdc) (GΩ)	5 <sub>MIN</sub>
<b>Contact resistance</b> (mΩ)	12 <sub>MAX</sub>
<b>Dielectric Withstanding Voltage</b> (Vrms)	750*
<b>Capacitance</b> between contacts (pF)	2.5 <sub>MAX</sub>
<b>Self induction</b> (nH)	25 <sub>MAX</sub>
<b>Immunity against noise</b> of groundings for connectors with central ground strips	Noise ≤ 400mV for 0.1 A intensity per contact and signal rise time of 2ns

\* 375Vrms only for F1U2 cts

<sup>1</sup>: When both connectors are fully mated, the backoff is the maximum distance the connectors can be unmated while functioning properly



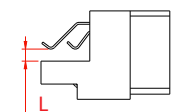
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIHD &gt;&gt;&gt; SIGNAL CONTACTS (1)

## FEMALE CONTACTS FOR PLUGS WITHOUT GROUND STRIP



## Double sided SMT



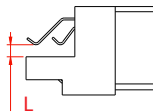
- SMT soldering
- Double sided daughter board
- Surface mount area: 0.7x0.8 [.028x.031]
- PCB thickness: 2.3 to 3.2 [.091 to .126]



Termination style

F1U1

## Double sided SMT



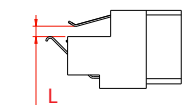
- SMT soldering
- Double sided daughter board
- Surface mount area: 0.7x0.8 [.028x.031]
- PCB thickness: 4.56 to 5.37 [.180 to .211]



Termination style

F1U2

## Double sided SMT



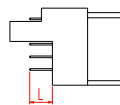
- SMT soldering
- Double sided daughter board, offset
- Surface mount area: 0.7x0.8 [.028x.031]
- PCB thickness: 1.8 to 2.65 [.071 to .104]



Termination style

F1U3

## Straight solder PC tail



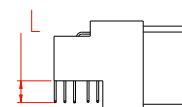
- Straight solder PC tail
- Thru hole soldering
- Daughter board



Termination style

F1TS

## Right angle solder PC tail



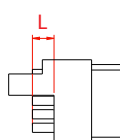
- Thru hole soldering
- Daughter board
- PCB thickness
  - With heat sink: 2.9 to 3.41 [.114 to .134]
  - Without heat sink: 1.4 to 1.8 [.055 to .071]



Termination style

F1YC

## Crimp barrel



- Crimping on wire
- AWG gauge 22 to 28



Termination style

F1X1

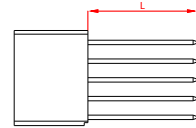
	F1U1	F1U2	F1U3	F1TS	F1YC	F1X1
<b>L<sub>MAX</sub></b>	3.21 [.126]	5.37 [.211]	2.65 [.104]	5.5 [.217]	With heat sink: 4.4 [.173] Without heat sink: 2.8 [.110]	2.9 [.114]
<b>Termination section</b>	0.6 x 0.25 [.024 X .010]				Ø 0.5 ± 0.03 [.020 ± .001]	Ø 1.3 [.051]
<b>Active contact area plating μm [μin]</b>	2 [.080] Ni + 1 [.039] Au					
<b>Termination plating μm [μin]</b>	2 [.080] Ni + 7 [.276] SnPb or bright pure Sn for RoHS version				2 [.080] Ni + 3 [.118] SnPb or bright pure Sn for RoHS version	2 [.080] Ni + 1 [.039] Au

SIHD >>> SIGNAL CONTACTS & GROUND STRIP TECHNOLOGY (1 & 2)

MALE CONTACTS FOR RECEPTACLES WITHOUT GROUND STRIP (1)



Wire-wrap

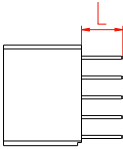


- Wire wrap connections
- Mother board
- AWG gauge 28 to 30



Termination style **M1W3**

Straight solder PC tail



- Thru hole soldering
- Mother board
- PCB thickness: up to 4.3 ± 0.3 [.169 ± .012]



Termination style **M1YD**

	M1W3	M1YD
L	14.75 ± 0.45 [.581 ± .018]	5.3 ± 0.3 [.209 ± .012]
Termination section	Ø 0.82 ± 0.04 [.032 ± .002]	Ø 0.5 ± 0.03 [.020 ± .001]
Mating end size	1.2 x 0,6 [.024 x .047]	
Active contact area plating µm [µin]	2 [.080] Ni + 1 [.039] Au	
Termination plating µm [µin]	2 [.080] Ni + 0.2 [.008] Au for standard version or 2 [.080] Ni + 3 [.118] SnPb for tinned version or 2 [.080] Ni + 3 [.118] bright pure Sn for RoHS version	2 [.080] Ni + 3 [.118] SnPb or bright pure Sn for RoHS version



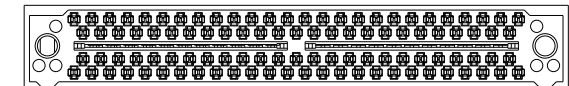
GROUND STRIP TECHNOLOGY (2)

Ground strip benefits



- Reduced cross talk level
- Impedance 70Ω to 120Ω
- Reduced self impedance level
- Capacitance distributed along signal contacts

Central ground strip technology



Arrangements available: 102 & 204 signal contacts  
Compatibility: M1YD, M1W3, F1YC, F1U1, F1U2 & F1U3

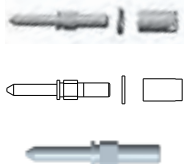
## SIHD >>> GUIDING (3) & KEYING (4)

### GUIDING (3)

The guides are the fixing accessories for receptacles



#### A style



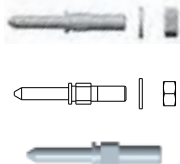
Receptacles with M1W3 contacts are delivered with:

- 3 guides
  - 3 washers
  - 3 cylindrical nuts
- Passivated stainless steel

SIHD E --- A M1W3

A

#### B style



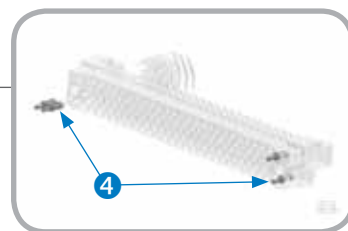
Receptacles with M1YD contacts are delivered with:

- 3 guides
  - 3 washers
  - 3 hexagonal nuts
- Passivated stainless steel

SIHD E --- B M1YD

B

### KEYING (4)



#### Polarizing pins



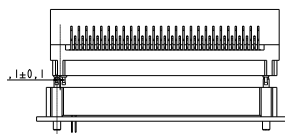
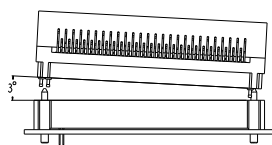
- More than 250 different positions available
- 5 pins delivered with each connector – Plug and receptacle have 10 holes
- Among the 10 holes of the plug, 5 of them have to be equipped with one pin
- Among the 10 holes of the receptacle, 5 of them have also to be equipped with one pin
- If pins are located in opposite holes for both plug and receptacle, mating is not possible

### MATING SEQUENCE

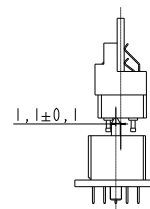
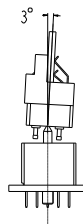
Guiding	Keying	Housing contact	Signal contact	Mated connector
8.3 [.327]	6.2 [.244]	5.5 [.217]	1 ± 0.3 [.039 ± .012] 1.2 [.047]	0

### REALIGNMENT CAPABILITY

#### In the longitudinal axis

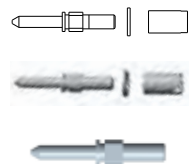


#### In the lateral axis



## SIHD &gt;&gt;&gt; FIXING ACCESSORIES (5)

## FIXING ACCESSORIES FOR RECEPTACLES = GUIDING

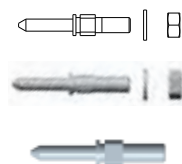
**A style**

Receptacles with M1W3 contacts are delivered with:

- 2 or 3 guides
- 2 or 3 washers
- 2 or 3 cylindrical nuts

Passivated stainless steel

SIHD E --- A M1W3

**A****B style**

Receptacles with M1YD contacts are delivered with:

- 2 or 3 guides
- 2 or 3 washers
- 2 or 3 hexagonal nuts

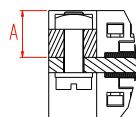
Passivated stainless steel

SIHD E --- B M1YD

**B**

## FIXING ACCESSORIES FOR PLUGS

## PCB with a thermal drain

**A style - For F1U1/F1U2 female contacts**

- Mounted to heat sink
- PCB with a heat sink

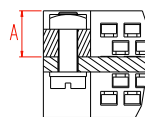
Passivated stainless steel

SIHD F --- A F1U1

SIHD F --- A F1U2

**A**

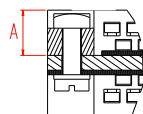
## PCB without a thermal drain

**D style - For F1YC female contacts**

- Mounted to PCB
- PCB without a heat sink

Passivated stainless steel

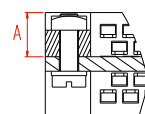
SIHD F --- D F1YC

**D****B style - For F1U1 female contacts**

- Mounted to PCB
- PCB with a heat sink

Passivated stainless steel

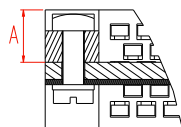
SIHD F --- B F1U1

**B****E style - For F1U3 female contacts**

- Mounted to PCB
- PCB without a heat sink

Passivated stainless steel

SIHD F --- E F1U3

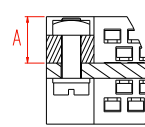
**E****C style - For F1YC/F1T female contacts**

- Mounted to PCB
- PCB with a heat sink

Passivated stainless steel

SIHD F --- C F1YC

SIHD F --- C F1T

**C****F style - For F1X1 female contacts**

- Mounted to PCB
- PCB without a heat sink

Passivated stainless steel

SIHD F --- F F1X1

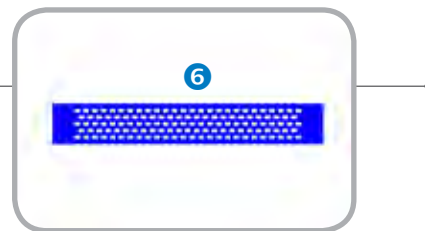
**F**

## Fixing accessories for plugs equipped with female contacts

	A style	B style	C style	D style	E style	F style
<b>A</b> MIN	F1U1 4.16 [.164] F1U2 3.08 [.121]	F1U1 4.16 [.164]	F1YC 7.72 [.304]	F1YC 7.62 [.300]	F1U3 7.61 [.300]	F1X1 4.93 [.194]

## SIHD &gt;&gt;&gt; WITHOUT GROUND STRIP (6)

## TYPICAL ARRANGEMENTS



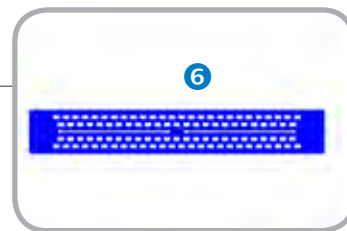
	Plug	Receptacle
128		
158		
256		
390		

Nb of contacts	128		158		256		390	
	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle
C	63.5 [2.500]		78.74 [3.100]		63.5 [2.500]		96.52 [3.800]	
D	71.12 [2.800]		86.36 [3.400]		71.12 [2.800]		106.68 [4.200]	
E <sub>MAX</sub>	77.86 [3.065]	78.38 [3.086]	93.1 [3.665]	93.62 [3.686]	148.98 [5.865]	149.5 [5.886]	220.35 [8.675]	221 [8.701]
h <sub>MAX</sub>	11.6 [.457]	12.4 [.488]	11.6 [.457]	13.4 [.528]	11.6 [.457]	12.4 [.488]	11.75 [.463]	15 [.591]
D'	72.39 [2.850]	/	87.63 [3.450]	/	71.755 [2.825]	/	106.68 [4.200]	/
I <sub>MAX</sub>	16.9 [.665]	10.3 [.406]	16.9 [.665]	11.15 [.439]	16.9 [.665]	10.3 [.406]	17.95 [.707]	10.2 [.402]

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIHD &gt;&gt;&gt; WITH GROUND STRIP (6)

## TYPICAL ARRANGEMENTS



	Plug	Receptacle
128		
204		
230		

	Plug			Receptacle		
Nb of contacts	102	204	230	102	204	230
C	63.5 [2.500]					
D	71.12 [2.800]					
E <sub>MAX</sub>	77.86 [3.065]	148.98 [5.865]		78.38 [3.086]	149.5 [5.886]	
h <sub>MAX</sub>	11.6 [.457]			12.4 [.488]		
D'	72.39 [2.850]	71.755 [2.825]		/		
l <sub>MAX</sub>	16.9 [.665]			10.3 [.406]		

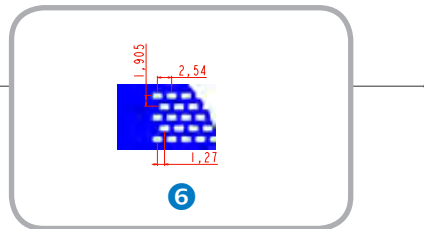
## SIHD &gt;&gt;&gt; WITHOUT GROUND STRIP (6)

## LAYOUTS

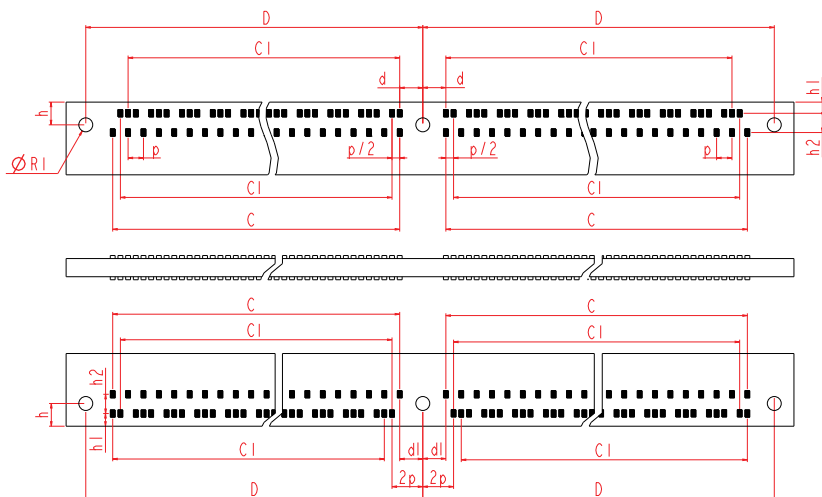
The boards are shown from the connector side.

All contact locations are equidistant.

n indicates the total number of signal contacts.

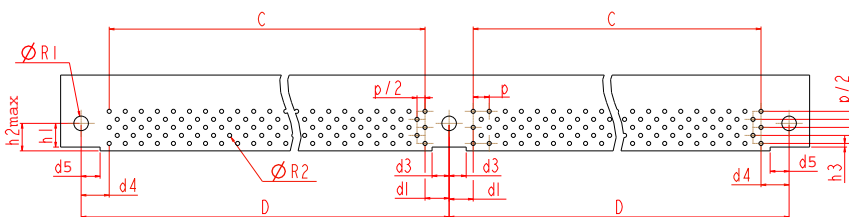


## F1U1/F1U2 CONTACT (female for plug)\*



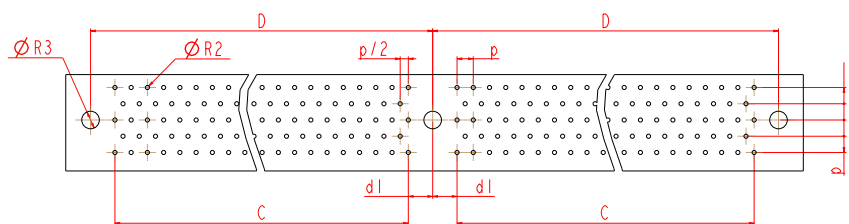
<b>C<sub>1</sub></b>	$C - p = C - 2.54$
<b>C</b>	See pages 94 & 95
<b>D</b>	See pages 94 & 95

## F1YC CONTACT (female for plug)\*



<b>C</b>	See pages 94 & 95
<b>D</b>	See pages 94 & 95

## M1W3/M1YD (male for receptacle)\*



<b>C</b>	See pages 94 & 95
<b>D</b>	See pages 94 & 95

R1	R2	R3	h	h1	h2	h3	h2 <sub>MAX</sub>	
Ø 2.3 <sup>+0.05</sup> <sub>+0</sub> [.091 <sup>+0.02</sup> <sub>+0</sub> ]	Ø 0.6 <sub>MIN</sub> [.024] 0.9 <sub>MIN</sub> for W3 contacts	Ø 2.75 <sup>+0.05</sup> <sub>+0</sub> [.108 <sup>+0.02</sup> <sub>+0</sub> ]	3.75 [.148]	1.845 [.073]	3.175 [.125]	0.575 [.023]	4.35 <sub>MAX</sub> [.171]	
d1	d2	d3	d4	d5	p1	p	2p	p/2
3.81 [.150]	4.445 [.175]	2.7 <sup>+0.1</sup> <sub>+0</sub> [.106 <sup>+0.04</sup> <sub>+0.004</sub> ]	4.47 [.176]	3 ± 0.1 [.118 ± .004]	1.905 [.075]	2.54 [.100]	5.08 [.200]	1.27 [.050]

\* in mm: 1mm = 0.03937 inch

All dimensions are given for information only and are in mm [inch], except as otherwise specified



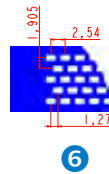
## SIHD &gt;&gt;&gt; WITH GROUND STRIP (6)

## LAYOUTS

The boards are shown from the connector side.

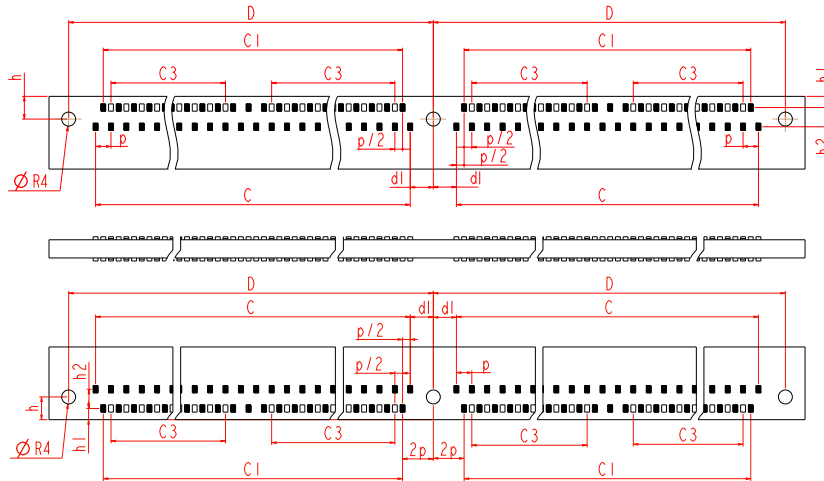
All contact locations are equidistant.

n indicates the total number of signal contacts.



## F1U1/F1U2 CONTACT (female for plug)\*

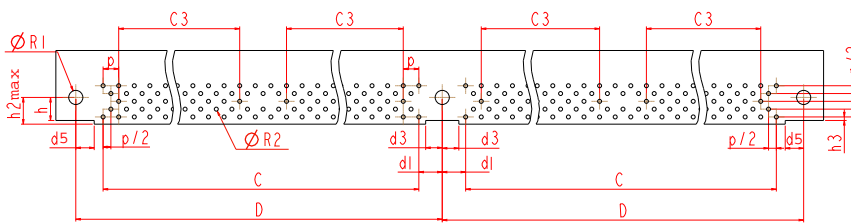
n = 102, 204 or 230



$C_1$	$C - p = C - 2.54$
$C_3$	$(C - 5p) / 2$
$C$	See pages 94 & 95
$D$	See pages 94 & 95

## F1YC CONTACT (female for plug)\*

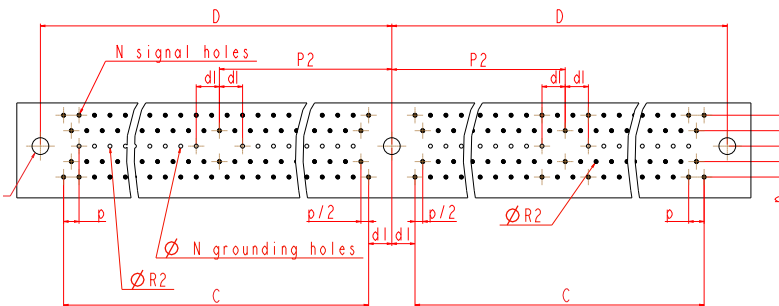
n = 102, 204 or 230



$C_1$	$C - p = C - 2.54$
$C_3$	$(C - 5p) / 2$
$C$	See pages 94 & 95
$D$	See pages 94 & 95

## M1W3/M1YD (male for receptacle)\*

n = 102, 204 or 230



$P_2$	$C / 2$
$C$	See pages 94 & 95
$D$	See pages 94 & 95

R1	R2	R3	R4	p1	p	2p	p/2
$\varnothing 2.3^{+0.05}_{+0.002}$ [.091 <sup>+0</sup> ]	$\varnothing 0.6^{+0.05}_{-0.002}$ MIN [.024] 0.9 MIN for W3 contacts	$\varnothing 2.75^{+0.05}_{+0.002}$ [.108 <sup>+0</sup> ]	$\varnothing 2.7^{+0.05}_{-0.002}$ MAX [.106]	1.905 [.075]	2.54 [.100]	5.08 [.200]	1.27 [.050]
d1	d3	d5	h	h1	h2	h3	h2 <sub>MAX</sub>
3.81 [.150]	$2.7^{+0.1}_{+0.004}$ [.106 <sup>+0</sup> ]	$3 \pm 0.1$ [.118 ± .004]	3.75 [.148]	1.845 [.073]	3.175 [.125]	0.575 [.023]	$4.35^{+0.1}_{-0.004}$ MAX [.171]

\* in mm: 1mm = 0.03937 inch

All dimensions are given for information only and are in mm [inch], except as otherwise specified

# 127 / HE8

Proven, reliable and robust connector

The 127 series is a medium-density range of multi-contact plug-in connectors for printed circuit boards. This range of 2.54 [.100] staggered grid, low profile connectors meets the common harsh environmental requirements.

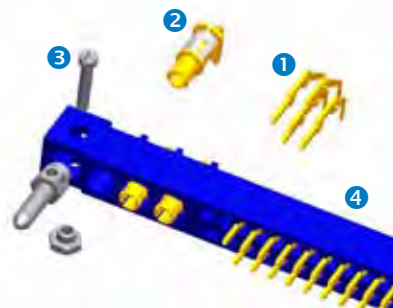
A wide range of fittings and guides, as well as numerous contact terminations, provide more flexibility to PCB designers.

## A well-proven technology

- The 127 series uses a 2.54 [.100] staggered grid pitch with 2.54 [.100] between rows. Available in 2 or 3 rows.
- The contact technology is based on the tuning fork and blade concept. Using advanced copper alloys provides optimized electrical conductivity as well as long-term mechanical reliability.

## A large choice of attachments on Printed Circuit Boards

- Different styles, from 17 to 144 signal contacts with various terminations: straight, right angled 90°, crimp barrel, solder cup, SMT and wire-wrapping.
- Hybrid patterns, with a combination of 3 to 10 special cavities, permit the usage of coaxial, power contacts, as well as optical termini.



The 127 series connectors are available in 3 different versions: HE801 / HE804 / HE807

This proven range of PCB connectors complies with numerous international standards:

**NFC UTE 93424**  
HE801, HE804 & HE807

**BS9525**  
N0001, F0006, F0007

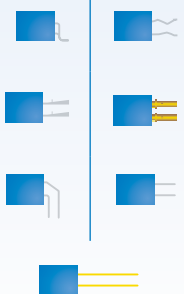
**MIL-DTL-55302**  
140 to 155

## QUICK SELECTION GUIDE

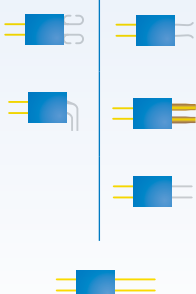
### Signal contacts

1

#### FEMALE



#### MALE



### Special contacts

2

#### POWER 10A



#### POWER 20A



#### COAXIAL



### Keying & Guiding

3

#### NON KEYING

#### KEYING

#### LOCKING

#### NON LOCKING

### Connector type

#### HE801

Round male contact  
Standard molding size

#### HE804

Rectangular male contact  
Molding smaller in size

#### HE807

Hybrid cavities

PAGE 114

PAGE 115

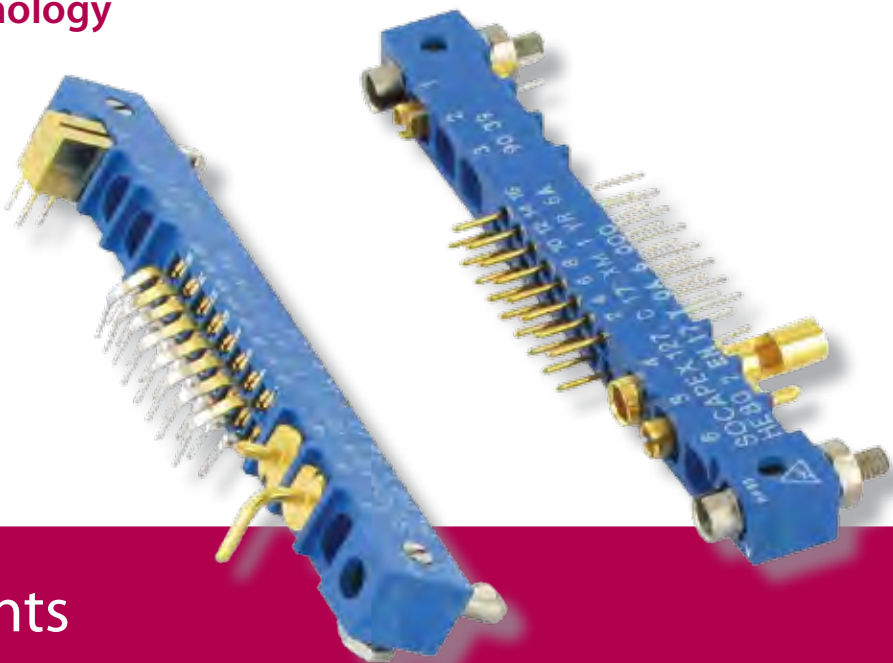
PAGE 116

PAGE 118

PAGES 112 & 113

# 127 / HE8 Series

The well proven technology



127 / HE8 Series

## Table of contents

127/HE8 product range ..... 110

Signal contacts ..... 114

Special contacts ..... 116

Female fittings for receptacles ..... 118

Male fittings for plugs ..... 122

Typical arrangements and layouts, signal connectors (HE801&HE804) ..... 126

Typical arrangements and layouts, hybrid connectors (HE807) ..... 128

Fittings & contacts compatibility ..... 131

Tooling..... 134

The 127 / HE8 series serves various **markets**, including:



Military Avionics  
& Airframe



Commercial Avionics  
& Airframe



C4ISR

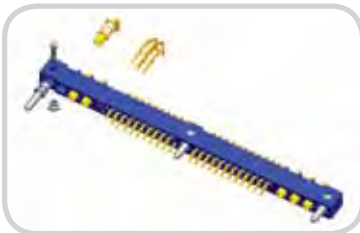


Ground vehicles



Industrial

## 127 / HE8 &gt;&gt;&gt; GENERAL SPECIFICATIONS

MEDIUM  
DENSITY

- 2.54 [.100] staggered grid (1.27 [.050] offset), 2.54 [.100] between rows
- Proven, reliable and robust rectangular PCB connectors
- Numerous contact terminations and fittings
- Hybrid patterns with power or coax contacts

## Main characteristics

- Density: 0.11 cts / mm<sup>2</sup> [71 cts / inch<sup>2</sup>]
- 17 to 144 signal contacts
- 0 to 10 special contacts
- 3 A per signal contacts
- Fully compatible with all the standard connectors HE801, HE804 & HE807 on the market

## Markets



## Main applications



## Terminations



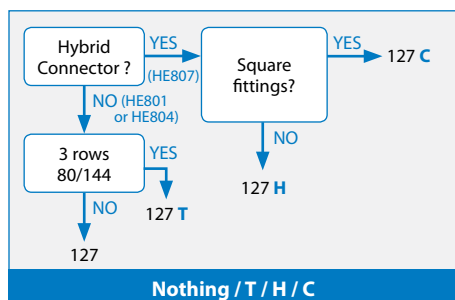
## Recommended configurations



## Standard

NFC UTE 93424  
HE801, HE804 & HE807BS9525  
N0001, F0006, F0007MIL-DTL-55302  
140 to 155

## How to order

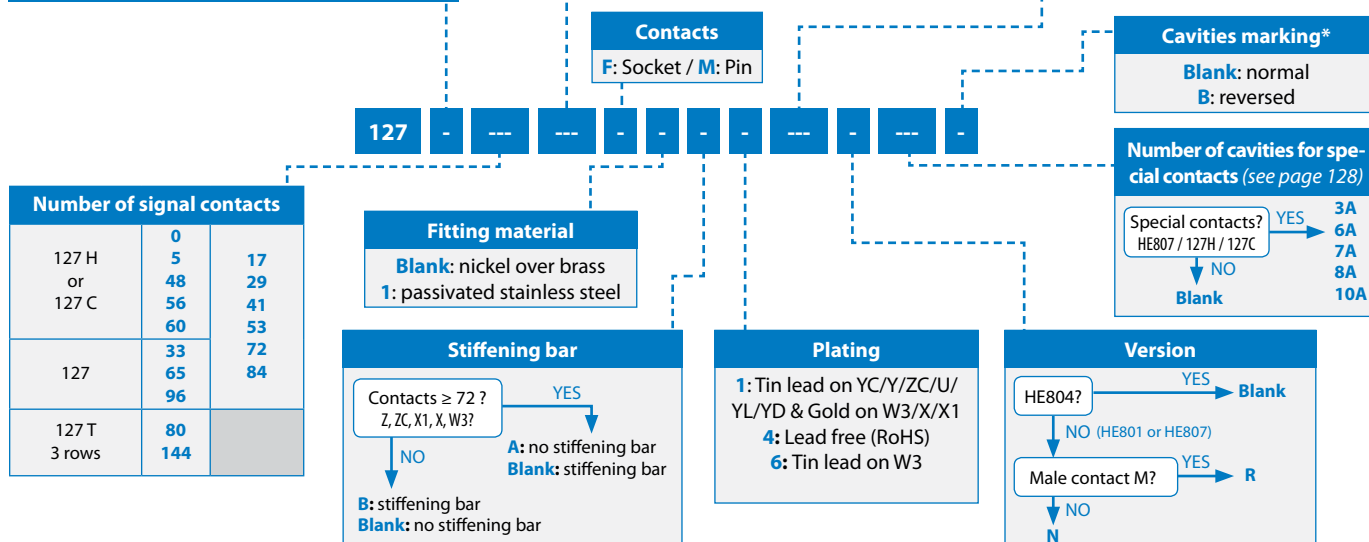


Reference	Codable	Lockable
Fittings for receptacle (X: No fittings)		
K / A / P / B / KE / AE / L	Yes	No
S / D / SC / DC	No	Yes
KD / AD / KED / AED / KT / AT / KET / AET	Yes	Yes
Fittings for plug (XL: No fittings)		
A / J / H / N / V / E / R	Yes	No
PA / PC / T	No	No
D / S / NF / EF / RF	No	Yes
AS / JS / NS / ES / RS / ET / RT	Yes	Yes

Fittings (see pages 118 to 125)

Socket	Pin	Description
YC		Right angle PC tail
YL		Long right angle PC tail
T		SMT with metallized terminals
U		SMT double sided
Y		Straight PC tail
YD		Straight PC tail (for HE804 connector only)
W3		Wire wrap connections
Z	ZC	Solder on wire
X1	X**	Crimping tail
Blank		No signal contacts (HE807)

Signal contacts (see pages 114 to 115)



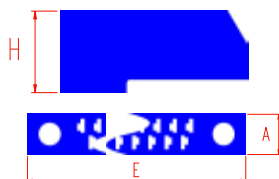
\* Asymmetrical arrangements with female contacts always have plug marking. Asymmetrical arrangements with male contacts always have receptacle marking.

\*\* Not available for HE801 and HE807 connectors.

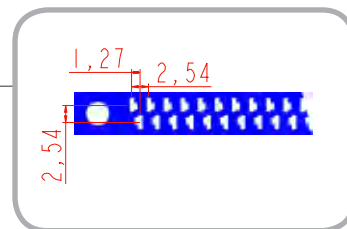
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## 127 / HE8 &gt;&gt;&gt; TECHNICAL SPECIFICATIONS

## Dimensional characteristics



H = 7.9 [.311] for HE801 & HE807 connectors  
 H = 6.9 [.272] for HE804 connectors  
 A = 6.3 [.248] for 2-row connectors  
 A = 8.55 to 8.94 [.337 to .352] for 3-row connectors  
 E = 37.5 to 144.2 [1.476 to 5.677]



## Female contact



## Female tuning fork contact

- Compatible with other technologies

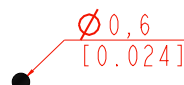
## Material

- CuSn9P (blade)

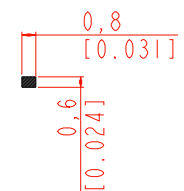
## Plating

- Terminations: gold on W3, X & X1 and tin lead or lead free on YD, Y, Z, YC, YL, T & U
- Active contact area: gold over nickel

## Male contact



- For HE801 & HE807 connectors
- Contact section: 0.28mm<sup>2</sup> [.0004 inch<sup>2</sup>]



- For HE804 connectors
- Contact section: 0.48mm<sup>2</sup> [.0007 inch<sup>2</sup>]

- Material: CuZn (blade)

## Plating

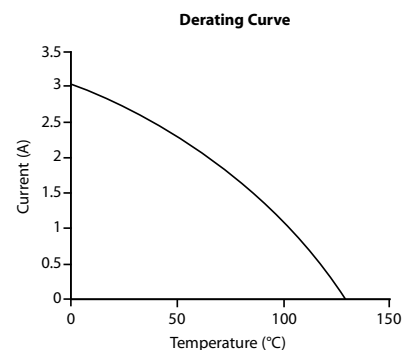
- Terminations: gold on W3, X & X1 and tin lead or lead free on YD, Y, Z, YC, YL, T & U
- Active contact area: gold over nickel

## Materials

- Fittings:** electroless nickel over brass or passivated stainless steel (303 ASTM)
- Plastic insert:** thermoset DAP, 30% glass-fiber filled

MECHANICAL CHARACTERISTICS	HE801	HE804	HE807
<b>Backoff</b> <sup>1</sup> (mm)	1 <sub>MAX</sub> [.039]	1 <sub>MAX</sub> [.039]	1 <sub>MAX</sub> [.039]
<b>Mating force</b> per contact (N)	1.60 <sub>MAX</sub>	1.60 <sub>MAX</sub>	1.60 <sub>MAX</sub>
<b>Unmating force</b> per contact (N)	0.14 <sub>MIN</sub>	0.14 <sub>MIN</sub>	0.14 <sub>MIN</sub>
<b>Durability</b> cycles	500	500	250
<b>Vibrations</b> (20 to 2000 Hz) micro discontinuity 1μs	10 g	10 g	10 g
<b>Shocks</b> micro discontinuity 1μs	100 g	100 g	100 g
<b>Recommended tightening torques</b>			
- nuts for Ø 2.5mm screws, brass m.N	0.25	0.25	0.25
- nuts for Ø 1.6mm screws, brass m.N	0.15	0.15	0.15
ENVIRONMENTAL CHARACTERISTICS			
<b>Thermal shocks</b> (°C)	-55 / +125	-55 / +125	-55 / +125
<b>Salt Spray</b> hours	96	96	96
ELECTRICAL CHARACTERISTICS			
<b>Current rating</b> per contacts (A)	See derating curve	See derating curve	See derating curve
<b>Insulation resistance</b> (GΩ)	5 <sub>MIN</sub>	5 <sub>MIN</sub>	5 <sub>MIN</sub>
<b>Contact resistance</b> (mΩ)	12 <sub>MAX</sub>	12 <sub>MAX</sub>	12 <sub>MAX</sub>
<b>Dielectric Withstanding Voltage</b> (Vrms)	1 000	1 000	1 000
<b>Capacitance</b> between contacts (pF)	5 <sub>MAX</sub>	5 <sub>MAX</sub>	5 <sub>MAX</sub>
<b>Service voltage</b> at 50 Hz (Vrms)	250	250	250

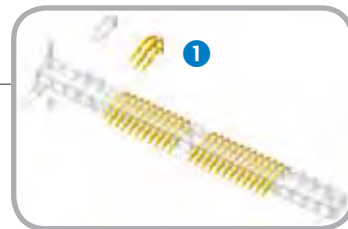
<sup>1</sup>: When both connectors are fully mated, the backoff is the maximum distance the connectors can be unmated while functioning properly



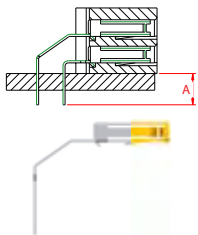
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## 127 / HE8 &gt;&gt;&gt; SIGNAL CONTACTS (1)

## FEMALE CONTACTS



## Right angle PC tail



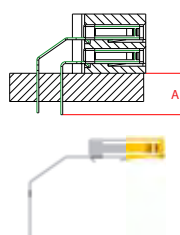
- Thru hole soldering
- Single or double sided daughter board
- Termination section: 0.5 x 0.2 [.020 x .008]
- PCB thickness: 2.5<sub>MAX</sub> [.098]



Termination style

YC

## Long right angle PC tail



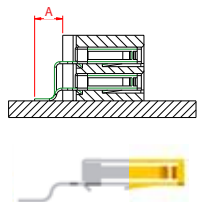
- Thru hole soldering
- Single or double sided daughter board
- Termination section: 0.5 x 0.2 [.020 x .008]
- PCB thickness: 3.5<sub>MAX</sub> [.138]



Termination style

YL

## SMT single side



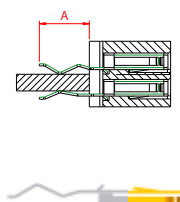
- SMT soldering
- Single side daughter board
- Surface mount area: 1.6 x 0.5 [.063 x .020]



Termination style

T

## SMT double side



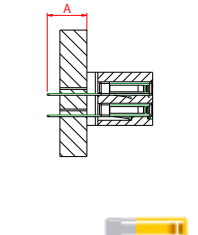
- SMT soldering
- Double side daughter board
- Surface mount area: 0.8 x 0.2 [.032 x .008]
- PCB thickness: 1.6 ± 0.3 [.063±.012]



Termination style

U

## Straight PC tail



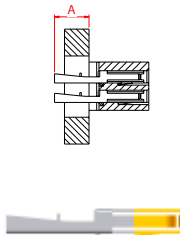
- Thru hole soldering
- Mother board
- Termination section: 0.5 x 0.2 [.020 x .008]
- PCB thickness: 3.2 [.126]



Termination style

YD/Y

## Solder cup



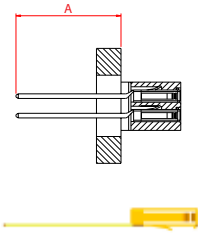
- Hard-soldering on wire
- Ø: 1 mm<sub>MAX</sub> [.039] on core section 0.78 mm<sup>2</sup> [.0012 inch<sup>2</sup>]
- Termination section: 1.5 x 1.2 [.059 x .047]
- PCB thickness: 3.2 [.126]



Termination style

Z

## Wire-wrap



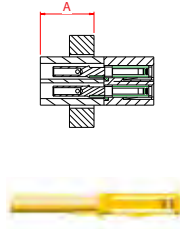
- Wire wrap connections
- AWG gauge 28 to 30
- Termination section: 0.6 x 0.6 [.024 x .024]
- PCB thickness: 3.2 [.126]



Termination style

W3

## Crimp barrel



- Crimping on wire
- AWG gauge 22 to 26
- Terminations protected by a casing cemented to the moulding
- PCB thickness: 3.2 [.126]



Termination style

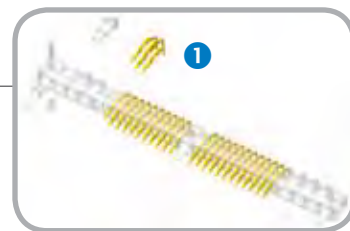
X1

	YC	YL	T	U	YD	Y	Z	W3	X1
A <sub>MAX</sub> for HE801/HE807	3 [.118]	4 [.157]	2.8 [.110]	5.5 [.217]	4.7 [.185]	4.9 [.193]	4.5 [.177]	14.1 [.555]	7 [.276]
A <sub>MAX</sub> for HE804			3.8 [.150]	6.5 [.256]			5.5 [.217]	15 [.591]	8 [.315]
Active contact area plating μm [μin]	2 [.080] Ni + 1 [.040] Au						2 [.08] Ni + 1 [.040] Au		
Termination plating μm [μin]	2 [.080] Ni + 3 to 6 [.120 to .240] SnPb or bright pure Sn for RoHS version						2 [.08] Ni + 0.2 [.008] Au		

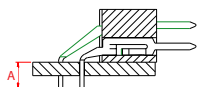
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## 127 / HE8 &gt;&gt;&gt; SIGNAL CONTACTS (1)

## MALE CONTACTS



## Right angle PC tail



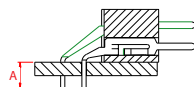
- Thru hole soldering
- Single or double sided daughter board
- Termination section: 0.35 x 0.35 [.014 x .014]
- PCB thickness: 2.6 [.102]



Termination style

YC

## Long right angle PC tail



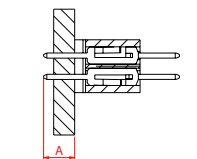
- Thru hole soldering
- Single or double sided daughter board
- Termination section: 0.35 x 0.35 [.014 x .014]
- PCB thickness: 3.7 [.146]



Termination style

YL

## Straight PC tail



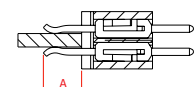
- Thru hole soldering
- Mother board
- Termination section: 0.35 x 0.35 [.014 x .014]
- PCB thickness: 3.2 [.126]



Termination style

Y

## SMT double side



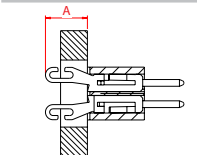
- SMT soldering
- Double sided daughter board
- Surface mount area: 0.64 x 0.6 [.025 x .024]
- PCB thickness: 1.6 ± 0.3 [.063 ± .012]



Termination style

U

## Solder cup



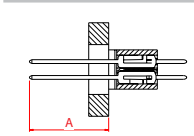
- Hard-soldering on wire
- $\varnothing: 1_{MAX} [.039]$  on core section 0.78 mm<sup>2</sup> [.0012inch<sup>2</sup>]
- PCB thickness: 3.2 [.126]



Termination style

ZC

## Wire-wrap



- Wire wrap connections
- AWG gauge 28 to 30
- Termination section: 0.6 x 0.6 [.024 x .024]
- PCB thickness: 3.2 [.126]

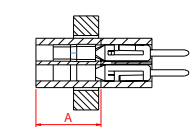


Termination style

W3

The mention → or ← means the contact removal direction.

## Crimp barrel



- Crimping on wire
- AWG gauge 22 to 26
- Terminations protected by a casing cemented to the moulding
- PCB thickness: 3.2 [.126]
- Not available for HE801 and HE807 connectors



Termination style

X

	YC	YL	Y	U	ZC	W3	X
<b>A<sub>MAX</sub> for HE801/HE807</b>	3.1 [.122]	4.2 [.165]	5.05 [.199]	4.2 [.165]	4.3 [.169]	15.05 [.593]	7 [.276]
<b>A<sub>MAX</sub> for HE804</b>			5 [.197]	5.2 [.205]	5.3 [.209]	13.2 [.520]	8 [.315]
<b>Active contact area plating μm [μin]</b>	2 [.080] Ni + 1 [.040] Au					2 [.080] Ni + 1 [.040] Au	
<b>Termination plating μm [μin]</b>	2 [.080] Ni + 3 to 6 [.120 to .240] SnPb or bright pure Sn for RoHS version					2 [.080] Ni + 0.2 [.008] Au	

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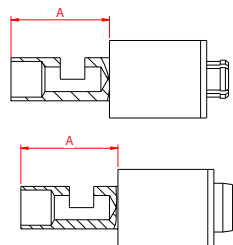


## 127 / HE8 &gt;&gt;&gt; SPECIAL CONTACTS (2)

## POWER CONTACTS\*\*

## Current rating 10A

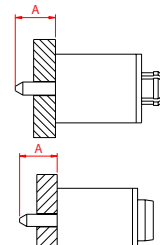
## Solder cup



- Hard soldering on wire
- Wire diameter up to 2 [.079]
- Termination section: Ø 3.6 [.142]
- Current rating 10A

Pin	M121*
Socket	F121*

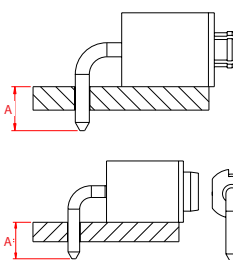
## Straight PC tail



- Thru hole soldering
- Mother board
- Termination section: Ø 1.2 [.047]
- PCB thickness: up to 3.2<sub>MAX</sub> [.126]
- Current rating 10A

Pin	M141*
Socket	F141*

## Right angle PC tail



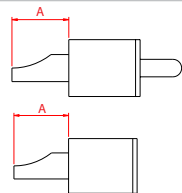
- Thru hole soldering
- Daughter board
- Termination section: Ø 1.2 [.047]
- PCB thickness: 1.6 to 2.4 [.063 to .095]
- Current rating 10A

Pin	M132*
Socket	F132*

Current rating at 5V (A)	10
Maximum current rating at 5V (A)	15
Contact resistance (mΩ)	12 <sub>MAX</sub>
Operating temperature rise (°C)	20 <sub>MAX</sub>
Contact retention (N)	50 <sub>MIN</sub>
Insertion and extraction force per contact (N)	f ≤ F ≤ 15

## Current rating 20A

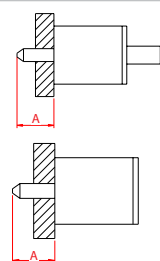
## Solder cup



- Hard soldering on wire
- Wire diameter up to 1.83 [.072]
- Current rating 20A

Pin	MH1*
Socket	FH1*

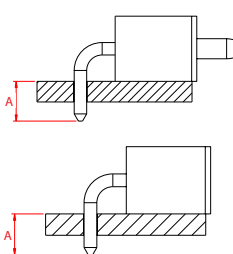
## Straight PC tail



- Thru hole soldering
- Mother board
- Termination section: 1.4 [.053]
- PCB thickness: up to 3.2<sub>MAX</sub> [.126]
- Current rating 20A

Pin	MH2*
Socket	FH2*

## Right angle PC tail



- Thru hole soldering
- Daughter board
- Termination section: 1.2 [.047]
- PCB thickness: 1.6 to 2.4 [.063 to .095]
- Current rating 20A

Pin	MH3*
Socket	FH3*

Current rating at 5V (A)	20
Contact resistance (mΩ)	12 <sub>MAX</sub>
Operating temperature rise (°C)	20 <sub>MAX</sub>
Contact retention (N)	50 <sub>MIN</sub>
Insertion and extraction force per contact (N)	f ≤ F ≤ 15

	M121/F121	M141/F141	M132/F132	MH1/FH1	MH2/FH2	MH3/FH3
A <sub>MAX</sub>	8.2 [.323]	3.8 [.150]	3.8 [.150]	6.3 [.248]	4.2 [.165]	3.8 [.150]
Central contact area plating μm [μin]	2 [.080] Ni + 1.2 [.047] Au					
Other plating area μm [μin]	2 [.080] Ni + 0.4 [.016] Au					

All dimensions are given for information only and are in mm [inch], except as otherwise specified

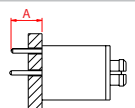


## 127 / HE8 &gt;&gt;&gt; SPECIAL CONTACTS (2)

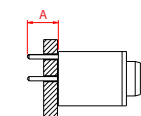
## COAXIAL CONTACTS\*\*



## Straight PC tail

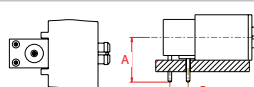


- Thru hole soldering
- Mother board
- Termination section:  $\varnothing 0.5$  [.020]
- PCB thickness:  $3.2_{MAX}$  [.126]

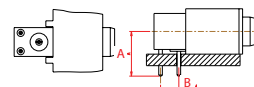


Pin	M041*
Socket	F041*

## Right angle PC tail

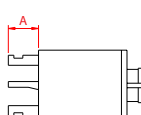


- Thru hole soldering
- Daughter board
- Termination section:  $\varnothing 0.5$  [.020]
- PCB thickness: 1.6 to 2.4 [.063 to .095]

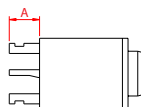


Pin	M032*
Socket	F032*

## Straight on flexible cable

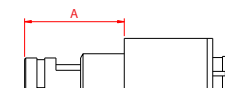


- Hard-soldering on flexible cable

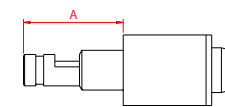


Pin	M011*
Socket	F011*

## Straight on flexible cable



- Hard-soldering on flexible cable
- Wire outer diameter up to 2 [.079]
- KX 21 A / RG 178 B/U



Pin	M021*
Socket	F021*

COAXIAL CONTACTS	
Impedance ( $\Omega$ )	50
Voltage rating (Vrms)	180
Current rating (mA)	500
Contact retention (N)	50 <sub>MIN</sub>
Frequency range (GHz)	0 to 1
Contact resistance (m $\Omega$ )	12 <sub>MAX</sub>
SWR (at 1 GHz)	1.3 <sub>MAX</sub>
Insertion and extraction force per contact (N)	$1 \leq F \leq 15$

## OPTICAL TERMINI

Consult us.

	M041/F041	M021/F021	M011/F011	M032/F032
A <sub>MAX</sub>	3.8 [.150]	9.2 [.362]	2.5 [.098]	6.2 [.244]
B <sub>MAX</sub>				2.54 [.100]
Central contact area plating $\mu\text{m}$ [ $\mu\text{in}$ ]	2 [.080] Ni + 1.2 [.047] Au			
Other plating area $\mu\text{m}$ [ $\mu\text{in}$ ]	2 [.080] Ni + 0.4 [.016] Au			

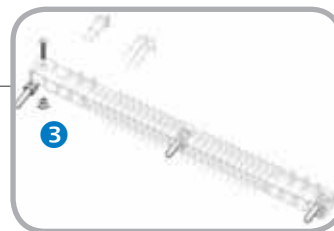
\* Coaxial contacts and power contacts have to be ordered separately against the here above part number. Example: F011

\*\* These contacts can be mounted in all types of connectors 127H-127C/HE807.

All dimensions are given for information only and are in mm [inch], except as otherwise specified

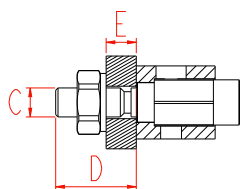
## 127 / HE8 &gt;&gt;&gt; FEMALE FITTINGS (3)

## END FITTINGS FOR RECEPTACLES\*\*



## Codable &amp; Non lockable fittings

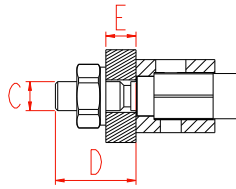
K



- Chassis or mother board
- Fixed receptacle
- Compatibility**
- Female contact: 801 / 804 / 807
- Male contact: 807
- Nickel over brass\*

	EF	CF
HE 801 / 807	212	229
HE 804	201	202

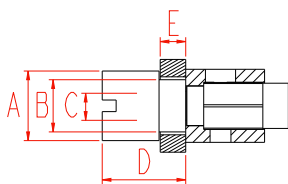
A



- Chassis or mother board
- Fixed receptacle
- Compatibility**
- Male contact: 801 / 804
- Nickel over brass\*

	EF	CF
HE 801	212	229
HE 804	201	202

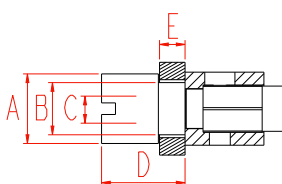
P



- Chassis
- Floating receptacle
- Compatibility**
- Female contact: 801 / 804
- Nickel over brass\*

	EF	CF
HE 801	203	202
HE 804	203	202

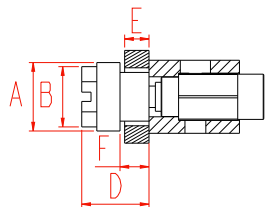
B



- Chassis
- Floating receptacle
- Compatibility**
- Male contact: 801 / 804
- Nickel over brass\*

	EF	CF
HE 801	203	202
HE 804	203	202

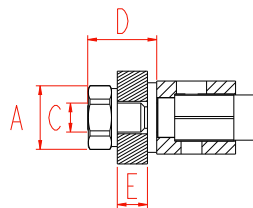
P



- Chassis
- Floating receptacle
- Compatibility**
- Female contact: 807
- Male contact: 807
- Nickel over brass \*

	EF	CF
HE 807	226	202

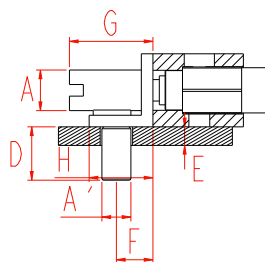
L



- Chassis or mother board
- With insulating washer
- Compatibility**
- Female contact: 804
- Nickel over brass \*

	EF	CF
HE 804	228	202

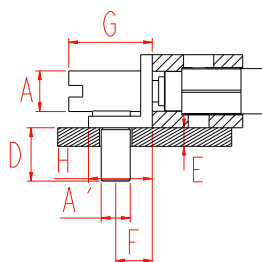
KE



- Daughter board or board to board mating
- Free receptacle - with bracket
- Connection board to board aligned with each other
- Compatibility**
- Female contact: 801 / 807
- Male contact: 807
- Nickel over brass \*

	EF	CF
HE 801	208	209
HE 807	208	208

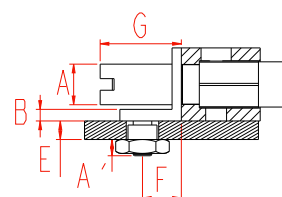
AE



- Daughter board or board to board mating
- Free receptacle - with bracket
- Connection board to board aligned with each other
- Compatibility**
- Male contact: 801
- Nickel over brass \*

	EF	CF
HE 801	208	209

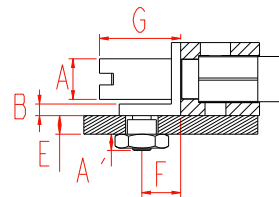
KE



- Daughter board or board to board mating
- Free receptacle - with bracket
- Connection board to board aligned with each other
- Compatibility**
- Female contact: 804
- Nickel over brass \*

	EF	CF
HE 804	209	209

AE



- Daughter board or board to board mating
- Free receptacle - with bracket
- Connection board to board aligned with each other
- Compatibility**
- Male contact: 804
- Nickel over brass \*

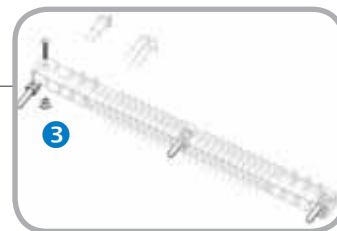
	EF	CF
HE 804	209	209

EF: End Fitting / CF: Central Fitting

All dimensions are given for information only and are in mm [inch], except as otherwise specified

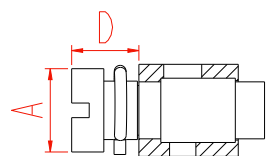
## 127 / HE8 &gt;&gt;&gt; FEMALE FITTINGS (3)

## END FITTINGS FOR RECEPTACLES\*\*



## Non codable &amp; lockable fittings

S



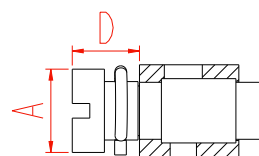
- Cables, free receptacle
- Locking device-extractor - tapped female fitting
- Locking and unlocking shall be carried out simultaneously at both ends

**Compatibility**

- Female contact: 801 / 804
- Nickel over brass \*

	EF	CF
HE 801	219	229
HE 804	220	202

D



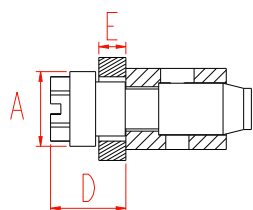
- Cables, free receptacle
- Locking device-extractor - tapped female fitting
- Locking and unlocking shall be carried out simultaneously at both ends

**Compatibility**

- Male contact: 801/ 804
- Nickel over brass \*

	EF	CF
HE 801	219	229
HE 804	220	202

SC



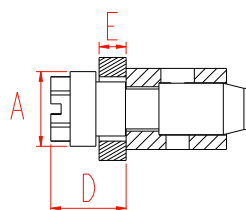
- Cables, free receptacle
- Flex, locking device-extractor

**Compatibility**

- Female contact: 804
- Nickel over brass \*

	EF	CF
HE 804	207	202

DC



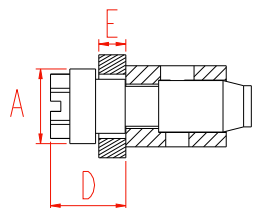
- Cables, free receptacle
- Flex, locking device-extractor

**Compatibility**

- Male contact: 804
- Nickel over brass \*

	EF	CF
HE 804	207	202

SC



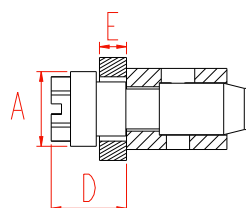
- Chassis, floating receptacle
- Locking device-extractor

**Compatibility**

- Female contact: 801
- Nickel over brass \*

	EF	CF
HE 801	213	229

DC



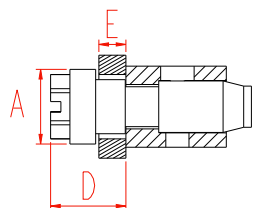
- Chassis, floating receptacle
- Locking device-extractor

**Compatibility**

- Male contact: 801
- Nickel over brass \*

	EF	CF
HE 801	213	229

S



- Chassis, floating receptacle
- Locking device-extractor - tapped female fitting
- Locking and unlocking shall be carried out simultaneously at both ends

**Compatibility**

- Female contact: 807
- Male contact: 807
- Nickel over brass \*

	EF	CF
HE 807	213	229

	S 219 220	D 219 220	SC 207	DC 207	SC 213	DC 213	S 213
A	Ø 5.7 [.224]		Ø 5.8 [.228]				
D	4.7 MAX [.185]		6 MAX [.236]				
E			2.1 MAX [.083]				

	K 212/201	A 212/201	P 203	B 203	P 226	L 228	KE 208	AE 208	KE 209	AE 209
A			Ø 6 [.236]		Ø 6 [.236]	Hex 5 [.197]	Ø 3.5 [.138]		Ø 3.5 [.138]	
A'							M 2.5 [.098]		Hex 4 [.157]	
B			Ø 4.5 [.177]		Hex 4.5 [.177]				1 MAX [.039]	
C	M 2.5 [.098]		M 2.5 [.098]			M 2.5 [.098]				
D	6 MAX [.236]		7.2 [.283]		5.9 [.232]	6 MAX [.236]	4.6 [.181]			
E	3.2 MAX [.126]		2.2 [.087]		2.1 MAX [.083]	2.7 MAX [.106]	1.6 to 2.4 [.063 to .094]			
F					2.3 [.091]		2.35 [.093]		3.35 [.132]	
G							7.2 MAX [.283]		7.2 MAX [.283]	
H							5.5 [.217]			

\*To order the same fitting in passivated stainless steel, change the "2" in the HE8 reference to a "4" (2xx =&gt; 4xx)

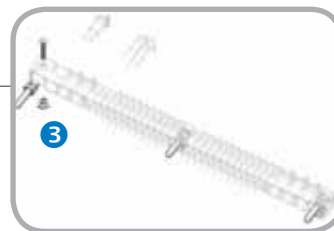
\*\* To order the fitting alone: HE8C + xxx

EF: End Fitting / CF: Central Fitting

All dimensions are given for information only and are in mm [inch], except as otherwise specified

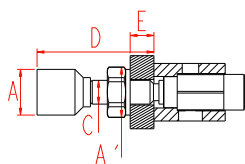
## 127 / HE8 &gt;&gt;&gt; FEMALE FITTINGS (3)

## END FITTINGS FOR RECEPTACLES\*\*



## Codable &amp; lockable fittings

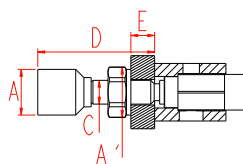
## KD



- Chassis or mother board
  - Fixed receptacle
  - Locking ensuring resistance to vibrations
- Compatibility**
- Female contact: 801 / 804 / 807
  - Male contact: 807
  - Nickel over brass\*

	EF	CF
HE 801 / 807	221	229
HE 804	221	202

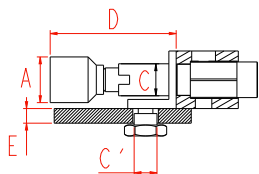
## AD



- Chassis or mother board
  - Fixed receptacle
  - Locking ensuring resistance to vibrations
- Compatibility**
- Male contact: 801 / 804
  - Nickel over brass\*

	EF	CF
HE 801 / 804	221	229
HE 804	221	202

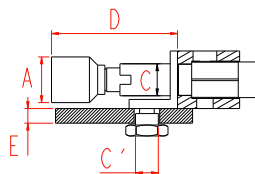
## KED



- Daughter board
  - Free receptacle - with bracket
  - Connection board to board aligned with each other
  - Locking ensuring resistance to vibrations
- Compatibility**
- Female contact: 804
  - Nickel over brass\*

	EF	CF
HE 804	223	209

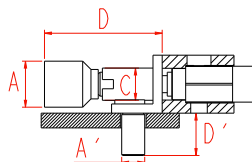
## AED



- Daughter board
  - Free receptacle - with bracket
  - Connection board to board aligned with each other
  - Locking ensuring resistance to vibrations
- Compatibility**
- Male contact: 804
  - Nickel over brass\*

	EF	CF
HE 804	223	209

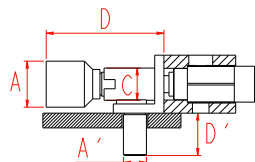
## KED



- Daughter board
  - Free receptacle - with bracket
  - Connection board to board aligned with each other
  - Locking ensuring resistance to vibrations
- Compatibility**
- Female contact: 801 / 807
  - Male contact: 807
  - Nickel over brass \*

	EF	CF
HE 801	224	209
HE 807	224	208

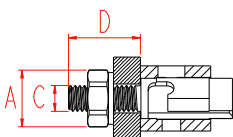
## AED



- Daughter board
  - Free receptacle - with bracket
  - Connection board to board aligned with each other
  - Locking ensuring resistance to vibrations
- Compatibility**
- Male contact: 801
  - Nickel over brass \*

	EF	CF
HE 801	224	209

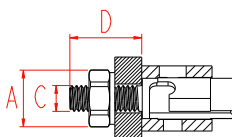
## KT



- Chassis or mother board
  - Fixed receptacle
  - Quarter turn locking on plug side
- Compatibility**
- Female contact: 801 / 804 / 807
  - Male contact: 807
  - Passivated stainless steel only\*

	EF	CF
HE 801 / 807	422	429
HE 804	422	402

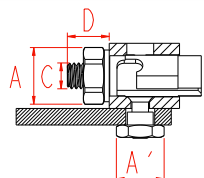
## AT



- Chassis or mother board
  - Fixed receptacle
  - Quarter turn locking on plug side
- Compatibility**
- Male contact: 801 / 804
  - Passivated stainless steel only

	EF	CF
HE 801	422	429
HE 804	422	402

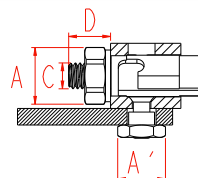
## KET



- Daughter board or board to board mating
  - Free receptacle
  - Quarter turn locking on plug side
- Compatibility**
- Female contact: 801 / 804 / 807
  - Male contact: 807
  - Passivated stainless steel only

	EF	CF
HE 801/804/807	425	425

## AET

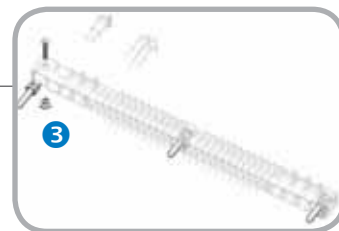


- Daughter board or board to board mating
  - Free receptacle
  - Quarter turn locking on plug side
- Compatibility**
- Male contact: 801 / 804
  - Passivated stainless steel only

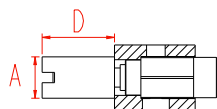
	EF	CF
HE 801/804	425	425

## 127 / HE8 &gt;&gt;&gt; FEMALE FITTINGS (3)

## CENTRAL FITTINGS FOR RECEPTACLES\*\*



229

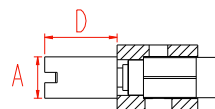
**Compatibility**

- Female contact: 801 / 807
- Male contact: 801 / 807
- **EF:** K / A / P / B / S / D / SC / DC / KD / AD
- Nickel over brass \*

HE 801/807

229

202

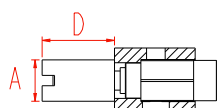
**Compatibility**

- Female contact: 804
- Male contact: 804
- **EF:** K / A / P / B / L / S / D / SC / DC / KD / AD
- Nickel over brass \*

HE 804

202

429

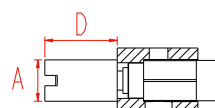
**Compatibility**

- Female contact: 801 / 807
- Male contact: 801 / 807
- **EF:** KT / AT
- Passivated stainless steel \*

HE 801 / 807

429

402

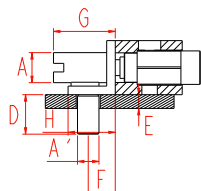
**Compatibility**

- Female contact: 804
- Male contact: 804
- **EF:** KT / AT
- Passivated stainless steel \*

HE 804

402

208

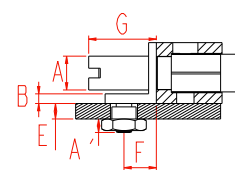
**Compatibility**

- Female contact: 801 / 807
- Male contact: 801 / 807
- **EF:** KE / AE / KED / AED
- Nickel over brass \*

HE 801 / 807

208

209

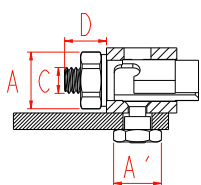
**Compatibility**

- Female contact: 804
- Male contact: 804
- **EF:** KE / AE / KED / AED
- Nickel over brass \*

HE 804

209

425

**Compatibility**

- Female contact: 801 / 804 / 807
- Male contact: 801 / 804 / 807
- **EF:** KET / AET
- Passivated stainless steel \*

HE 801 / 804 / 807

EF

CF

224

208

	202 / 229 / 429 / 402	208	209	425
<b>A</b>	Ø 4 [.157]	Ø 3.5 [.138]		Hex 5 [.197]
<b>B</b>			1 MAX [.039]	
<b>D</b>	7 MAX [.276]	4.6 [.181]		4.1 MAX [.161]
<b>E</b>		1.6 to 2.4 [.063 to .094]		
<b>F</b>		2.35 [.093]	3.35 [.132]	
<b>G</b>		7.2 MAX [.283]		
<b>H</b>		5.5 [.217]		
<b>A'</b>		M 2.5 [.098]	Hex 4 [.157]	Hex 4 [.157]
<b>C</b>				M 2.5 [.098]

	KD / AD 221		KED / AED 223	KED / AED 224	KT / AT 422	KET / AET 425
A	Ø 5 [.197]		Ø 5 [.197]		Hex 5 [.197]	
C	M 2.5 [.098]		Ø 3.5 [.138]	Ø 3.5 [.138]	M 2.5 [.098]	
D	X HE804 = 18 <sub>MAX</sub> [.709] Y HE804 = 26.1 <sub>MAX</sub> [1.028] Z HE804 = 14 <sub>MAX</sub> [.551]	X HE801/807 = 17 <sub>MAX</sub> [.669] Y HE801/807 = 25.1 <sub>MAX</sub> [.988] Z HE801/807 = 13 <sub>MAX</sub> [.512]	Z = 14 <sub>MAX</sub> [.551]	Z = 13 <sub>MAX</sub> [.512]	HE804: 7 <sub>MAX</sub> [.276] HE801 / 807: 6 <sub>MAX</sub> [.236]	4.1 <sub>MAX</sub> [.161]
D'				4.6 [.181]		
E	3.2 <sub>MAX</sub> [.126]		1.6 to 2.4 [.063 to .094]			
A'	Hex 5 [.197]			M 2.5 [.098]		Hex 4 [.157]
C'			Ø1.6 [0.63]			

\*\* To order the fitting alone: HE8C + xxx

\*To order the same fitting in passivated stainless steel, change the "2" in the HE8 reference to a "4" (2xx =&gt; 4xx)

\*To order the same fitting in nickel over brass, change the "4" in the HE8 reference to a "2" (4xx =&gt; 2xx)

x: unlocked - y: screw out - z: locked

EF: End Fitting / CF: Central Fitting

All dimensions are given for information only and are in mm [inch], except as otherwise specified

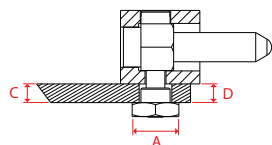
## 127 / HE8 &gt;&gt;&gt; MALE FITTINGS (3)

## END FITTINGS FOR PLUGS\*\*



## Non codable &amp; Non lockable fittings

PA



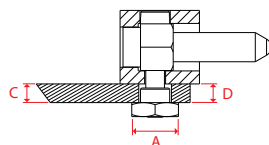
- Daughter board or extension board single or double sided
- Free plug - with plated thru holes
- Compatibility**
- Female contact: 801 / 804 / 807
- Male contact: 807

- Nickel over brass \*

HE 801 / 804 / 807

EF	CF
102	102

PC



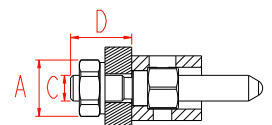
- Daughter board or extension board single or double sided
- Free plug - with plated thru holes
- Compatibility**
- Male contact: 801 / 804

- Nickel over brass \*

HE 801 / 804

EF	CF
102	102

T



- Chassis or mother board
- Board to board, board to chassis, parallel to one another

**Compatibility**

- Female contact: 801/ 804/ 807
- Male contact: 801/ 804 / 807

- Nickel over brass \*

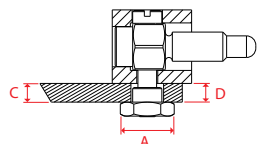
HE 801/807

HE 804

EF	CF
118	129
111	113

## Non codable &amp; lockable fittings

D



- Daughter board single or double sided
- Free plug - with plated thru holes
- Lockable on receptacle side

**Compatibility**

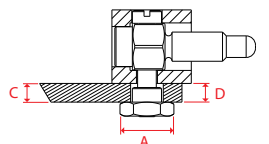
- Female contact: 801/ 804 / 807
- Male contact: 807

- Nickel over brass \*

HE 801/804/807

EF	CF
103	102

S



- Daughter board single or double sided
- Free plug - with plated thru holes
- Lockable on receptacle side

**Compatibility**

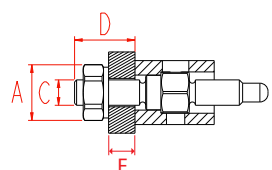
- Male contact: 801/ 804

- Nickel over brass \*

HE 801 / 804

EF	CF
103	102

EF



- Chassis or mother board
- Board to board, board to chassis, parallel to one another, board to cable or chassis to cable
- Lockable on receptacle side

**Compatibility**

- Female contact: 801 / 804 / 807
- Male contact: 807

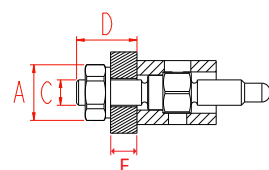
- Nickel over brass \*

HE 801 / 807

HE 804

EF	CF
119	129
112	113

RF



- Chassis or mother board
- Free plug - with plated thru holes
- Lockable on receptacle side

**Compatibility**

- Male contact: 801 / 804

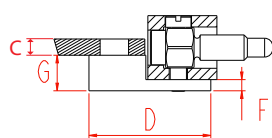
- Nickel over brass \*

HE 801

HE 804

EF	CF
119	129
112	113

NF



- SMT daughter board aligned with connector centerline
- Lockable on receptacle side

**Compatibility**

- Female contact: 801 / 804
- Male contact: 801 / 804

- Nickel over brass \*

HE 801

HE 804

EF	CF
116	114
108	104

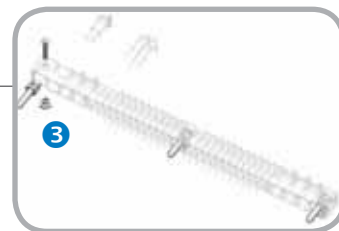
	D / S	EF	RF	NF
A	Hex 4 [.157]	Hex 5 [.197]		
C	1.6 to 2.4 [.063 to .094]	M 2.5 [.197]		1.6 [.063]
D	1.3 MAX [.051]	6 MAX [.236]		HE801 13.9 MAX [.547] HE804 12.2 MAX [.480]
F		3.2 MAX [.126]		1.1 [.043]
G				3.5 [.138]

EF: End Fitting / CF: Central Fitting

All dimensions are given for information only and are in mm [inch], except as otherwise specified

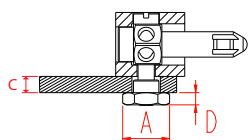
## 127 / HE8 &gt;&gt;&gt; MALE FITTINGS (3)

## END FITTINGS FOR PLUGS\*\*



## Codable &amp; Non lockable fittings

A



- Daughter board single or double sided
- Free plug - with plated thru holes

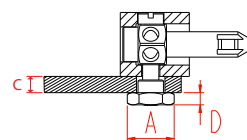
**Compatibility**

- Female contact: 801 / 804 / 807
- Male contact: 807
- Nickel over brass \*

HE 801 / 804 / 807

EF	CF
101	102

J



- Daughter board single or double sided
- Free plug - with plated thru holes

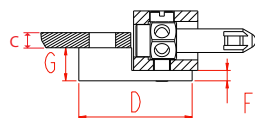
**Compatibility**

- Male contact: 801 / 804
- Nickel over brass \*

HE 801 / 804

EF	CF
101	102

N



- SMT daughter board aligned with connector centreline
- Free plug - with plated thru holes

**Compatibility**

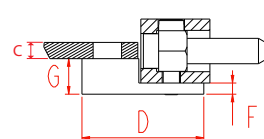
- Female contact: 801 / 804
- Male contact: 801 / 804
- Nickel over brass \*

HE 801

HE 804

EF	CF
115	114
106	104

V



- SMT daughter board aligned with connector centreline
- Free plug - with plated thru holes

**Compatibility**

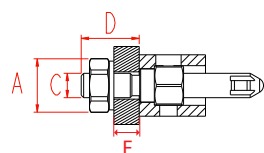
- Female contact: 801 / 804
- Male contact: 801 / 804
- Nickel over brass \*

HE 801

HE 804

EF	CF
114	114
104	104

E



- Chassis or mother board
- Board to board, board to chassis

**Compatibility**

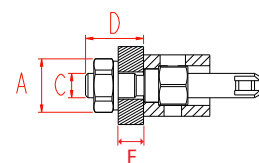
- Female contact: 801 / 804 / 807
- Male contact: 807
- Nickel over brass \*

HE 801 / 807

HE 804

EF	CF
117	129
110	113

R



- Chassis or mother board (board to board, board to chassis)

**Compatibility**

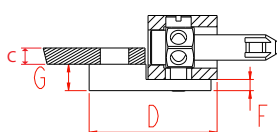
- Male contact: 801 / 804
- Nickel over brass \*

HE 801

HE 804

EF	CF
117	129
110	113

H



- SMT daughter board
- Offset from connector centreline
- Free plug - with plated thru holes

**Compatibility**

- Female contact: 804
- Nickel over brass \*

HE 804

EF	CF
107	105

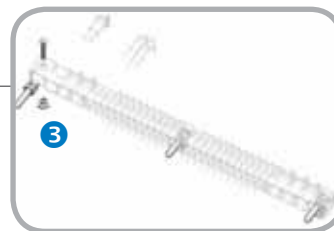
	A	J	N	V	E	R	H
A	Hex 4 [.157]				Hex 5 [.197]		
C	1.6 to 2.4 [0.63 to 0.94]		1.6 [0.63]		M 2.5 [.098]		1.6 [0.63]
D	1.3 <sub>MAX</sub> [.051]		HE801 13.9 <sub>MAX</sub> [.547] HE804 12.2 <sub>MAX</sub> [.480]		6 <sub>MAX</sub> [.236]		13.05 <sub>MAX</sub> [.514]
F			1.1 [.043]		3.2 <sub>MAX</sub> [.126]		1.1 [.043]
G			3.5 [.138]				2.7 [.106]

\*To order the same fitting in passivated stainless steel, change the "1" in the HE8 reference to a "3" (1xx => 3xx)

\*\* To order the fitting alone: HE8C + xxx

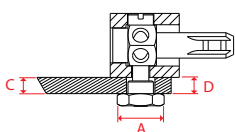
## 127 / HE8 &gt;&gt;&gt; MALE FITTINGS (3)

## END FITTINGS FOR PLUGS\*\*



## Codable &amp; lockable fittings

AS

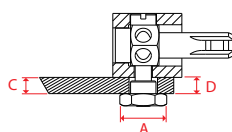


- Daughter board single or double sided
  - Free plug - with plated thru holes
  - Lockable on receptacle side
- Compatibility**
- Female contact: 801 / 804 / 807
  - Male contact: 807
  - Nickel over brass \*

HE 801 / 804 / 807

EF	CF
124	102

JS

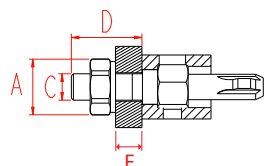


- Daughter board single or double sided
  - Free plug - with plated thru holes
  - Lockable on receptacle side
- Compatibility**
- Male contact: 801 / 804
  - Nickel over brass \*

HE 801 / 804

EF	CF
124	102

ES



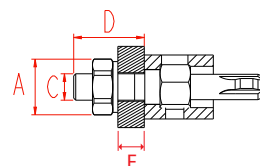
- Chassis or mother board
  - Board to board, board to chassis, parallel to one another, board to cable or chassis to cable
  - Lockable on receptacle side
- Compatibility**
- Female contact: 801 / 804 / 807
  - Male contact: 807
  - Nickel over brass \*

HE 801

HE 804

EF	CF
125	129
125	113

RS



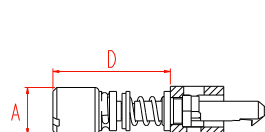
- Chassis or mother board
  - Board to board, board to chassis, parallel to one another, board to cable or chassis to cable
  - Lockable on receptacle side
- Compatibility**
- Male contact: 801 / 804
  - Nickel over brass \*

HE 801

HE 804

EF	CF
125	129
125	113

ET



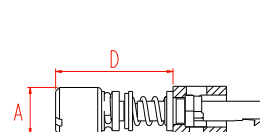
- Cable to board or cable to chassis
  - Quarter turn locking
  - Dimensions given in reset position
- Compatibility**
- Female contact: 801 / 804 / 807
  - Male contact: 807
  - Passivated stainless steel only

HE 801/807

HE 804

EF	CF
327	329
327	313

RT



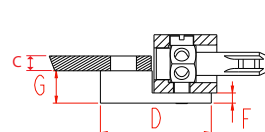
- Cable to board or cable to chassis
  - Quarter turn locking
  - Dimensions given in reset position
- Compatibility**
- Male contact: 801 / 804
  - Passivated stainless steel only

HE 801

HE 804

EF	CF
327	329
327	313

NS



- SMT daughter board aligned with fitting centerline
  - Lockable on receptacle side
- Compatibility**
- Female contact: 801 / 804
  - Male contact: 801 / 804
  - Nickel over brass \*

HE 801

HE 804

EF	CF
114	114
126	104

	AS	JS	ES	RS	ET	RT	NS
A	Hex 4 [.157]		Hex 5 [.197]		Ø 6 [.236]		
C	1.6 to 2.4 [.063 to .094]		M 2.5 [.098]				1.6 [.063]
D	1.3 <sub>MAX</sub> [.051]		7 <sub>MAX</sub> [.276]		16 <sub>MAX</sub> [.630]		HE801 13.9 <sub>MAX</sub> [.547] HE804 12.2 <sub>MAX</sub> [.480]
F			3.2 <sub>MAX</sub> [.126]				1.1 [.043]
G							3.5 [.138]

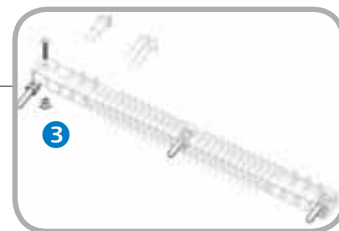
EF: End Fitting / CF: Central Fitting

All dimensions are given for information only and are in mm [inch], except as otherwise specified

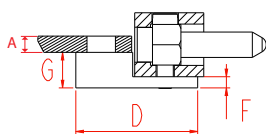


## 127 / HE8 &gt;&gt;&gt; MALE FITTINGS (3)

## CENTRAL FITTINGS FOR PLUGS\*\*



114

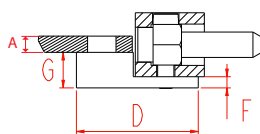
**Compatibility**

- Female contact: 801
- Male contact: 801
- N / V / NF / NS
- Nickel over brass \*

HE 801

114

104

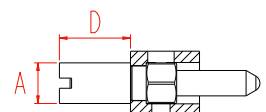
**Compatibility**

- Female contact: 804
- Male contact: 804
- N / V / NF / NS
- Nickel over brass \*

HE 804

104

129

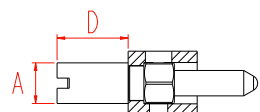
**Compatibility**

- Female contact: 801 / 807
- Male contact: 801 / 807
- E / R / T / EF / RF / ES / RS
- Nickel over brass \*

HE 801/807

129

113

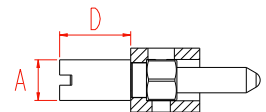
**Compatibility**

- Female contact: 804
- Male contact: 804
- E / R / T / EF / RF / ES / RS
- Nickel over brass \*

HE 804

113

329

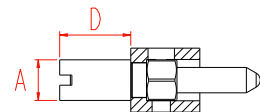
**Compatibility**

- Female contact: 801 / 807
- Male contact: 801 / 807
- ER / RT
- Passivates stainless steel \*

HE 801 / 807

329

313

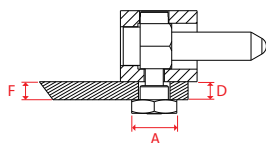
**Compatibility**

- Female contact: 804
- Male contact: 804
- ER / RT
- Passivated stainless steel \*

HE 804

313

102

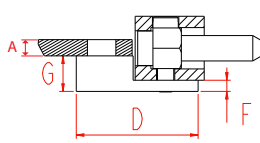
**Compatibility**

- Female contact: 801 / 804 / 807
- Male contact: 801 / 804 / 807
- A / J / PA / PC / D / S / AS / JS
- Nickel over brass \*

HE 801 / 804 / 807

102

105

**Compatibility**

- Female contact: 804
- H
- Nickel over brass \*

HE 804

105

	114	104	129	113	329	313	102	105
<b>A</b>	1.6 [.063]		Ø 4 [.157]				Hex 4 [.157]	1.1 [.043]
<b>D</b>	13.9 <sub>MAX</sub> [.547]	12.2 <sub>MAX</sub> [.480]	7 <sub>MAX</sub> [.276]				1.3 <sub>MAX</sub> [.051]	12.2 <sub>MAX</sub> [.480]
<b>F</b>	1.1 [.043]						1.6 to 2.4 [.063 to .094]	1.6 [.063]
<b>G</b>	3.5 [.514]							2.7 [.106]

\*\* To order the fitting alone: HE8C + xxx

\*To order the same fitting in passivated stainless steel, change the "1" in the HE8 reference to a "3" (1xx =&gt; 3xx)

\*To order the same fitting in nickel over brass, change the "3" in the HE8 reference to a "1" (3xx =&gt; 1xx)

All dimensions are given for information only and are in mm [inch], except as otherwise specified

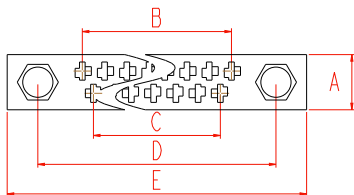
## 127 / HE8 &gt;&gt;&gt; HE 801 &amp; HE 804

## TYPICAL ARRANGEMENTS



**n** indicates the total number of signal contacts

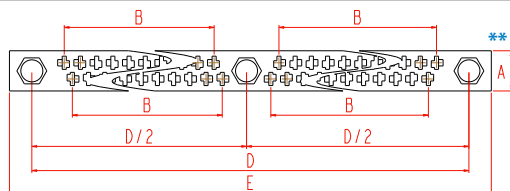
## Signal contacts on 2 rows without central fitting\*



n = 17, 29, 33, 41, 53 or 65

<b>A</b>	6.3 <sup>+0.1</sup>
<b>B</b>	(n-1) X 1.27
<b>C</b>	B - 2.54
<b>D</b>	B + 10.16
<b>E</b>	≈ D + 7

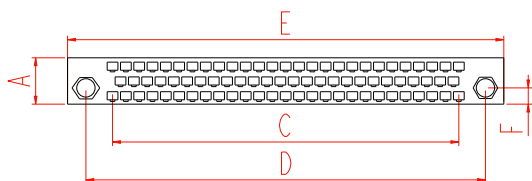
## Signal contacts on 2 rows with central fittings\*



n = 72, 84, or 96

<b>A</b>	6.3 <sup>+0.1</sup>
<b>B</b>	(n-4) X 0.635
<b>D</b>	2 X (B + 10.16)
<b>E</b>	≈ D + 7

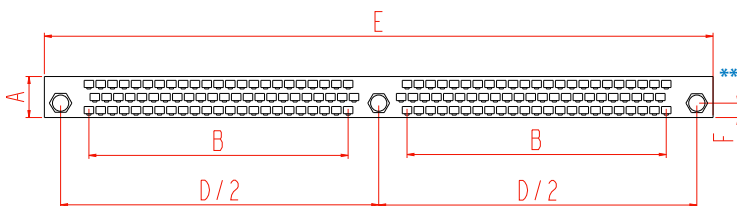
## Signal contacts on 3 rows without central fittings\*



n = 80

<b>A</b>	8.94
<b>C</b>	66.04
<b>D</b>	76.3 <sub>MAX</sub>
<b>E</b>	83.4 <sub>MAX</sub>
<b>F</b>	3.1

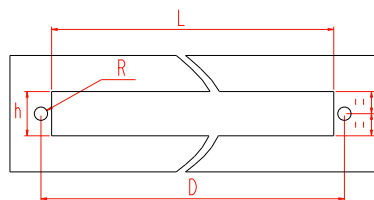
## Signal contacts on 3 rows with central fittings\*



n = 144

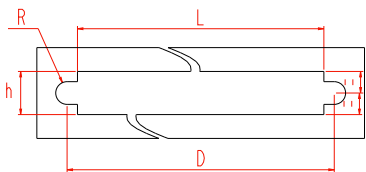
<b>A</b>	8.55 <sub>MAX</sub>
<b>B</b>	58.42
<b>D</b>	137.16
<b>E</b>	144.36 <sub>MAX</sub>
<b>F</b>	3.1

## Panel drilling\*



- Receptacle with A-AD-AT fittings or plug with R-RF-RS-T fittings with male contact W3-ZC-X
- Receptacle with K-KD-KT-L fittings or plug with E-EF-ES-T fittings with female contact W3-Z

<b>D</b>	See above
<b>L</b>	≈ D - 4.6
<b>h</b>	9.5 <sub>MIN</sub>
<b>R</b>	Ø 2.85 <sub>MIN</sub> ⌀ 0.2



- Receptacle with B fitting and male contact W3-ZC-X
- Receptacle with P fitting and female contact W3-Z

<b>D</b>	See above
<b>L</b>	≈ D - 4.6
<b>h</b>	9.5 <sub>MIN</sub>
<b>R</b>	Ø 5 ± 0.1 ⌀ 0.2

\* in mm: 1mm = 0.03937 inch

\*\* The standard version presents a stiffening bar with W3-ZC-Z contacts and no stiffening bar with YC-V-Y-YD-X contacts. Put an A in the part number code to have no stiffening bar on the connector with W3-ZC-Z contacts or a B to have a stiffening bar on the connector with YC-U-Y-YD-X contacts.

All dimensions are given for information only and are in mm [inch], except as otherwise specified

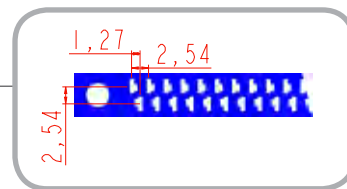
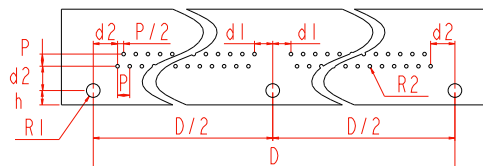
**127 / HE8 >>> HE 801 & HE 804****LAYOUTS**

The boards are shown from the connector side.

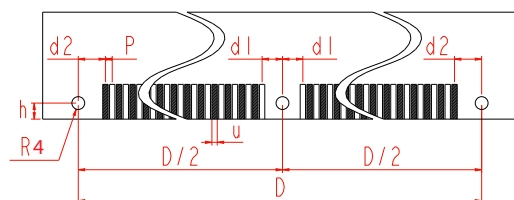
The drawings show various footprints for connectors with a central attachment on board.

For smaller connectors (17, 29, 33, 41, 53 and 65 contacts), omit the center drilling.

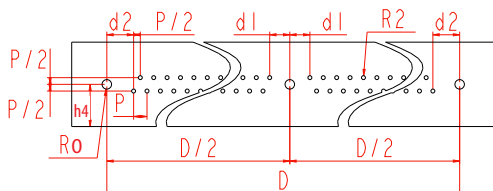
All contacts outputs are equidistant. For daughterboard, the first contact's marking is indicated for reference only.

**Daughterboard drilling for YC contact\***

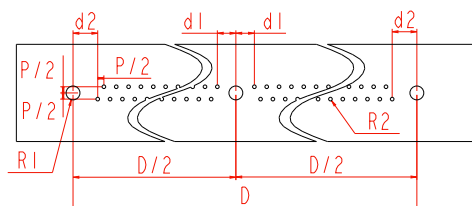
- Receptacle with KET-AET fittings or plug with A-D-AS-PA-J-S-JS-PC fittings
- YC (male and female contact)

**Daughterboard drilling for U contact\***

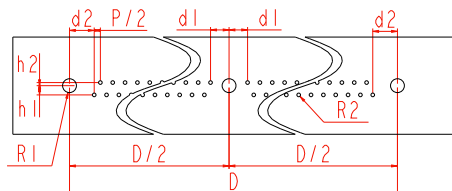
- Plug with H-N-NF-NS-V fittings
- U (male and female contact)

**Daughterboard drilling for YC contact\***

- Receptacle with KE-KED-AE-AED fittings
- YC (male and female contact)

**Motherboard drilling for Y contact (male and female)\***

- Receptacle with A-AD-AT fittings or plug with R-RF-RS-T fittings
- Y (male and female contact)

**Motherboard drilling for YD contacts (socket only)\***

- Receptacle with K-L-KD-KT fittings or plug with E-EF-ES-T fittings
- YD (female contact only)

D	d <sub>1</sub>	d <sub>2</sub>	p	p <sub>2</sub>	h	h <sub>1</sub>	h <sub>2</sub>	h <sub>4</sub>	R <sub>0</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	u
See above	3.81 [.150]	5.08 [.200]	2.54 [.100]	1.27 [.050]	3 <sub>MAX</sub> [.118]	1.9 [.075]	0.64 [.025]	8 <sub>MAX</sub> [.315]	Ø 1.8 <sub>MIN</sub> [.071]	Ø 2.85 <sub>MIN</sub> [.112] ⊕ [Ø 0.2]	Ø 0.75 <sub>MIN</sub> [.030] ⊕ [Ø 0.2]	Ø 2.4 <sub>MIN</sub> [.094]	1.6 ± 0.1 [.063 ± .004]

\* in mm: 1mm = 0.03937 inch

All dimensions are given for information only and are in mm [inch], except as otherwise specified

## 127 / HE8 &gt;&gt;&gt; HE 807

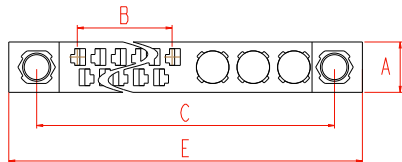
## TYPICAL ARRANGEMENTS

n indicates the total number of signal contacts

h indicates the total number of hybrid contacts



## n signal contacts + 3 cavities without central fittings\*

**Note:**

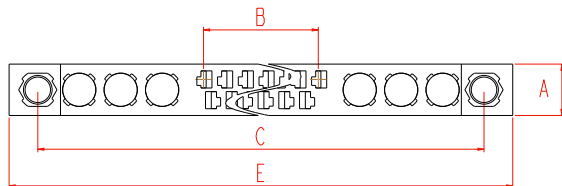
- Asymmetrical arrangements with female contacts always have plug marking
- Asymmetrical arrangements with male contacts always have receptacle marking

- n = 5, 17, 29, 41 or 53

- h = 3

<b>B</b>	$(n - 1) \times 1.27$
<b>D</b>	$(n + 12) \times 1.27 + 8.89$
<b>E</b>	D + 7

## n signal contacts + 6 cavities without central fittings\*

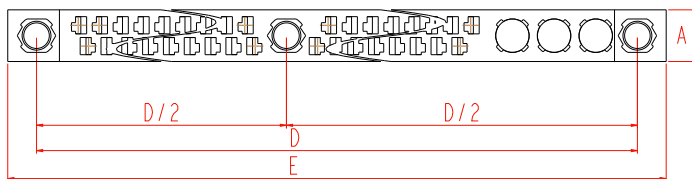


- n = 5, 17, 29 or 41

- h = 6

<b>B</b>	$(n - 1) \times 1.27$
<b>D</b>	$(n + 24) \times 1.27 + 8.89$
<b>E</b>	D + 7

## n signal contacts + 3 cavities with central fittings\*

**Note:**

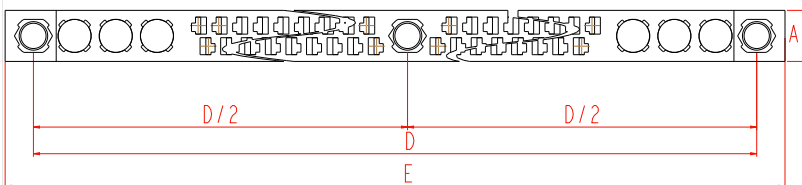
- Asymmetrical arrangements with female contacts always have plug marking
- Asymmetrical arrangements with male contacts always have receptacle marking

- n = 60, 72 or 84

- h = 3

<b>A</b>	$6.3^{+0.1}$
<b>D</b>	$(n+8) \times 1.27 + 20.32$
<b>E</b>	D + 7

## n signal contacts + 6 cavities with central fittings\*

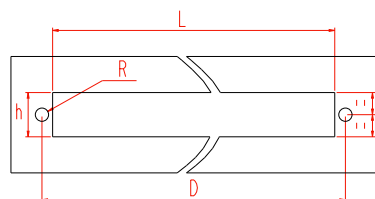


- n = 48, 60, 72

- h = 6

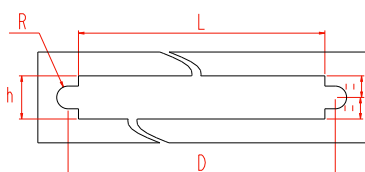
<b>A</b>	$6.3^{+0.1}$
<b>D</b>	$(n+20) \times 1.27 + 20.32$
<b>E</b>	D + 7

## Panel drilling\*



- Receptacle with K-KD-KT fittings or plug with E-EF-ES fittings and male contacts W3-ZC-X and special contacts
- Receptacle with K-KD-KT fittings or plug with E-EF-ES fittings and female contacts W3-ZC-X1 and special contacts
- F011 / M011    F021 / M021  
F121 / M121    FH1 / MH1

<b>D</b>	See above
<b>L</b>	D - 4.6
<b>h</b>	9.5 MIN
<b>R</b>	$\varnothing 2.85^{MIN}$ 



- Receptacle with P fitting with male contacts W3-ZC-X and special contacts
- Receptacle with P fitting with female contact W3-ZC-X1 and special contacts
- F011 / M011    F021 / M021  
F121 / M121    FH1 / MH1

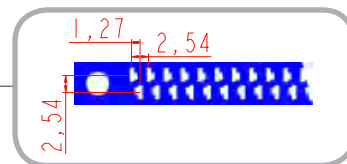
<b>D</b>	See above
<b>L</b>	D - 4.6
<b>h</b>	9.5 MIN
<b>R</b>	$\varnothing 5 \pm 0.1$ 

\* in mm: 1mm = 0.03937 inch

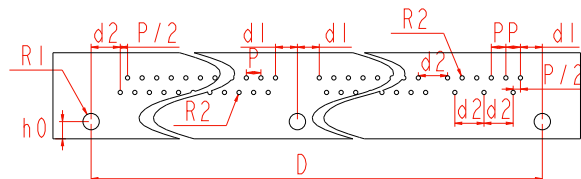
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## 127 / HE8 &gt;&gt;&gt; HE 807

## LAYOUTS COAXIAL CONTACTS

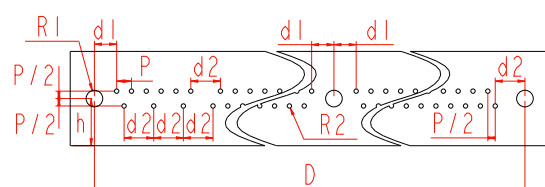


## Daughterboard drilling YC + F032/M032 contacts\*



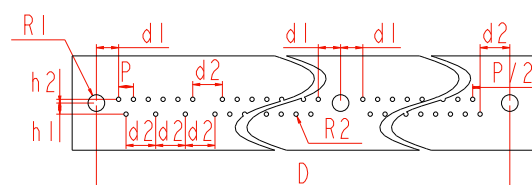
- Receptacle with KET fittings or plug A-D-AS-PA
- YC & coaxial F032/M032 contacts (male & female)

## Daughterboard drilling YC + F032/M032 contacts\*



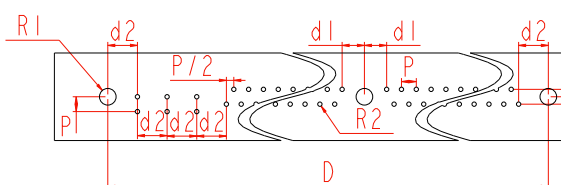
- Receptacle KE
- YC & coaxial F032/M032 contacts (male & female)

## Daughterboard drilling YC + F032/M032 contacts\*



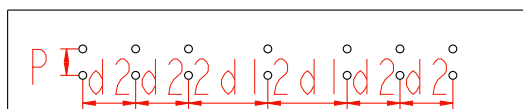
- Receptacle IE
- YC & coaxial F032/M032 contacts (male & female)

## Motherboard drilling Y + F041/M041 contacts\*

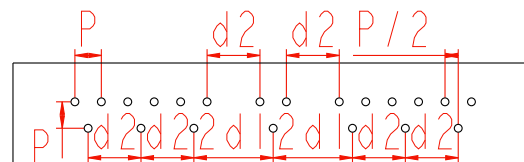


- Receptacle with K-KD-KT fittings and plug E-EF-ES-T fittings.
- Y & coaxial F041 / M041 contacts (male & female contacts)

## Contact F041/M041



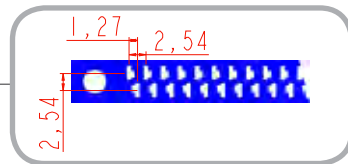
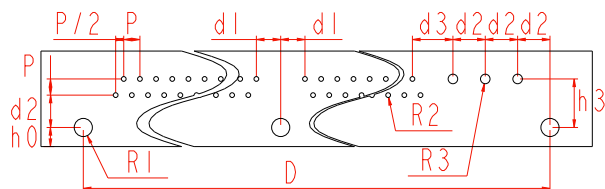
## Contact F032/M032



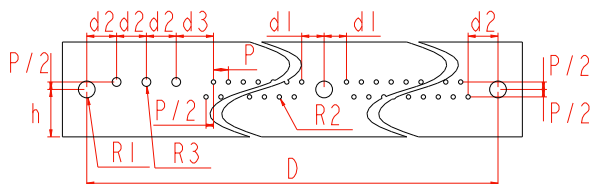
D	d <sub>1</sub>	d <sub>2</sub>	p	p <sub>2</sub>	h <sub>0</sub>	h <sub>1</sub>	h <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	h
See above	3.81 [.150]	5.08 [.200]	2.54 [.100]	1.27 [.050]	3 MAX [.118]	1.9 [.075]	0.64 [.025]	Ø 2.85 MIN [.112]	Ø 0.75 MIN [.030]	9.35 [.368]

\* in mm: 1mm = 0.03937 inch

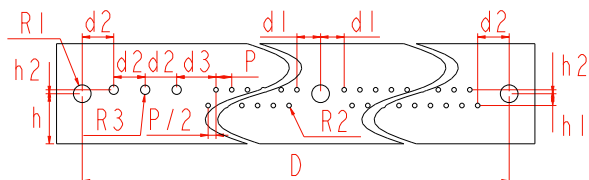
All dimensions are given for information only and are in mm [inch], except as otherwise specified

**127 / HE8 >>> HE 807****LAYOUTS. POWER CONTACTS.****Daughterboard drilling YC + FH3/MH3 & F132/M132**

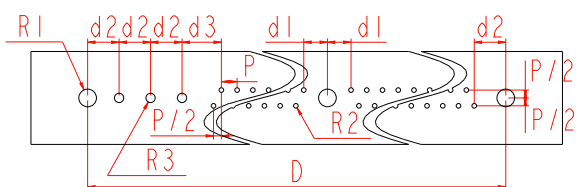
- Receptacle with KET fitting & plug with A-D-AS-PA fittings
- YC & power FH3 / MH3 & F132 / M132 contacts (male & female)

**Daughterboard drilling YC + FH3/MH3 & F132/M132**

- Receptacle with KE fitting
- YC & power FH3 / MH3 & F132 / M132 contacts (male & female)

**Daughterboard drilling YC + FH3/MH3 & F132/M132**

- Receptacle with IE fitting
- YC & power FH3 / MH3 & F132 / M132 contacts (male & female)

**Daughterboard drilling Y + FH2/MH2 & F141/M141**

- Receptacle with K-KD-KT fitting with Y & power FH2 / MH2 & F141 / M141 contacts (male & female)
- Plug with E-EF-ES-T fittings with Y & power FH2 / MH2 & F141 / M141 contacts (male & female)

D	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	p	p <sub>2</sub>	h <sub>0</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	h
See above	3.81 [.150]	5.08 [.200]	6.35 [.250]	2.54 [.100]	1.27 [.050]	3 <sub>MAX</sub> [.118]	1.9 [.075]	0.64 [.025]	7.62 [.300]	Ø 2.85 <sub>MIN</sub> ⊕ <sub>0.2</sub> ⊖ <sub>0.2</sub> [.112]	Ø 0.75 <sub>MIN</sub> ⊕ <sub>0.2</sub> ⊖ <sub>0.2</sub> [.030]	Ø 1.5 <sub>MIN</sub> ⊕ <sub>0.2</sub> ⊖ <sub>0.2</sub> [.059]	9.35 [.368]

## 127 / HE8 &gt;&gt;&gt; FITTINGS &amp; CONTACT COMPATIBILITIES

## HE801

COMPATIBLE MALE FITTINGS Connector with male contacts										FEMALE FITTING RECEPTACLE	COMPATIBLE MALE FITTINGS Connector with female contacts																
RT								X	X	X	AET	X	X							ET							
											KET																
												AT				X	X	X	X								
	X	X	X	X							KT																
JS NS RS								X	X	X	AED	X	X							AS NS ES							
											KED																
											AD				X	X	X	X									
	X	X	X	X							KD																
S NF RF											DC				X	X	X	X	D NF EF								
											SC																
											D				X	X	X	X									
	X	X	X	X							S																
J PC N V R T											L								A PA N V E T								
											AE	X	X	X													
								X	X	X	KE																
											B				X	X	X	X									
	X	X	X	X	X						P																
											A				X	X	X	X									
	X	X	X	X	X					K																	
FEMALE CONTACTS											YC	YL	U	Y	W3	ZC	X	MALE CONTACTS									
A B AE								X	X	X	A								K P KE								
											J	X	X														
											PA																
											PC	X	X														
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						X					N			X													
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	X	X	X	X	X						E																
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	X	X	X	X	X					T				X	X	X	X										
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							X				NF			X													
	X	X	X	X	X						EF																
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	X	X	X	X	X						ES																
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AT AET		X	X	X							ET								KT KET								
											RT					X	X	X									
COMPATIBLE FEMALE FITTINGS Connector with male contacts										MALE FITTING PLUG	COMPATIBLE FEMALE FITTINGS Connector with female contacts																

## 127 / HE8 &gt;&gt;&gt; FITTINGS &amp; CONTACT COMPATIBILITIES

## HE804

COMPATIBLE MALE FITTINGS										FEMALE FITTING RECEPTACLE	COMPATIBLE MALE FITTINGS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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## 127 / HE8 &gt;&gt;&gt; FITTINGS &amp; CONTACT COMPATIBILITIES

## HE807

COMPATIBLE MALE FITTINGS Connector with male contacts										FEMALE FITTING RECEPTACLE	COMPATIBLE MALE FITTINGS Connector with female contacts										
ET								X	X	X	AET									ET	
											KETX	X	X								
												AT									
AS ES								X	X	X	KT				X	X	X	X		AS ES	
											AED										
												KED	X	X							
D EF											AD									D EF	
											KD				X	X	X	X			
												DC									
A PA E T											SC									A PA E T	
											D										
												S				X	X	X	X		
A PA E T								X	X	X	L									A PA E T	
											AE										
												KE	X	X	X						
A PA E T	X	X	X	X	X						B									A PA E T	
											P				X	X	X	X			
												A									
FEMALE CONTACTS	X	X	X	X	X						K				X	X	X	X		MALE CONTACTS	
	YD	X1	Z	W3	Y	U	T	YL	YC		YC	YL	U	Y	W3	ZC	X				
												A	X	X							
K P KE								X	X	X	J									K P KE	
								X	X	X	PA	X	X								
												PC									
K P KE											H									K P KE	
											N										
											V										
K P KE	X	X	X	X	X						E				X	X	X	X		K P KE	
											R										
											T				X	X	X	X			
S								X	X	X	D	X	X							S	
											S										
											NF										
S	X	X	X	X	X						EF				X	X	X	X		S	
											RF										
											AS	X	X								
KD KED								X	X	X	JS									KD KED	
											NS										
	X	X	X	X	X						ES				X	X	X	X			
KT KET											RS									KT KET	
											ET					X	X	X			
											RT										
COMPATIBLE FEMALE FITTINGS Connector with male contacts										MALE FITTING PLUG	COMPATIBLE FEMALE FITTINGS Connector with female contacts										
										</											

## 127 / HE8 &gt;&gt;&gt; TOOLING

## REMOVAL TOOLS

1272



- Pin: ZC / X / YC / YL
- Rear release

Part number

1272

24098



- Pin Y / W3 / U
- Front release

Part number

24098

1271



- Socket: YC / U / Z / X1 (HE 801 & HE 804)
- Rear release

Part number

1271

24099



- Socket: YC / U / Z / X1 (HE 807)
- Rear release

Part number

24099

20973



- Socket: W3
- Front release

Part number

20973

20143



- Socket: Y / YD
- Front release

Part number

20143

23550



- Socket: particular contacts HE 807
- Rear release

Part number

23550

## INSERTION TOOL

1275



- Pin: X
- Insertion on the same side as removal
- Eased contact insertion

Part number

1275

## CRIMPING TOOLS

HE 8 20 051



- Pin: X
- AWG 26 to 22
- No additional turret

Part number

HE 8 20 051

809801



- Socket: X1
- AWG 26 to 22
- Additional turret: 127.800.030
- Military reference: M22520/2-01

Part number

809801



## AMPHENOL AEROSPACE OPERATIONS >>> BOARD LEVEL INTERCONNECTS

### BRUSH CONTACT TECHNOLOGY



- Multiple strands of high tensile strength wire bundled together to form brush-like contacts.
- Multiple contact interfaces. By intermeshing two multi-strand wire bundles, an electrical connection is made.
- Provides redundant current paths, 14-70 (points of contact) per mated contact with a gas tight junction
- Very smooth (low friction) interface

### HDB<sup>3</sup> / HSB<sup>3</sup> THE HIGH DENSITY BRUSH SERIES

#### HDB<sup>3</sup> series

This new connector series of brush connectors incorporates an even higher density contact pattern and lower mated height than Amphenol's standard low mating force rectangular connectors. These HDB<sup>3</sup> connectors utilize the same durable and reliable B<sup>3</sup> brush contact in a tighter .070 inch x .060inch staggered grid pattern.



- Higher density contact pattern
- Uses less board space
- Allows for shorter mated height
- Provides durability and performance of the brush contact
- Low cost
- Available in mother board, daughter board, Input/Output and stacker style

#### HSB<sup>3</sup> series: high-speed series 3.125 GBS

The HSB<sup>3</sup> is a further new development of the higher density HDB<sup>3</sup> connector series. The HSB<sup>3</sup> offers higher speed as well as higher density.



- Allows data rates up to 3.125Gb/s via 100 ohm matched impedance differential pairs
- Uses partially populated standard HDB<sup>3</sup> mother board and daughter board inserts

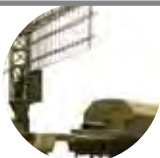
The HDB<sup>3</sup> / HSB<sup>3</sup> series serve various markets, including:



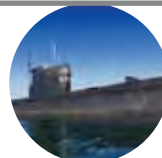
Commercial Avionics  
& Airframe



Military Avionics & Airframe



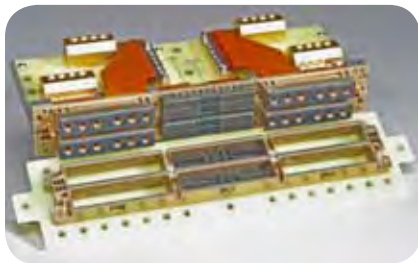
C4ISR



Navy

## AMPHENOL AEROSPACE OPERATIONS >>> BOARD LEVEL INTERCONNECTS

### LRM LINE REPLACEABLE MODULE



Amphenol LRM surface mount connectors meet the high-density needs of today's integrated electronic modules. With its flexibility in design, Amphenol LRM interconnects are capable of meeting the wide variety of user requirements:

- LRM interconnects can be designed in 1, 2, 3 and more bay configurations
- LRM digital (brush) inserts can be combined with inserts for power, fiber optics, RF, high speed and high amperage RADSOX® contacts

#### Staggered Grid LRM: high contact density in SEM-E form factors



- Digital insert pattern grid is in 8 rows: 0.100 inch spacing along the row with 0.050 inch between rows, rows offset 0.050 inch.
- Typical standard arrangements: 80, 108, 152 or 180 digital brush contacts
- Various shell designs available to accommodate a wide range of PCB/ heat sink
- SMT termination on module connectors, PCB on backplane connectors
- ESD protection
- LVDS differential pair insert available, 100 ohm matched impedance, exceeding 1.2 Gbps available

#### LRM with Fiber Optics



- High speed fiber optic transmission
- Custom combinations of digital contacts and fiber optic termini
- Insertion losses range from .3dB to <1.5dB
- MIL-T-29504/4, /5, /14 & /15 termini
- MT ferrule arrangements (12 or 24 fiber lines per ferrule)

#### High-speed LRM: GigaStak, GigaStak-LG, DigiStak & DigiStak-X

These LRMs are designed, or can be configured, to achieve data rates up to 6.25 Gb/s and include all the features of the rugged and reliable staggered grid LRM series.

In addition, the GigaStak and DigiStak series incorporate Amphenol's cStack solderless termination technology.



- Optimized insert through strategic placement of signal and ground contacts
- Perfect balance of impedance control and cross talk mitigation
- 100 ohm matched impedance differential pairs
- GigaStak 6.25 Gb/s
- GigaStak-LG 3.125 Gb/s
- DigiStak & DigiStak-X 3.125 Gb/s
- Standard staggered grid 1.25 Gb/s

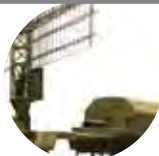
The LRM series serve various markets, including:



Military Avionics  
& Airframe



Commercial Avionics  
& Airframe



C4ISR



Ground vehicles



Space

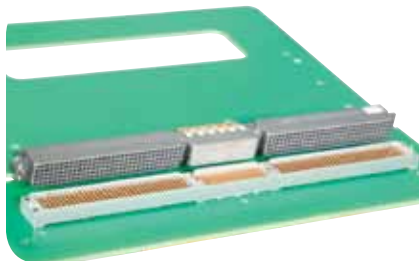
## AMPHENOL AEROSPACE OPERATIONS >>> BOARD LEVEL INTERCONNECTS

### RUGGEDIZED VME64X INTERCONNECTS



In a harsh military environment the COTS VME connector interface can fail, negating the ruggedization of the cards. The Amphenol Ruggedized VME64x interconnect has a more rugged interface than standard connectors for improved vibration durability. It meets the needs for a harsh environment connector requiring Level 2 maintenance. The Amphenol Ruggedized VME64x connector mounts to standard VME64x cards and backplanes, but it does not mate to other types of VME commercial connectors.

#### Features and benefits include:



- Metal shells - mount directly to the standard VME card mounting holes, providing support and protection to the inserts in the module and additional stiffness to the backplane
- The metal shells create a faraday cage around the contacts, preventing ESD (Electrostatic Discharge) into the contacts (module only)
- Robust contact system
- 3 module inserts in one unified shell; each can have different interconnect combinations.
- Thru-hole solder tail or solderless termination is available on the backplane connector.

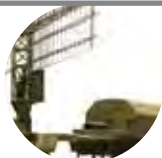
#### The ruggedized VME64x series serves various markets, including:



Commercial Avionics  
& Airframe



Military Avionics & Airframe



C4ISR



Ground vehicles

## AMPHENOL BACKPLANE SYSTEMS >>> BOARD LEVEL INTERCONNECTS

### VIPER VITA 46, VITA 48 & VITA 60 FOOTPRINT COMPATIBLE



- High-level vibration and mechanical shock protection
- Condensing moisture resistance
- Ruggedization in packaging
- Scaling from 80 Mbps to over 10 Gb/s while retaining the same VITA 46 platform slot pitch at 20.3mm to 25.4mm.

The VIPER® connector is a shielded, high-density, high speed modular interconnect with press fit terminations. The daughtercard assembly is optimized for differential pair architecture on a 1.8mm x 1.35mm grid. The daughtercard is waferized, and provides single-ended and power wafer options integrated onto a stainless steel stiffener with stainless steel frame and keying elements. The backplane has signal contacts that incorporate highly reliable 4-point-of-contact beam design, and ground contacts which are robust compliant pin & contact fork design.

#### Key features

##### MECHANICAL CHARACTERISTICS

<b>Normal force</b> per contact (g)	85
<b>Mating force</b> per contact (g)	35 < F < 45
<b>Unmating force</b> per contact (g)	25 < F < 30
<b>Durability</b> cycles	500
<b>Random vibrations</b> (90 minutes per X, Y and Z axis)	0.6 g <sup>2</sup> / Hz
<b>Shocks</b> 11 ms half sine	50 Grms in Y axis 80 Grms in Y and Z axis

##### ENVIRONMENTAL CHARACTERISTICS

<b>Thermal shocks</b> (°C)	-55 / +125
<b>Temperature life</b> (+125°C, in hours)	1 000

##### ELECTRICAL CHARACTERISTICS

<b>Data rate</b> (Gbps)	10
<b>Differential impedance</b> (Ω)	100
<b>Differential insertion &amp; return loss</b>	- 5 dB up to 5 GHz (10 Gbps)
<b>Far end &amp; near end crosstalk</b>	- 35 dB & -33 dB up to 8 GHz
<b>Current rating</b> per contacts (A)	1
<b>Current rating</b> per power wafer (A)	12 at 30°C
<b>Insulation resistance</b> (GΩ)	1 <sub>MIN</sub>
<b>Contact resistance</b> (mΩ)	1 <sub>MAX</sub>
<b>Dielectric Withstanding Voltage</b> (Vrms)	500

- Fully footprint-compatible with VITA 46 and VITA 48 standards
- Hi-speed: designed for 10+ Gb/s data rate performance
- 100 ohm impedance for differential pair configuration
- ESD protection
- ± 0.520 mm nominal translation in fully mated condition
- Separable interface offering 70 single-ended signals and 63 differential signals

The VIPER series serves various markets, including:



Military Avionics  
& Airframe



Commercial Avionics  
& Airframe



C4ISR



Ground vehicles



## AMPHENOL TERADYNE CONNECTION SYSTEMS >>> HIGH SPEED INTERCONNECTS

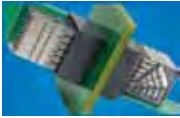
### BACKPLANE INTERCONNECTS

<b>XCede®</b> 20+ Gbps		<ul style="list-style-type: none"> <li>Meets the IEEE 802.3ap v3.2 10GBASE-KR standard with margin</li> <li>Up to 82 differential pairs per inch (32 differential pairs per centimeter)</li> <li>Secondary routing channels significantly lower backplane costs</li> <li>85 and 100 ohm components are readily available in all configurations without the hassle of retooling and requalification</li> </ul>
<b>XCede® LC</b> 10 Gbps		<ul style="list-style-type: none"> <li>Mates with standard XCede backplane module</li> <li>Daughtercard wafer designed without resonance damping polymer to optimize cost</li> <li>Fully compatible with the XCede family of components, including power and guidance</li> <li>Available in 85 and 100 ohm impedance</li> </ul>
<b>eHSD®</b> 10 Gbps		<ul style="list-style-type: none"> <li>Meets the IEEE 802.3ap v3.2 10GBASE-KR standard</li> <li>Fully backwards compatible with VHDM-HSD, delivering up to 10 dB lower crosstalk</li> <li>Scale existing systems to next generation speeds</li> <li>25 - 38 real differential pairs per linear inch (10 - 15 real differential pairs per centimeter)</li> </ul>
<b>Ventura®</b> 6.25 - 12 Gbps		<ul style="list-style-type: none"> <li>High-density, high-performance single-ended connector</li> <li>12 Gbps differential, 6.25 Gbps single-ended</li> <li>102 - 178 real signals per inch (40 - 70 signals per centimeter)</li> <li>Surface mount attach</li> </ul>
<b>GbX®</b> 5.0 Gbps		<ul style="list-style-type: none"> <li>27.5 - 69 differential pairs per inch (11 - 27 differential pairs per centimeter)</li> <li>Ideal for 4 x 3.125 XAUI links</li> <li>Full range of proven components (e.g. power, guidance, polarizing)</li> <li>Robust mechanical design</li> </ul>
<b>GbX® U-Series</b> 10+ Gbps		<ul style="list-style-type: none"> <li>Enhanced footprint for improved impedance and crosstalk performance</li> <li>Backplane modules are compatible with all generations of GbX daughtercards</li> <li>Up to 10 dB crosstalk improvement on actual backplanes</li> </ul>
<b>GbX® E-Series</b> 6.25 Gbps		<ul style="list-style-type: none"> <li>Enhanced electrical performance</li> <li>Crosstalk as low as 2%</li> <li>Backplane module shares the same footprint as standard GbX</li> </ul>
<b>GbX® L-Series</b> < 1 Gbps		<ul style="list-style-type: none"> <li>1.85mm x 1.85mm open pin field version of GbX</li> <li>Customize signal integrity performance by varying ground-to-signal ratio</li> <li>Ideal for TTL sense and control and other low-speed data lines</li> </ul>
<b>AirMax VS®</b> 2.5 - 6.25 Gbps <small>AirMax VS is a registered trademark of FCI</small>		<ul style="list-style-type: none"> <li>Shieldless connector system</li> <li>Cost-effective interconnect for multi-gigabit applications</li> <li>Up to 63 differential pairs/inch</li> <li>3, 4, and 5-Pair standard and reverse gender available</li> </ul>
<b>Aptera™</b> 3.125 - 6.25 Gbps		<ul style="list-style-type: none"> <li>Low-profile, high-reliability 2-piece edge-card connector</li> <li>6.25 Gbps performance differential; 3.125 Gbps single-ended</li> <li>Low profile construction reduces minimum slot pitch between daughtercards to 10mm (.39")</li> <li>Right angle and stacker versions available</li> </ul>
<b>VHDM-HSD™</b> 5 Gbps		<ul style="list-style-type: none"> <li>Optimized for high-speed differential backplane applications</li> <li>25 - 38 differential pairs per inch (10 - 15 differential pairs per centimeter)</li> <li>Modular design enables mix of single-ended and differential signals within the same connector</li> </ul>
<b>VHDM®</b> 3.125 Gbps		<ul style="list-style-type: none"> <li>Optimized for single-ended, high-density applications</li> <li>76 - 101 real signals per inch (30 - 40 real signals per centimeter)</li> <li>Less than 5% crosstalk</li> <li>Stripline shielding allows 100% of the pins to be used for signals</li> </ul>
<b>VHDM® H-Series</b> 6.25 Gbps		<ul style="list-style-type: none"> <li>Superior signal integrity</li> <li>Backwards compatible with the full VHDM product family - design into same slot for fast, easy system upgrades</li> <li>0.018" (0,045mm) PCB hole for improved performance</li> </ul>
<b>VHDM® L-Series</b> < 1 Gbps		<ul style="list-style-type: none"> <li>Open pin-field version of VHDM</li> <li>Fully compatible with the full VHDM product family to optimize cost and performance by mixing high- and low-speed signals on the same connector</li> <li>Ideal for TTL sense and control and other low-speed data lines</li> </ul>
<b>HDM®</b> <b>HDM® Plus</b> < 1 Gbps		<ul style="list-style-type: none"> <li>Economical 2mm modular design</li> <li>75 real signals per inch (30 contacts per centimeter)</li> <li>Can operate in applications with rise times as low as 500 pico seconds</li> </ul>






## AMPHENOL TERADYNE CONNECTION SYSTEMS >>> HIGH SPEED INTERCONNECTS






### ORTHOGONAL INTERCONNECTS

<b>Crossbow™</b> 20+ Gbps		<ul style="list-style-type: none"> <li>• XCede® technology optimized for orthogonal midplane architectures</li> <li>• Meets the IEEE 802.3ap v3.2 10GBASE-KR standard with margin</li> <li>• Demonstrated 100 Ohms <math>\pm</math> 5% impedance across an entire link</li> <li>• Less than 1.5 picoseconds in-pair skew</li> <li>• Crosstalk &lt; 1.5% at 50 picoseconds</li> <li>• 4 x 4, 6 x 6, 8 x 8 and 8 x 9 configurations available</li> </ul>
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### CO-PLANAR INTERCONNECTS

<b>XCede® Co-planar</b> 20+ Gbps		<ul style="list-style-type: none"> <li>• Right angle male enables co-planar board-to-board or board-to-cable high-speed interconnection</li> <li>• Mates with standard right female daughtercards</li> <li>• Available in 85 and 100 ohm impedance</li> </ul>
<b>GbX® Right Angle Male (RAM)</b> 5.0 Gbps		<ul style="list-style-type: none"> <li>• Enables co-planar board-to-board or board-to-cable high-speed interconnection</li> <li>• Currently available in 2-pair configuration (27 differential pairs per linear inch)</li> <li>• Available in two different heights - standard RAM and extended RAM</li> <li>• High-speed differential and L-Series versions available</li> </ul>
<b>VHDM® Right Angle Male (RAM)</b> 3.125 Gbps		<ul style="list-style-type: none"> <li>• Right angle male enables co-planar board-to-board or board-to-cable high-speed interconnection</li> <li>• 76 - 101 real signals per linear inch (30 - 40 real signals per centimeter)</li> <li>• Grow systems horizontally by creating traditional backplane components in a right angle orientation</li> </ul>

### MEZZANINE INTERCONNECTS

<b>XCede® Stacker</b> 20+ Gbps		<ul style="list-style-type: none"> <li>• 4-pair size provides density and mechanical robustness to address increasing I/O counts</li> <li>• Modular construction and guidance options allow optimized connector lengths for each application</li> <li>• Heights available from 15mm up to 44mm</li> <li>• Press fit attachment</li> </ul>
<b>NeXLev®</b> 12.5 Gbps		<ul style="list-style-type: none"> <li>• Enhanced BGA attachment process to increase SMT process yields</li> <li>• 125 micron co-planarity</li> <li>• 57 real signals per linear centimeter (145 signals per inch)</li> <li>• 20 stacking heights from 10-33mm</li> </ul>
<b>VHDM® Stacker</b> 3.125 Gbps		<ul style="list-style-type: none"> <li>• Press fit solution for stacking applications</li> <li>• Route single-ended or differentially</li> <li>• 76 - 101 real signals per inch (30 - 40 real signals per centimeter)</li> <li>• Stacking heights from 18mm and up</li> </ul>
<b>Aptera™ Stacker</b> 3.125 - 6.25 Gbps		<ul style="list-style-type: none"> <li>• Mezzanine solution provides the same electrical performance as standard Aptera</li> <li>• Mates with standard backplane modules</li> <li>• Available in 40mm board-to-board stack heights</li> <li>• Uses proven GbX compliant pin technology</li> </ul>
<b>HDM® Stacker</b> < 1 Gbps		<ul style="list-style-type: none"> <li>• Available in 72 pin and 144 pin signal modules in soldertail or press fit configurations</li> <li>• 75 real signals per inch (30 contacts per centimeter)</li> <li>• 30 Amp power module, end stackable</li> <li>• Stacking heights from 15 to 32mm</li> </ul>

### HIGH-SPEED CABLE ASSEMBLIES INTERCONNECTS

<b>XCede® Cable Connectors &amp; Assemblies</b> 20+ Gbps		<ul style="list-style-type: none"> <li>• Ideal for front panel and backplane connections</li> <li>• Provides the same industry leading electrical and mechanical performance as the standard right angle connectors</li> <li>• Available in 2-Pair and 4-Pair configurations</li> <li>• Tightly matched impedance control at cable termination</li> <li>• Wafers are available for 85 and 100 ohm impedance</li> <li>• Supports multiple cable designs ranging from 24 to 30 AWG</li> </ul>
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## AMPHENOL PRINTED CIRCUITS >>> PRINTED CIRCUIT BOARDS CAPABILITIES

### RIGID PRINTED CIRCUIT BOARDS



Amphenol Printed Circuits' (APC) capabilities are among the world's broadest and most advanced, delivering consistent quality and reliability for demanding high-bandwidth systems and mission critical applications for more than 25 years. Proven engineering and manufacturing expertise eliminates printed circuit board design obstacles.

APC's North America printed circuit board operation provides tightly controlled processes for prototype through production printed circuit board volumes. The 214,000 square foot New Hampshire facility features state-of-the-art PCB manufacturing equipment and optimized material handling to ensure the highest quality and consistency.

<b>Design formats</b>	Mentor PADS	Cadence Zuken
<b>Manufacturing formats</b>	ODB++ (Preferred) DXF Gerber 274X	Autoplot Excellon HPGL DPF Gerber 274D IPC-D-356
<b>Maximum panel size</b>	24" x 54" (609.1mm x 1370.6mm) 30" x 44" (761.4mm x 1116.7mm) 36" x 42" (913.7mm x 1065.9mm)	
<b>Maximum panel thickness</b>	0.400" (10.15mm)	
<b>Layer count</b>	Up to 64	
<b>Interconnection formation types</b>	Back Drilled Dual Diameter Thru Hole* Buried Electrically Isolated Blind (Laser & Mechanical) * Includes conductive and non-conductive fill	
<b>Aspect ratio - drilled size</b>	Backplane 17:1 Daughtercard 15:1	
<b>Finished hole size</b>	Compliant Pin 0.018" (0.457mm) Via (A/R dependent) 0.008" (0.203mm) Buried Vias 0.006" (0.152mm) Microvias (Up to 3 electrical layers) 0.004" (0.101mm)	
<b>Blind via aspect ratio</b>	1.25:1	
<b>Internal features</b>	Lines 0.003" (0.076mm) 0.5 oz copper Spacing 0.003" (0.076mm) 0.5 oz copper Buried Resistors No Buried Capacitance No Core Thickness 0.001" (0.0254mm) minimum	
<b>External features</b>	Lines 0.004" (0.101mm) 0.5 oz copper Spacing 0.004" (0.101mm) 0.5 oz copper	
<b>Materials</b>	High Tg FR4 (Including phenolic cure) Megtron 6 Isola FR408 Nelco 4000-13 & Nelco 4000-SI Rogers 4350/FR4 BT (Bismaleimide triazine resin) Taconic Gore Cyanate Ester Polyimide Rogers 4350	
<b>Copper processing</b>	1/4 oz up to 15 oz (U/L 7 oz)	
<b>Impedance single &amp; differential</b>	± 10% ± 7.5% ± 5.0%* * Consult factory	
<b>Surface finishes</b>	Electrolytic Ni/ Au (Hard & Soft) HASL Immersion Tin Reflowed Tin/Lead ENIG Immersion Silver OSP-Entek 106	
<b>Certifications</b>	AS9100 Certification IPC-6012 Class I, II and III ITAR Registration MIL-PRF-31032/2a ISO 9001:2000 ISO 14001:1996 MIL-PRF-31032/1b MIL-P-55110	

## AMPHENOL PRINTED CIRCUITS >>> PRINTED CIRCUIT BOARDS CAPABILITIES

### RIGID PRINTED CIRCUIT BOARDS



APC is one of the industry's leading manufacturers of flexible and rigid-flex circuit interconnects. For more than 30 years, APC has been providing quick turn prototypes from initial concept through full production with cutting-edge technologies including interconnects with blind and buried vias, microvias, and bookbinder.

Our assembly centers of excellence, located in Nashua, New Hampshire and Nogales, Mexico are fully ITAR qualified, providing competitive value-added services including SMT, wave and manual through-hole assembly.

APC works closely with our customers to understand their true system requirements. This allows us to deliver the most cost-effective interconnect solutions with up-front engineering and consistent manufacturing techniques. From functional testing and turn-key assembly, APC's commitment to our customers success is what sets us apart in the industry.

<b>Design formats</b>	DXF Gerber	IGES PADS
<b>Panel size</b>	12" x 18" (304.5mm x 456.8mm) 18" x 24" (456.8mm x 609.1mm) 24" x 24" (609.1mm x 609.1mm) 24" x 36" (609.1mm x 913.7mm) 24" x 54" (609.1mm x 1370.6mm) <i>Consult Factory</i>	
<b>Panel thickness</b>	0.003" to 0.225" (0.0762mm to 5.71mm)	
<b>Layer count</b>	1-30+	
<b>Interconnection formation types</b>	Thru Hole Buried Blind	SMT Filled Vias Dual Diameter
<b>Finished hole size</b>	Compliant Pin (Rigid zone only) Via (A/R dependent) Buried Vias Microvias (Up to 3 electrical layers)	0.018" (0.457mm) 0.008" (0.203mm) 0.006" (0.152mm) 0.004" (0.101mm)
<b>Blind via aspect ratio</b>	1.25:1	
<b>Internal features (cu weight dependent)</b>	Line Spacing	0.003" (0.076mm) 0.003" (0.076mm)
<b>Materials</b>	Polyimide - FR Polyimide - AP Polyimide - GI Soldermask	Polyimide - Standard Acrylic Silver Epoxy Shielding Copper Epoxy Shielding FR4/ 24/ 26/ 28
<b>Copper processing</b>	1/4 oz up to 15 oz	
<b>Impedance single &amp; differential</b>	± 10% ± 7%*	* <i>Consult factory</i>
<b>Surface finishes</b>	HASL Reflowed Tin/ Lead OSP-Entek 106 ENIG	Immersion Tin Immersion Silver Bright Tin Electrolytic Ni/ Au (Hard & Soft)
<b>Assembly capabilities</b>	Full Turn-Key Thru-Hole (Wave & Manual) SMT (Pick & Place)	Wire-Bond Crimp RoHS Compliance
<b>Assembly finishes</b>	Conformal Coat - UR, Acrylic, Parylene, Flouropel, Glop Top	
<b>Test capabilities</b>	Overmolding Impedance Testing Hi-Pot up to 5,000 VDC 2,000 Points per Circuit Insulation Resistance up to 1,000 VDC Four-Wire Kelvin 0.001 Ω to 1 Ω	Bed of Nails Flying Probe Flex Cycling Environmental Functional Test
<b>Certifications</b>	MIL-P-50884, Types 1-5 IPC-6013 Class I, II and III, Types 1-5 ITAR Registration	ISO 9001:2000 IPC-610 AS9100 Certification

# Amphenol in the world

## Amphenol Socapex

948, promenade de l'Arve BP29  
74311 Thyez Cedex - France  
Phone: +33 (0)4 50 89 28 00  
[contact@amphenol-socapex.fr](mailto:contact@amphenol-socapex.fr)  
[www.amphenol-socapex.com](http://www.amphenol-socapex.com)

 [www.twitter.com/AmphenolSocapex](https://twitter.com/AmphenolSocapex)  
 [www.linkedin.com/company/amphenol-socapex](https://www.linkedin.com/company/amphenol-socapex)

## Other Amphenol Sales contacts in Europe

**Amphenol Air LB**  
10 rue champ Raymond  
08110 Carignan - France  
Phone: +33 (0)1 49 05 30 00

**Amphenol AIR LB GmbH**  
Am Kleinbahnhof 4  
66740 Saarlouis - Germany  
Phone: +49 6831 981 00

**Amphenol TUCHEL ELECTRONICS**  
August-Haesser-Str. 10  
D-74080 Heilbronn - Germany  
Phone: +49 7131 929 00

**Amphenol BENELUX**  
Zadelmaker 121  
NL - 2401 PD Alphen aan den Rijn -  
The Netherlands  
Phone: +31 172 444 903

**Amphenol Limited** Whitstable, UNITED KINGDOM  
Thanet Way, Whitstable  
Kent, CT53JF - United Kingdom  
Phone: +44 1227 773 200

**Amphenol ITALY**  
Via Barbaiana n.5  
20020 Lainate - Milano - Italy  
Phone: +39 293 254 214

**Amphenol IBERICA**  
Edificio Burgosal, Oficina nr 55 - Comunidad  
de Madrid, 35-bis Las Rozas (Madrid) - Spain  
Phone: +34 91 640 73 06

**Amphenol NORDIC**  
Phone: +46 768 418 600

**Amphenol POLAND & CENTER EAST**  
EUROPE - Austria, Poland, Czech Rep.,  
Slovakia, Romania  
Wiener gasse 68 - 2380 Perchtoldsdorf -  
Austria  
Phone: +43 699 10396 071

**Amphenol SWITZERLAND & SOUTH CENTER**  
Switzerland, Slovenia, Serbia, Montenegro,  
Yugoslavia, Greece, Bulgaria  
948, promenade de l'Arve BP29  
74311 Thyez Cedex - France  
Phone: +33 (0)4 50 89 28 40

## Amphenol Sales contacts in Asia

**Amphenol Daeshin**  
558 SongNae-Dong SoSa-Gu, Bucheon-city, Kyunggi-Do  
Korea 420-130  
Phone: +81-32 610 3830/3845

**Amphenol East Asia Ltd.**  
No.72, Bendemeer Road,  
#03-32/33, Luzerne  
Singapore 339941  
Phone: +65 6294 2128

**Amphenol Interconnect India Private Limited**  
105 Bhosari Industrial Area - Pune 411 026 - India  
Phone: +91 20 3068 8304

**Amphenol PCD CO. LTD**  
Building 21, 1st Liao Keng Industrial Zone, Shi Yan Street  
Bao An District, Shenzhen 518108  
China  
Phone: +86 755 8173 8000/8286

**Amphenol Japan**  
471-1, Deba, Ritto-City, Shiga 520 3041 - Japan  
Phone: +81 77 553 8501

## Amphenol Sales contacts in North America

**Amphenol PCD**  
72 Cherry Hill Drive - Beverly, MA. 01915 - USA  
Phone: +1 978 624 3400

**Amphenol Aerospace Operations**  
40-60 Delaware street - Sidney, NY 13838-1395 - USA  
Phone: +1 607 563 5011

**Amphenol Backplane Systems**  
18 Celina avenue - Nashua, NH 03063 - USA  
Phone: +1 603 883 5100

**Amphenol Canada Corporation**  
605 Milner avenue - Toronto, Ontario - Canada - M1B 5X6  
Phone: +1 416 291 4401

**Amphenol Fiber System Int.**  
1300 Central Expwy N, Suite 100  
Allen, TX 75013 - USA  
Phone: +1 214 547 2400

## Amphenol Sales contacts in Other Areas

**Amphenol Argentina**  
Av. Callao 930 2do piso Oficina B "Plaza" C1023 - AAP  
Buenos Aires - Argentina  
Phone: +54 11 4815 6886

**Amphenol Australia Pty Limited**  
2 Fiveways Blvd., Keysborough - Melbourne  
Victoria 3173 - Australia  
Phone: +61 3 8796 8888

**Amphenol Do Brazil**  
Rua Diogo Moreira, 132, 20 andar, rooms 2001-2-3  
CEP: 05423-010 Sao Paulo SP - Brazil  
Phone: +55 11 3815 1003

**Bar-Tec Ltd., ISRAEL**  
3 Hagavish Street, K fir-Barkan Bldg. East Industrial  
Zone - Kfar-Sava, 44102 - Israel  
Phone: +972 9 764 4100

**Amphenol Mexico**  
Prolongacion Reforma 61-6 B2  
Col Paseo de las Lomas - C.P. 013130 Mexico  
Phone: +52 55 5258 9984

**Amphenol Russia**  
Yaroslavskaja Street 8,  
129164 Moscow - Russia  
Phone: +7 495 937 6341

**Amphenol Interconnect South Africa (Pty) Ltd**  
58 Malcolm Moodie Crescent, Jet Park  
Boksburg, SOUTH AFRICA  
Phone: +27 11 397 6069

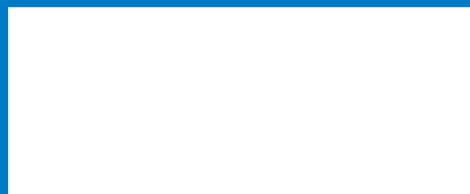
**Amphenol TURKEY**  
Sun Plaza 15 Kat: 15 Maslak Hah. Bilim  
Sok. No.5  
Sisli/Istanbul, 34398 - Turkey  
Phone: +90 212 367 92 19

# Amphenol

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