

# 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

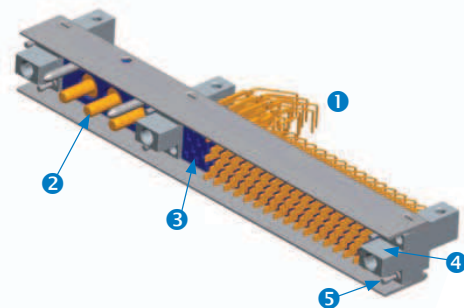
E = Female receptacle for mother board

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<br>1  | Coax contacts<br>2   | Modules<br>3  | Fittings & Guiding<br>4   | Keying<br>5   |
|---|--|---|---|---|
| <b>FEMALE</b><br>for receptacles<br><br>for extender receptacles<br><br>for test plugs<br> | <b>COAX SIZE 12</b><br><br><b>COAX SIZE 16</b><br><br><b>3 COAX / MODULE</b><br><br><b>5 COAX / MODULE</b><br> | <b>NUMBER OF SIGNAL CONTACTS</b><br>018, 036, 058, 076, 098,<br>116, 156, 196, 214, 254,<br>312, 370, 392<br><br><b>NUMBER OF COAX CONTACTS</b><br>Size 12: 03, 06, 09, 12<br>Size 16: 05, 10 | <b>FITTING</b><br><br><b>FEMALE SOCKET GUIDE</b><br><br><b>MALE GUIDE PIN</b><br> | <b>5 polarizing pins / connector</b><br> |
| <b>PAGE 73</b>   <b>PAGE 72</b>   | <b>PAGE 74</b>   | <b>PAGE 76</b>  | <b>PAGE 77</b>  | <b>PAGE 77</b>  |

The SIAL series serves various markets, including:



Commercial avionics & airframe

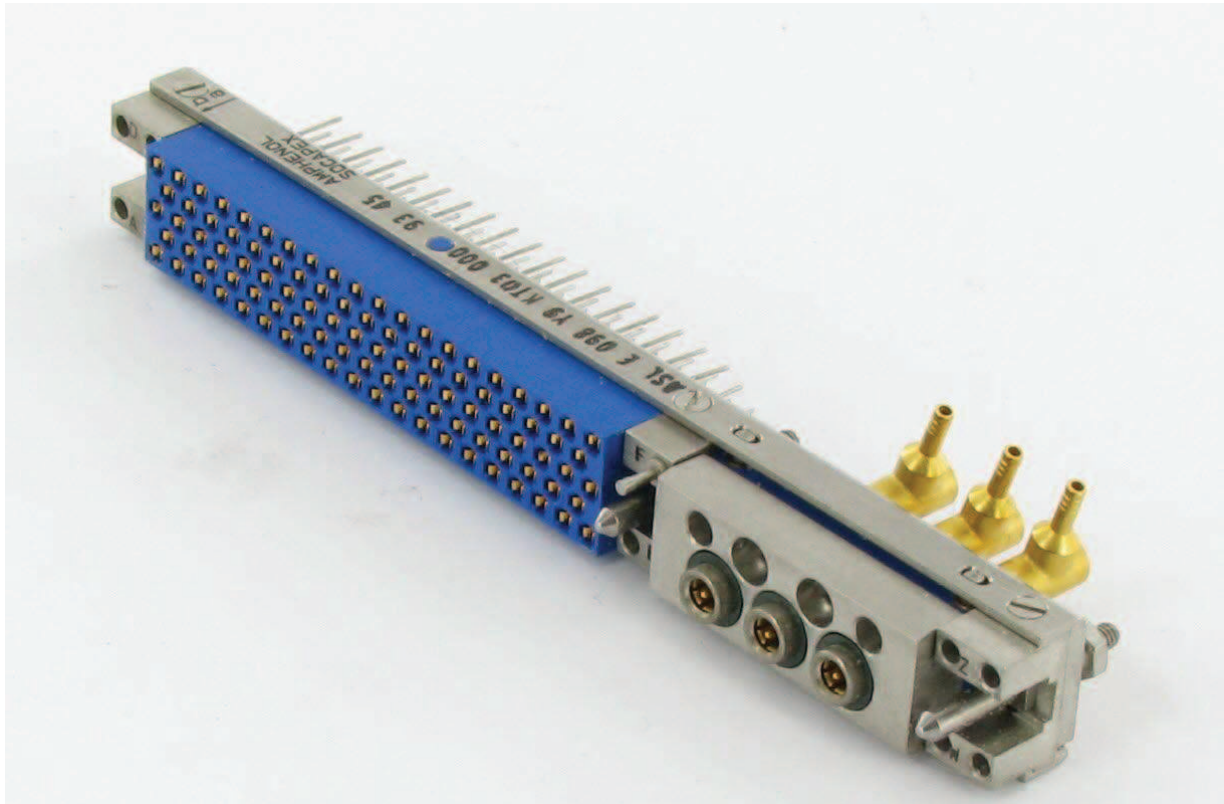


Military avionics & airframe



Space

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



SIAL Series

## SIAL Series

The hybrid connector for use with thermal clamps

|   |    |
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SIAL >>> GENERAL SPECIFICATIONS



- Modular connector mixing signal and coax contacts in many arrangements
- Lateral displacement capability allowing the use of thermal clamps: ± 0.25 [± .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

Terminations



Recommended configurations



Standard

MIL-DTL-55302

CECC 75101-012

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



How to order

|                       |                            |
|-----------------------|----------------------------|
| E                     | Female receptacle          |
| F                     | Male plug                  |
| T                     | Female test receptacle     |
| S                     | Male test plug             |
| P                     | Female extender receptacle |
| <b>Connector type</b> |                            |

|                                    |   |
|------------------------------------|---|
| C                                  | Conductive fitting<br>Standard version for E and F types                                      |
| ∅                                  | Non conductive fitting<br>(uncoloured phosphorous anodization)<br>Test versions and specifics |
| <b>Conductivity of the fitting</b> |   |

| Size               | Male plug | Female receptacle<br>(with lateral displacement) |
|--------------------|-----------|--|
| Size 12            | <b>KX</b> | <b>KT</b>  |
| Size 16            | <b>NX</b> | <b>NT</b>  |
| No coaxial contact | ∅         |  |
| <b>Coax module</b> |           |  |

**ASL** - --- - --- - --- - ---

| Deviation |  |
|-----------|--|
| 000       | Standard   |
| 001       | ASL F or E with 5 right & left coax                  |
| 002       | ASL F or E with 5 coax before signal contacts        |
| 010       | ASL E with 3 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              |
| xxx       | Special deviations                                   |

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

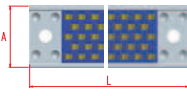
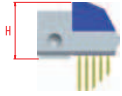
| Signal contacts (see pages 72 to 73) |  |  |
|--------------------------------------|--|--|
|                                      | Male contact                           | Female contact                         |
| E                                    |  | Y09, Y19                               |
| 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 81) |      |                |
|---------------------------------------|------|----------------|
|                                       | Size | Number of coax |
|                                       |      | 03             |
| 12                                    |      | 06             |
|                                       |      | 09             |
|                                       |      | 12             |
| 16                                    |      | 05             |
|                                       |      | 10             |
| No coaxial contact                    |      | ∅              |

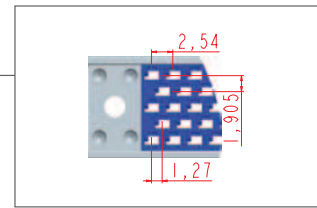
All dimensions are given for information only and are in mm [inch], except as otherwise specified

## SIAL >>> 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

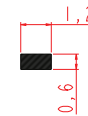
- Cross section of the lateral displacement of the male contact inside the female cavity
- Maintains 2 points of contact
- Allows a  $\pm 0.25$  [ $\pm .010$ ] lateral displacement
- No stress on solder joints or on the contact area

**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                      |

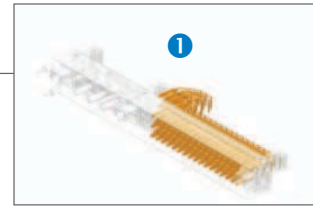
\* "C" standard version

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

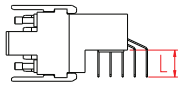
All dimensions are given for information only and are in mm [inch], except as otherwise specified

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

## MALE CONTACTS FOR PLUGS



## Right angle PC tail



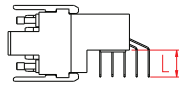
- Thru hole soldering
- Daughter board
- PCB thickness:  $3.1_{MAX}$  [.122]



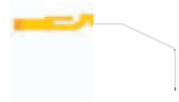
Termination style

Y01

## Right angle PC tail



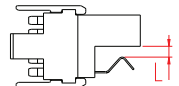
- Thru hole soldering
- Daughter board
- PCB thickness:  $2.6_{MAX}$  [.102]



Termination style

Y02

## SMT double side PCB, centered



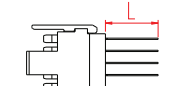
- SMT soldering
- Double-sided daughter board, centered
- PCB thickness:  $2.6 \pm 0.235$  [.102  $\pm$  .009]



Termination style

U04

## Straight PC tail



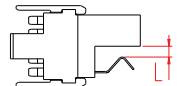
- Thru hole soldering
- Daughter board
- PCB thickness:  $4.5 \pm 0.45$  [.177  $\pm$  .018]



Termination style

U04

## SMT double side, centered



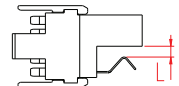
- SMT soldering
- Double-sided daughter board, centered
- PCB thickness:  $1.6 \pm 0.160$  [.063  $\pm$  .006]



Termination style

U06

## SMT double side, centered



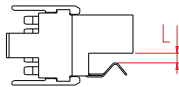
- SMT soldering
- Double-sided daughter board, centered
- PCB thickness:  $2 \pm 0.2$  [.079  $\pm$  .008]



Termination style

U05

## SMT double side, off centered



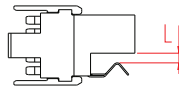
- SMT soldering
- Double-sided daughter board, offset
- PCB thickness:  $2.6 \pm 0.235$  [.102  $\pm$  .009]



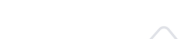
Termination style

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

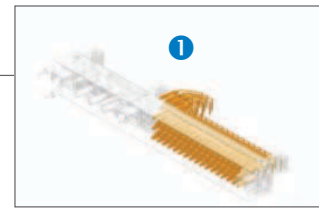
U07

|  | Y01   | Y02                                | Y04      | U04                                   | U05   | U06                                  | U07                                  | U08                                  |
|--|---|------------------------------------|----------|---------------------------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|
| $L_{MAX}$  | $4.2 \pm 0.2$<br>[.165 $\pm$ .008]                                | $3.7 \pm 0.2$<br>[.146 $\pm$ .008] | 6 [.236] | $2.6 \pm 0.235$<br>[.102 $\pm$ .009]  | $2 \pm 0.2$<br>[.079 $\pm$ .008]                                  | $1.6 \pm 0.160$<br>[.063 $\pm$ .006] | $2.44 \pm 0.42$<br>[.096 $\pm$ .016] | $2.6 \pm 0.235$<br>[.102 $\pm$ .009] |
| Termination section  | $\varnothing 0.4 \pm 0.03$ [.016 $\pm$ .001]                      |                                    |          | $0.3 \times 0.8$ [.012 $\times$ .031] |   |                                      |                                      |                                      |
| Mating end size  | $1.2 \times 0.6$ [.047 $\times$ .024]                             |                                    |          |                                       |   |                                      |                                      |                                      |
| Active contact area plating $\mu\text{m}$ [ $\mu\text{in}$ ] | 2 [.079] Ni + <b>1[.039] Au</b>                                   |                                    |          |                                       |   |                                      |                                      |                                      |
| Termination plating $\mu\text{m}$ [ $\mu\text{in}$ ]         | 2 [.079] Ni + 3 [.118] SnPb<br>or bright pure Sn for RoHS version |                                    |          |                                       | 2 [.079] Ni + 7 [.276] SnPb<br>or bright pure Sn for RoHS version |                                      |                                      |                                      |

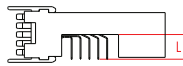
All dimensions are given for information only and are in mm [inch], except as otherwise specified

**SIAL >>> 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 ± .006]

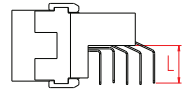


Termination style

**Y03**

**MALE CONTACT FOR EXTENDER RECEPTACLES**

**Right angle PC tail, short length**



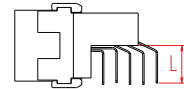
- Thru hole soldering
- Extender card
- PCB thickness:  $2.6_{MAX}$  [.102]



Termination style

**Y02**

**Right angle PC tail**



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

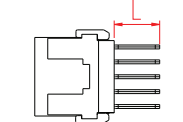


Termination style

**Y01**

**FEMALE CONTACTS FOR RECEPTACLES**

**Straight PC tail, standard length**



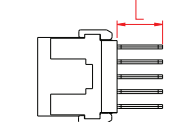
- Thru hole soldering
- Mother board
- PCB thickness:  $3.75 \pm 0.75$  [.148 ± .030]



Termination style

**Y09**

**Straight PC tail, short length**



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



Termination style

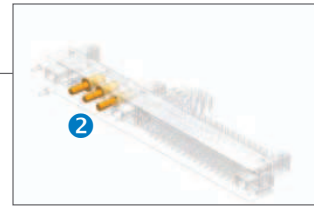
**Y19**

|  | <b>Y03</b>   | <b>Y02</b>                  | <b>Y01</b>                  | <b>Y09</b>                               | <b>Y19</b>                  |
|--|--|-----------------------------|-----------------------------|--|-----------------------------|
| <b>L<sub>MAX</sub></b>                     | $2.8 \pm 0.2$ [.165 ± .008]                                    | $3.7 \pm 0.2$ [.146 ± .008] | $4.2 \pm 0.2$ [.165 ± .008] | 6 [.236]                                 | $4.5 \pm 0.2$ [.177 ± .008] |
| <b>Mating end size</b>                     | 1.2 x 0.6 [.047 x .024]  |                             |                             |  |                             |
| <b>Termination section</b>                 | $\varnothing 0.4 \pm 0.03$ [.016 ± .001]                       |                             |                             | $\varnothing 0.5 \pm 0.03$ [.020 ± .001] |                             |
| <b>Active contact area plating</b> μm[μin] | 2 [.079] Ni + 1[.039] Au                                       |                             |                             |  |                             |
| <b>Termination plating</b> μm [μin]        | 2 [.079] Ni + 3 [.118] 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 >>> SPECIAL CONTACTS (2)

### SIZE 16 COAXIAL CONTACTS



#### Male contacts for plugs – 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]   | 320008 |
| 1 [.047]   | 320010 |
| 2.7 [.106] | 320015 |
| 2.4 [.094] | 320016 |

##### 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 **320020**

##### Straight PC tail - UT47

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

Consult us **320007**

##### Right angle PC tail

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

Consult us **320005**

#### 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]   | 320009 |
| 1.2 [.047] | 320011 |
| 2.7 [.106] | 320017 |
| 2.4 [.094] | 320018 |

##### 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**

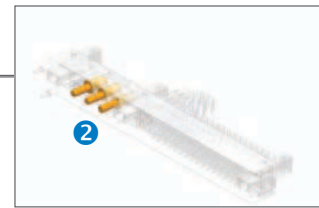
##### Straight PC tail - UT47

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

Consult us **320006**

**SIAL >> 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**

**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**

**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**

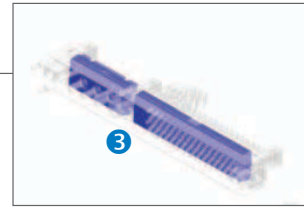
|   | 16-SIZE CONTACT | 12-SIZE CONTACT |
|---|-----------------|-----------------|
| <b>Impedance Ω</b>                                  | 50              | 50              |
| <b>Voltage rating V</b>                             | 180             | 180             |
| <b>Current rating mA</b>                            | 500             | 500             |
| <b>Contact retention N</b>                          | ≥ 50            | ≥ 50            |
| <b>Frequency range GHz</b>                          | 0 to 1          | 0 to 1          |
| <b>Contact resistance mΩ</b>                        | ≤ 12            | ≤ 12            |
| <b>VSWR at 1 GHz</b>                                | 1.3 MAX         | 1.3 MAX         |
| <b>Insertion and extraction force per contact N</b> | 1 ≤ F ≤ 15      | 1 ≤ F ≤ 15      |

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

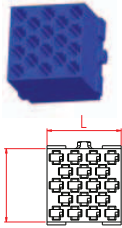


## SIAL &gt;&gt; MODULES (3)

## SIGNAL MODULES



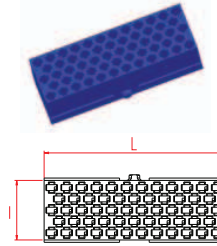
## 18 signal contacts



- Arrangement available:

- 18
- 18 x 2
- 18 + 58

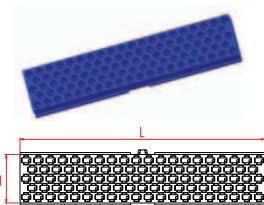
## 58 signal contacts



- 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

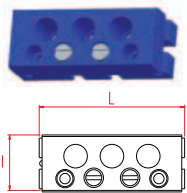


- Arrangement available:

- 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

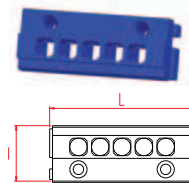


- 3-cavity module for 12-size coaxial contact

- Arrangement available:

- 3 + 18
- 3 + 58

## 5 coax contacts – size 16



- 5-cavity module for 16-size coaxial contact

- Arrangement available:

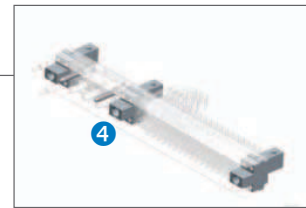
- 5 + 98
- 5 x 2 + 98 + 58

|                    | 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                  |                    | 10.05 [.396]       |                    | 9.95 [.392]                 |                 |
| Receptacle<br>Plug |                    | 10.8 [.425]        |                    | 10.8 [.425]                 |                 |

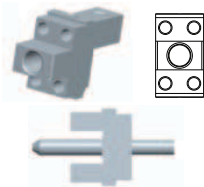
All dimensions are given for information only and are in mm [inch], except as otherwise specified

**SIAL >>> FITTINGS/GUIDING & KEYING (4 & 5)**

**FITTINGS / GUIDING (4)**

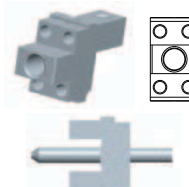


**A- centered end fittings**



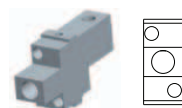
- 1 centered end fitting at one end of the connector
- Max length: 6, 35 [.250]
- Male guide pin on receptacle
- Female centered hole on plug
- 4 holes for polarizing

**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**

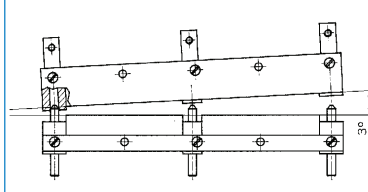
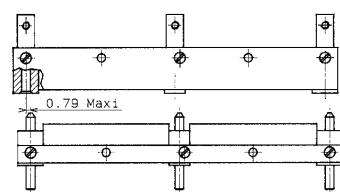


- 2 pins at each end fitting for the plug / 2 pins at each end fitting for the receptacle
- 1 pin at each central fitting for the plug / 1 pin at each central fitting for the receptacle
- Identification of keying cavities: clockwise for the plugs, counterclockwise on the receptacle
- A,B,C,D on A fitting,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

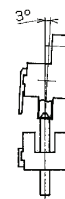
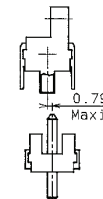


**REALIGNMENT CAPABILITY**

**In the longitudinal axis**



**In the lateral axis**



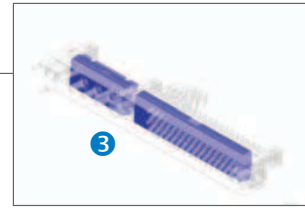
**MATING SEQUENCE**

| Shell guiding            | Coax guiding   | Keying   | Coax contact  | Signal contact            | Housing contact                                      |
|--------------------------|--|--|---|---------------------------|--|
|                          |  |  |   |                           |  |
| 6.8 ± 0.45 [.268 ± .018] | 6.56 ± 0.45 [.258 ± .018]<br>3.3 ± 0.6 [.130 ± .024] | 6.27 ± 0.36 [.247 ± .014]<br>0.24 ± 0.6 [.009 ± .024]<br>3.7 ± 0.7 [.121 ± .028] | 3.26 ± 0.6 [.128 ± .024]<br>3.3 ± 0.6 [.130 ± .024] | 2.14 ± 0.28 [.084 ± .011] | 2.14 ± 0.28 [.084 ± .011]<br>2.9 ± 0.6 [.114 ± .024] |

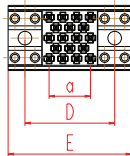
All dimensions are given for information only and are in mm [inch], except as otherwise specified

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

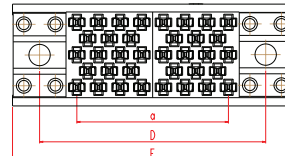
## TYPICAL ARRANGEMENTS



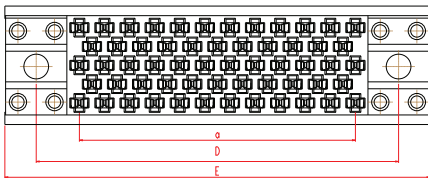
18 signal contacts



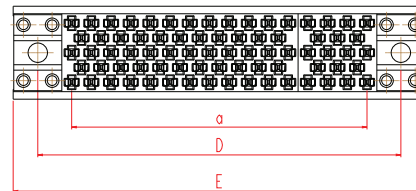
36 signal contacts



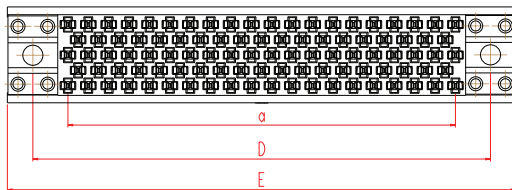
58 signal contacts



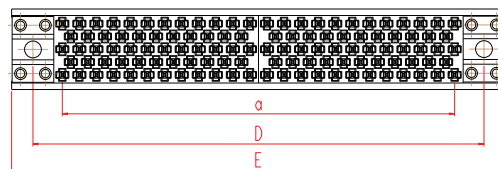
76 signal contacts



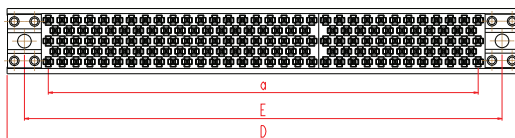
98 signal contacts



116 signal contacts



156 signal contacts

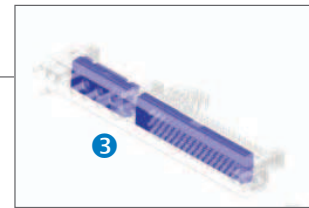


|                        | 18              | 36               | 58               | 76               | 98               | 116              | 156              |
|------------------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>D</b>               | 16.51<br>[.650] | 26.67<br>[1.050] | 36.83<br>[1.450] | 46.99<br>[1.850] | 57.15<br>[2.250] | 67.31<br>[2.650] | 87.63<br>[3.450] |
| <b>E<sub>MAX</sub></b> | 22.86<br>[.900] | 33.02<br>[1.300] | 43.18<br>[1.700] | 53.34<br>[2.100] | 63.5<br>[2.500]  | 73.66<br>[2.900] | 93.98<br>[3.700] |
| <b>a</b>               | 7.62<br>[.300]  | 17.78<br>[.700]  | 27.94<br>[1.100] | 38.1<br>[1.500]  | 48.26<br>[1.900] | 58.42<br>[2.300] | 81.28<br>[3.200] |

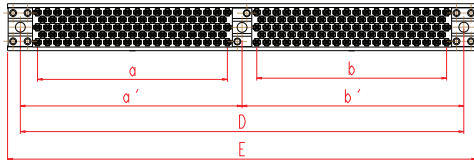
All dimensions are given for information only and are in mm [inch], except as otherwise specified

**SIAL >> SIGNAL VERSION (3)**

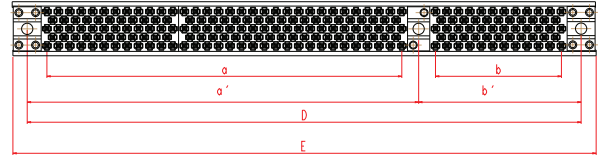
**TYPICAL ARRANGEMENTS**



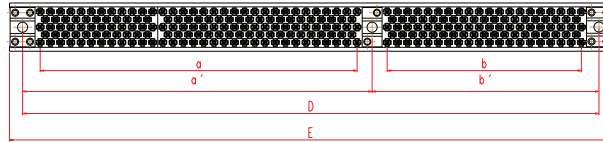
**196 signal contacts**



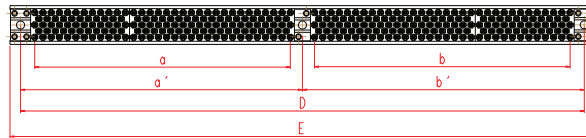
**214 signal contacts**



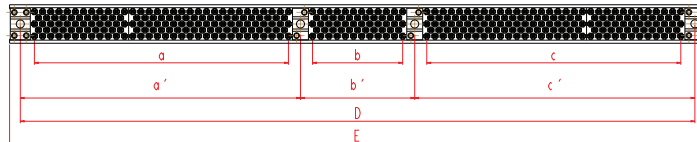
**254 signal contacts**



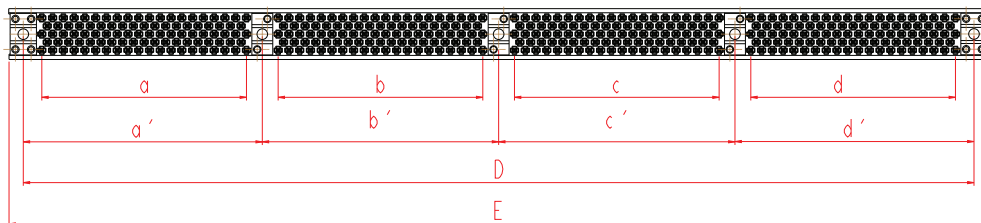
**312 signal contacts**



**370 signal contacts**



**392 signal contacts**



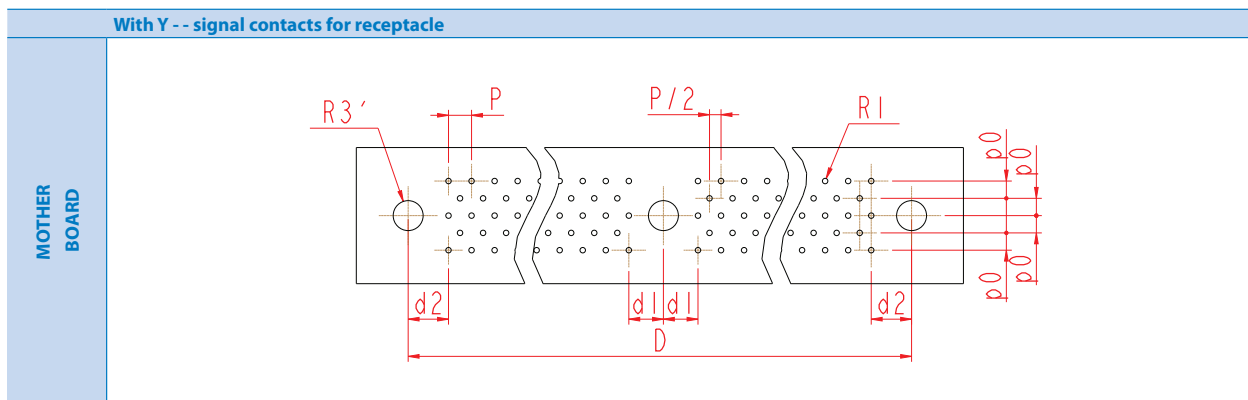
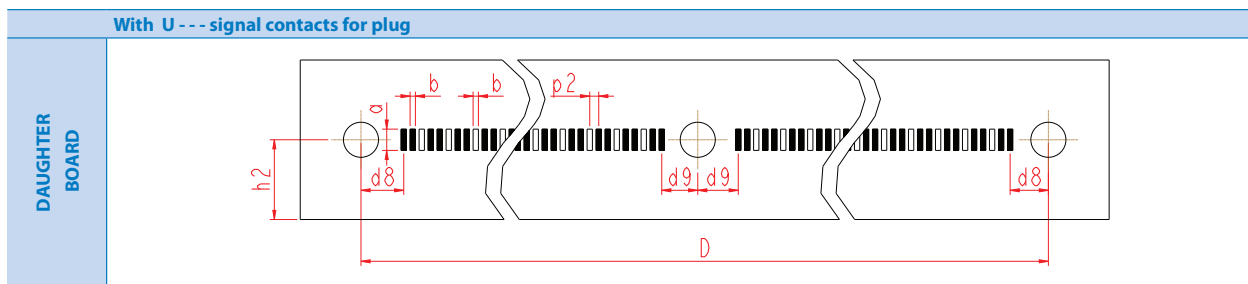
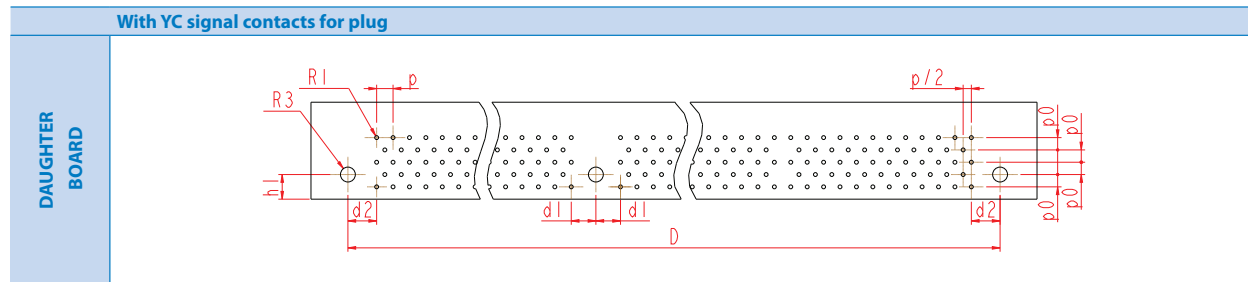
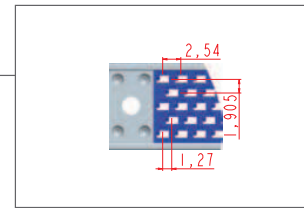
|                        | 196            | 214            | 254            | 312            | 370            | 392            |
|------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>D</b>               | 113.03 [4.450] | 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.

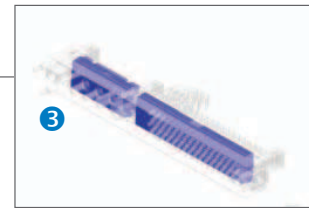


| $R_1$   | $R_3$   | $R_3'$                      | $p$            | $p/2$          | $p_0$           | $p_2$          | $d_1$          | $d_2$           | $d_8$          | $d_9$          | $a$                               | $b$                                 | $h_1$          | $h_2$          |
|---|---|-----------------------------|----------------|----------------|-----------------|----------------|----------------|-----------------|----------------|----------------|-----------------------------------|-------------------------------------|----------------|----------------|
| $\varnothing 0.6$<br>[.024]<br><small>MIN</small> | $\varnothing 2.3$<br>[.091]<br><small>+0.15<br/>-0.04</small> | $\varnothing 3.3$<br>[.130] | 2.54<br>[.100] | 1.27<br>[.050] | 1.905<br>[.075] | 0.85<br>[.033] | 3.81<br>[.150] | 4.445<br>[.175] | 4.02<br>[.158] | 3.39<br>[.133] | 2<br>[.079]<br><small>MAX</small> | 0.5<br>[.020]<br><small>MAX</small> | 3.81<br>[.150] | 3.81<br>[.150] |

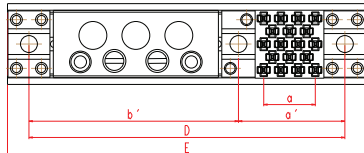
All dimensions are given for information only and are in mm [inch], except as otherwise specified

**SIAL >> COAXIAL VERSION (3)**

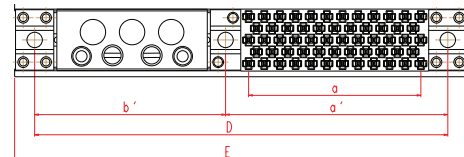
**TYPICAL ARRANGEMENTS**



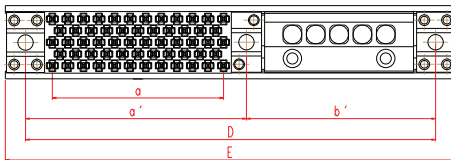
18 signal contacts + 3 coax



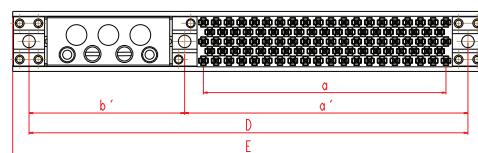
58 signal contacts + 3 coax



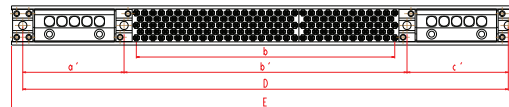
58 signal contacts + 5 coax



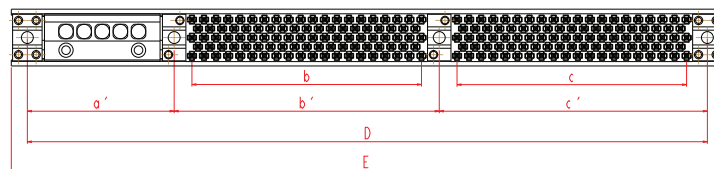
98 signal contacts + 3 coax



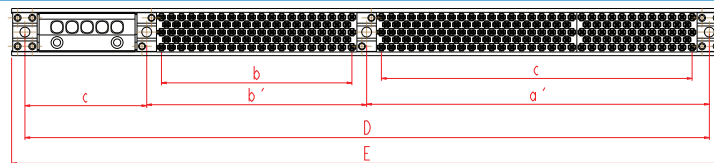
5 coax + 98 + 58 signal contacts + 5 coax



196 signal contacts + 5 coax



254 signal contacts + 5 coax



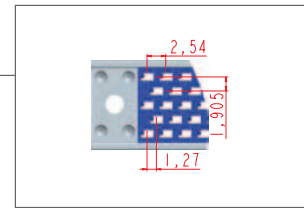
|                        | 18 + 3         | 58 + 3         | 58 + 5         | 98 + 3         | 5 + 98 + 58 + 5 | 196 + 5        | 254 + 5        |
|------------------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|
| <b>D</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 [0.300]   | 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 [0.625] | 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

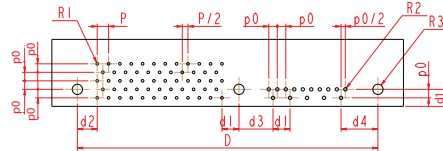
## SIAL &gt;&gt; SIZE 16 COAXIAL VERSION (3)

## LAYOUTS

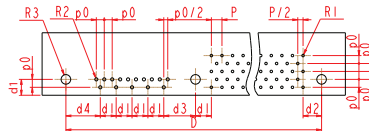
The boards are shown from the connector side  
All contact locations are equidistant.



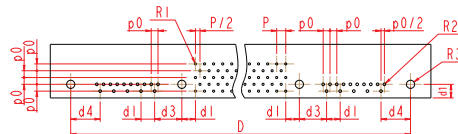
## With Y0. male signal contacts and 5 coaxial contacts for plug

NX05-002  
DAUGHTER  
BOARD

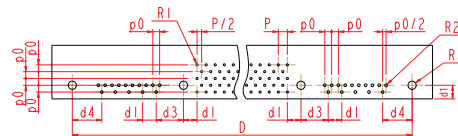
## With Y0. male signal contacts and 5 coaxial contacts for plug

NX05-000  
DAUGHTER  
BOARD

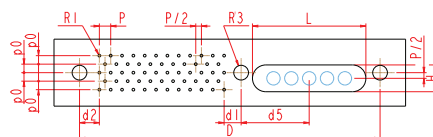
## With Y0. male signal contacts and 10 coaxial contacts for plug

NX10-001  
DAUGHTER  
BOARD

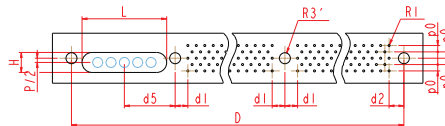
## With Y0. male signal contacts and 10 coaxial contacts for plug

NX10-000  
DAUGHTER  
BOARD

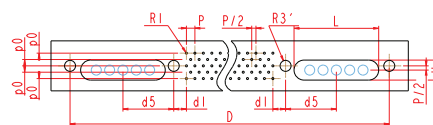
## With Y09 female signal contacts and 5 coaxial contacts for receptacle

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

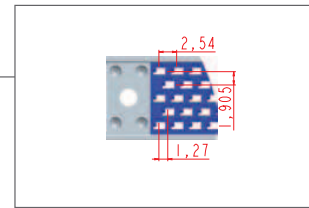
NT10-000  
MOTHER  
BOARD

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

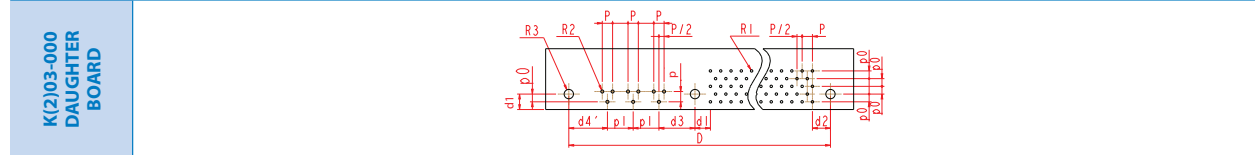
**SIAL >> SIZE 12 COAXIAL VERSION (3)**

**LAYOUTS**

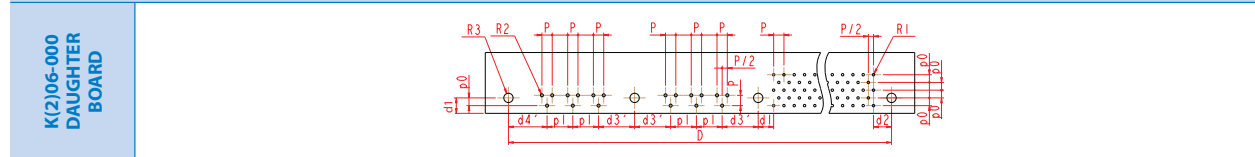
The boards are shown from the connector side  
All contact locations are equidistant.



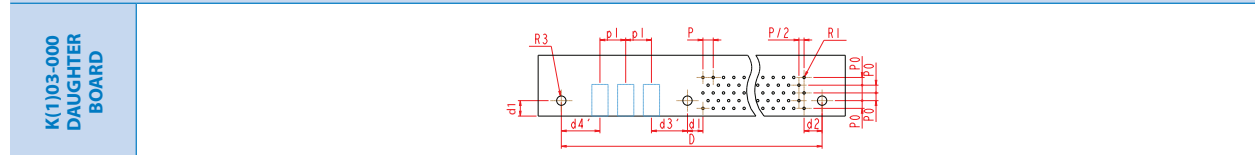
**With Y male signal contacts and 3x320000 right angle dip solder coaxial contacts/plug**



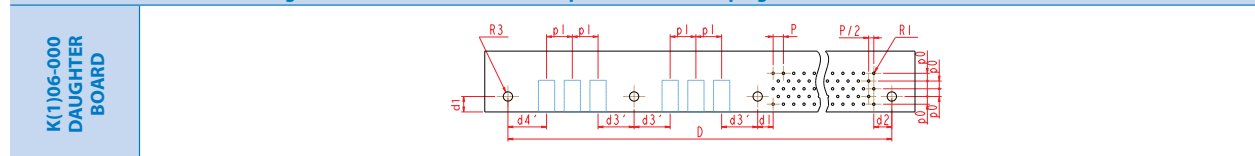
**With Y0 male signal contacts and 6x320000 right angle dip solder coaxial contacts/plug**



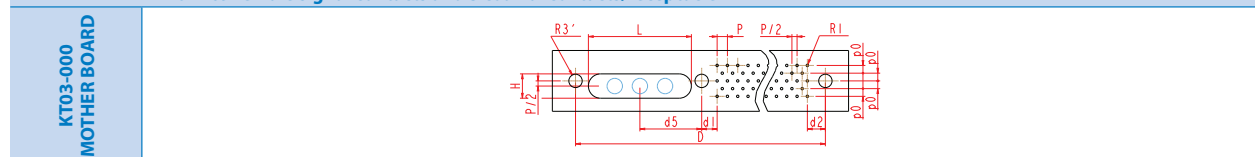
**With Y male signal contacts and 3x900340 crimp coaxial contacts/plug**



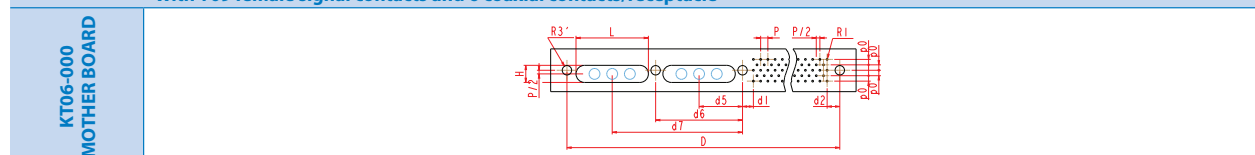
**With Y0 male signal contacts and 6x900340 crimp coaxial contacts/plug**



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



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



| R <sub>1</sub>                 | R <sub>2</sub>                  | R <sub>3</sub>  | R <sub>3</sub> '  | p              | p/2            | p <sub>1</sub> | p <sub>0</sub>  | p <sub>0</sub> /2 | L   | H                       |
|--------------------------------|---------------------------------|---|---|----------------|----------------|----------------|-----------------|-------------------|---|-------------------------|
| Ø 0.6 <sub>MIN</sub><br>[.024] | Ø 0.75 <sub>MIN</sub><br>[.340] | Ø 2.3 <sup>+0.15</sup> <sub>.01</sub><br>[.091 <sup>+0.06</sup> <sub>.004</sub> ] | Ø 3.3 <sup>+0.15</sup> <sub>.01</sub><br>[.130 <sup>+0.06</sup> <sub>.004</sub> ] | 2.54<br>[.100] | 1.27<br>[.050] | 6.35<br>[.250] | 1.905<br>[.075] | 0.9525<br>[.037]  | 25.4 <sub>MAX</sub> [1.000]<br>19 <sub>MIN</sub> [.748] | 6 <sub>MIN</sub> [.236] |

| d <sub>1</sub> | d <sub>2</sub>  | d <sub>3</sub> | d <sub>4</sub>  | d <sub>5</sub>  | d <sub>6</sub>   | d <sub>7</sub>   | d <sub>8</sub> | d <sub>9</sub>  | d <sub>10</sub> |
|----------------|-----------------|----------------|-----------------|-----------------|------------------|------------------|----------------|-----------------|-----------------|
| 3.81<br>[.150] | 4.445<br>[.175] | 7.62<br>[.300] | 8.255<br>[.325] | 15.24<br>[.600] | 30.48<br>[1.200] | 45.72<br>[1.800] | 8.89<br>[.350] | 9.525<br>[.375] |                 |

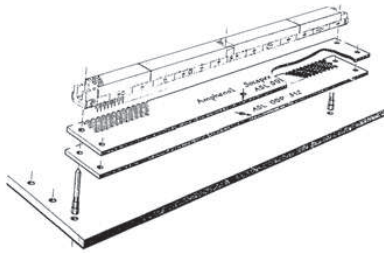
All dimensions are given for information only and are in mm [inch], except as otherwise specified

SIAL Series



## SIAL &gt;&gt;&gt; TOOLING

## Receptacle mounting on mother board (Y09)

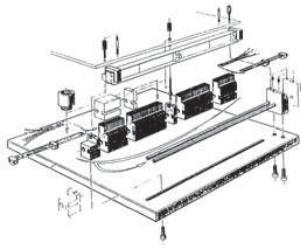


- Insertion of all connector sizes with Y09 dip solder contacts
- Into 0.6 mm [.024] thru plated holes
- Consult us for additional references

ASL ODP 058  
ASL ODP 098  
ASL ODP 116

ASL ODP 156  
ASL ODP 254  
ASL ODP 312

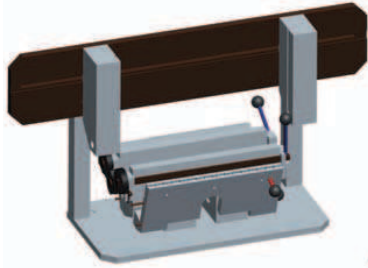
## Plug mounting on daughter board (Y01 or Y02)



- 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

ASL ODP NX05

## Extraction tool for coax contacts

Size 12



809839

Size 16



ASL OD COAX FEMELLE TAILLE 16

**NOTES**

Area with horizontal dotted lines for notes.

SIAL Series

