

MODUL R

Board to Board & Board to Harness Interconnect Solutions



Amphenol



Connecting people + technology

www.amphenol-socapex.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 aerospace and military electronics communications and information processing markets, including cable television, cellular telephone and data communication and information processing systems; 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 high density board level connectors, MIL-DTL-38999 and derived products, 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 sensitive to 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



MODUL R Series

The ruggedized and modular avionics board level connector



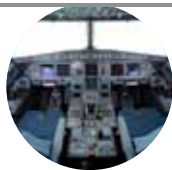
The MODUL R series serves the **commercial avionics & airframe** market, including:



Avionics equipments



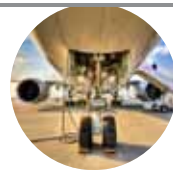
Communication
(radio, radar,...)



Flight control systems



Engines / Power Units /
FADEC



Landing gears / Braking
systems

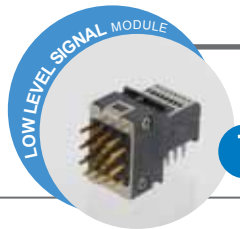
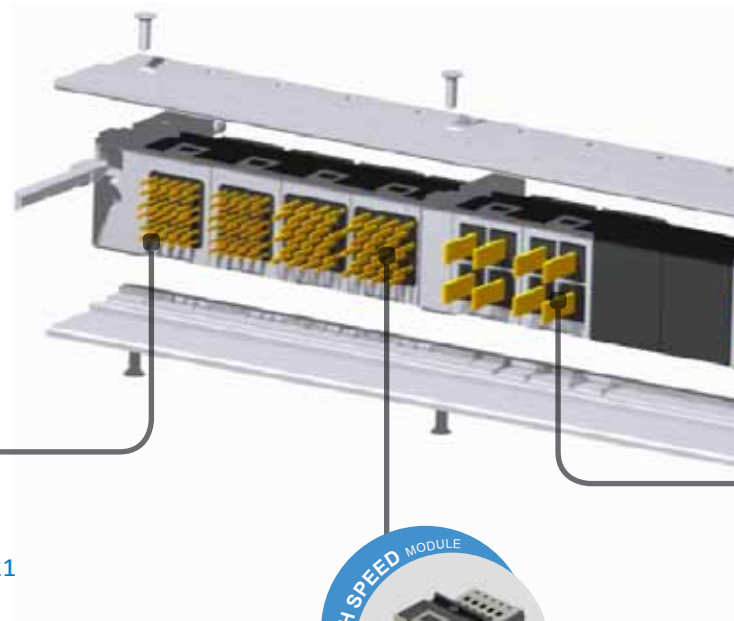
MODUL R

Quick selection guide

TECHNICAL SPECIFICATION

- > Main features & characteristics
- > Markets & applications
- > Terminations & contacts
- > Recommended configurations
- > Material & plating
- > Mechanical, environmental, electrical and high-speed characteristics
- > 6U or 3U* format
- > Dimensional characteristics

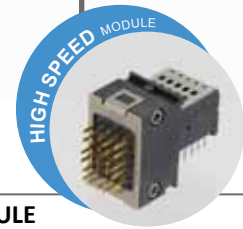
PAGES 15 TO 20



1 PAGE 21

LOW LEVEL SIGNAL MODULE

- > Signal module is the ideal module for discrete signal or small power up to 3A



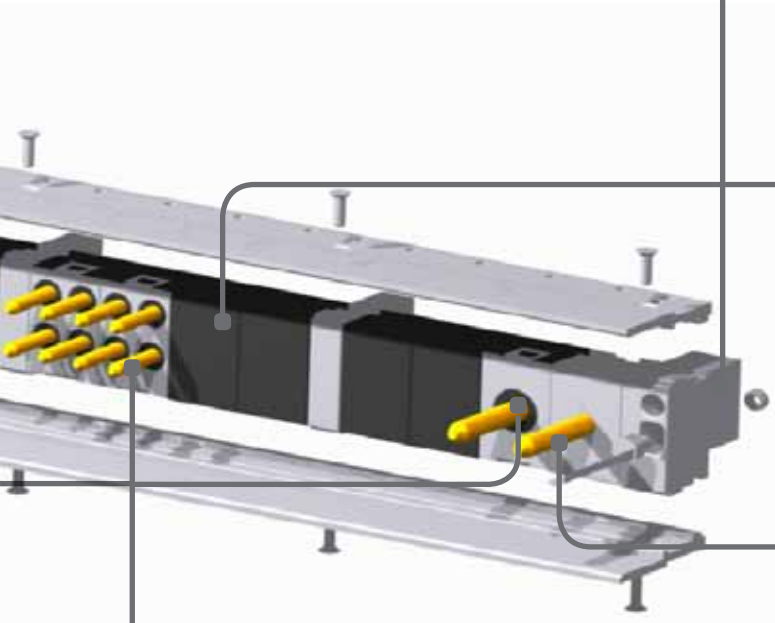
2 PAGE 22

HIGH-SPEED MODULE

- > The module dedicated to 15Gbps signal transmission such as Ethernet or Infiniband

KEYING & GUIDING & MARKING

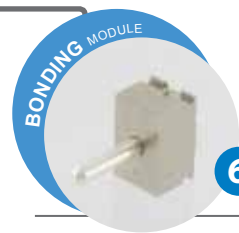
- > Keying & Guiding
 - > Realignment capability
 - > Mating sequence
 - > Module & pin identification
- PAGES 29 to 31



7 PAGE 27

DUMMY MODULE

- > To remain consistent with the 6U or 3U format (in case of unpopulated cavity)



6 PAGE 26

BONDING MODULE

- > To secure the system against short circuits

POWER MODULES

- > Power module range to fulfill all the power needs

10A



PAGE 23

3

36A



PAGE 24

4

70A



PAGE 25

5

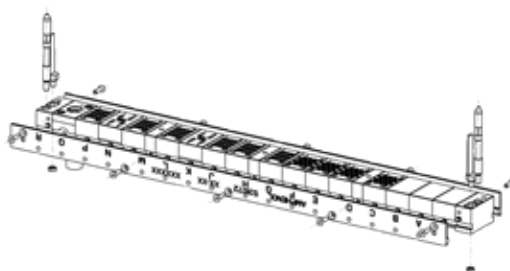
TOOLING

PAGES 33 to 34



CONNECTOR ASSEMBLY

PAGE 35



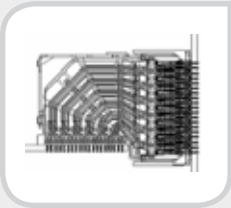
HOW TO ORDER

PAGES 36 to 39



MODUL R

Amphenol High-speed technology



Achieve your critical speed & ruggedization requirements

Amphenol's MODUL R high-speed module is designed to enable future data requirements of commercial avionics & airframe equipment: XAUI, Ethernet, PCI Express, SDH, InfiniBand, SATA, ...

The 15 Gbps+ high-speed module is based upon a brand new technology of differential pairs, allowing great performances across a wide frequency spectrum while being compatible with thermal devices.

Thanks to the MODUL R strong & ruggedized mechanic, the module meets the harsh environment requirements.

The high-speed wafer design

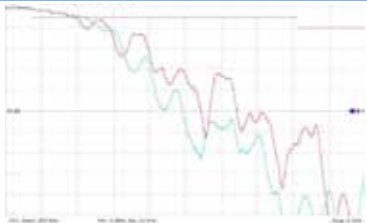
- The wafer technology is based upon
 - A stamped turning fork female contact
 - A blade male contact
 - Rightly oriented into their own cavities
- By design, these contacts can float
- This technology of contacts permits a lateral displacement of ± 0.4 [.015]
- Male routing within the wafer provides de-skewed differential pairs
- 8 pairs per module
- 100 ohm matched impedance differential pairs



The high-speed wafer advantages

- High-data rates up to 15Gbps per differential pair
- ± 0.4 [.015] lateral displacement compatibility allowing the use of thermal clamps
- Exceptional ruggedization to fulfill the market needs
- 100 ohm differential impedance
- 3.7 differential pairs per cm^2 (24 differential pairs per square inches)
- Proven reliability of press-fit attachment for a cost effective on-board assembly
- Propagation delay skew within each differential pair inferior to 5ps

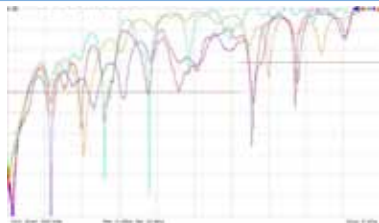
Insertion loss : transmission performances



MODUL R 2-pair RL

MODUL R enables less than 10 dB return loss on any aggressor to 20 GHz
Differential return loss:
< -20db @ 5 GHz
< -13db @ 8 GHz
< -8db @ 15 GHz

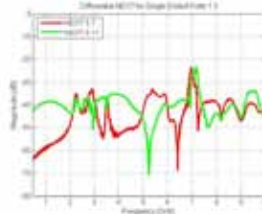
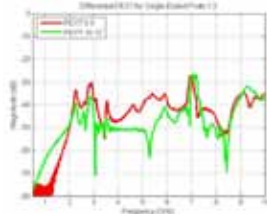
Return Loss : reflexion performances



MODUL R 2-pair FEXT & NEXT

MODUL R enables less than 30 dB crosstalk on any aggressor to 20 GHz
MODUL R enables a very low crosstalk across a wide frequency spectrum

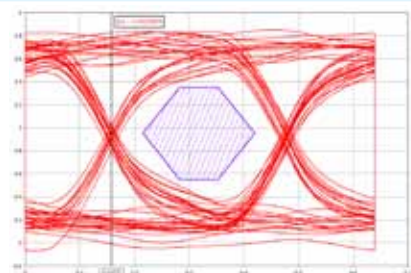
Far-end cross-talk & Near-end Cross talk



MODUL R 2-pair :

Eye-diagram
XAUI protocol
IEEE 802.3 ab.

Eye-diagram



MODUL R

Amphenol RADSOK® technology...



... for the most demanding power applications

The RADSOK® (RADial SOcKet) technology is based upon a stamped and formed flat grid, uniquely twisted into a hyperbolic geometry.

This geometry offers many advantages, such as contact coverage of up to 65%, absorption of vibration as well as superior durability of the contact element.

RADSOK® is a well-known and field-proven technology, used in a wide array of markets including automotive, industrial and military & aerospace.

The RADSOK® design

- Socket cylinder within female contact has equally spaced longitudinal beams twisted into a hyperbolic shape
- As male pin is inserted, axial members in the female half deflect, imparting high current flow across the connection with minimal voltage loss
- The hyperbolic, stamped grid configuration ensures a large, coaxial, face-to-face surface area engagement
- The RADSOK® utilizes the tensile strength properties of the flat, high conductivity alloy grid
- This provides the high normal forces required for conductivity while also providing large conductive surface area



The RADSOK® advantages

- Absorption of vibrations and shocks
- Robust & high-density of contact
- High-mating cycle durability
- High-current carrying capacity
- Lower contact resistance
- Low voltage drop
- Low temperature rise
- Low insertion forces

<p>Temperature rise performance</p>	<p>Low milli-volt drop performance</p>	<p>Reliability under vibration & shock</p>	<p>Low contact engagement / separation forces</p>	<p>High-mating cycle durability</p>	<p>Lower contact resistance</p>
<p>Reliability under vibrations and shocks RADSOK® design create an electrical contact interface that exceeds typical interconnect requirements. The force distribution along the socket contact contributes to excellent performance in vibration applications with resistance to typical fretting corrosion.</p>					
	<p>Low milli-volt drop performance The RADSOK® design provides lower millivolt drop at an increased current load. This allows users to increase the current load per circuit while reducing the total number of circuits in the application, resulting in lower overall costs.</p>				
	<p>Temperature rise performance Typical thermal rise data after 500 cycles of durability is: 2.4mm: 23°C @ 50 amps and 120°C @ 25 amps 3.6mm: 23°C @ 115 amps and 80°C @ 86 amps Temperature rises for the most demanding applications</p>				
<p>Low contact engagement / separation forces The hyperbolic lamella socket contact construction distributes normal forces over a high percentage of the mating pin surface. This creates a smooth, even engagement effort.</p>					
<p>High mating cycle durability RADSOK® contacts have demonstrated survival of 20,000 mating cycles. Even with continuous exposure to harsh environmental abuse (salt, sand, and high humidity), RADSOK® contacts have been tested to maintain low contact resistance beyond 10,000 mating cycles.</p>					<p>Lower contact resistance The large interface area between the socket lamella and pin surface result in very low contact resistance, enabling the RADSOK® contacts' high current ratings compared to traditional power contact designs.</p>

MODUL R

Amphenol thermal management mastering

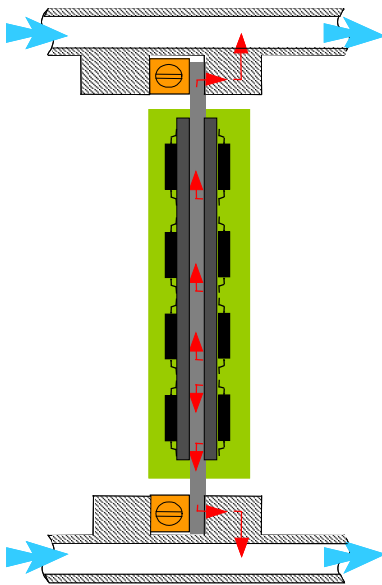


Amphenol's MODUL R floatability compliance

As power increases and package size decreases, the need to dissipate excessive heat has become a challenge in aeronautical applications.

MODUL R is designed to accept the lateral displacement induced by the use of thermal clamps without stressing neither the solder joints nor the active contact area.

The heat dissipation is optimized by the thermal coupling between the heatsink of the printed circuit board and the cold wall of the chassis.



Lateral displacement: optimized heat dissipation by conduction cooling

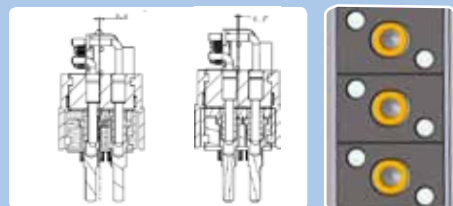
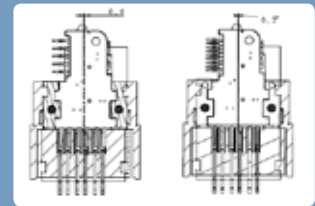
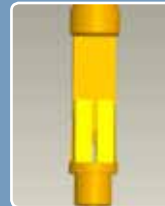
- $\pm 0.4[.015]$ lateral displacement compatibility
- Adaptable to all types of heatsink
- Adaptable to all types of thermal clamps
- No stress on the solder joints
- No stress on the active contact area
- Maximized and uniform thermal transfer

Conduction cooling

- ▨ Chassis / Box
- Components
- Heat sink
- Daughterboard
- Thermal clamps
- Heat flow to be evacuated
- Heat-pipe / Cooling flow

Floatment management at the wafer level (High-speed, signal & 10A-power modules)

- The wafer technology is based upon
 - A stamped female contact
 - A stamped male contact
 - Rightly oriented into their own cavities
- By design, these contacts can slide
- This technology of contacts permits a lateral displacement of $\pm 0.4 [.015]$ and an angular of $\pm 0.3^\circ$



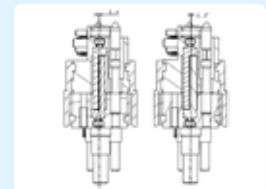
Floatment management at the RADSOK® level (70A & 36A power modules), based upon:

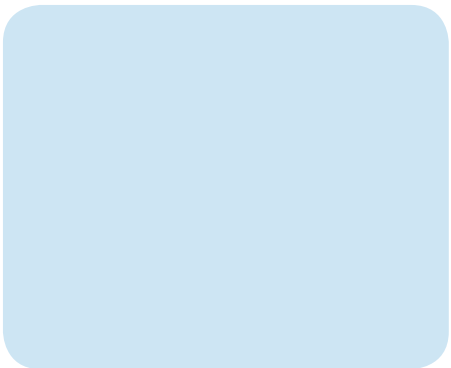
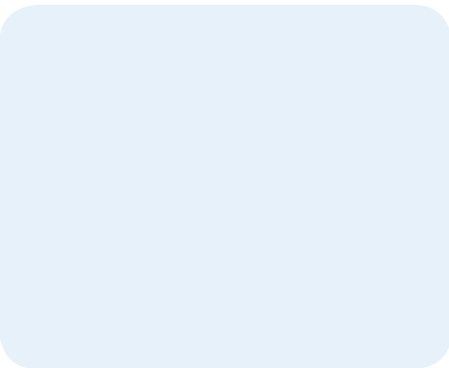
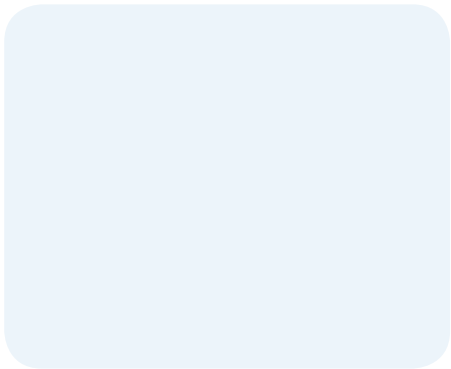
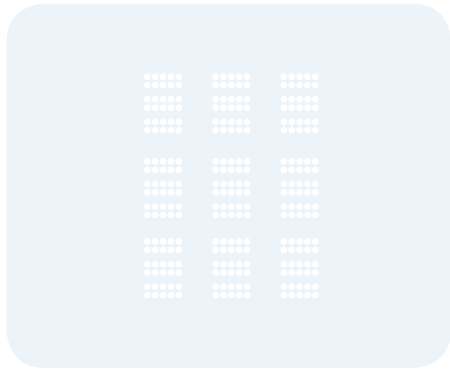
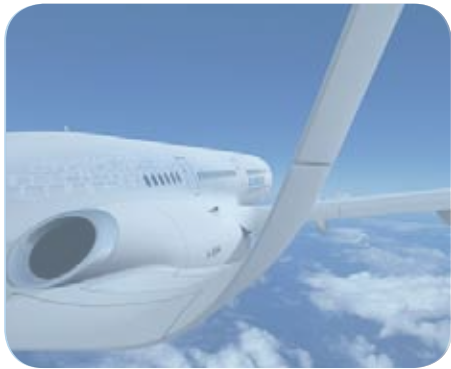
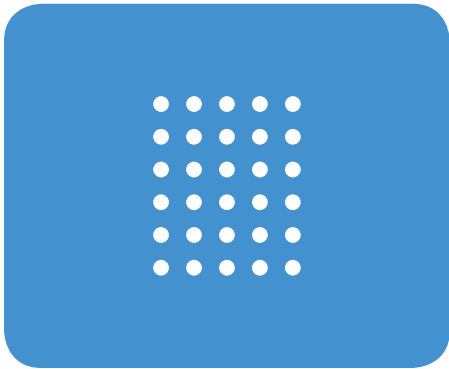
- The free mounting of the female RADSOK® on bus bars at the rear of the backplane
- Oval female cavities authorizing the required movement of the mated pair of contacts

Floatment management at the shell level

Metal fixtures with slotted holes, combined to suitable guiding and keying devices ensure:

- Lateral displacement
- 36 keying positions
- Optimized realignment between the BLADES and the BACKPLANE





MODUL R

Why does the commercial avionics market need for modular architecture ?

The future generation of avionics will be more modular, robust and higher speed than ever before. Power, inter-changeability, easy maintenance & repair and cost effectiveness are driving the changes of the complete architecture for all onboard systems and all platforms.

Designing Next Gen Integrated Modular Architecture (IMA) requires a new interconnect technology providing the right match between:

- Size and weight reduction
- Thermal management optimization for an improved cooling
- Data transmission excellence (high-speed & high-density)
- Rugged construction for stringent environments

This (r)evolution of integrated modular electronic packaging requires a suitable interconnect solution:

- Compact
- Higher performance right
- Rugged and modular
- Evolutive for future improvements and changes

No matter the aircraft size, the application or the nature of the equipment to be designed (power generation, actuators, avionics...), Amphenol remains the one-stop solution provider.

IMA solution provider for each interconnect level

The diagram illustrates three levels of interconnect solutions for IMA, set against a background of light blue and white diagonal lines. On the right, a vertical blue banner reads "TO APPLICATIONS".

- From Board:** Shows a green printed circuit board (PCB) with a single interconnect component mounted on it.
- To Board:** Shows a green PCB with multiple interconnect components mounted on it, connected to a larger green PCB.
- Thru Harness:** Shows a complex interconnect assembly with multiple components and wires, connected to a green PCB.

On the right side, four images show different aircraft and a helicopter, representing the applications of these solutions:

- A large commercial jet airplane flying in the sky.
- A smaller commercial jet airplane flying in the sky.
- A turboprop aircraft flying in the sky.
- A helicopter flying over water.

MODUL R

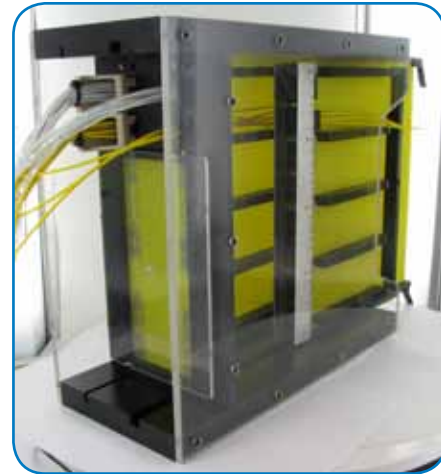
MODUL R : scalability to infinite adaptability

FROM AIRLINERS STAND POINT

- Easier maintenance
- Increased reliability
- Easier upgrades
- Reduced inventory / Obsolescence management

FROM AIRFRAMERS STAND POINT

- Improved installation
- Modularity for multi-programs adaptability
- Reduced volume and weight
- Reduced aircraft assembly duration
- Reduced inventory / Obsolescence management
- Scalability lower P / N count



FROM OEM & SYSTEM SUPPLIERS STAND POINT

- Dual source
- Modularity for multi-applications adaptability
- Improved thermal management
- Higher density & higher performances
- Optimized cost
- Reduced design phase duration
- Reduced inventory / Obsolescence management

BUILDING TODAY THE NEXT STANDARD CONNECTOR FOR THE AVIONICS MARKET

The **MODUL R** is actively contributing to define & develop the next generation of IMA connectors.

MODUL R enables progress towards various research projects such as CORAC and CLEANSKY.

To bring a multi source solution to the market, Amphenol and its partner are working to build the interconnection solution of tomorrow for integrated modular avionics.

A fully adaptable platform covering all the commercial avionics needs :

- High-speed signal transmission
- Power management solutions
- High-density design (size and weight optimization)
- Size adaptability (3U & 6U)
- Thermal management option for better cooling
- Easy-to-use solution
- Less tools, quick install, blind mate and shock-proof
- Ruggedization and Fully protected against
 - Electro Magnetic Interferences (EMI)
 - Signal perturbation

By design, the use of shared components is optimized, providing a competitive & multisource solution.

MODUL R

The next generation of avionics connector

With its unique platform of proven technologies, MODUL R is an innovative commercial avionics connector covering a wide array of harsh environment applications.

With MODUL R, Amphenol has engineered an brand new range of blind mate, extensively modular & ruggedized board level connector.

THE CONCEPT

With our MODUL R, build your avionics equipment in the most optimized way.

MODUL R is a system of modules, metal rails and fixtures, within a 6U or 3U* format. Thanks to the 7 styles of modules available, you can combine almost all type of signals: high-speed up to 15Gbps/s, 3A low-level signal and power from 10A to 70A.

Whatever types of signals required, almost all combinations can be made at the board level!

RUGGEDIZATION AT THE BOARD LEVEL

MODUL R is a unique connector allowing mixing various contact types at the board level within a real blind mate and robust mechanical interface.

This innovative concept provides you with a more robust solution than ever before for all onboard systems:

- Real blind mate and connector
- Male contacts protected by the lateral metal rails
- Female contacts protected by design
- Protected against ElectroMagnetic Interferences

FULLY MODULAR

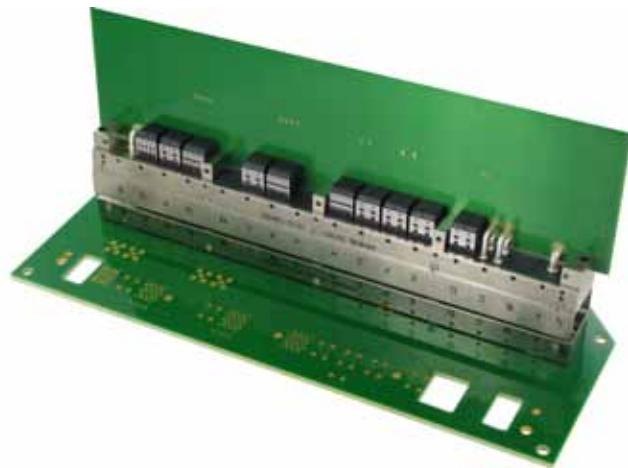
The MODUL R range provides with a unique choice of solutions by allowing a mix of various contact types: high-speed signal, low-level signal, power and Xtra high power

DEDICATED TO HARSH ENVIRONMENT

With its robust interconnection (rackable, vibrations, shocks, EMI protection)

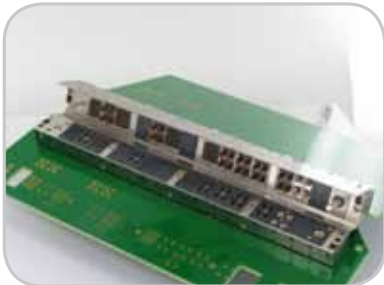
COMPATIBLE WITH THE USE OF THERMAL CLAMPS

Contact technologies permit $\pm 0.4\text{mm}$ of lateral displacement after mating



With MODUL R, let's place to the (R)evolution !

MODUL R >>> GENERAL SPECIFICATIONS



- Allow 15 Gbps data rates
- Real blind mate and connector dedicated to harsh environments
- Extensive modularity for application adaptability
- Shock-proof, ruggedized & fully protected against Electro Magnetic Interferences
- High-density design for size and weight optimization
- On board mounting efficiency, cost-effective installation & highly reliable

Main characteristics

- 6U or 3U* formats / 16 or 6 modules per connector
- 7 modules: low-level signal, high speed, power 10A, 36A & 70A, bonding & dummy
- Mechanical floatability: ± 0.4 [0.15] lateral displacement
- Protected male contacts on daughter board for durability

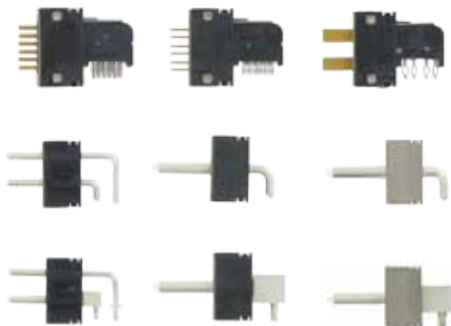
Markets



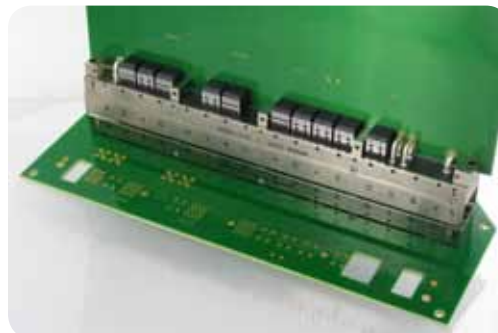
Main applications



Terminations & contacts



Recommended configurations



MATERIAL	
	Metallic parts
Lateral rail	Nickel plated aluminium
Mounting pad	Nickel plated aluminium
Male guide	
Keying pin	Passivated stainless steel 303
Organizer plate	
Screw, nut, ...	Passivated stainless steel 303
Cover plate	
Grounding strip	Nickel plated CuBe [BeCu]
	Plastic parts
Plastic insert	Thermoplastic LCP, 30% glass-fiber filled
	Contact parts
Signal contact	
High speed contact	Cu Bel.2
10A power contact	
36A power contact	
70A power contact	CuZn35Pb2 / CuZn36Pb3
Bonding contact	

CONTACT PLATING		
Module	Active part plating	Termination plating
Signal High speed	3.5 [.138] Ni + 0.8 [.031] Au	2 [.787] Ni + 3 [.118] bright pure Sn
36A Bonding		
70A	3 [.118] Ni + 5 [.197] Ag	3 [.118] Ni + 5 [.197] Ag
10A male	3.5 [.137] Ni + 1 [.039] Au	2 [.787] Ni + 3 [.118] bright pure Sn
10A female	3 [.118] Ni + 1 [.039] Au	3 [.118] Ni + 1 [.039] Au

*3U under development, please consult us

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

MODUL R >>> TECHNICAL SPECIFICATIONS



MECHANICAL CHARACTERISTICS

Backoff¹ (mm)	> 2 [.079]
Lateral displacement (mm)	± 0.4 [.015]
Mating force per contact (N)	
Unmating force per contact (N)	Depending on contact type, see pages 22 to 27
Durability cycles	500
Sinusoidal vibrations (10 to 2000 Hz) micro discontinuity 2ns	15 g
Random vibrations (5 to 2000 Hz) micro discontinuity 2ns	0.5 g ² / Hz
Shocks 6ms ½ sinus 2ns	100 g



ENVIRONMENTAL CHARACTERISTICS

Thermal shocks (°C)	-65 / +125
Thermal endurance at 125°C (hours)	1 000
Salt Spray (hours)	48
Humidity	
Days	10
Temperature (°C)	25 / 65
Humidity rate (%)	90 / 95
Fluid immersion : resistance to cleaning products	VIGON 1/ 43 propylene glycol monomethyl ether + 42 / 43 water 25% isopropyl alcohol + 75% mineral spirit 90% of D-limonene + 10% of surfactant



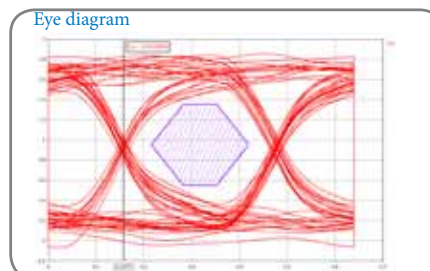
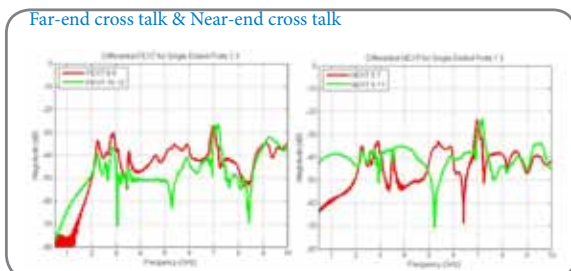
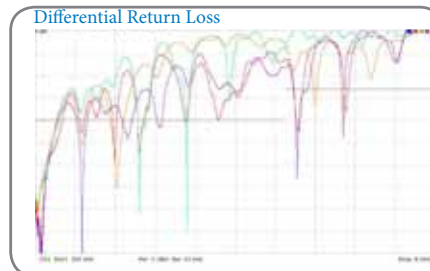
ELECTRICAL CHARACTERISTICS

	Signal	High speed	10A	36A	70A	Bonding
Current rating per contact (A)	3	1	10	36	70	70
Insulation resistance at ambient temperature (GΩ)	5 _{MIN}	5 _{MIN}	5 _{MIN}	5 _{MIN}	5 _{MIN}	5 _{MIN}
Contact resistance (mΩ)	20 _{MAX}	30 _{MAX}	10 _{MAX}	10 _{MAX}	10 _{MAX}	10 _{MAX}
Dielectric withstanding voltage (Vrms)	750 _{MIN}	NA	1 500 _{MIN}	1 500 _{MIN}	1 500 _{MIN}	NA



HIGH SPEED CHARACTERISTICS

Data rates	Allows 15 Gbps+ data rates
Differential pairs	8 per high-speed modules 128 differential pairs in a full 6U connector
Differential impedance	100 Ω
Type of signals	XAUI, Ethernet, Infiniband, PCIe, ...



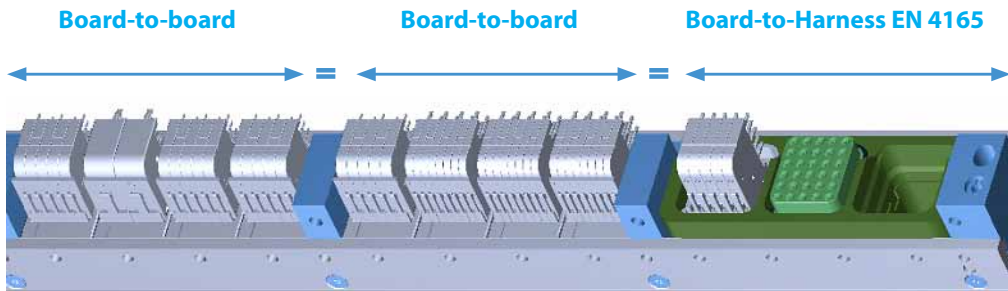
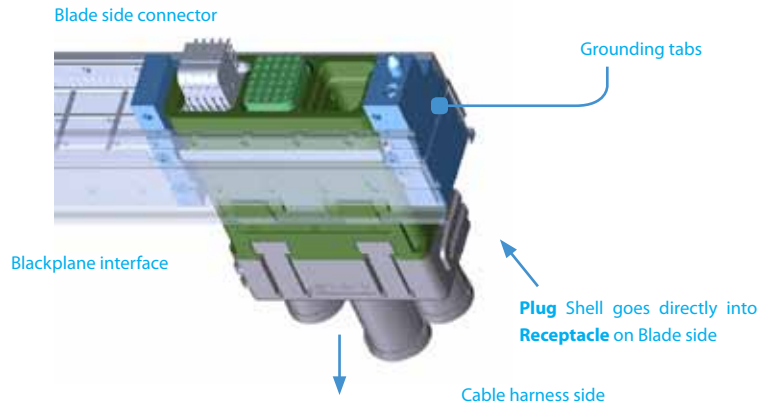
MODUL R >>> BOARD-TO-HARNESS INTERCONNECT



- MODUL R allows board-to-harness interconnect solution with proven, qualified, in service and cost effective EN4165 solution
- Minimized development time and cost by capitalizing on 20 years of production of EN4165
- Large number of inserts available and qualified: power, high density, quadrx, fiber optics
- New High Speed and press fit inserts shall be tooled up

Board-to-harness concept

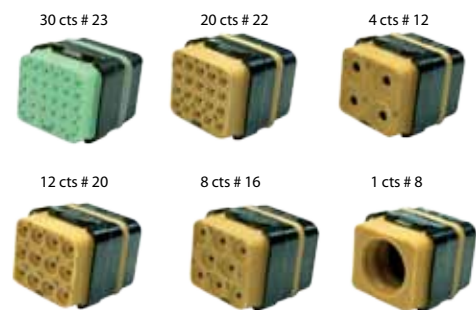
- Insert will fit within same dimensional envelope as 4 of the MODUL R board-to-board modules
- Design will guarantee EMI performances through electroless nickel coating shell and grounding tabs



All existing and future EN4165 inserts can be used:

- High density 30 contacts size 23
- Medium density: 20 contacts size 22 or 12 contacts size 20
- Butt joint and lensed fiber contact versions
- Mixed layout: power and fiber optics
- High speed coax and quadrx
- Power: 8 contacts size 16 or 4 contacts size 12 or 1 contact size 8
- Shunt modules
- Crimp, PCB solder or press fit contacts

Modules available**



* Board-to-harness under development, please contact us

**Other arrangements available, please consult us

MODUL R >>> BOARD-TO-HARNESS INTERCONNECT TECHNICAL SPECIFICATIONS



ELECTRICAL CHARACTERISTICS

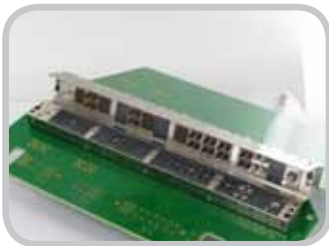
	Size 22	Size 20	Size 16	Size 12	
Current rating per contact (A)	5	7.5	13	23	
Insulation resistance at ambient temperature (GΩ)	≥ 5				
Insulation resistance (in altitude) (GΩ)	≥ 1				
Dielectric withstanding voltage (Vrms)	1 500	1 800	1 800	1 800	1 800



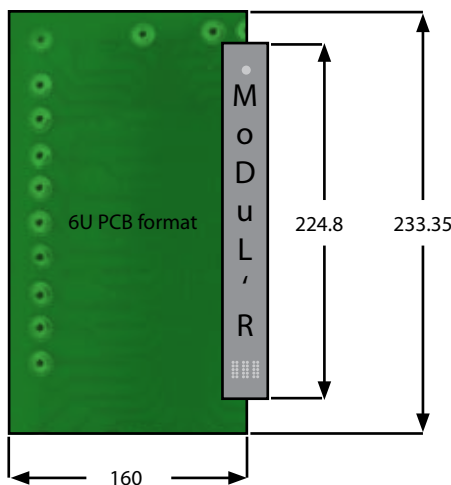
ENVIRONMENTAL CHARACTERISTICS

Thermal shocks (°C)	-55 / +175				
Salt spray (bright nickel coating or black anodized oxydation) (hours)	96				
Humidity					
Days	56				
Humidity rate	95%				
Intercavity sealing (according to EN2591 test 324 & 314)	Crossing : leakage rate ≤ 4 cm ³ per hour under differential pressure of 1 hPa per module Interfacial : pressure ≤ 1.1 K Pa				

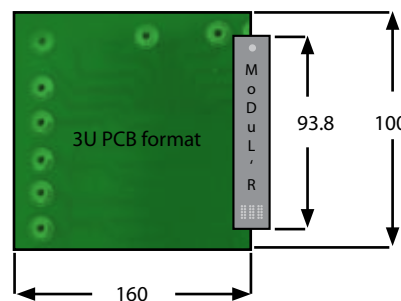
MODUL R >>> 6U & 3U* COMPLIANCE



- MODUL R is compliant with 6U & 3U* standard
- MODUL R shells were developed in both 6U & 3U* board standard
- The MODUL R inserts design will guarantee the compatibility with both formats
 - 4 groups of 4 modules will fit within 6U envelope
 - 2 groups of 3 modules will fit within 3U envelope
- MODUL R versatility ensures the compatibility with standard PCB format



Connector equipped with 16 modules (6U) : 224,8 [88.504] x 24,6 [9.685]



Connector equipped with 6 modules (3U*) : 93.8 [36.929] x 24,6 [9.685]

* 3U format under development, please contact us

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

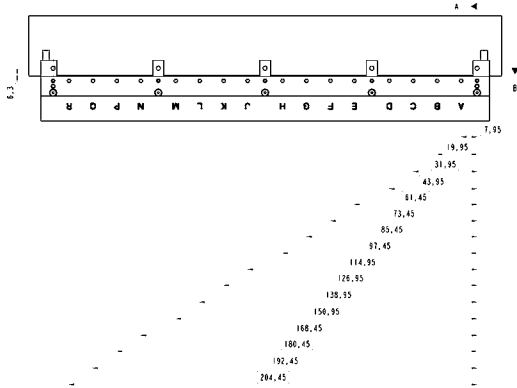
For more information regarding 6U format, please see pages 19 to 20

MODUL R >>> 6U DIMENSIONAL CHARACTERISTICS

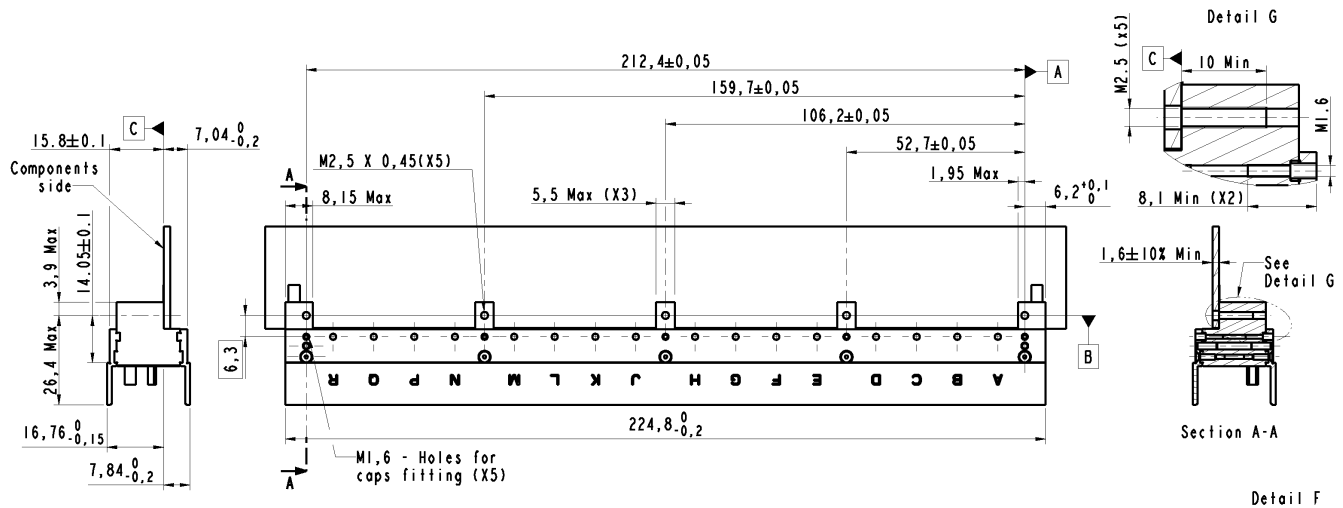
PLUG FOR DAUGHTERBOARD

Dimensions are in mm

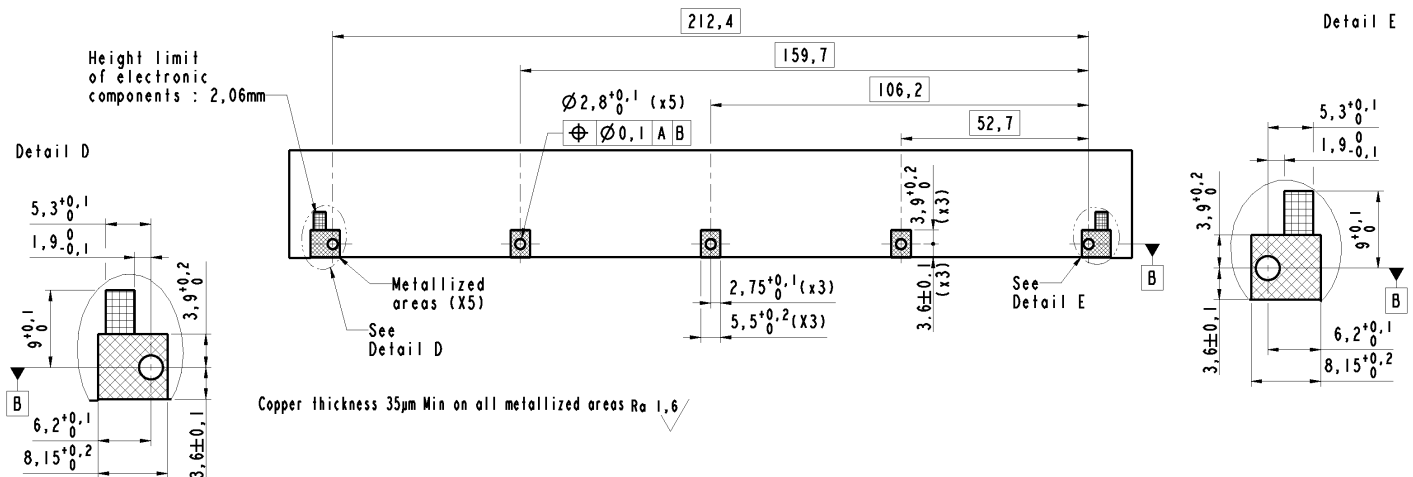
Module locating



Plug external dimensions



Plug layout



For more information, see drawing 169-PLC-887-00

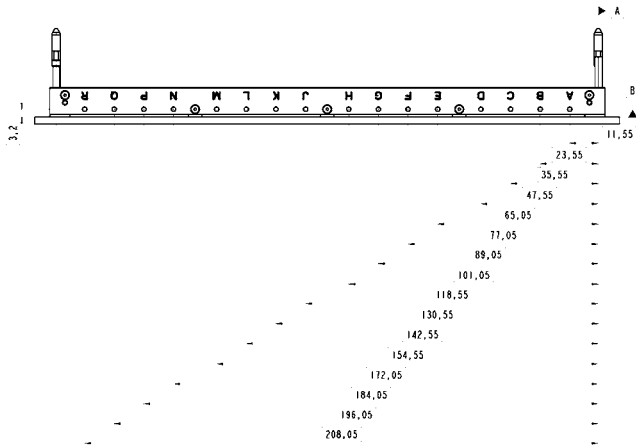
All dimensions are given for information only and are in mm [inch], except as otherwise specified

MODUL R >>> 6U DIMENSIONAL CHARACTERISTICS

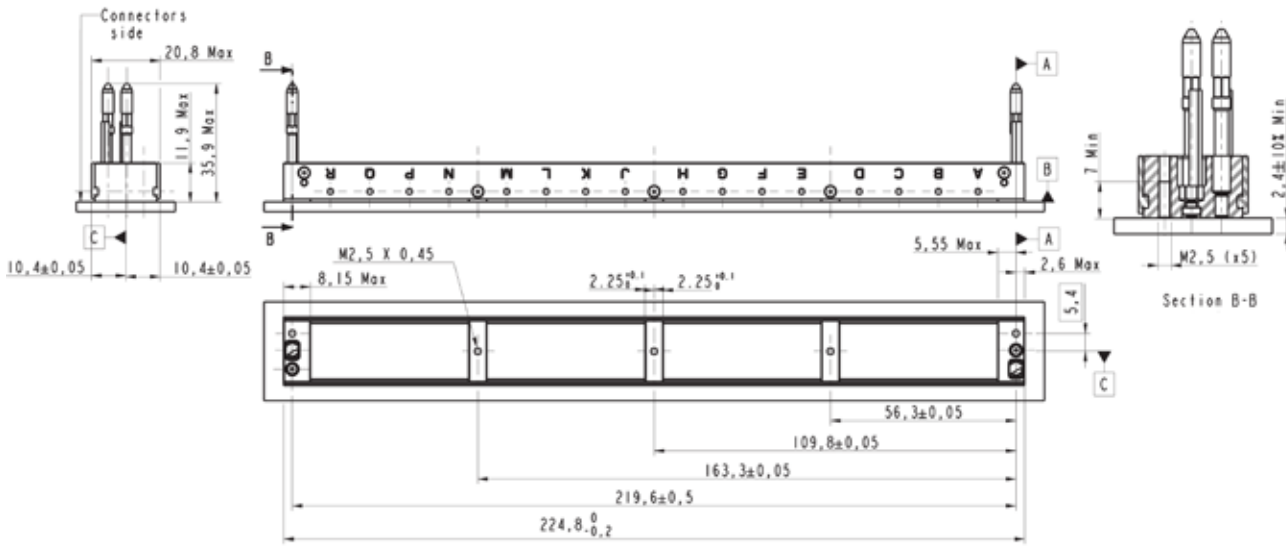
RECEPTACLE FOR MOTHERBOARD

Dimensions are in mm

Module locating



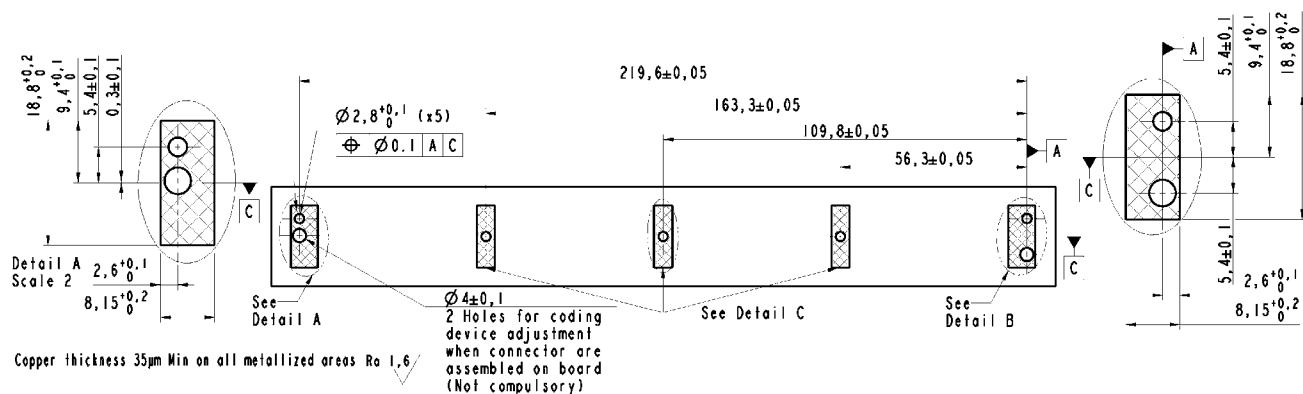
Receptacle external dimensions



Layout

Detail A

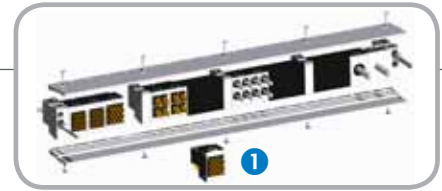
Detail B



For more information, see drawing 169-PLC-887-00

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

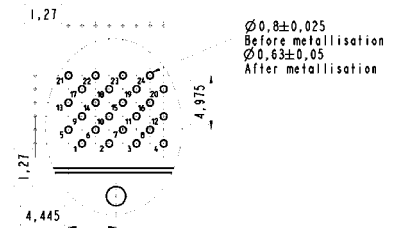
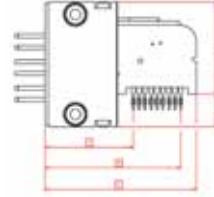
MODUL R >>> SIGNAL MODULE (1)



- 3A per contact / 24 signal contacts per module
- Up to 384 signal contacts in a full connector
- Press-fit solderless attachment technology for a cost effective on-board assembly
- Medium density : 0.117 contacts / mm²
- Stamped male contact
- Stamped and formed female contact
- Dielectric Withstanding Voltage : 1000 Vrms

Male module

- Press fit assembly
- PCB thickness : 1.6 [.062] MIN
- Insertion forces : 1 700 N MAX per module
- Daughterboard

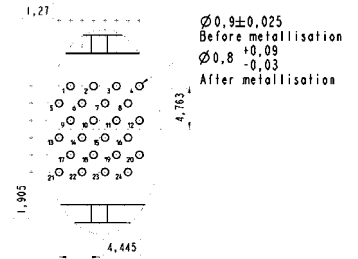


To order the module only

M6 A SI 24 *

Female module

- Press fit assembly
- PCB thickness : 2.4 [.094] MIN
- Insertion forces : 500 N MAX per module
- Motherboard



To order the module only

M6 C SI 24 *

MECHANICAL CHARACTERISTICS

Lateral displacement (mm)	± 0.4 [.015]
Mating force per contact (N)	0.8 MAX
Unmating force per contact (N)	0.6 MAX

ELECTRICAL CHARACTERISTICS

Current rating per contact (A)	3
Insulation resistance (at ambient temperature) (GΩ)	5 MIN
Contact resistance (mΩ)	20 MAX
Dielectric Withstanding Voltage (Vrms)	1000 MIN

	A	B	C	D	E	F
Dimensions	13.86 ± 0.1 [.545 ± 0.004]	4.94 ± 0.1 [.195 ± 0.004]	13.62 MAX [.536]	19.97 MAX [.786]	22.70 MAX [.894]	4.07 ± 0.2 [.160 ± 0.008]
Active area plating μm [μin]	3.5 [.138] Ni + 0.8 [.031] Au					
Termination plating μm [μin]	2 [.787] Ni + 3 [.118] bright pure Sn					

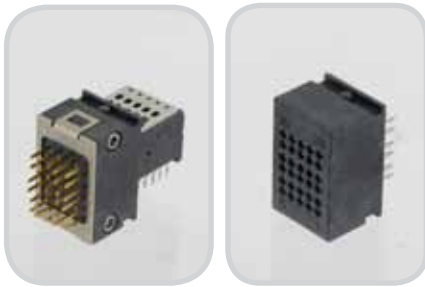
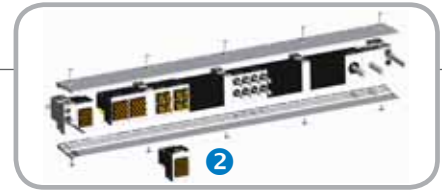
Assembly drawings & toolings pages 33 to 35...

* : How to order : please see pages 36 to 39.

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

MODUL R >>> HIGH SPEED MODULE (2)

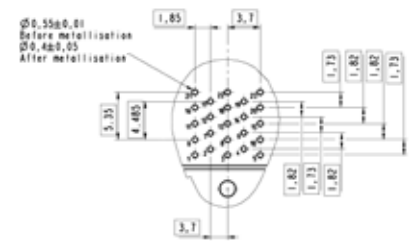
HIGH SPEED
CONTACT



- Up to 15 Gbps per differential pair
- 8 differential pairs per module
- Up to 128 differential pairs in a full connector
- Press-fit solderless attachment technology for a cost effective on-board assembly
- Medium density : 0.146 contacts / mm²
- Stamped male contact
- Stamped and formed female contact
- Dielectric Withstanding Voltage : 1000 Vrms

Male module

- Press fit assembly
- PCB thickness : 1.6 [0.062] MIN
- Insertion forces : 600 N MAX per module
- Daughterboard

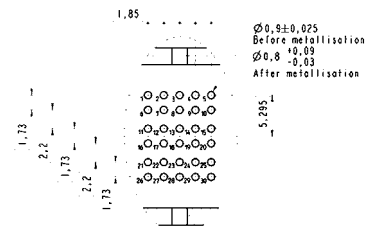


To order the module only

M6 A HS 30 *

Female module

- Press fit assembly
- PCB thickness : 2.4 [0.094] MIN
- Insertion forces : 1 050 N MAX per module
- Motherboard



To order the module only

M6 C HS 30 *

MECHANICAL CHARACTERISTICS

Lateral displacement (mm) ± 0.4 [.015]

Mating force per contact (N) 0.8 MAX

Unmating force per contact (N) 0.6 MAX

ELECTRICAL CHARACTERISTICS

Current rating per contact (A) 1

Insulation resistance (at ambient temperature) (G Ω) 5 MIN

Contact resistance (m Ω) 30 MAX

Dielectric Withstanding Voltage (Vrms) 1000 MIN

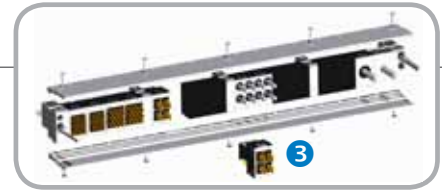
	A	B	C	D	E	F
Dimensions	13.86 \pm 0.1 [.545 \pm 0.004]	4.94 \pm 0.1 [.195 \pm 0.004]	13.25 MAX [.536]	20.35 MAX [.801]	22.70 MAX [.894]	4.07 \pm 0.2 [.160 \pm 0.008]
Active part plating μ m [μ in]	3.5 [.138] Ni + 0.8 [.031] Au					
Termination plating μ m [μ in]	2 [.787] Ni + 3 [.118] bright pure Sn					

Assembly drawings & toolings pages 33 to 35...

* : How to order : please see pages 36 to 39.

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

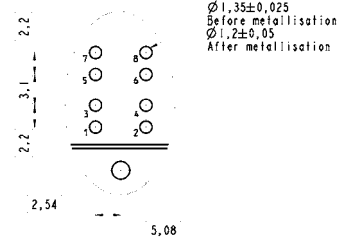
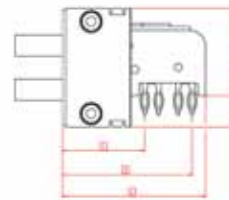
MODUL R >>> POWER MODULE 10A (3)



- 10A per contact / 4 power contacts per module
- Up to 64 power contacts in a full connector
- Press-fit solderless attachment technology for a cost effective on-board assembly
- Blade male contact
- Screw machined female contact
- Dielectric Withstanding Voltage : 1500 Vrms

Male module

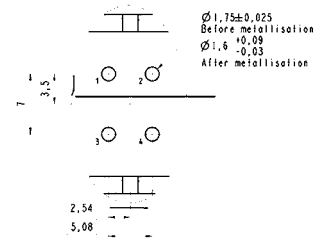
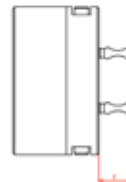
- Press-fit assembly
- PCB thickness : 2.4 [.094] MIN
- Insertion forces : 1 500 N MAX per module
- Daughterboard



To order the module only **M6 A 10A 4 ***

Female module

- Press-fit assembly
- PCB thickness : 2.4 [.094] MIN
- Insertion forces : 400 N MAX per module
- Motherboard



To order the module only **M6 C 10A 4 ***

MECHANICAL CHARACTERISTICS

Lateral displacement (mm)	± 0.4 [.015]
Mating force per contact (N)	8 MAX
Unmating force per contact (N)	6 MAX

ELECTRICAL CHARACTERISTICS

Current rating per contact (A)	10
Insulation resistance (at ambient temperature) (G Ω)	5 MIN
Contact resistance (m Ω)	10 MAX
Dielectric Withstanding Voltage (Vrms)	1500 MIN

	A	B	C	D	E	F
Dimensions	13.86 \pm 0.1 [.545 \pm 0.004]	4.94 \pm 0.1 [.195 \pm 0.004]	13.05 MAX [.514]	20.55 MAX [.809]	22.70 MAX [.894]	4.05 \pm 0.2 [.159 \pm 0.008]
Male active area plating μ m [μ in]	3.5 [.138] Ni + 1 [.039] Au					
Female active area plating μ m [μ in]	3 [.118] Ni + 1 [.039] Au					
Male termination plating μ m [μ in]	2 [.787] Ni + 3 [.118] bright pure Sn					
Female termination plating μ m [μ in]	3 [.118] Ni + 1 [.039] Au					

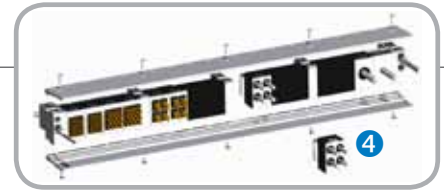
Assembly drawings & toolings pages 33 to 35...

* : How to order : please see pages 36 to 39.

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

MODUL R >>> POWER MODULE 36A (4)

HIGH
POWER
CONTACT

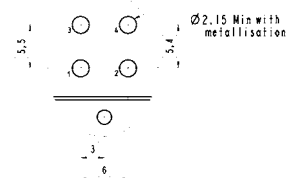
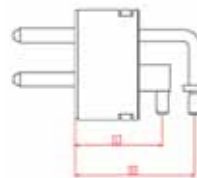


- 36A per contact / 4 power contacts per module
- Up to 64 power contacts in a full connector
- Soldered PC tail or screwed on board for plug
- Screwed on bus bar, cable or braid for receptacle
- Screw-machined male contact
- RADSOK® female contact
- Dielectric Withstanding Voltage : 1500 Vrms

Male module

- Screwed on board
- PCB thickness : 1.6 [.062] to 2.4 [.094]
- Daughterboard

Screwed

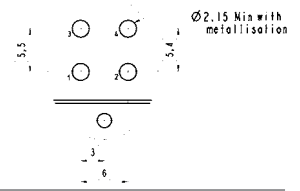
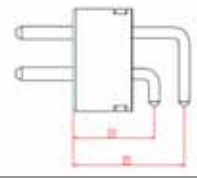


To order the module only

M6 A 36A 4 *

- Soldered PC tail
- PCB thickness : 1.6 [.062] to 2.4 [.094]
- Daughterboard

Soldered

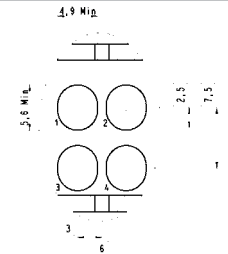
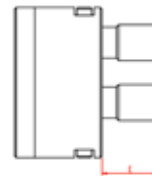


To order the module only

M6 B 36A 4 *

Female module

- Screwed on bus bar, cable or braid
- PCB thickness : consult us
- Motherboard



To order the module only

M6 C 36A 4 *

MECHANICAL CHARACTERISTICS

Lateral displacement (mm) ± 0.4 [.015]

Mating force per contact (N) 8_{MAX}

Unmating force per contact (N) 4_{MIN}

ELECTRICAL CHARACTERISTICS

Current rating per contact (A) 36

Insulation resistance (at ambient temperature) (GΩ) 5_{MIN}

Contact resistance (mΩ) 10_{MAX}

Dielectric Withstanding Voltage (Vrms) 1500_{MIN}

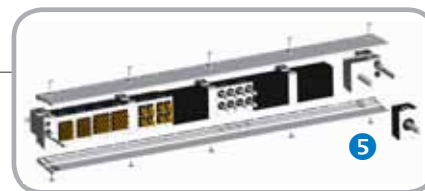
	A	B	C	D	E
Dimensions	14.90 _{MAX} [.586]	20.4 _{MAX} [.803]	14.90 _{MAX} [.586]	20.40 _{MAX} [.803]	7.10 ± 0.02 [.280 ± 0.008]
Active area plating μm [μin]	3 [.118] Ni + 5 [.197] Ag				
Termination plating μm [μin]	3 [.118] Ni + 5 [.197] Ag				

Assembly drawings & toolings pages 33 to 35...

* : How to order : please see pages 36 to 39.

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

MODUL R >>> POWER MODULE 70A (5)

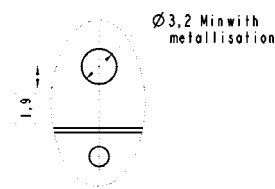
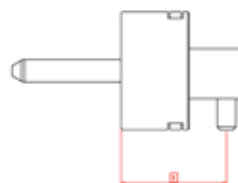


- 70A per contact / 1 contact per module
- Up to 16 power contacts in a full connector
- Soldered PC tail or screwed on board for plug
- Screwed on bus bar, cable or braid for receptacle
- Screw-machined male contact
- RADSOK® female contact
- Dielectric Withstanding Voltage : 1500 Vrms

Male module

- Screwed on board
- PCB thickness : 1.6 [.062] to 2.4 [.094]
- Daughterboard

Screwed

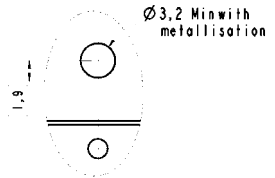
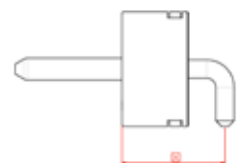


To order the module only

M6 A 70A 1 *

- Soldered PC tail
- PCB thickness : 1.6 [.062] to 2.4 [.094]
- Daughterboard

Soldered

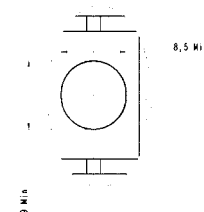
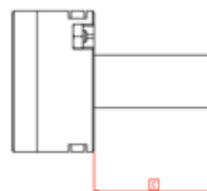


To order the module only

M6 B 70A 1 *

Female module

- Screwed on bus bar, cable or braid
- PCB thickness : consult us
- Motherboard



To order the module only

M6 C 70A 1 *

MECHANICAL CHARACTERISTICS

Lateral displacement (mm)	± 0.4 [.015]
Mating force per contact (N)	20.1 _{MAX}
Unmating force per contact (N)	10 _{MIN}

ELECTRICAL CHARACTERISTICS

Current rating per contact (A)	70
Insulation resistance (at ambient temperature) (GΩ)	5 _{MIN}
Contact resistance (mΩ)	10 _{MAX}
Dielectric Withstanding Voltage (Vrms)	1500 _{MIN}

	A	B	C
Dimensions	16.90 _{MAX} [.665]	16.90 _{MAX} [.665]	16 _{MAX} [.630]
Active area plating μm [μin]	3 [.118] Ni + 5 [.197] Ag		
Termination plating μm [μin]	3 [.118] Ni + 5 [.197] Ag		

Assembly drawings & toolings pages 33 to 35...

* : How to order : please see pages 36 to 39.

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

MODUL R >>> BONDING MODULE (6)


 BONDING CONTACT


6



Only one bonding module per connector allowed

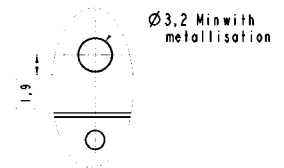
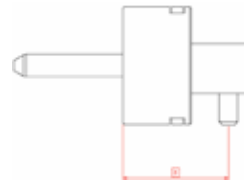


- 70A per contact / 1 contact per module
- Soldered PC tail or screwed on board for plug
- Screwed on bus bar, cable or braid for receptacle
- Screw-machined male contact
- RADSOK® female contact
- Dielectric Withstanding Voltage : 1500 Vrms
- The bonding module is a first mate-last brake grounding contact. It supports the highest current rate of the total connector

Male module

- Screwed on board
- PCB thickness : 1.6 [.062] to 2.4 [.094]
- Daughterboard

Screwed

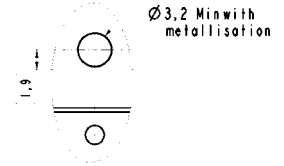
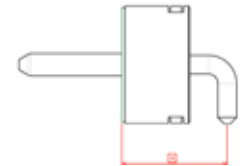


To order the module only

M6 A BOND *

- Soldered PC tail
- PCB thickness : 1.6 [.062] to 2.4 [.094]
- Daughterboard

Soldered

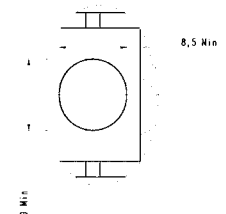
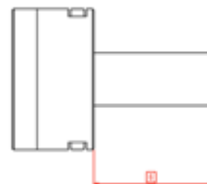


To order the module only

M6 B BOND *

Female module

- Screwed on bus bar, cable or braid
- PCB thickness : consult us
- Motherboard



To order the module only

M6 C BOND *

MECHANICAL CHARACTERISTICS

Lateral displacement (mm) ± 0.4 [.015]

Mating force per contact (N) 20.1 _{MAX}

Unmating force per contact (N) 10 _{MIN}

ELECTRICAL CHARACTERISTICS

Current rating per contact (A) 70

Insulation resistance (at ambient temperature) (GΩ) 5 _{MIN}

Contact resistance (mΩ) 10 _{MAX}

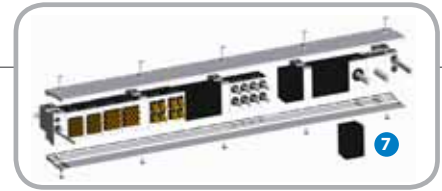
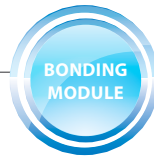
Dielectric Withstanding Voltage (Vrms) NA

	A	B	C
Dimensions	16.90 _{MAX} [.665]	16.90 _{MAX} [.665]	16 _{MAX} [.630]
Active area plating μm [μin]	3 [.118] Ni + 5 [.197] Ag		
Termination plating μm [μin]	3 [.118] Ni + 5 [.197] Ag		

Assembly drawings & toolings pages 33 to 35...

* : How to order : please see pages 36 to 39.

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

MODUL R >>> DUMMY MODULE (7)

- Dummy module is added to remain consistent with the 6U or 3U format in case all the cavities are not used with other modules

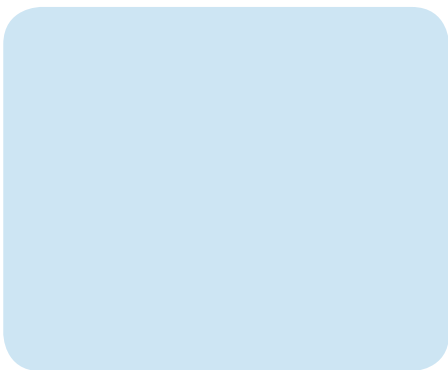
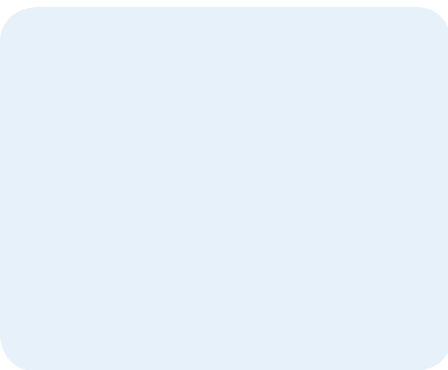
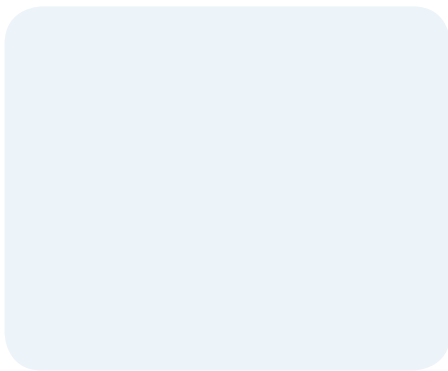
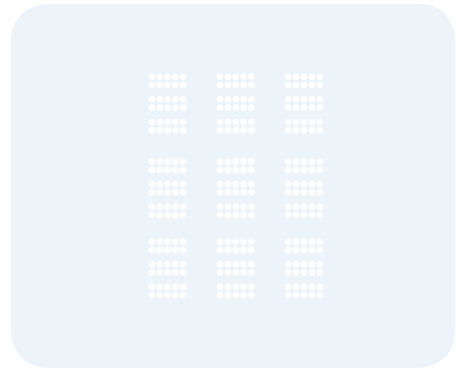
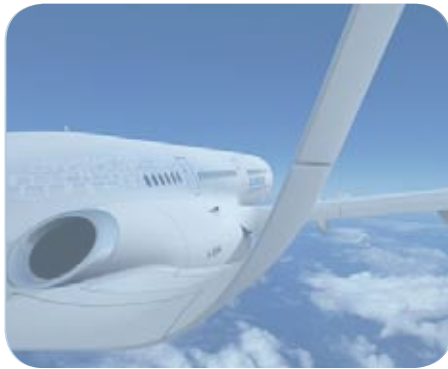
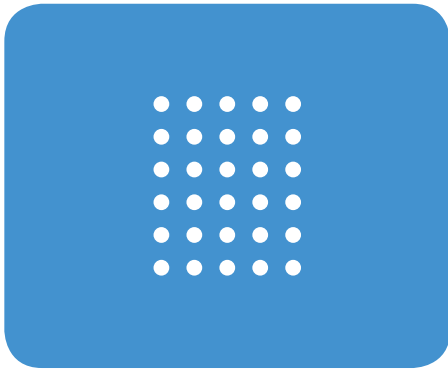
Dummy module

- For motherboard and daughterboard



To order the module only

M6 MA DUM*



MODUL R >>> KEYING

CONNECTOR POLARIZATION



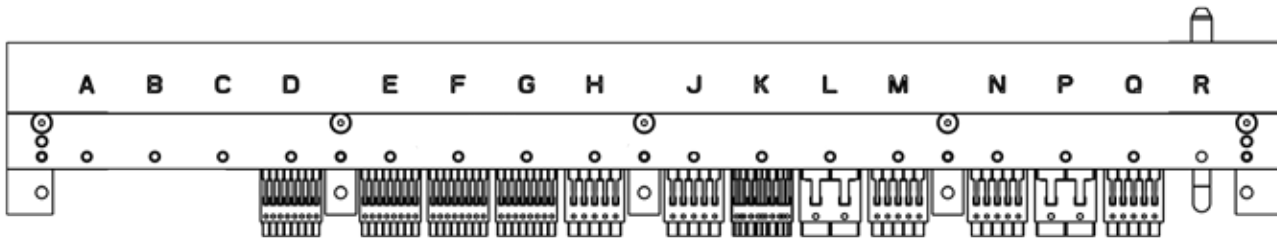
Polarizing pins



- 1 pin at each end fitting for the plug
- 1 pin at each end fitting for the receptacle
- 6 keying positions per polarizing pins
- 36 keying positions per connector
- Identification of end fitting: A or B for plug, C or D for receptacle

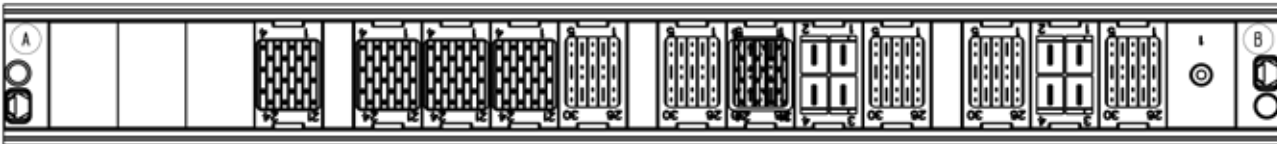
KEYING #1 FOR PLUG FOR DAUGHTERBOARD

Bottom view



From mating side

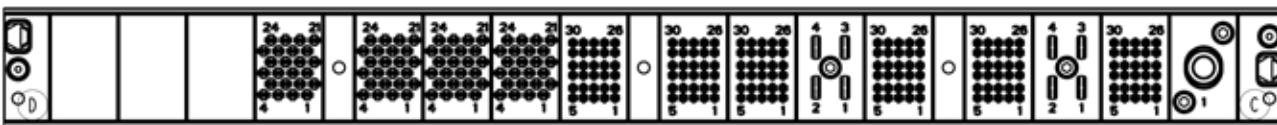
Keying position A Keying position B



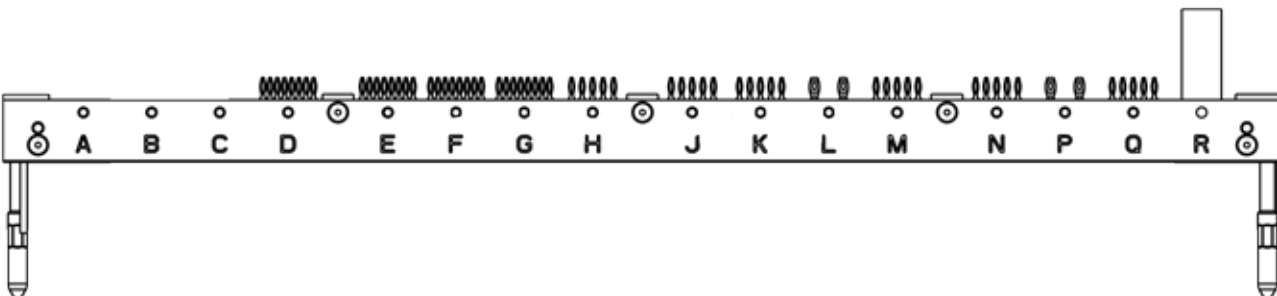
KEYING #1 FOR RECEPTACLE FOR MOTHERBOARD

From mating side

Keying position D Keying position C



Top view



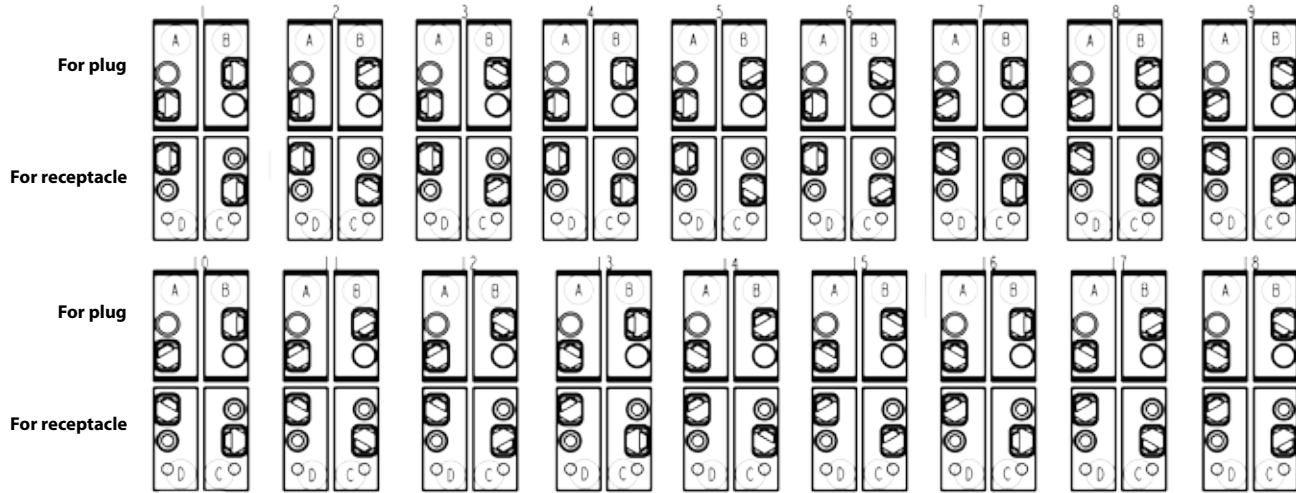
For more information, see drawing 169-PLC-964-00

MODUL R >>> KEYING & GUIDING

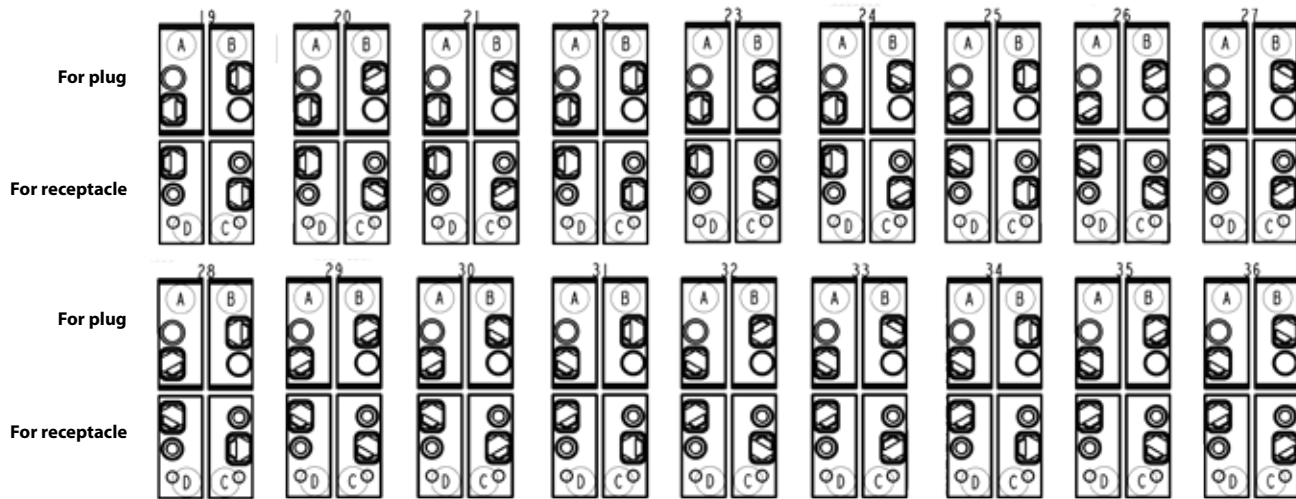


KEYING #1 TO #36

Keying # <i>See here under table</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
How to order*	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H



Keying # <i>See here under table</i>	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
How to order	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z



MALE GUIDE FOR RECEPTACLE

Standard male guide pin



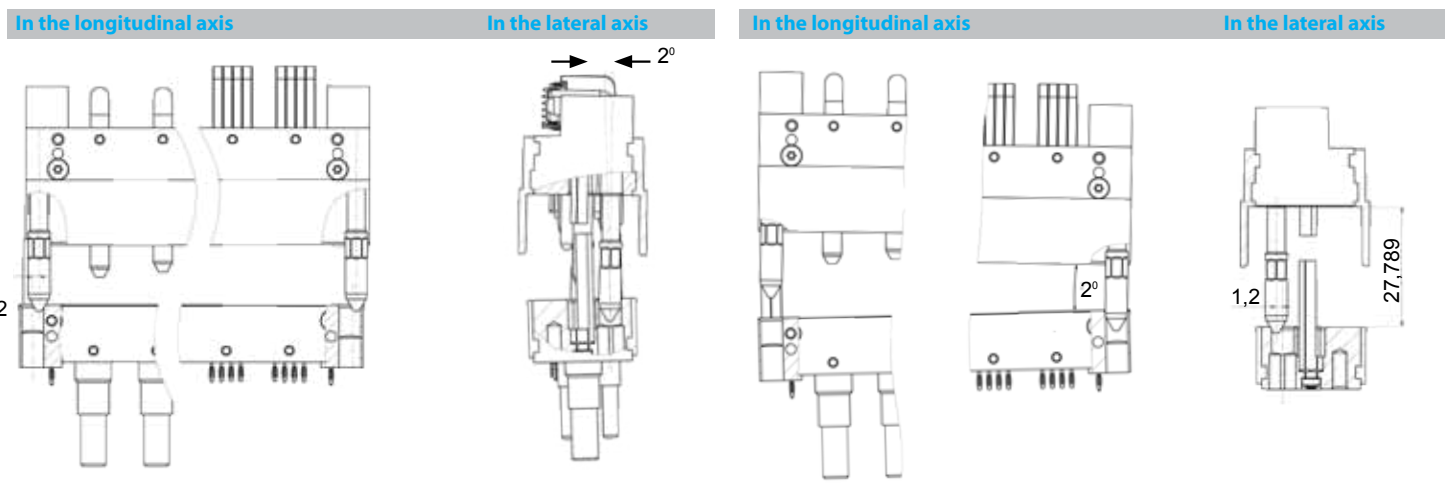
- For receptacle
- 2 male guides per receptacle
- Passivated stainless steel
- Optimized realignment

For more information, see drawing 169-PLC-964-00

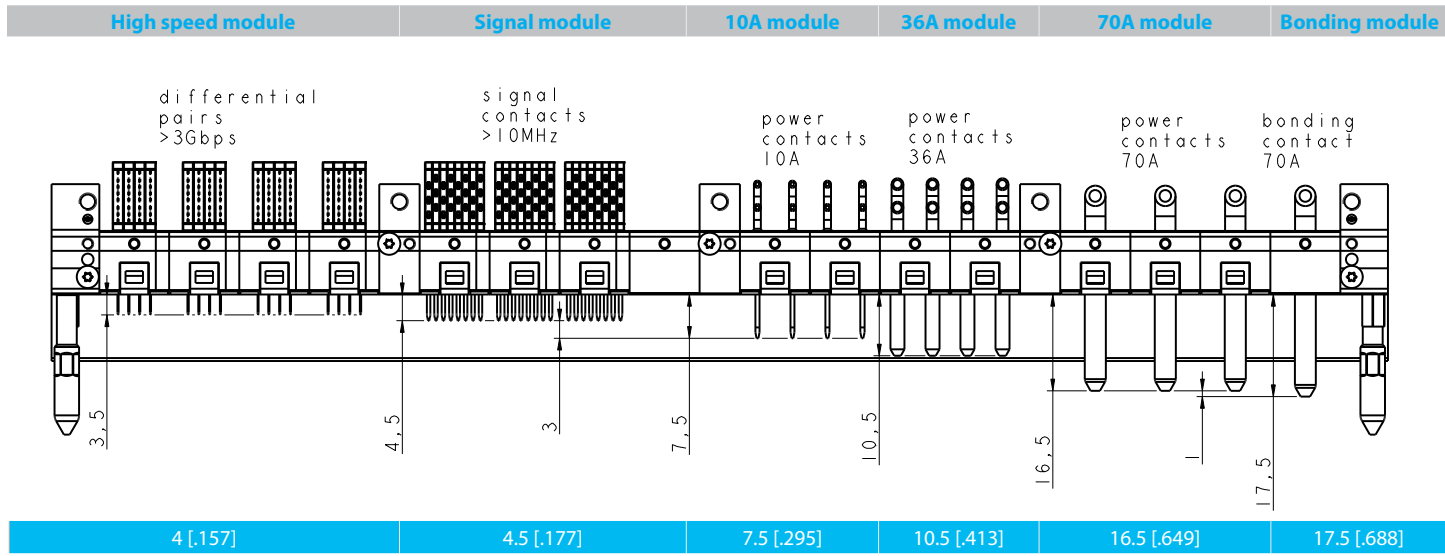
*How to order : please see pages 36 to 39

MODUL R >>> GUIDING

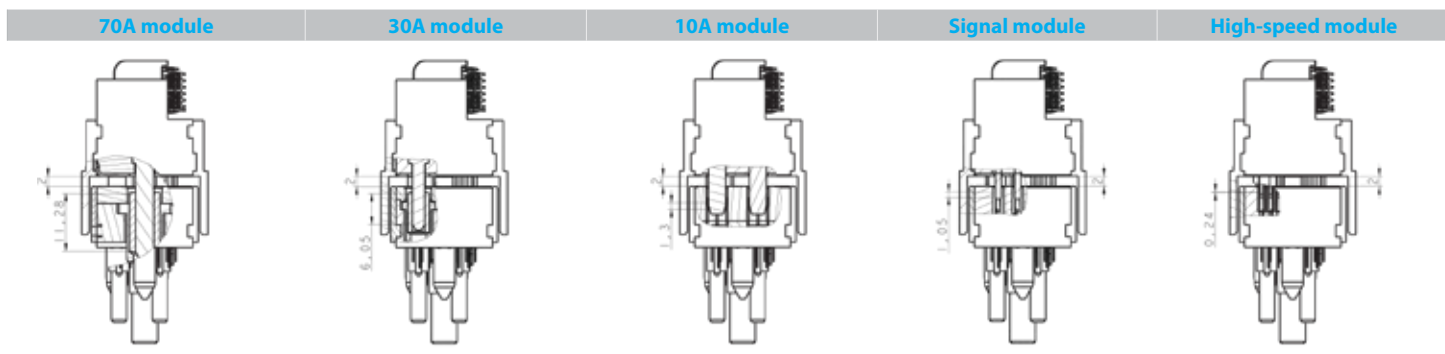
REALIGNMENT CAPABILITY



MATING SEQUENCE



MATED CONNECTOR

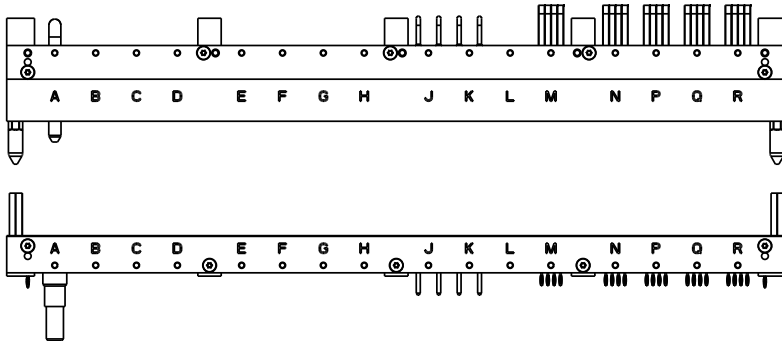


For more information, see drawing 169-PLC-779-00

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

MODUL R >>> MODULE & PIN IDENTIFICATION

MODULE IDENTIFICATION INSIDE THE CONNECTOR



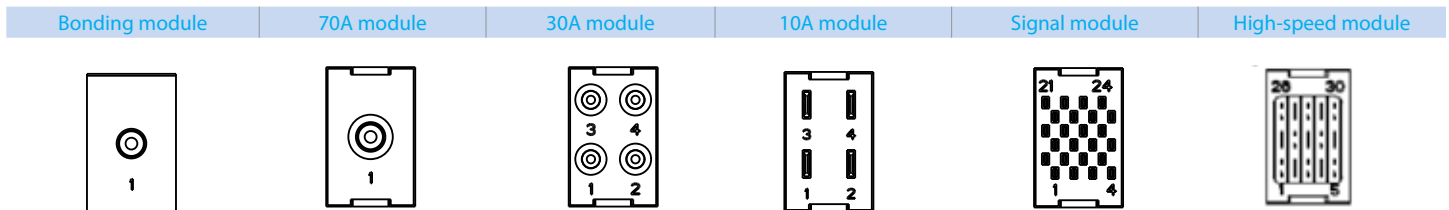
- Shell marking allows the module location inside the connector
- 16 locations from A to R
- 4 group of 4 modules separated by intermediate fitting parts
 - Locations A to D
 - Locations E to H
 - Locations J to M
 - Locations N to R

Nota : each module has a unique location inside the connector

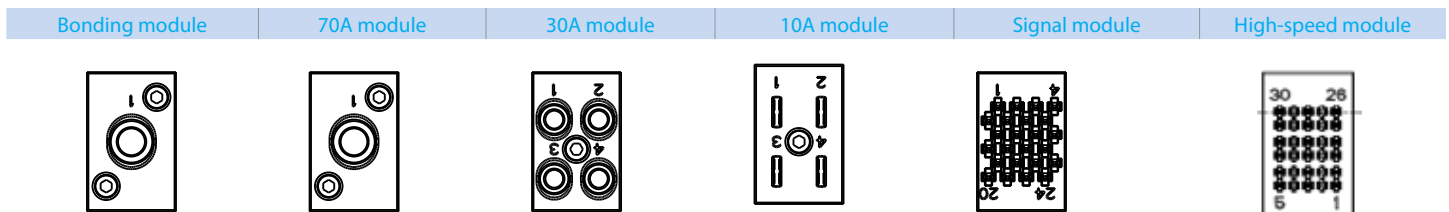
PIN IDENTIFICATION INSIDE A MODULE

- For receptacle, socket identification is molded inside the female housing
- For plug, pin identification is molded inside the male housing or stamped on the EMI grid

Plug marking, from mating side



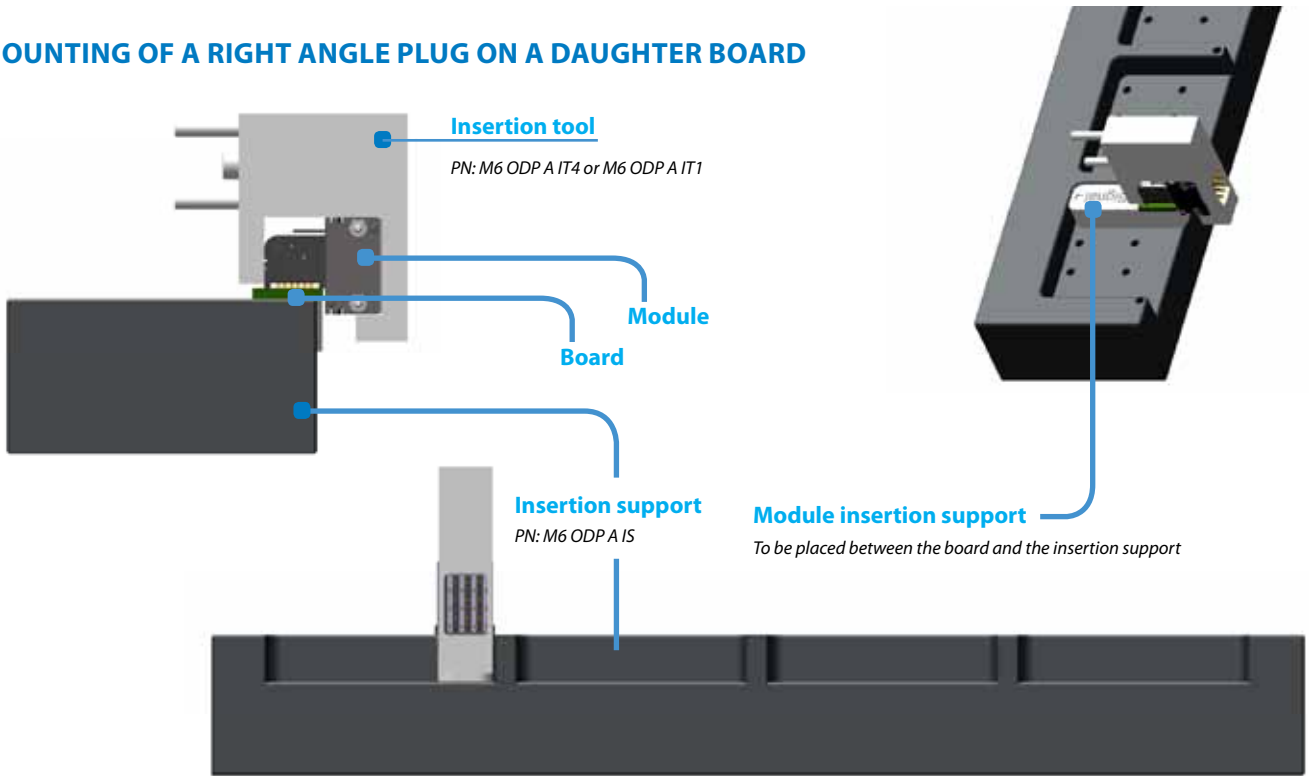
Receptacle marking, from mating side



Nota : each contact has a unique location inside a module

MODUL R >>> TOOLS FOR PLUG

MOUNTING OF A RIGHT ANGLE PLUG ON A DAUGHTER BOARD



INSERTION / EXTRACTION TOOLS

Insertion tool for plug module (x4)

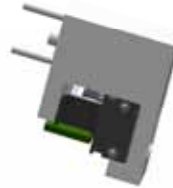


- For press-fit insertion
- Tool allowing the application of a uniform load on the module
- For module insertion 4 by 4
- For more information, see drawing 169-PLC-995-00

Part number

M6 ODP A IT4

Insertion / Extraction tool for plug module (x1)



- For press-fit insertion or extraction
- For module insertion or extraction 1 by 1
- For more information, see drawings 169-PLC-1039-00 & 169-PLC-917-00

Part number

M6 ODP A IT1

INSERTION SUPPORTS

6U Insertion support for plug module



- For press-fit insertion
- Tool maintaining the insertion supports according to the connector arrangement
- A tool is composed of 1 daughter board support and 3 shouldered pins and 32 pins
- For more information see drawing 169-PLC-961-00 P2/2

Part number

M6 ODP A IS

Plug module insertion support



- For press-fit insertion
- Tool placed between the board and the insertion support
- Tool supporting the module during the insertion
- 1 intermediate support per module type
- A tool is composed of one insertion support
- For more information see drawing 169-PLC-961-00 P2/2

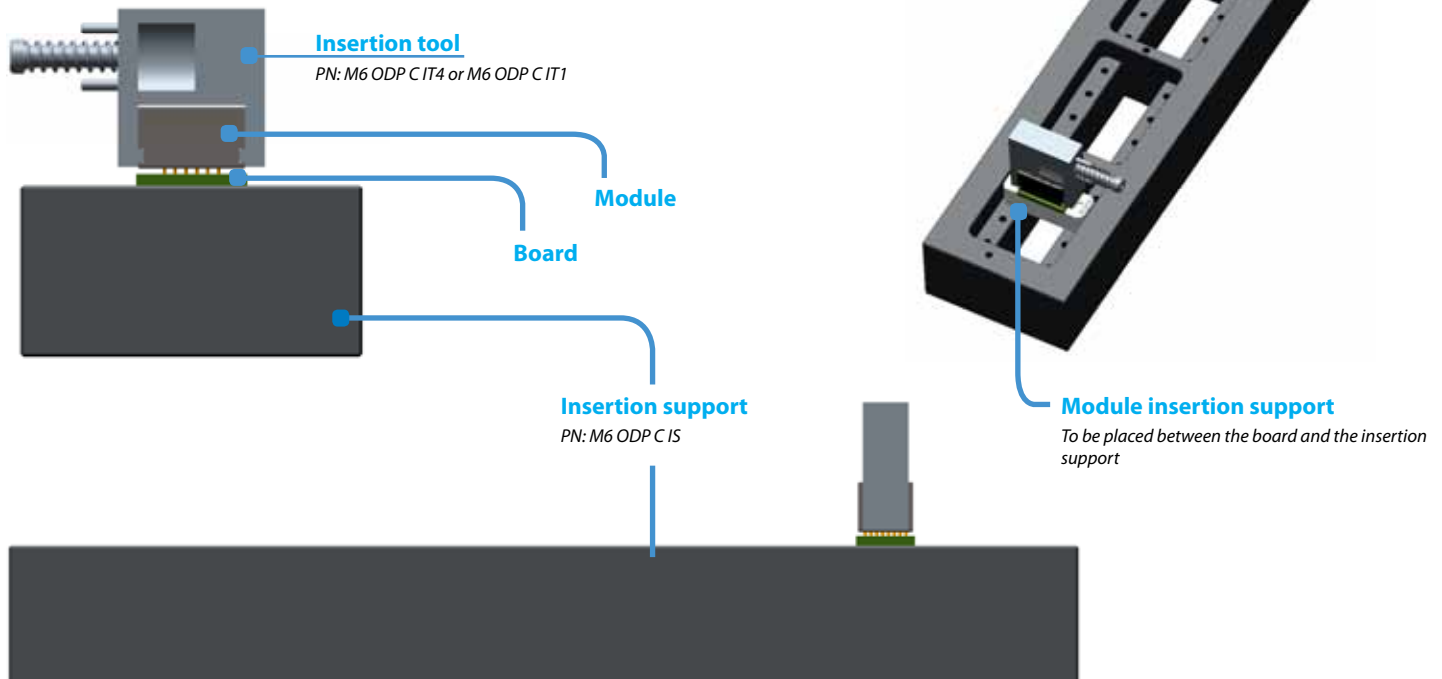
Part number

M ODP A HS30 IS
M ODP A SI24 IS

M ODP A 10A4 IS
M ODP A 36A4 IS
M ODP A 70A1 IS

MODUL R >>> TOOLS FOR RECEPTACLE

MOUNTING OF A STRAIGHT RECEPTACLE ON A MOTHER BOARD



INSERTION / EXTRACTION TOOLS

Insertion tool for receptacle module (x4)



- For press-fit insertion
- Tool allowing the application of a uniform load on the module
- For module insertion 4 by 4
- For more information, see drawing 169-PLC-996-00

Part number

M6 ODP C IT4

Insertion / Extraction tool for receptacle module (x1)



- For press-fit insertion or extraction
- For module insertion or extraction 1 by 1
- For more information, see drawings 169-PLC-1038-00 & 169-PLC-916-00

Part number

M6 ODP C IT1

INSERTION SUPPORTS

6U Insertion support for receptacle module

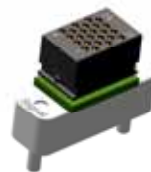


- For press-fit insertion
- Tool maintaining the insertion supports
- According to the connector arrangement
- A tool is composed with 1 mother board support and 3 shouldered pins of 32 pins
- For more information see drawing 169-PLC-961-00 P 1/2

Part number

M6 ODP C IS

Plug module insertion support



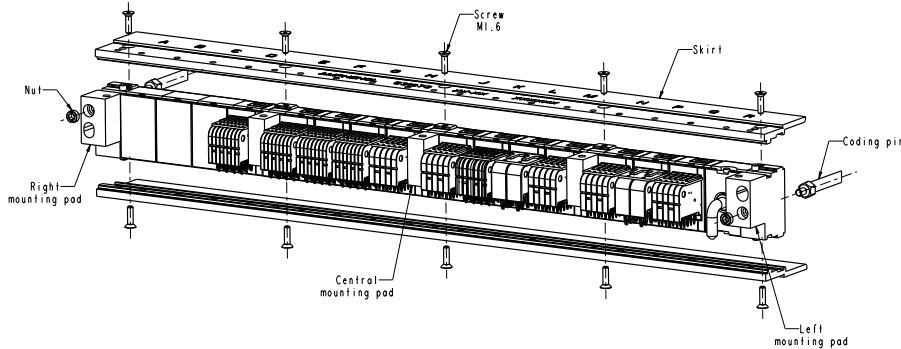
- For press-fit insertion
- Tool placed between the board and the insertion support
- Tool supporting the module during the insertion
- 1 intermediate support per module type
- A tool is composed of one insertion support
- For more information see drawing 169-PLC-961-00 P1/2

Part number

M ODP C HS30 IS
M ODP C SI24 ISM ODP C 10A4 IS
M ODP C 36A4 IS
M ODP C 70A1 IS

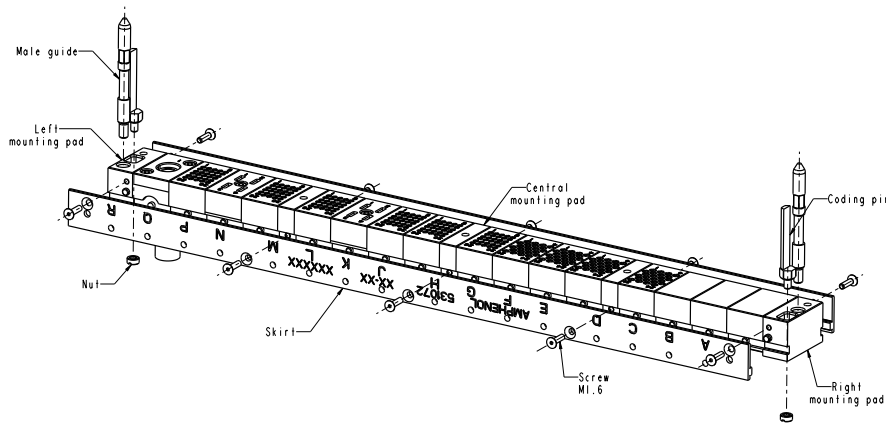
MODUL R >>> ASSEMBLY

PLUG ASSEMBLY



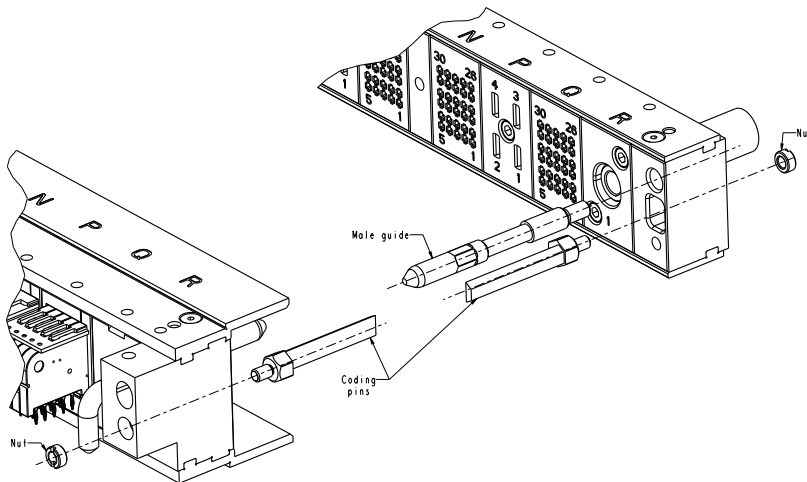
- No specific tool required, use torx screw driver size 5
- Apply thread locker on the threading
- Tightening torque: 0.15 N.m
- For more information, please see drawing 169-PLC-1035-00 P2/2

RECEPTACLE ASSEMBLY



- No specific tool required, use torx screw driver size 5
- Apply thread locker on the threading
- Tightening torque: 0.15 N.m
- For more information, please see drawing 169-PLC-1035-00 P2/2

KEYING & GUIDING MOUNTING



- Use the specific screw driver HLX ODP to assemble the nut on the keying
- Apply thread locker on the threading
- Tightening torque: 0.25 N.m
- For more information, please see drawing 169-PLC-964-00 P3/3

HLX ODP

Specific screw driver for keying devices

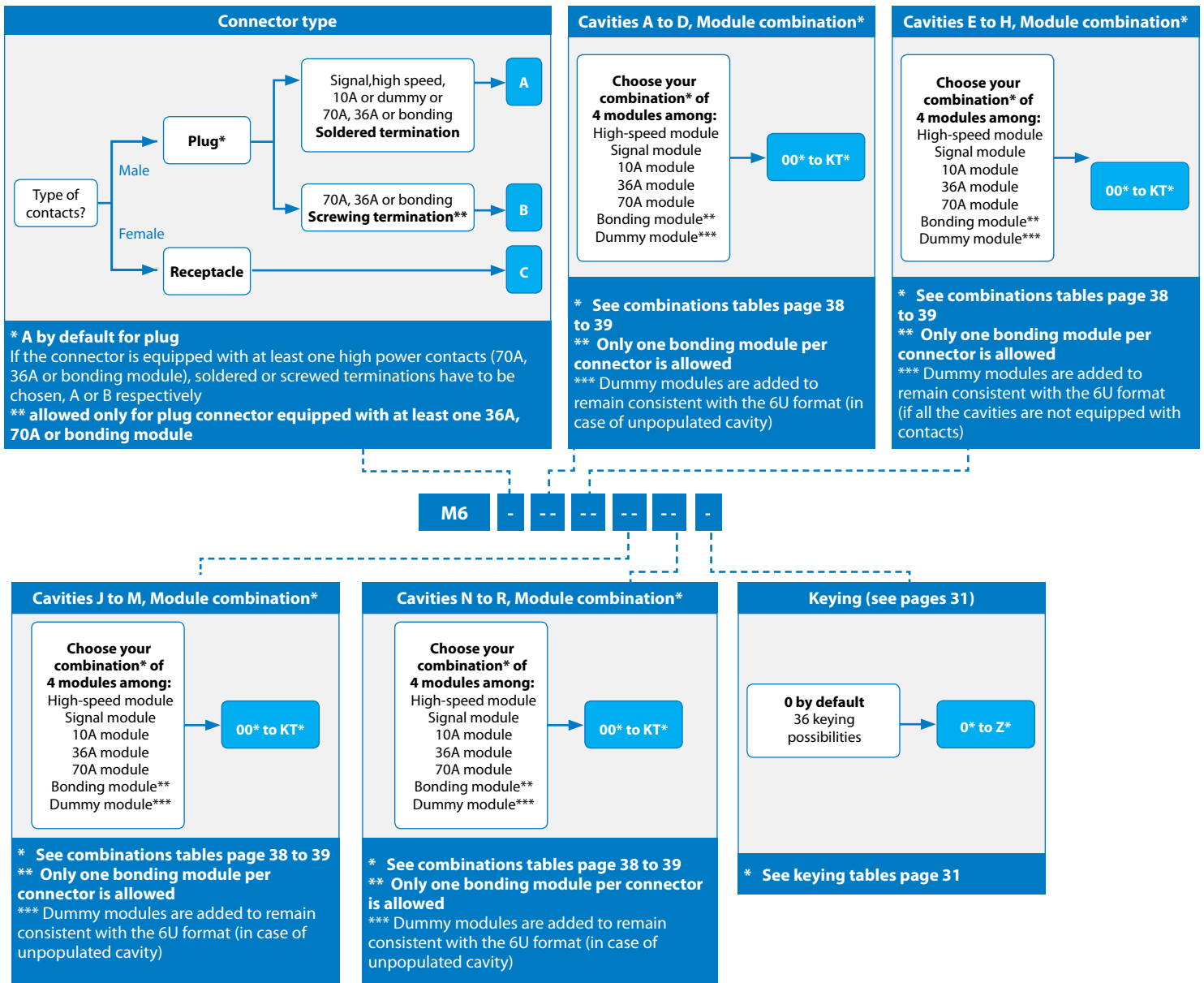


Part number

HLX ODP

MODUL R >>> HOW TO ORDER

BOARD-TO-BOARD CONNECTOR



PART NUMBER DEFINITION, EXAMPLES

M6A 00 1L 36 7Q 0

- Plug connector equipped with male contacts
- Cavities A, B, C & D equipped with high speed modules
- Cavities E, F, G & H equipped with signal modules
- Cavities J, K, L & M equipped with 10A modules
- Cavities N, P, Q & R equipped with 36A modules with soldered terminations
- Keying type 0

M6C 1N 1L 00 00 A

- Receptacle connector equipped with female contacts
- Cavity A equipped with a dummy module, cavities B, C & D equipped with signal modules
- Cavities E, F, G & H equipped with signal modules
- Cavities J, K, L & M equipped with high-speed modules
- Cavities N, P, Q & R equipped with high-speed modules
- Keying type A

M6B 1L 36 7J K6 9

- Plug connector equipped with male contacts
- Cavities A, B, C & D equipped with signal modules
- Cavities E, F, G & H equipped with 10A modules
- Cavities J & K equipped with 10A modules & cavities L & M equipped with 36A modules with screwed terminations
- Cavities N, P & Q equipped with 70A modules with screwed terminations & cavity R equipped with a bonding module with screwed termination
- Keying type 9

M6C 1Q 35 3F B2 Z

- Receptacle connector equipped with female contacts
- Cavities A & B equipped with 10A modules, cavities C & D equipped with signal modules
- Cavity E equipped with a signal module, cavities F, G & H equipped with 10A modules
- Cavity J equipped with a bonding module, cavity K equipped with a 36A module & cavities L & M equipped with 10A modules
- Cavity N equipped with a dummy module, cavities P & Q equipped with 36A modules & cavity R equipped with a 70A module
- Keying type Z

* Thanks to MODUL R design, infinite combinations are allowed. Please consult us if the required arrangement is not included does not figure in the here under how to order.

MODUL R >>> HOW TO ORDER

MODULE COMBINATIONS TABLES*

Single contact type combinations*

00	HS 30	HS 30	HS 30	HS 30	Full high speed
1L	SI 24	SI 24	SI 24	SI 24	Full signal 3A
36	10A 4	10A 4	10A 4	10A 4	Full power 10A
7Q	36A 4	36A 4	36A 4	36A 4	Full power 36A
BW	70A 1	70A 1	70A 1	70A 1	Full power 70A

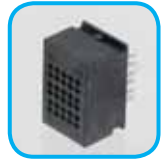
High-speed & signal combinations*

High-speed male



HS 30

High-speed female



HS 30

Signal male



SI 24

Signal female



SI 24

Dummy



DUM

00	HS 30	HS 30	HS 30	HS 30
01	SI 24	HS 30	HS 30	HS 30
04	SI 24	SI 24	HS 30	HS 30
0F	SI 24	SI 24	SI 24	HS 30
15	HS 30	HS 30	HS 30	SI 24
1G	HS 30	HS 30	SI 24	SI 24
1K	HS 30	SI 24	SI 24	SI 24
1L	SI 24	SI 24	SI 24	SI 24

02	DUM	HS 30	HS 30	HS 30
06	DUM	SI 24	HS 30	HS 30
0H	DUM	SI 24	SI 24	HS 30
17	DUM	HS 30	HS 30	SI 24
1J	DUM	HS 30	SI 24	SI 24
1N	DUM	SI 24	SI 24	SI 24
0A	DUM	DUM	HS 30	HS 30
0Q	DUM	DUM	SI 24	HS 30
1F	DUM	DUM	HS 30	SI 24
1V	DUM	DUM	SI 24	SI 24
14	DUM	DUM	DUM	HS 30
2L	DUM	DUM	DUM	SI 24

DE	HS 30	HS 30	HS 30	DUM
DF	SI 24	HS 30	HS 30	DUM
DJ	SI 24	SI 24	HS 30	DUM
DR	HS 30	HS 30	SI 24	DUM
DU	HS 30	SI 24	SI 24	DUM
DV	SI 24	SI 24	SI 24	DUM
GG	HS 30	HS 30	DUM	DUM
GH	SI 24	HS 30	DUM	DUM
GK	HS 30	SI 24	DUM	DUM
GL	SI 24	SI 24	DUM	DUM
H5	HS 30	DUM	DUM	DUM
H6	SI 24	DUM	DUM	DUM

Signal 3A & Signal 10A combinations*

Signal male



SI 24

Signal female



SI 24

10A male



10A 4

10A female



10A 4

Dummy



DUM

1L	SI 24	SI 24	SI 24	SI 24
1M	10A 4	SI 24	SI 24	SI 24
1Q	10A 4	10A 4	SI 24	SI 24
21	10A 4	10A 4	10A 4	SI 24
2R	SI 24	SI 24	SI 24	10A 4
32	SI 24	SI 24	10A 4	10A 4
35	SI 24	10A 4	10A 4	10A 4
36	10A 4	10A 4	10A 4	10A 4

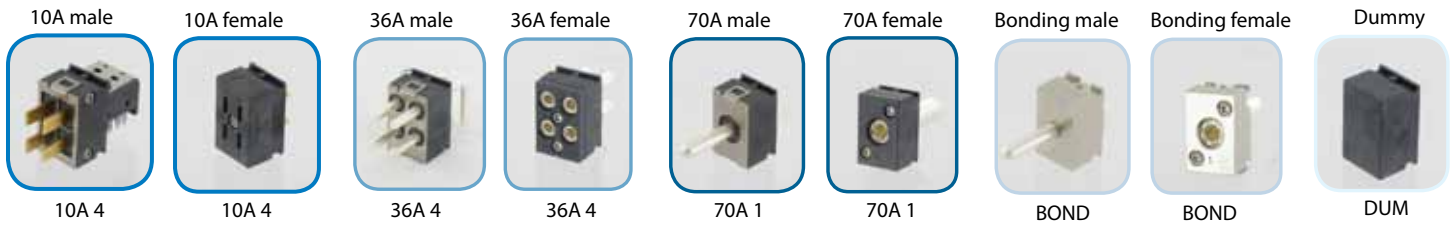
1N	DUM	SI 24	SI 24	SI 24
1R	DUM	10A 4	SI 24	SI 24
22	DUM	10A 4	10A 4	SI 24
2T	DUM	SI 24	SI 24	10A 4
34	DUM	SI 24	10A 4	10A 4
39	DUM	10A 4	10A 4	10A 4
1V	DUM	DUM	SI 24	SI 24
26	DUM	DUM	10A 4	SI 24
30	DUM	DUM	SI 24	10A 4
35	DUM	DUM	10A 4	10A 4
2L	DUM	DUM	DUM	SI 24
66	DUM	DUM	DUM	10A 4

DV	SI 24	SI 24	SI 24	DUM
DW	10A 4	SI 24	SI 24	DUM
DZ	10A 4	10A 4	SI 24	DUM
E6	SI 24	SI 24	10A 4	DUM
E9	SI 24	10A 4	10A 4	DUM
EA	10A 4	10A 4	10A 4	DUM
GL	SI 24	SI 24	DUM	DUM
GM	10A 4	SI 24	DUM	DUM
GP	SI 24	10A 4	DUM	DUM
GQ	10A 4	10A 4	DUM	DUM
H6	SI 24	DUM	DUM	DUM
H7	10A 4	DUM	DUM	DUM

* Thanks to MODUL R design, infinite combinations are allowed. Please consult us if the arrangement required does not figure in the here above how to order.

MODUL R >>> HOW TO ORDER

Power combinations (10A, 36A, 70A & Bonding)*



36	10A 4	10A 4	10A 4	10A 4
37	36A 4	10A 4	10A 4	10A 4
38	70A 1	10A 4	10A 4	10A 4
3A	BOND	10A 4	10A 4	10A 4
3C	36A 4	36A 4	10A 4	10A 4
3D	70A 1	36A 4	10A 4	10A 4
3F	BOND	36A 4	10A 4	10A 4
3J	70A 1	70A 1	10A 4	10A 4
3L	BOND	70A 1	10A 4	10A 4
44	36A 4	36A 4	36A 4	10A 4
45	70A 1	36A 4	36A 4	10A 4
47	BOND	36A 4	36A 4	10A 4
4A	70A 1	70A 1	36A 4	10A 4
4C	BOND	70A 1	36A 4	10A 4
50	70A 1	70A 1	70A 1	10A 4
52	BOND	70A 1	70A 1	10A 4
6U	10A 4	10A 4	10A 4	36A 4
6Y	BOND	10A 4	10A 4	36A 4
7J	10A 4	10A 4	36A 4	36A 4
7N	BOND	10A 4	36A 4	36A 4
7P	10A 4	36A 4	36A 4	36A 4
7Q	36A 4	36A 4	36A 4	36A 4
7R	70A 1	36A 4	36A 4	36A 4
7T	BOND	36A 4	36A 4	36A 4
7W	70A 1	70A 1	36A 4	36A 4
7Y	BOND	70A 1	36A 4	36A 4
A4	10A 4	10A 4	10A 4	70A 1
A8	BOND	10A 4	10A 4	70A 1
AU	10A 4	10A 4	36A 4	70A 1
AY	BOND	10A 4	36A 4	70A 1
AZ	10A 4	36A 4	36A 4	70A 1
BO	36A 4	36A 4	36A 4	70A 1
B3	BOND	36A 4	36A 4	70A 1

BJ	10A 4	10A 4	70A 1	70A 1
BN	BOND	10A 4	70A 1	70A 1
BP	10A 4	36A 4	70A 1	70A 1
BQ	36A 4	36A 4	70A 1	70A 1
BT	BOND	36A 4	70A 1	70A 1
BU	10A 4	70A 1	70A 1	70A 1
BV	36A 4	70A 1	70A 1	70A 1
BW	70A 1	70A 1	70A 1	70A 1
BY	BOND	70A 1	70A 1	70A 1
HY	10A 4	10A 4	10A 4	BOND
HZ	36A 4	10A 4	10A 4	BOND
JO	70A 1	10A 4	10A 4	BOND
J3	36A 4	36A 4	10A 4	BOND
J4	70A 1	36A 4	10A 4	BOND
J8	70A 1	70A 1	10A 4	BOND
JE	10A 4	10A 4	36A 4	BOND
JJ	10A 4	36A 4	36A 4	BOND
JK	36A 4	36A 4	36A 4	BOND
JL	70A 1	36A 4	36A 4	BOND
JQ	70A 1	70A 1	36A 4	BOND
JW	10A 4	10A 4	70A 1	BOND
K0	10A 4	36A 4	70A 1	BOND
K1	36A 4	36A 4	70A 1	BOND
K4	10A 4	70A 1	70A 1	BOND
K5	36A 4	70A 1	70A 1	BOND
K6	70A 1	70A 1	70A 1	BOND
39	DUM	10A 4	10A 4	10A 4
3E	DUM	36A 4	10A 4	10A 4
3K	DUM	70A 1	10A 4	10A 4
46	DUM	36A 4	36A 4	10A 4
4B	DUM	70A 1	36A 4	10A 4
51	DUM	70A 1	70A 1	10A 4
6X	DUM	10A 4	10A 4	10A 4

7M	DUM	10A 4	36A 4	36A 4
7S	DUM	36A 4	36A 4	36A 4
7X	DUM	70A 1	36A 4	36A 4
8M	DUM	70A 1	70A 1	36A 4
A7	DUM	10A 4	10A 4	70A 1
AX	DUM	10A 4	36A 4	70A 1
B2	DUM	36A 4	36A 4	70A 1
BM	DUM	10A 4	70A 1	70A 1
BS	DUM	36A 4	70A 1	70A 1
BX	DUM	70A 1	70A 1	70A 1
J1	DUM	10A 4	10A 4	BOND
JH	DUM	10A 4	36A 4	BOND
JM	DUM	36A 4	36A 4	BOND
JZ	DUM	10A 4	70A 1	BOND
K3	DUM	36A 4	70A 1	BOND
K7	DUM	70A 1	70A 1	BOND
35	DUM	DUM	10A 4	10A 4
7C	DUM	DUM	10A 4	36A 4
82	DUM	DUM	36A 4	36A 4
AN	DUM	DUM	10A 4	70A 1
BC	DUM	DUM	36A 4	70A 1
C2	DUM	DUM	70A 1	70A 1
JD	DUM	DUM	10A 4	BOND
JV	DUM	DUM	36A 4	BOND
KB	DUM	DUM	70A 1	BOND
66	DUM	DUM	DUM	10A 4
9G	DUM	DUM	DUM	36A 4
CS	DUM	DUM	DUM	70A 1
KT	DUM	DUM	DUM	BOND

MODULE COMBINATIONS, EXAMPLES

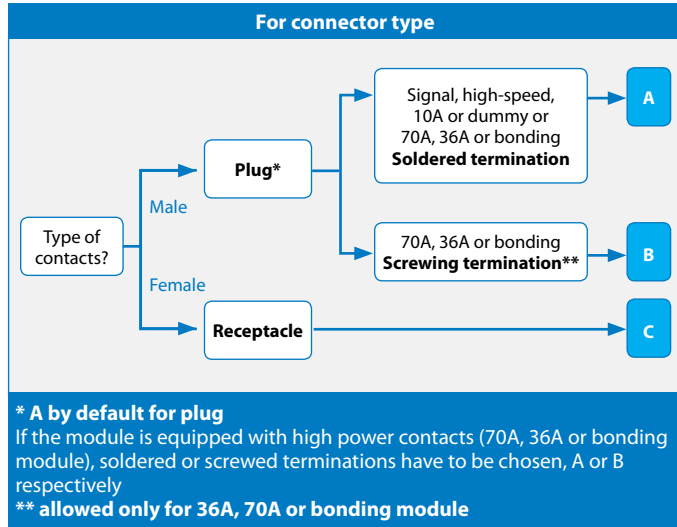
00	High-speed module x4
1L	Signal module x4
36	10A module x4
7Q	36A module x4
7J	10A module x2 + 36A module x2
K6	70A module x3 + bonding module x1

1N	Dummy module x1 + signal module x3
1Q	10A module x2 + signal module x2
35	Signal module x1 + 10A module x3
3F	Bonding module x1 + 36A module x1 + 10A module x2
B2	Dummy module x1 + 36A module x2 + 70A module x1

*Thanks to MODUL R design, infinite combinations are allowed. Please consult us if the arrangement required does not figure in the here above how to order.

MoDuL'R >>> HOW TO ORDER

MODULE ONLY

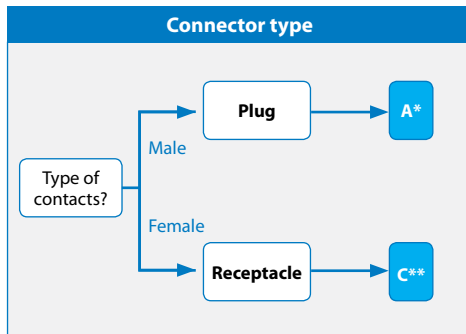


		Module	
		Male	Female
High speed 30 contacts	→ HS 30		
Signal 24 contacts 3A	→ SI 24		
10 A 4 contacts 10A	→ 10A 4		
Dummy No contact	→ DUM		
36 A* 4 contacts 36A	→ 36A 4		
70 A* 1 contact 70A	→ 70A 1		
Bonding* 1 bonding contact 70A	→ BOND		

*** For plug module, soldered or screwed terminations have to be chosen, A or B respectively**

M6 - - - -

HOW TO ORDER SHELL ONLY



***Plug shell is delivered with:**

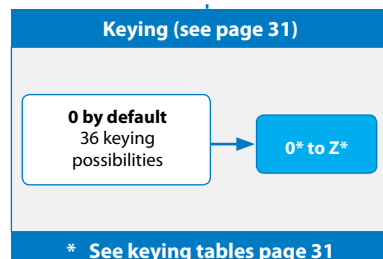
- 1 left mounting pad
- 1 right mounting pad
- 3 central mounting pads
- 2 nuts (for keying)
- 2 keying features
- 4 pins
- 10 screws M1.6
- 2 metallic rails
- 8 grounding springs

****Receptacle shell is delivered with:**

- 1 left mounting pad
- 1 right mounting pad
- 3 central mounting pads
- 2 nuts (for keying)
- 2 keying features
- 4 pins
- 10 screws M1.6
- 2 metallic rails
- 2 male guides

M6 S - -

Shell only



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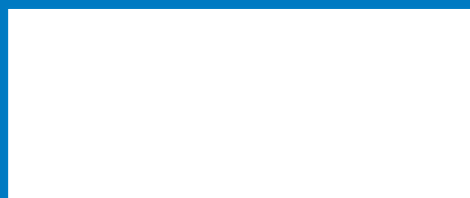
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Edited by **AMPHENOL SOCAPEX** - June 2013

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