

M12 Connectors

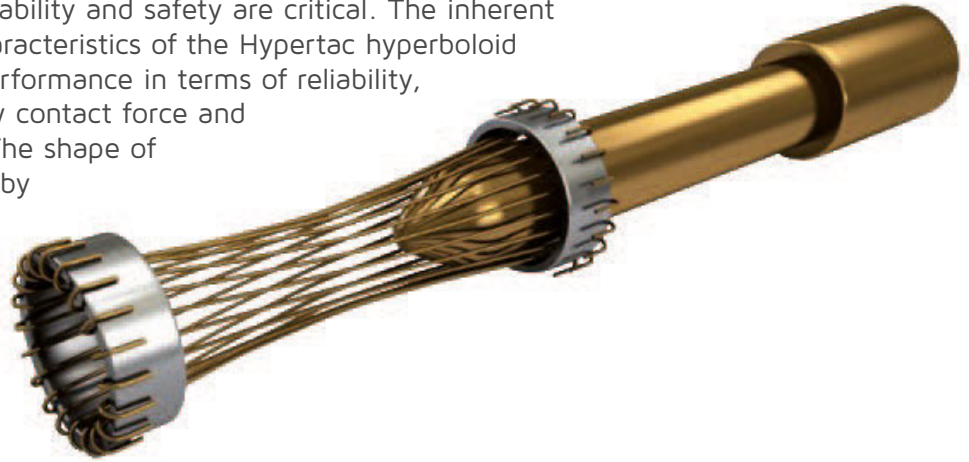
Series W

Robust and Reliable Circular Connectors



Hyperboloid Technology

Smiths Interconnect offers an extensive range of superior contact technologies suitable for standard and custom solutions. Hypertac® (HYPERboloid conTACT) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths.



Features	Benefits
<p>Low insertion/extraction forces</p> <p>The angle of the socket wires allows tight control of the pin insertion and extraction forces. The spring wires are smoothly deflected to make line contact with the pin.</p>	<p>High density interconnect systems</p> <p>Significant reductions in size and weight of sub-system designs. No additional hardware is required to overcome mating and un-mating forces.</p>
<p>Long contact life</p> <p>The smooth and light wiping action minimizes wear on the contact surfaces. Contacts perform up to 100,000 insertion/extraction cycles with minimal degradation in performance.</p>	<p>Low cost of ownership</p> <p>The Hypertac contact technology will surpass most product requirements, thus eliminating the burden and cost of having to replace the connector or the entire subsystem.</p>
<p>Lower contact resistance</p> <p>The design provides a far greater contact area and the wiping action of the wires insures a clean and polished contact surface. Our contact technology has about half the resistance of conventional contact designs.</p>	<p>Low power consumption</p> <p>The lower contact resistance of our technology results in a lower voltage drop across the connector reducing the power consumption and heat generation within the system.</p>
<p>Higher current ratings</p> <p>The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times.</p>	<p>Maximum contact performance</p> <p>The lower contact resistance of the Hypertac contact reduces heat build-up; therefore Hypertac contacts are able to handle far greater current in smaller contact assemblies without the detrimental effects of high temperature.</p>
<p>Immunity to shock & vibration</p> <p>The low mass and resultant low inertia of the wires enable them to follow the most abrupt or extreme excursions of the pin without loss of contact. The contact area extends 360° around the pin and is uniform over its entire length. The 3 dimensional symmetry of the Hypertac contact design guarantees electrical continuity in all circumstances.</p>	<p>Reliability under harsh environments</p> <p>Harsh environmental conditions require connectors that will sustain their electrical integrity even under the most demanding conditions such as shock and vibration. The Hypertac contact provides unmatched stability in demanding environments when failure is not an option.</p>

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M12 Series W

Robust and Reliable Connector System



The Smiths Interconnect M12 series is a robust and compact connectivity solution that has been developed to address specific application environments where space and weight are key concerns. The M12's compact and robust design incorporates the industry-leading Hypertac® hyperboloid contacts that deliver unrivalled performance, ease of use and unparalleled reliability. In real-world industrial operating scenarios, the M12's comprehensive sealing properties deliver a competitive edge by ensuring uninterrupted signal integrity through keeping out dust, moisture, dirt and oil that can corrupt the connection.

The design features a unique side loading contact retention system that provides a positive contact retention and simplifies the assembly process. This simplified approach to contact assembly not only makes the product series very user friendly, but also reduces assembly times. Within a common housing design, the M12 series includes insert options from 3 to 8 ways, with both crimp and solder contact terminations available.

Smiths Interconnect M12 connectors, are ideal for communication applications, including Gigabit internet network on-board, factory automation, drive motors, machine tools, robots, conveyor systems, handling machines and elevators, etc. They all feature outstanding protection against electromagnetic interference through a full 360° screen connection.

A complete range of options and accessories are available as standard, making the series suitable for a wide range of applications. In addition, the total number of components used in the design has been optimized to reduce stocking requirements.

M12 connector system that resists high levels of shock & vibration

Features & Benefits

Hyperboloid Contact System

- Reduced cost of ownership through unrivalled contact performance and reliability
- Machined and stamped hyperboloid contact options
- Floating contacts
- Contacts can be crimped automatically

Superior Design

- 360° EMC shielded connection, protecting against electromechanical interference
- Versatile cable clamp which accommodates cable with shielding braid up to Ø 10mm

Easy of Assembly and Use

- Aesthetically pleasing and compact design
- Typically saves 10% more space than common connectors
- Minimized number of components, simplified assembly and reduced stocking requirements

Enhanced Functionality

- Developing time savings through improved production yields
- Side loading contact retention
- Simplified assembly, high contact retention forces
- Vibration protected

Technical Characteristics

Mechanical

Contact diameter 2, 3, 4, 5poles	Ø 1mm	DIN EN 61076-2-101
Contact diameter 8poles	Ø 0.8mm	DIN EN 61076-2-101
Coding	A-code, D-code	
Mating cycles	>500	
Contact retention force	>20N	EN 61984

Electrical

Current rating	4 A (2...5 contacts) 2 A (6...8 contacts)	
Voltage rating	90 V (5 poles A-code) 250 V 60 V 30 V	NF F 61-030 DIN 61 076-2-101 (4 contacts) DIN 61 076-2-101 (5 contacts) DIN 61 076-2-101 (8 contacts)
Withstanding voltage	2500 V	EN 50124-1
Contact resistance	<7 mΩ	
Insulation resistance	≤9 x 10 ³ MΩ	
Overvoltage category	III	EN 61984

Material & Finishes

Shell	Brass, zinc-diecast	
Machined contacts	CuZn alloy	
Stamped contacts	Tin-bronze, stainless steel	
Insert	PA66, PA6	
Sealing	FPM	
Shell plating	Nickel	
Machined contacts plating	Nickel and gold	
Stamped contacts plating	Partly gold plated	

Physical & Environmental

Operating temperature range	-40°C ... 125°C	
Environmental level	IP67	
Contamination level	3 PD3A	DIN 60664-1 EN 50124-1
Installation altitude	2000 m (2 – 5poles) 6000 m (8poles)	EN 61984
Fluid resistance	Oil, hydrolysis, microbes	
Salt spray	up to 500h	
Fire & Smoke	VO	UL 94
RoHS	Compliant	

How To Order



W

1



2



3



4



5



6



7

1 Connector Family	W	M12 Circular Connectors, Series W [Fixed]		
2 Connector Design	PC	Straight female cable plug	EA	Straight male receptacle, front panel mounting M16x1.5
	PJ	Straight female cable plug with flange	EB	Straight male receptacle, rear panel mounting M16x1.5
	PE	Angled female cable plug	EC	Angled male receptacle, rotatable back-shell
	PL	Right angle female cable plug, rotatable backshell	ED	Straight male receptacle, front panel mounting M12x1
	RC	Straight male cable plug	DA	Panel feed through, female, hexagon wrench size 17, front panel mounting M16x1.5
	RJ	Straight male cable plug with flange	DB	Panel feed through, female, rear panel mounting M16x1.5
	RE	Angled male cable plug	DC	Panel feed through, female, front panel mounting M16x1.5
	RL	Right angle male cable plug, rotatable backshell	DD	Panel feed through, female, rear panel mounting M16x1.5 with grounding pin
				DE
3 Plating	A	nickel plated		
4 Inserts	04A	4way D-coded for sockets, clockwise polarized, for straight female cable plugs	05C	5way A-coded for sockets, clockwise polarized, for panel feed through and 90° female cable plugs
	04B	4way D-coded for pins, counterclockwise polarized, for straight male cable plugs	05D	5way A-coded for pins, counterclockwise polarized, for receptacles and 90° male cable plugs
	04C	4way D-coded for sockets, clockwise polarized, for panel feed through and 90° female cable plugs	08A	8way A-coded for sockets, clockwise polarized, for straight female cable plugs
	04D	4way D-coded for pins, counterclockwise polarized, for receptacles and 90° male cable plugs	08B	8way A-coded for pins, counterclockwise polarized, for straight male cable plugs
	05A	5way A-coded for sockets, clockwise polarized, for straight female cable plugs	08C	8way A-coded for sockets, clockwise polarized, for panel feed through and 90° female cable plugs
	05B	5way A-coded for pins, counterclockwise polarized, for straight male cable plugs	08D	8way A-coded for pins, counterclockwise polarized, for receptacles and 90° male cable plugs

How To Order



W

1



2



3



4



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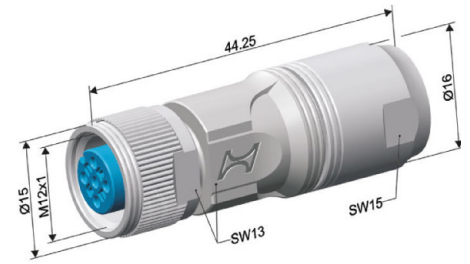
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5 Termination Style	<p>N N N N without contacts (machined or stamped contacts to be ordered separately)</p>	
	<p>F R A N F R B N including Hypertac® hyperboloid sockets Ø 1mm, mandrel crimp barrel</p>	<p>M R A N M R B N including machined pins Ø 1mm, mandrel crimp barrel</p>
	<p>F D A N F D B N including Hypertac® hyperboloid sockets Ø 1mm with solder pin</p>	<p>M D A N M D B N including machined pins Ø 1mm with solder pin</p>
	<p>F R C N F R D N including Hypertac® hyperboloid sockets Ø 0.8mm, mandrel crimp barrel</p>	<p>M R C N M R D N including machined pins Ø 0.8mm, mandrel crimp barrel</p>
	<p>F D E N including Hypertac® hyperboloid sockets Ø 1mm, dip solder for PCB assembly, 90° bent contacts</p>	
6 Cable Clamping	<p>0 0 0 without cable clamp for receptacles and panel feed through</p>	<p>2 9 4 Cable clamp for plugs, cable diameter size Ø 6 - 8 mm</p>
	<p>2 8 3 Cable clamp for plugs, cable diameter size Ø 9 - 10 mm</p>	<p>2 9 3 Cable clamp for plugs, cable diameter size Ø 4.5 - 6 mm</p>
	<p>3 0 8 Cable clamp for plugs, cable diameter size Ø 7.5 - 9 mm</p>	
7 Version Number	<p>0 2 5way insulator partially equipped for 2pole version</p>	<p>0 6 8way insulator partially equipped for 6pole version</p>
	<p>0 3 5way insulator partially equipped for 3pole version</p>	<p>0 7 8way insulator partially equipped for 7pole version</p>
	<p>0 4 5way insulator partially equipped for 4pole version</p>	

Female Cable Plugs

Straight female cable plug - Type PC

Straight female cable plug with coupling ring, shieldable, variable cable clamps



Without Contacts (for ordering Ø 1mm Hypertac® or stamped hyperboloid sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W PC A 04A NNNN 283 (cable diameter size 9 to 10mm) W PC A 04A NNNN 294 (cable diameter size 6 to 8mm) W PC A 04A NNNN 293 (cable diameter size 4.5 to 6mm) W PC A 04A NNNN 308 (cable diameter size 7.5 to 9mm)	without contacts
<p>A-Cod.</p>	5way A-coded	W PC A 05A NNNN 283 (cable diameter size Ø 9 - 10mm) W PC A 05A NNNN 294 (cable diameter size Ø 6 - 8mm) W PC A 05A NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PC A 04A NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 1mm Hypertac® hyperboloid sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W PC A 04A FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PC A 04A FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PC A 04A FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PC A 04A FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	
<p>A-Cod.</p>	5way A-coded	W PC A 05A FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PC A 05A FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PC A 05A FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PC A 05A FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped hyperboloid sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PC A 08A NNNN 283 (cable diameter size Ø 9 - 10mm) W PC A 08A NNNN 294 (cable diameter size Ø 6 - 8mm) W PC A 08A NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PC A 08A NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 0.8mm Hypertac® hyperboloid sockets (AWG 24-20)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PC A 08A FRCN 283 (cable diameter size Ø 9 - 10mm) W PC A 08A FRCN 294 (cable diameter size Ø 6 - 8mm) W PC A 08A FRCN 293 (cable diameter size Ø 4.5 - 6mm) W PC A 08A FRCN 308 (cable diameter size Ø 7.5 - 9mm)	

Ø 0.8mm Hypertac® hyperboloid sockets (AWG 30-22)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PC A 08A FRDN 283 (cable diameter size Ø 9 - 10mm) W PC A 08A FRDN 294 (cable diameter size Ø 6 - 8mm) W PC A 08A FRDN 293 (cable diameter size Ø 4.5 - 6mm) W PC A 08A FRDN 308 (cable diameter size Ø 7.5 - 9mm)	

Female Cable Plugs

Straight female cable plug - Type PJ

Straight female cable plug with external thread, flange mounting, shieldable, variable cable clamps



Without Contacts (for ordering Ø 1mm Hypertac® or stamped hyperboloid sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W PJ A 04A NNNN 283 (cable diameter size Ø 9 - 10mm) W PJ A 04A NNNN 294 (cable diameter size Ø 6 - 8mm) W PJ A 04A NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PJ A 04A NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts
<p>A-Cod.</p>	5way A-coded	W PJ A 05A NNNN 283 (cable diameter size Ø 9 - 10mm) W PJ A 05A NNNN 294 (cable diameter size Ø 6 - 8mm) W PJ A 05A NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PJ A 05A NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 1mm Hypertac® hyperboloid sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W PJ A 04A FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PJ A 04A FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PJ A 04A FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PJ A 04A FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	
<p>A-Cod.</p>	5way A-coded	W PJ A 05A FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PJ A 05A FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PJ A 05A FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PJ A 05A FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped hyperboloid sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PJ A 08A NNNN 283 (cable diameter size Ø 9 - 10mm) W PJ A 08A NNNN 294 (cable diameter size Ø 6 - 8mm) W PJ A 08A NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PJ A 08A NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 0.8mm Hypertac® hyperboloid sockets (AWG 24-20)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PJ A 08A FRCN 283 (cable diameter size Ø 9 - 10mm) W PJ A 08A FRCN 294 (cable diameter size Ø 6 - 8mm) W PJ A 08A FRCN 293 (cable diameter size Ø 4.5 - 6mm) W PJ A 08A FRCN 308 (cable diameter size Ø 7.5 - 9mm)	

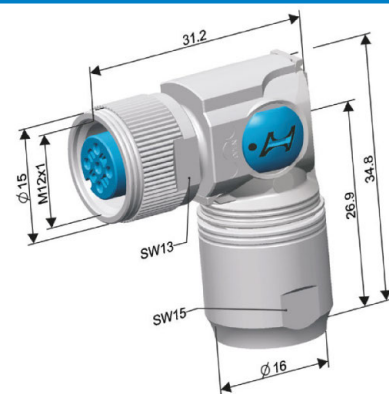
Ø 0.8mm Hypertac® hyperboloid sockets (AWG 30-22)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PJ A 08A FRDN 283 (cable diameter size Ø 9 - 10mm) W PJ A 08A FRDN 294 (cable diameter size Ø 6 - 8mm) W PJ A 08A FRDN 293 (cable diameter size Ø 4.5 - 6mm) W PJ A 08A FRDN 308 (cable diameter size Ø 7.5 - 9mm)	

Female Cable Plugs

Angled female cable plug - Type PE

90° female cable plug with coupling ring, shieldable, variable cable clamps



Without Contacts (for ordering Ø 1mm Hypertac® or stamped hyperboloid sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W PE A 04C NNNN 283 (cable diameter size Ø 9 - 10mm) W PE A 04C NNNN 294 (cable diameter size Ø 6 - 8mm) W PE A 04C NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PE A 04C NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts
<p>A-Cod.</p>	5way A-coded	W PE A 05C NNNN 283 (cable diameter size Ø 9 - 10mm) W PE A 05C NNNN 294 (cable diameter size Ø 6 - 8mm) W PE A 05C NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PE A 05C NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 1mm Hypertac® hyperboloid sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W PE A 04C FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PE A 04C FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PE A 04C FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PE A 04C FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	
<p>A-Cod.</p>	5way A-coded	W PE A 05C FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PE A 05C FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PE A 05C FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PE A 05C FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped hyperboloid sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PE A 08C NNNN 283 (cable diameter size Ø 9 - 10mm) W PE A 08C NNNN 294 (cable diameter size Ø 6 - 8mm) W PE A 08C NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PE A 08C NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 0.8mm Hypertac® hyperboloid sockets (AWG 24-20)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PE A 08C FRCN 283 (cable diameter size Ø 9 - 10mm) W PE A 08C FRCN 294 (cable diameter size Ø 6 - 8mm) W PE A 08C FRCN 293 (cable diameter size Ø 4.5 - 6mm) W PE A 08C FRCN 308 (cable diameter size Ø 7.5 - 9mm)	

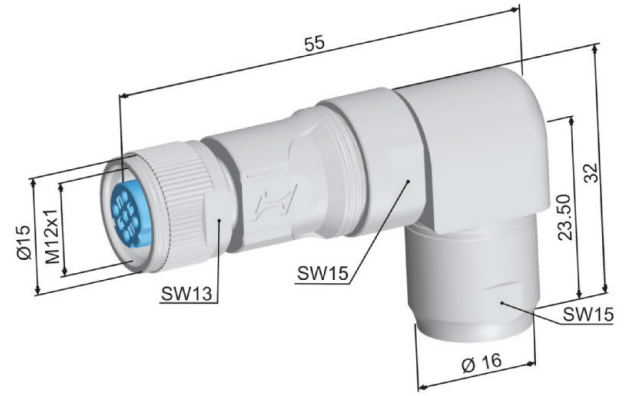
Ø 0.8mm Hypertac® hyperboloid sockets (AWG 30-22)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PE A 08C FRDN 283 (cable diameter size Ø 9 - 10mm) W PE A 08C FRDN 294 (cable diameter size Ø 6 - 8mm) W PE A 08C FRDN 293 (cable diameter size Ø 4.5 - 6mm) W PE A 08C FRDN 308 (cable diameter size Ø 7.5 - 9mm)	

Female Cable Plugs

Angled female cable plug, rotatable backshell - Type PL

90° angled female cable plug with coupling ring, shieldable, variable cable clamps, rotatable backshell. Rotatable connector backshell offers customer-configurable cable outlet direction. The outlet directions can be adjusted in 12 steps of 30° to a maximum angle of 330°.



Without Contacts (for ordering Ø 1 mm Hypertac® sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W PL A 04A NNNN 283 (cable diameter size 9 to 10mm) W PL A 04A NNNN 294 (cable diameter size 6 to 8mm) W PL A 04A NNNN 293 (cable diameter size 4.5 to 6mm) W PL A 04A NNNN 308 (cable diameter size 7.5 to 9mm)	without contacts
<p>A-Cod.</p>	5way A-coded	W PL A 05A NNNN 283 (cable diameter size Ø 9 - 10mm) W PL A 05A NNNN 294 (cable diameter size Ø 6 - 8mm) W PL A 05A NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PL A 04A NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 1mm Hypertac® hyperboloid sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W PL A 04A FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PL A 04A FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PL A 04A FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PL A 04A FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	
<p>A-Cod.</p>	5way A-coded	W PL A 05A FRAN 283 .. (cable diameter size Ø 9 - 10mm) W PL A 05A FRAN 294 .. (cable diameter size Ø 6 - 8mm) W PL A 05A FRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W PL A 05A FRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped hyperboloid sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PL A 08A NNNN 283 (cable diameter size Ø 9 - 10mm) W PL A 08A NNNN 294 (cable diameter size Ø 6 - 8mm) W PL A 08A NNNN 293 (cable diameter size Ø 4.5 - 6mm) W PL A 08A NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 0.8mm Hypertac® hyperboloid sockets (AWG 24-20)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PL A 08A FRCN 283 (cable diameter size Ø 9 - 10mm) W PL A 08A FRCN 294 (cable diameter size Ø 6 - 8mm) W PL A 08A FRCN 293 (cable diameter size Ø 4.5 - 6mm) W PL A 08A FRCN 308 (cable diameter size Ø 7.5 - 9mm)	

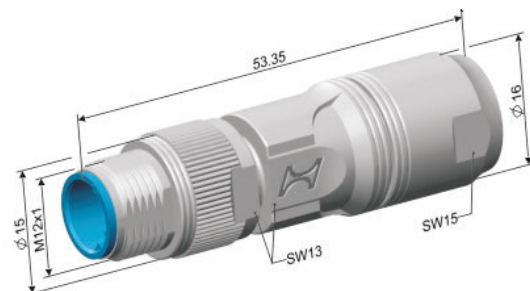
Ø 0.8mm Hypertac® hyperboloid sockets (AWG 30-22)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W PL A 08A FRDN 283 (cable diameter size Ø 9 - 10mm) W PL A 08A FRDN 294 (cable diameter size Ø 6 - 8mm) W PL A 08A FRDN 293 (cable diameter size Ø 4.5 - 6mm) W PL A 08A FRDN 308 (cable diameter size Ø 7.5 - 9mm)	

Male Cable Plugs

Straight male cable plug - Type RC

Straight male cable plug with external thread, shieldable, variable cable clamps



Without Contacts (for ordering Ø 1mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W RC A 04B NNNN 283 (cable diameter size Ø 9 - 10mm) W RC A 04B NNNN 294 (cable diameter size Ø 6 - 8mm) W RC A 04B NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RC A 04B NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts
<p>A-Cod.</p>	5way A-coded	W RC A 05B NNNN 283 (cable diameter size Ø 9 - 10mm) W RC A 05B NNNN 294 (cable diameter size Ø 6 - 8mm) W RC A 05B NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RC A 05B NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 1mm machined pins (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W RC A 04B MRAN 283 .. (cable diameter size Ø 9 - 10mm) W RC A 04B MRAN 294 .. (cable diameter size Ø 6 - 8mm) W RC A 04B MRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W RC A 04B MRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	
<p>A-Cod.</p>	5way A-coded	W RC A 05B MRAN 283 .. (cable diameter size Ø 9 - 10mm) W RC A 05B MRAN 294 .. (cable diameter size Ø 6 - 8mm) W RC A 05B MRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W RC A 05B MRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	

Without Contacts (for ordering Ø 0.8mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RC A 08B NNNN 283 (cable diameter size Ø 9 - 10mm) W RC A 08B NNNN 294 (cable diameter size Ø 6 - 8mm) W RC A 08B NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RC A 08B NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 0.8mm machined pins (AWG 24-20)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RC A 08B MRCN 283 (cable diameter size Ø 9 - 10mm) W RC A 08B MRCN 294 (cable diameter size Ø 6 - 8mm) W RC A 08B MRCN 293 (cable diameter size Ø 4.5 - 6mm) W RC A 08B MRCN 308 (cable diameter size Ø 7.5 - 9mm)	

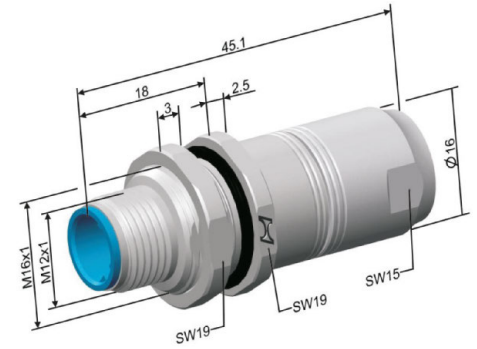
Ø 0.8mm machined pins (AWG 30-22)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RC A 08B MRDN 283 (cable diameter size Ø 9 - 10mm) W RC A 08B MRDN 294 (cable diameter size Ø 6 - 8mm) W RC A 08B MRDN 293 (cable diameter size Ø 4.5 - 6mm) W RC A 08B MRDN 308 (cable diameter size Ø 7.5 - 9mm)	

Male Cable Plugs

Straight male cable plug - Type RJ

Straight male cable plug with external thread, flange mounting, shieldable, variable cable clamps



Without Contacts (for ordering Ø 1 mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
	4way D-coded	W RJ A 04B NNNN 283 00 A1(cable diameter size 9 to 10mm)	without contacts

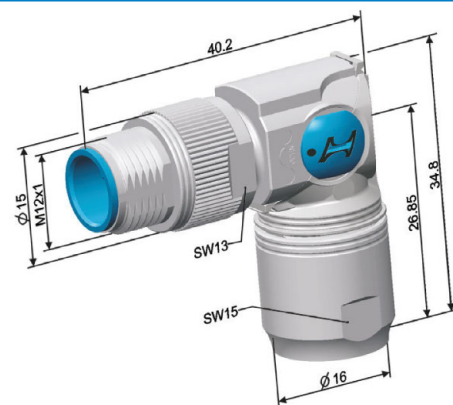
Ø 1 mm machined Pins (AWG 24-18)

Insert	Type	Part Number	Contacts
	4way D-coded	W RJ A 04B MRAN 283 (cable diameter size 9 to 10mm) W RJ A 04B MRAN 294 (cable diameter size 4.5 to 6mm)	

Male Cable Plugs

Angled male cable plug - Type RE

90° male cable plug with external thread, shieldable, variable cable clamps



Without Contacts (for ordering Ø 1mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W RE A 04D NNNN 283 (cable diameter size Ø 9 - 10mm) W RE A 04D NNNN 294 (cable diameter size Ø 6 - 8mm) W RE A 04D NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RE A 04D NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts
<p>A-Cod.</p>	5way A-coded	W RE A 05D NNNN 283 (cable diameter size Ø 9 - 10mm) W RE A 05D NNNN 294 (cable diameter size Ø 6 - 8mm) W RE A 05D NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RE A 05D NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 1mm machined pins (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W RE A 04D MRAN 283 .. (cable diameter size Ø 9 - 10mm) W RE A 04D MRAN 294 .. (cable diameter size Ø 6 - 8mm) W RE A 04D MRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W RE A 04D MRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	
<p>A-Cod.</p>	5way A-coded	W RE A 05D MRAN 283 .. (cable diameter size Ø 9 - 10mm) W RE A 05D MRAN 294 .. (cable diameter size Ø 6 - 8mm) W RE A 05D MRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W RE A 05D MRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	

Without Contacts (for ordering Ø 0.8mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RE A 08D NNNN 283 (cable diameter size Ø 9 - 10mm) W RE A 08D NNNN 294 (cable diameter size Ø 6 - 8mm) W RE A 08D NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RE A 08D NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 0.8mm machined pins (AWG 24-20)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RE A 08D MRCN 283 (cable diameter size Ø 9 - 10mm) W RE A 08D MRCN 294 (cable diameter size Ø 6 - 8mm) W RE A 08D MRCN 293 (cable diameter size Ø 4.5 - 6mm) W RE A 04D MRCN 308 (cable diameter size Ø 7.5 - 9mm)	

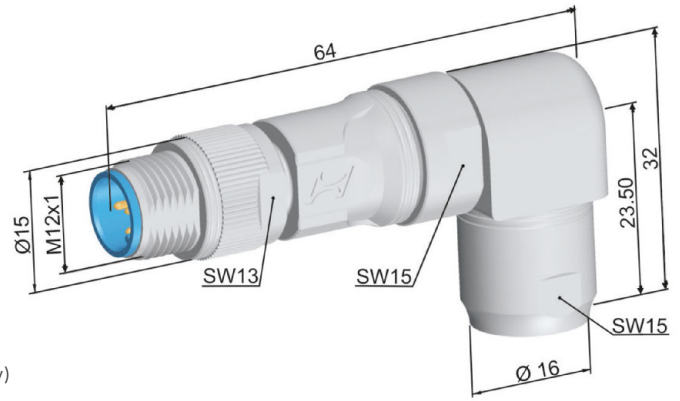
Ø 0.8mm machined pins (AWG 30-22)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RE A 08D MRDN 283 (cable diameter size Ø 9 - 10mm) W RE A 08D MRDN 294 (cable diameter size Ø 6 - 8mm) W RE A 08D MRDN 293 (cable diameter size Ø 4.5 - 6mm) W RE A 04D MRDN 308 (cable diameter size Ø 7.5 - 9mm)	

Male Cable Plugs

Angled male cable plug, rotatable backshell - Type RL

90° angled male cable plug with coupling ring, shieldable, variable cable clamps, rotatable backshell. Rotatable connector backshell offers customer-configurable cable outlet direction. The outlet directions can be adjusted in 12 steps of 30° to a maximum angle of 330°.



Without Contacts (for ordering Ø 1mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W RL A 04B NNNN 283 (cable diameter size Ø 9 - 10mm) W RL A 04B NNNN 294 (cable diameter size Ø 6 - 8mm) W RL A 04B NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RL A 04B NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts
<p>A-Cod.</p>	5way A-coded	W RL A 05B NNNN 283 (cable diameter size Ø 9 - 10mm) W RL A 05B NNNN 294 (cable diameter size Ø 6 - 8mm) W RL A 05B NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RL A 05B NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 1mm machined pins (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W RL A 04B MRAN 283 .. (cable diameter size Ø 9 - 10mm) W RL A 04B MRAN 294 .. (cable diameter size Ø 6 - 8mm) W RL A 04B MRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W RL A 04B MRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	
<p>A-Cod.</p>	5way A-coded	W RL A 05B MRAN 283 .. (cable diameter size Ø 9 - 10mm) W RL A 05B MRAN 294 .. (cable diameter size Ø 6 - 8mm) W RL A 05B MRAN 293 .. (cable diameter size Ø 4.5 - 6mm) W RL A 05B MRAN 308 .. (cable diameter size Ø 7.5 - 9mm)	

Without Contacts (for ordering Ø 0.8mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RL A 08B NNNN 283 (cable diameter size Ø 9 - 10mm) W RL A 08B NNNN 294 (cable diameter size Ø 6 - 8mm) W RL A 08B NNNN 293 (cable diameter size Ø 4.5 - 6mm) W RL A 08B NNNN 308 (cable diameter size Ø 7.5 - 9mm)	without contacts

Ø 0.8mm machined pins (AWG 24-20)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RL A 08B MRCN 283 (cable diameter size Ø 9 - 10mm) W RL A 08B MRCN 294 (cable diameter size Ø 6 - 8mm) W RL A 08B MRCN 293 (cable diameter size Ø 4.5 - 6mm) W RL A 08B MRCN 308 (cable diameter size Ø 7.5 - 9mm)	

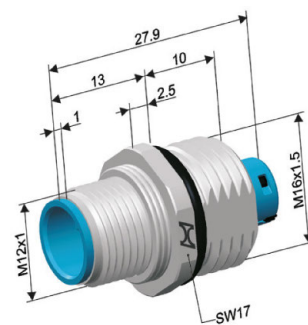
Ø 0.8mm machined pins (AWG 30-22)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W RL A 08B MRDN 283 (cable diameter size Ø 9 - 10mm) W RL A 08B MRDN 294 (cable diameter size Ø 6 - 8mm) W RL A 08B MRDN 293 (cable diameter size Ø 4.5 - 6mm) W RL A 08B MRDN 308 (cable diameter size Ø 7.5 - 9mm)	

Male Receptacles

Straight male receptacle - Type EA

Straight male receptacle, front panel mounting M16x1.5



Without Contacts (for ordering Ø 1mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W EA A 04D NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W EA A 05D NNNN 000	without contacts

Ø 1mm machined pins (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W EA A 04D MRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W EA A 05D MRAN 000 ..	

Ø 1mm machined pins (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W EA A 04D MDAN 000 .. (length X = 8mm) W EA A 04D MDBN 000 .. (length X = 6mm)	
<p>A-Cod.</p>	5way A-coded	W EA A 05D MDAN 000 .. (length X = 8mm) W EA A 05D MDBN 000 .. (length X = 6mm)	

Without Contacts (for ordering Ø 0.8mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W EA A 08D NNNN 000	without contacts

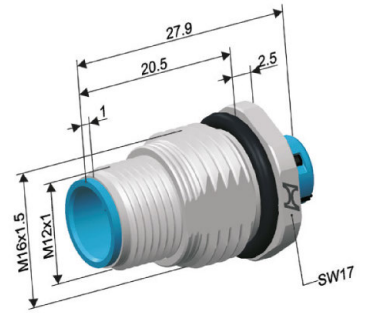
Ø 0.8mm machined pins

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W EA A 08D MRCN 000 (AWG 24-20) W EA A 08D MRDN 000 (AWG 30-22)	

Male Receptacles

Straight male receptacle - Type EB

Straight male receptacle, rear panel mounting M16x1.5



Without Contacts (for ordering Ø 1mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W EB A 04D NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W EB A 05D NNNN 000	without contacts

Ø 1mm machined pins (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W EB A 04D MRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W EB A 05D MRAN 000 ..	

Ø 1mm machined pins (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W EB A 04D MDAN 000 .. (length X = 8mm) W EB A 04D MDBN 000 .. (length X = 6mm)	
<p>A-Cod.</p>	5way A-coded	W EB A 05D MDAN 000 .. (length X = 8mm) W EB A 05D MDBN 000 .. (length X = 6mm)	

Without Contacts (for ordering Ø 0.8mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W EB A 08D NNNN 000	without contacts

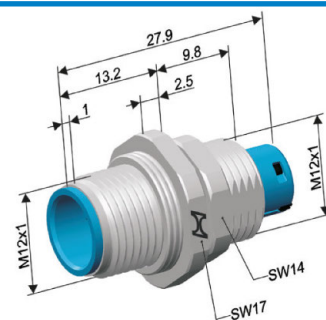
Ø 0.8mm machined pins

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W EB A 08D MRCN 000 (AWG 24-20) W EB A 08D MRDN 000 (AWG 30-22)	

Male Receptacles

Straight male receptacle - Type ED

Straight male receptacle, front panel mounting M12x1



Without Contacts (for ordering Ø 1mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W ED A 04D NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W ED A 05D NNNN 000	without contacts

Ø 1mm machined pins (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W ED A 04D MRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W ED A 05D MRAN 000 ..	

Ø 1mm machined pins (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W ED A 04D MDAN 000 .. (length X = 8mm) W ED A 04D MDBN 000 .. (length X = 6mm)	
<p>A-Cod.</p>	5way A-coded	W ED A 05D MDAN 000 .. (length X = 8mm) W ED A 05D MDBN 000 .. (length X = 6mm)	

Without Contacts (for ordering Ø 0.8mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W ED A 08D NNNN 000	without contacts

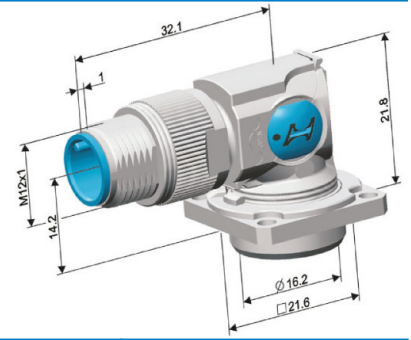
Ø 0.8mm machined pins

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W ED A 08D MRCN 000 (AWG 24-20) W ED A 08D MRDN 000 (AWG 30-22)	

Male Receptacles

Angled male receptacle - Type EC

90° male receptacle, flange mounting, rotatable back-shell 0° - 330°



Without Contacts (for ordering Ø 1mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W EC A 04D NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W EC A 05D NNNN 000	without contacts

Ø 1mm machined pins (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W EC A 04D MRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W EC A 05D MRAN 000 ..	

Without Contacts (for ordering Ø 0.8mm machined or stamped pins separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W EC A 08D NNNN 000	without contacts

Ø 0.8mm machined sockets

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W EC A 08D MRCN 000 (AWG 24-20) W EC A 08D MRDN 000 (AWG 30-22)	

Female Panel Feed Through

Straight panel feed through - Type DA

Panel feed through, female, hexagon wrench size 17, front panel mounting M16x1.5



Without Contacts (for ordering Ø 1mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W DA A 04C NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W DA A 05C NNNN 000	without contacts

Ø 1mm Hypertac® sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DA A 04C FRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W DA A 05C FRAN 000 ..	

Ø 1mm Hypertac® sockets (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DA A 04C FDAN 000 .. (length X = 8mm) W DA A 04C FDBN 000 .. (length X = 6mm)	
<p>A-Cod.</p>	5way A-coded	W DA A 05C FDAN 000 .. (length X = 8mm) W DA A 05C FDBN 000 .. (length X = 6mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DA A 08C NNNN 000	without contacts

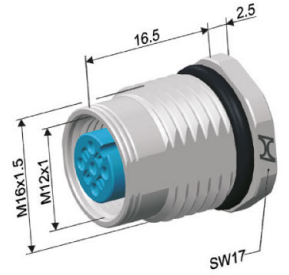
Ø 0.8mm Hypertac® sockets

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DA A 08C FRCN 000 (AWG 24-20) W DA A 08C FRDN 000 (AWG 30-22)	

Female Panel Feed Through

Straight panel feed through - Type DB

Panel feed through, female, rear panel mounting M16x1.5



Without Contacts (for ordering Ø 1mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W DB A 04C NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W DB A 05C NNNN 000	without contacts

Ø 1mm Hypertac® sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DB A 04C FRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W DB A 05C FRAN 000 ..	

Ø 1mm Hypertac® sockets (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DB A 04C FDAN 000 .. (length X = 8mm) W DB A 04C FDBN 000 .. (length X = 6mm)	
<p>A-Cod.</p>	5way A-coded	W DB A 05C FDAN 000 .. (length X = 8mm) W DB A 05C FDBN 000 .. (length X = 6mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DB A 08C NNNN 000	without contacts

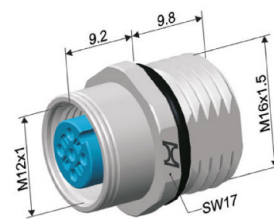
Ø 0.8mm Hypertac® sockets

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DB A 08C FRCN 000 (AWG 24-20) W DB A 08C FRDN 000 (AWG 30-22)	

Female Panel Feed Through

Straight panel feed through - Type DC

Panel feed through, female, front panel mounting M16x1.5



Without Contacts (for ordering Ø 1mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W DC A 04C NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W DC A 05C NNNN 000	without contacts

Ø 1mm Hypertac® sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DC A 04C FRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W DC A 05C FRAN 000 ..	

Ø 1mm Hypertac® sockets (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DC A 04C FDAN 000 .. (length X = 8mm) W DC A 04C FDBN 000 .. (length X = 6mm)	
<p>A-Cod.</p>	5way A-coded	W DC A 05C FDAN 000 .. (length X = 8mm) W DC A 05C FDBN 000 .. (length X = 6mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DC A 08C NNNN 000	without contacts

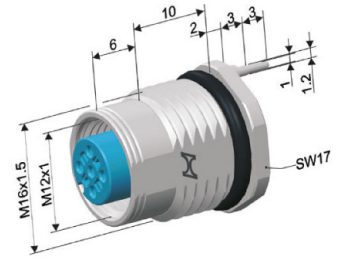
Ø 0.8mm Hypertac® sockets

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DC A 08C FRCN 000 (AWG 24-20) W DC A 08C FRDN 000 (AWG 30-22)	

Female Panel Feed Through

Straight panel feed through - Type DD

Panel feed through, female, rear panel mounting M16x1.5, with grounding pin



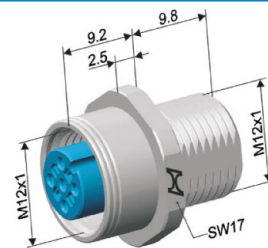
Ø 1mm Hypertac® sockets (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	<p>W DD A 04C FDAN 000 .. (length X = 8mm)</p> <p>W DD A 04C FDBN 000 .. (length X = 6mm)</p>	
<p>A-Cod.</p>	5way A-coded	<p>W DD A 05C FDAN 000 .. (length X = 8mm)</p> <p>W DD A 05C FDBN 000 .. (length X = 6mm)</p>	

Female Panel Feed Through

Straight panel feed through - Type DE

Panel feed through, female, front panel mounting M12x1



Without Contacts (for ordering Ø 1mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>D-Cod.</p>	4way D-coded	W DE A 04C NNNN 000	without contacts
<p>A-Cod.</p>	5way A-coded	W DE A 05C NNNN 000	without contacts

Ø 1mm Hypertac® sockets (AWG 24-18)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DE A 04C FRAN 000 ..	
<p>A-Cod.</p>	5way A-coded	W DE A 05C FRAN 000 ..	

Ø 1mm Hypertac® sockets (solder dip, for pcb assembly, solder pin Ø 1mm)

Insert	Type	Part Number ¹	Contacts
<p>D-Cod.</p>	4way D-coded	W DE A 04C FDAN 000 .. (length X = 8mm) W DE A 04C FDBN 000 .. (length X = 6mm)	
<p>A-Cod.</p>	5way A-coded	W DE A 05C FDAN 000 .. (length X = 8mm) W DE A 05C FDBN 000 .. (length X = 6mm)	

Without Contacts (for ordering Ø 0.8mm Hypertac® or stamped sockets separately)

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DE A 08C NNNN 000	without contacts

Ø 0.8mm Hypertac® sockets

Insert	Type	Part Number	Contacts
<p>A-Cod.</p>	8way A-coded	W DE A 08C FRCN 000 (AWG 24-20) W DE A 08C FRDN 000 (AWG 30-22)	

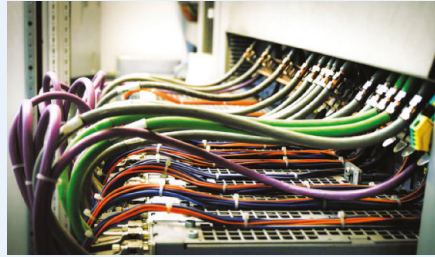
Applications

Rolling Stock



- Driver Cabin
- Lightning
- Alarms
- Sensors
- Electromagnetic Valves

Signalling



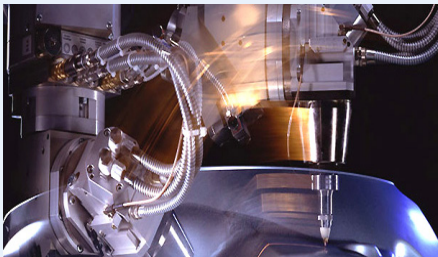
- Digital Tracking
- Communication-based Train Control
- Passenger Information Systems
- Passenger Entertainment

Rail Infrastructure



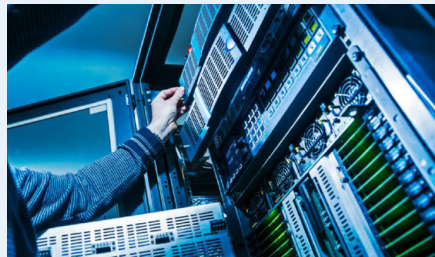
- Video Surveillance
- Ticketing Machines
- Electronic Displays

Machinery



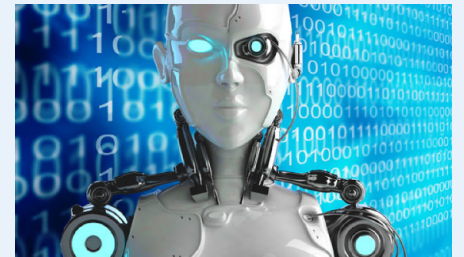
- Processing Equipment
- Manufacturing Machine Tools
- Production Test Equipment
- Bespoke OEM Production Equipment

Factory Automation



- Control Equipment
- Network Components
- Sensors and Actuators
- Servomotors and Drives
- Inverters

Test Equipment




- Test Bench
- Encoders
- Simulators
- Probers

Contacts

Hypertac® hyperboloid sockets

Hypertac® Ø 1 mm crimp contacts

Type	Termination Cross Section	Part Number	Ordering	Part Number Crimping Tool	Layout
Hyperboloid socket	AWG 24-18 0.24-1.0 mm ²	020.001022.1020	FRAN	B151 + B200	
Hyperboloid socket	AWG 30-22 0.05-0.34 mm ²	020.000353.1020	FRBN	B150 + B055/A	
Pin	AWG 24-18 0.24-1.0 mm ²	021.001039.1020	MRAN	B151 + B200	
Pin	AWG 30-22 0.05-0.34 mm ²	021.000402.1020	MRBN	B150 + B055/A	

Hypertac® Ø 0.8 mm crimp contacts

Type	Termination Cross Section	Part Number	Ordering	Part Number Crimping Tool	Layout
Hyperboloid socket	AWG 24-20 0.24-0.5 mm ²	020.001024.1020	FRCN	B151 + B200	
Hyperboloid socket	AWG 30-22 0.05-0.34 mm ²	020.001027.1020	FRDN	B150 + B395	
Pin	AWG 24-20 0.24-0.5 mm ²	021.001044.1020	MRCN	B151 + B200	
Pin	AWG 30-22 0.05-0.34 mm ²	021.001045.1020	MRDN	B150 + B395	







Hypertac® Ø 1 mm with straight solder pin

Type	Solder pin lengths x	Part Number	Ordering	Solder Pin Ø	Layout
Hyperboloid socket	solder pin 8 mm	090.000029.2000	FDAN	1 mm	
Hyperboloid socket	solder pin 6 mm	090.000030.2000	FDBN	1 mm	
Pin	solder pin 8 mm	070.000011.2000	MDAN	1 mm	
Pin	solder pin 6 mm	070.000012.2000	MDBN	1 mm	







Contacts

Stamped hyperboloid crimp contacts HCS™

HCS™ Ø 1mm stamped crimp contacts





Type	Termination Cross Section	Part Number Reel 9,000 pcs.	Part Number Reel 300 pcs.	Part Number Crimping Tool	Layout
Hyperboloid socket	AWG 32-28 0.03-0.08 mm ²	020.000376.2000	020.000376.2000.A2	B287/32 - 28	
Hyperboloid socket	AWG 28-24 0.08-0.2 mm ²	020.000377.2000	020.000377.2000.A2	B287/28 - 24	
Hyperboloid socket	AWG 24-20 0.2-0.5 mm ²	020.000378.2000	020.000378.2000.A2	B287/24 - 20	
Round pin	AWG 32-28 0.03-0.08 mm ²	021.001005.1025	021.001005.1025.A2	B287/32 - 28	
Round pin	AWG 28-24 0.08-0.2 mm ²	021.001006.1025	021.001006.1025.A2	B287/28 - 24	
Round pin	AWG 24-20 0.2-0.5 mm ²	021.001007.1025	021.001007.1025.A2	B287/24 - 20	

HCS™ Ø 0.8mm stamped crimp contacts


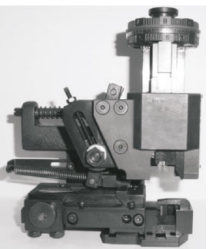
Type	Termination Cross Section	Part Number Reel 9,000 pcs.	Part Number Reel 300 pcs.	Part Number Crimping Tool	Layout
Hyperboloid socket	AWG 32-28 0.03-0.08 mm ²	020.001018.2000	020.001018.2000.A2	B287/32-28	
Hyperboloid socket	AWG 28-24 0.08-0.2 mm ²	020.001019.2000	020.001019.2000.A2	B287/28-24	
Hyperboloid socket	AWG 24-20 0.2-0.5 mm ²	020.001020.2000	020.001020.2000.A2	B287/24-20	
Round pin	AWG 32-28 0.03-0.08 mm ²	021.001035.1025	021.001035.1025.A2	B287/32-28	
Round pin	AWG 28-24 0.08-0.2 mm ²	021.001036.1025	021.001036.1025.A2	B287/28-24	
Round pin	AWG 24-20 0.2-0.5 mm ²	021.001037.1025	021.001037.1025.A2	B287/24-20	

Tools

Crimping tools for Hypertac® contacts

Type	Part Number	
Hand crimping tool	B151	
Positioner	B200	
Hand crimping tool	B150	
Positioner	B055/A (Ø 1mm contacts)	
	B395 (Ø 0.8mm contacts)	

Crimping tools for stamped contacts

Type	Part Number	Termination Cross Section	
Hand crimping tools with feeder line for 300 pcs. reels	B287/32 - 28	0.03 - 0.08mm ² (AWG 32-28)	
	B287/28 - 24	0.08 - 0.2mm ² (AWG 28-24)	
	B287/24 - 20	0.2 - 0.5mm ² (AWG 24-20)	
Applicators for crimping machines with feeder line AMP/Schäfer ESP 100	B288/32 - 28	0.03 - 0.08mm ² (AWG 32-28)	
	B288/28 - 24	0.08 - 0.2mm ² (AWG 28-24)	
	B288/24 - 20	0.2 - 0.5mm ² (AWG 24-20)	

Additional Services & Accessoires

Additional Services (please contact factory for individual order code)

Type	Available	
Color coded contact support	on request	
Coupling nut marked with calendar week and year (CWYY)	Straight cable plug Type RC WRCA 04 / 05 / 08 on request	

Cable clamps

Type	Part Number	
For cable plugs	.293 ø 4.5 - 6mm	
	.294 ø 6 - 8mm	
	.283 ø 9 - 10mm	
	.308 ø 7.5 - 9mm	

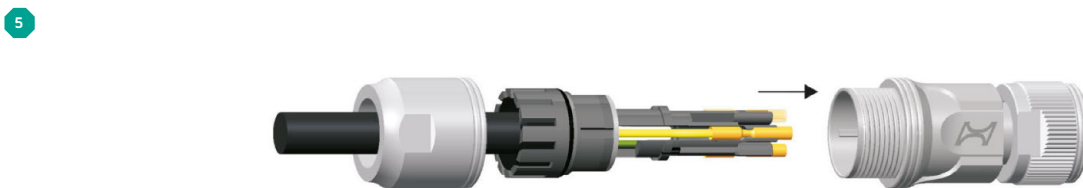
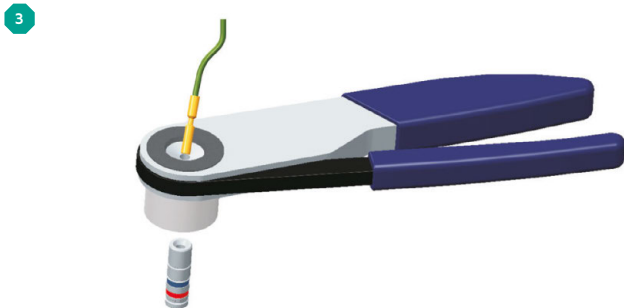
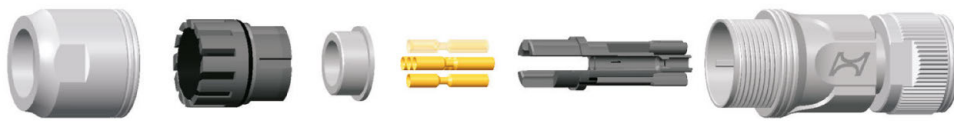
Accessoires

Type	Part Number	
Protection caps	031.294.1000 (for solder pins)	
	031.001087.1000 (for external threads)	
Dust shield caps	C/BEL/9 (for male cable plugs)	
	007.001182.1002 (for female cable plugs)	

Assembly instructions

Straight female cable plug Type PC, PJ

Stripping Length		
	Hypertac® contacts	Stamped Contacts
x	4mm	3mm
A	23mm	



Assembly instructions

Angled female cable plug Type PE

Stripping Length		
	Hypertac® contacts	Stamped Contacts
x	3mm	4mm
A	35mm	

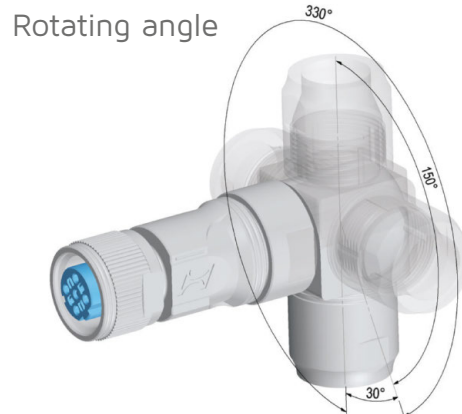
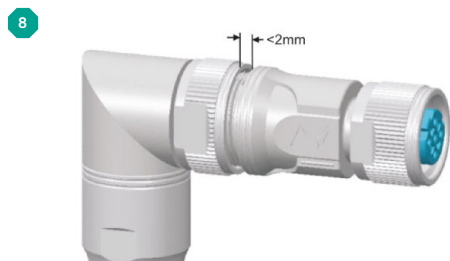
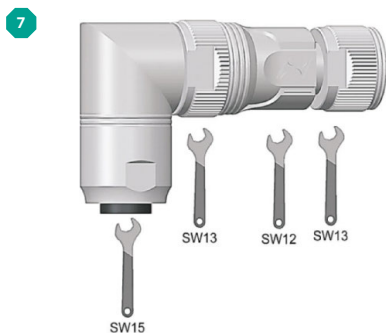
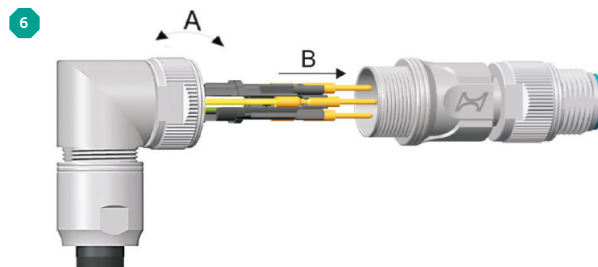
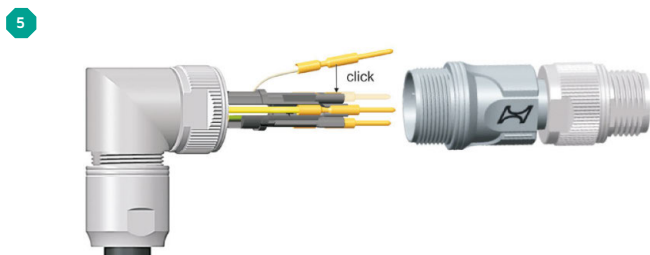
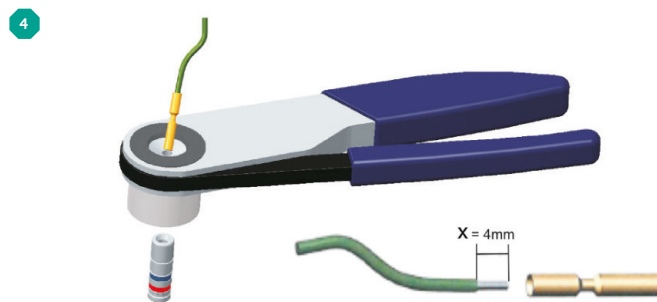
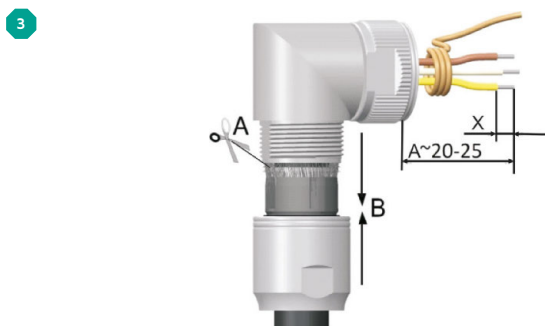
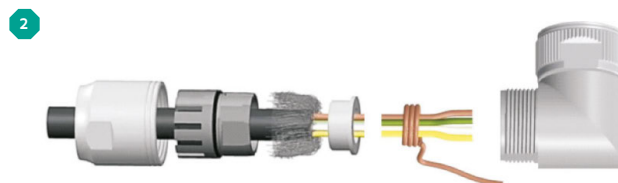
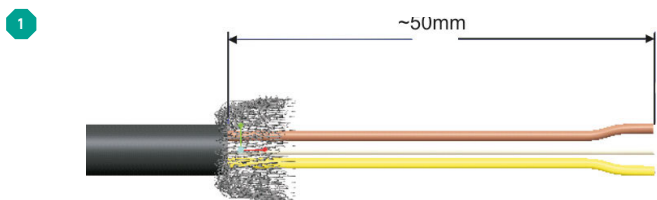


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Assembly instructions

Angled male and female cable plug with rotatable backshell Type PL, RL

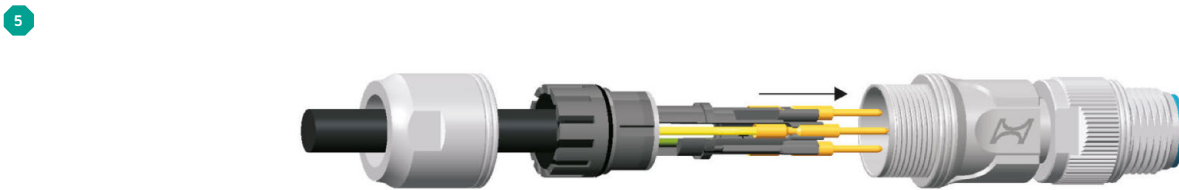
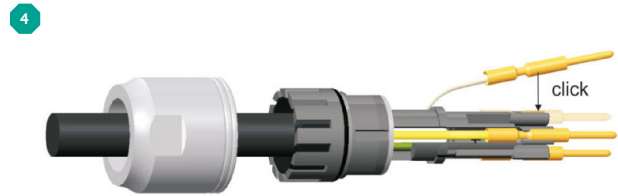
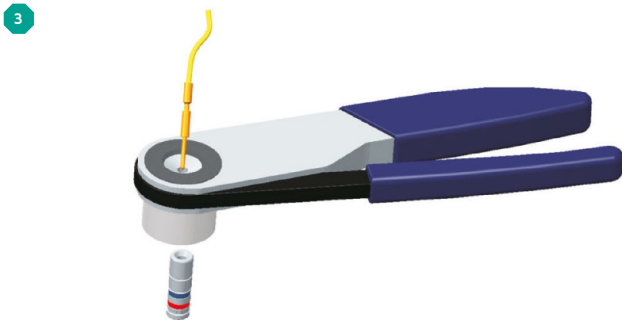
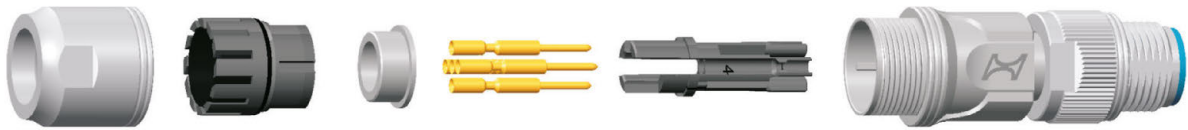
Stripping Length	
	Machined contacts
x	4mm
A	~ 20-25mm



Assembly instructions

Straight male cable plug Type RC, RJ

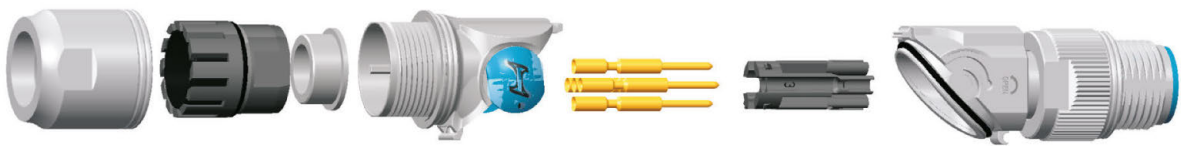
Stripping Length		
	Machined contacts	Stamped Contacts
x	4mm	3mm
A	23mm	



Assembly instructions

Angled male cable plug Type RE

Stripping Length		
	Machined contacts	Stamped Contacts
x	4mm	3mm
A	35mm	

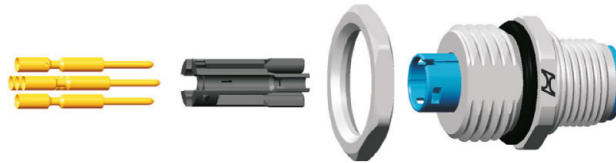


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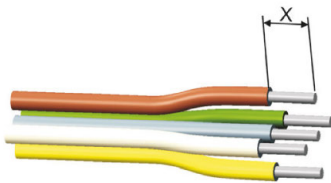
Assembly instructions

Straight male receptacle Type EA, EB, ED

Stripping Length		
	Machined contacts	Stamped Contacts
x	4mm	3mm



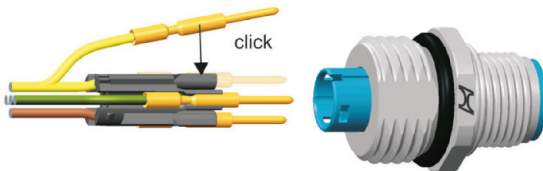
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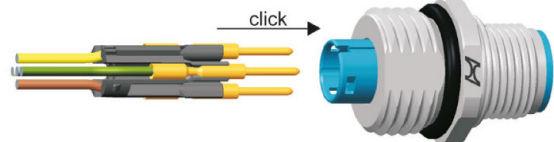
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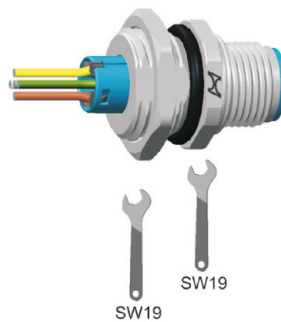
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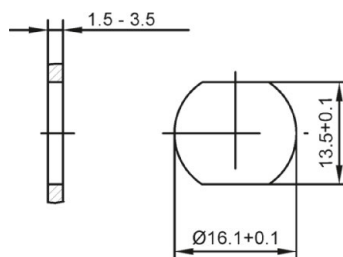
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Mounting arrangement for straight receptacle and panel feed trough



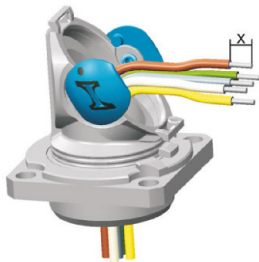
Assembly instructions

Angled male receptacle Type EC

Stripping Length		
	Machined contacts	Stamped Contacts
x	4mm	3mm



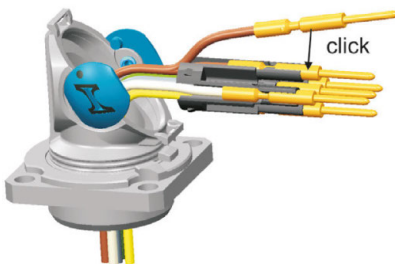
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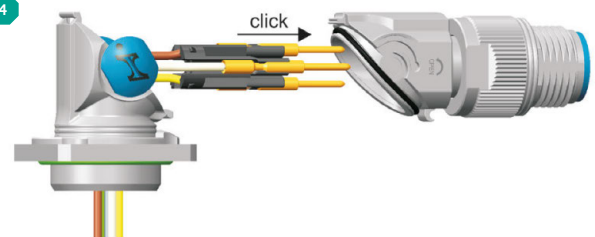
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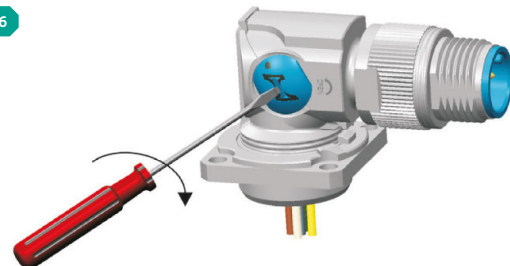
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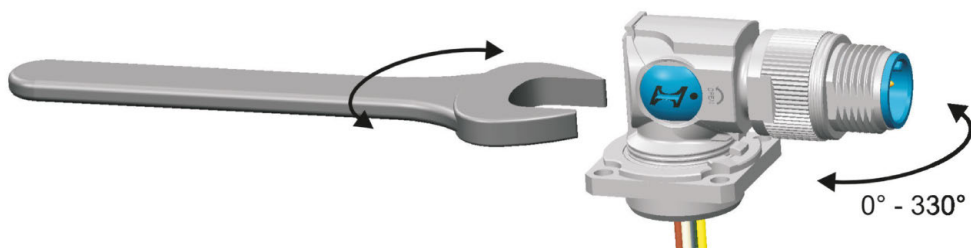
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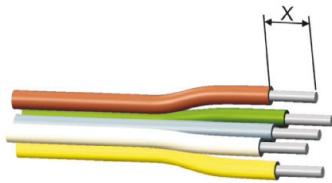
Assembly instructions

Female panel feed through Type DA, DB, DC, DD, DE

Stripping Length		
	Hypertac® contacts	Stamped Contacts
x	4mm	3mm



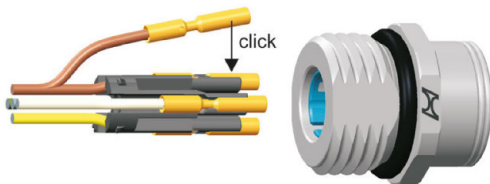
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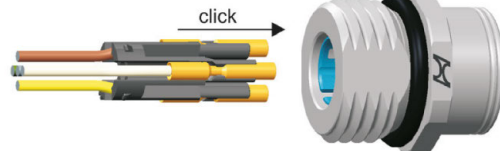
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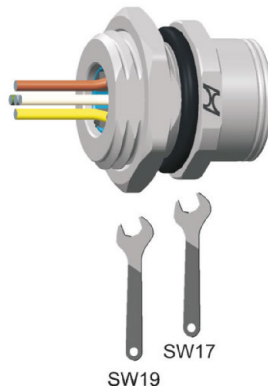
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Disclaimer

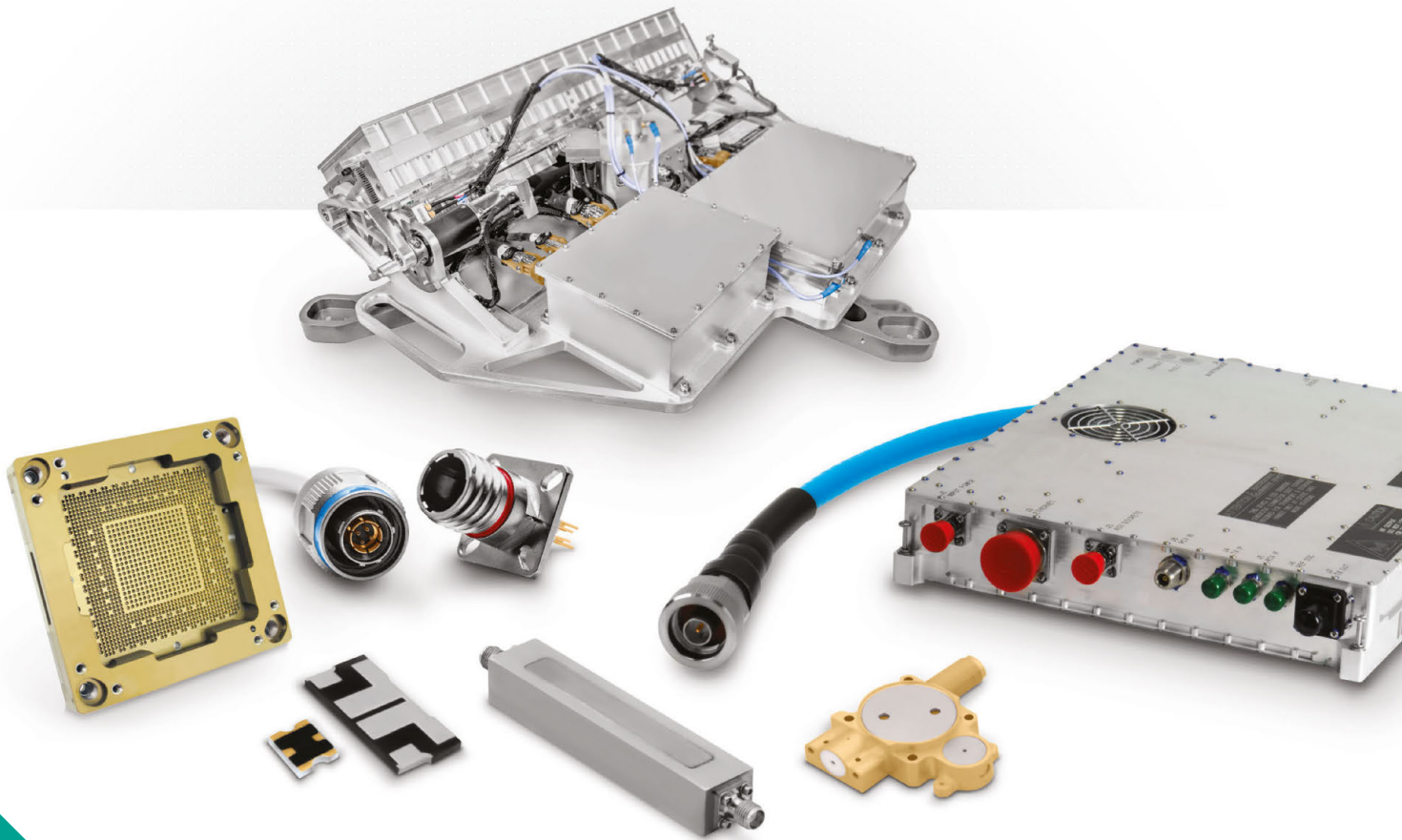
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 - Connector Solutions
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 - Time & Frequency Systems

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M23 Industrial

Series L & Series S

Robust Circular Power & Signal Connectors - Size 1



Hypertac[®] Hyperboloid Technology

Smiths Interconnect offers an extensive range of superior contact technologies suitable for standard and custom solutions. Hypertac[®] (HYPERboloid conTACT) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths.



| Features | Benefits |
|---|---|
| <p>Low insertion/extraction forces</p> <p>The angle of the socket wires allows tight control of the pin insertion and extraction forces. The spring wires are smoothly deflected to make line contact with the pin.</p> | <p>High density interconnect systems</p> <p>Significant reductions in size and weight of sub-system designs. No additional hardware is required to overcome mating and un-mating forces.</p> |
| <p>Long contact life</p> <p>The smooth and light wiping action minimizes wear on the contact surfaces. Contacts perform up to 100,000 insertion/extraction cycles with minimal degradation in performance.</p> | <p>Low cost of ownership</p> <p>The Hypertac contact technology will surpass most product requirements, thus eliminating the burden and cost of having to replace the connector or the entire subsystem.</p> |
| <p>Lower contact resistance</p> <p>The design provides a far greater contact area and the wiping action of the wires insures a clean and polished contact surface. Our contact technology has about half the resistance of conventional contact designs.</p> | <p>Low power consumption</p> <p>The lower contact resistance of our technology results in a lower voltage drop across the connector reducing the power consumption and heat generation within the system.</p> |
| <p>Higher current ratings</p> <p>The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times.</p> | <p>Maximum contact performance</p> <p>The lower contact resistance of the Hypertac contact reduces heat build-up; therefore Hypertac contacts are able to handle far greater current in smaller contact assemblies without the detrimental effects of high temperature.</p> |
| <p>Immunity to shock & vibration</p> <p>The low mass and resultant low inertia of the wires enable them to follow the most abrupt or extreme excursions of the pin without loss of contact. The contact area extends 360° around the pin and is uniform over its entire length. The 3 dimensional symmetry of the Hypertac contact design guarantees electrical continuity in all circumstances.</p> | <p>Reliability under harsh environments</p> <p>Harsh environmental conditions require connectors that will sustain their electrical integrity even under the most demanding conditions such as shock and vibration. The Hypertac contact provides unmatched stability in demanding environments when failure is not an option.</p> |

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M23 Industrial

Robust Circular Power & Signal Connectors



M23 Signal and Power Connectors in favour of motor drive applications. For the installation, crimp contacts are used which guarantee high quality of the connection, reducing the installation costs at the same time.

Hand-operated and fully automatic crimping tools can be used to assemble the crimp contacts. There are two different Hypertac® hyperboloid contact types available: Machined and stamped. These two types of contacts have different characteristics in terms of how the termination is made.

Machined contacts: With this popular type of contact, the suitable contact size is matched to the wire gauge of the cable. **Stamped contacts:** The crimping sleeve allows a wider range of wire gauges to be crimped. Furthermore, the insertion and extraction force is usually lower by using stamped round pins and HCS™ sockets. Stamped contacts are supplied on reels for use with automatic feed crimping tools.

Hypertac® hyperboloid contact: Hypertac® is a superior performing hyperboloid contact technology designed for use in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. These performance characteristics provide a real commercial benefit in terms of the total installed cost of ownership.

In addition our M23 connectors offer outstanding electro-magnetic compatibility protection through a 360° screen connection.

Robust
technology
for use in harsh
environments

Features & Benefits

Superior performance

- Hypertac® contact technology ensures immunity to shock and vibration and minimal contact resistance
- Outstanding protection against electromagnetic interference through a full 360° screen shielding
- O-rings for protection against vibration

Variety of contacts

- Crimp contacts for all current cable cross sections available
- Signal connectors with crimp and solder contacts

Stamped hyperboloid contacts on reels

- Favourable price and reduced processing costs
- Fully automatic workable and reduced assembly time
- High reliability wire B-crimp and additional insulation O-crimp

Wide cable clamp range

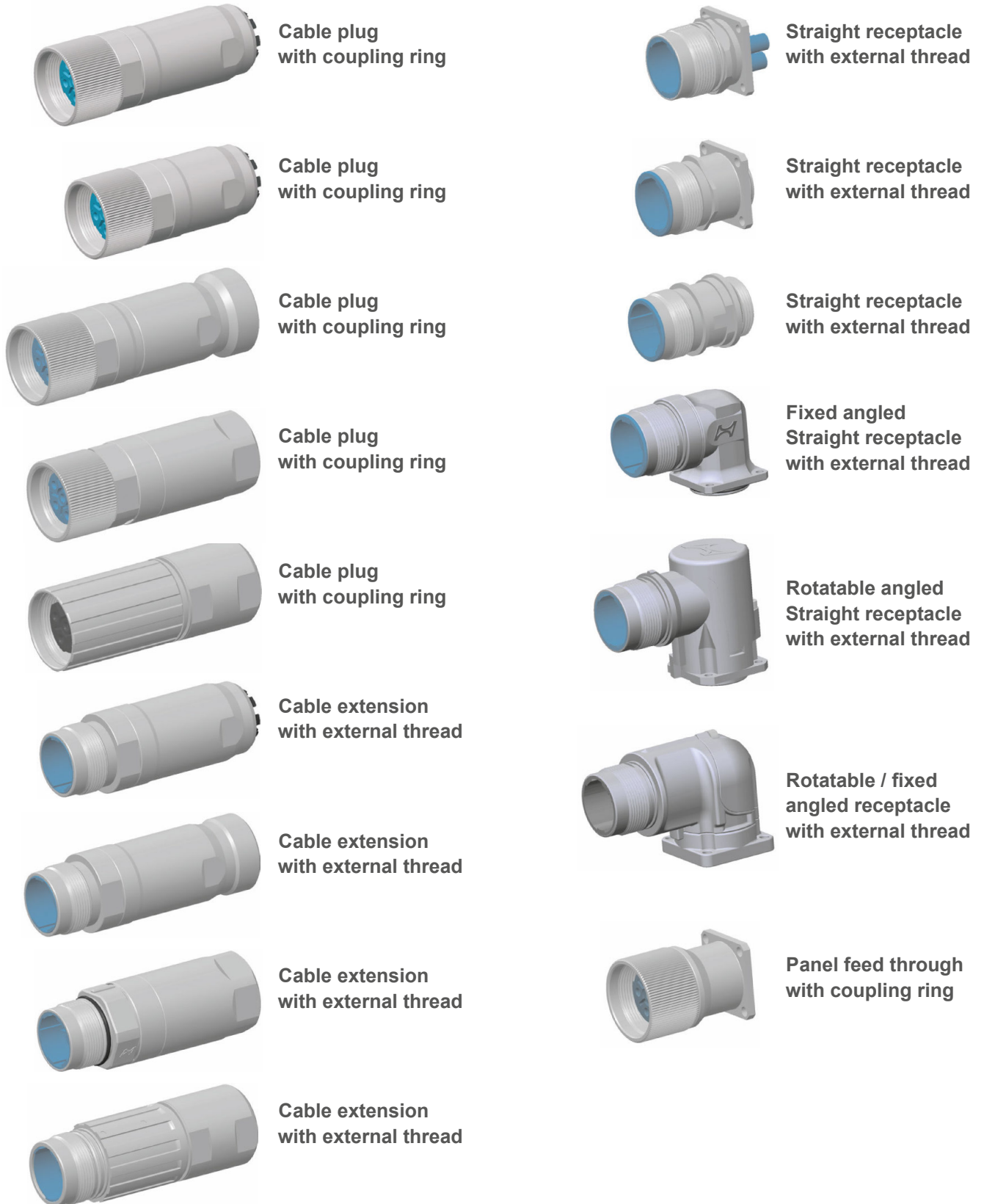
- Can accept cable diameter from 5 to 18.5 mm

UL certified

- UL/CSA approval file No. 178462

Type Overview

M23 Power Connectors Series L



Technical Characteristics

M23 Power Connector Series L

Mechanical

| | | Standards |
|-------------------------|-----------------------|-----------|
| Contact diameter 6poles | 6 x Ø 2mm | – |
| Contact diameter 8poles | 4 x Ø 2mm + 4 x Ø 1mm | – |
| Contact diameter 9poles | 4 x Ø 2mm + 5 x Ø 1mm | – |

Material

| | | |
|-------------------|-----------------------------|---|
| Shell | CuZn alloy, zinc die-cast | – |
| Machined contacts | CuZn alloy | – |
| Stamped contacts | Tin bronze, stainless steel | – |
| Inserts | PA | – |
| Sealing | FKM | – |

Finishes

| | | |
|---------------------------|--------------------------------|---|
| Shell plating | Nickel-plated, chromium plated | – |
| Machined contacts plating | Gold plated | – |
| Stamped contacts plating | Partly gold plated | – |

Physical and environmental

| | | |
|-----------------------------|------------------------------------|--------------|
| Operating temperature range | -40°C... +125°C | EN 61984 |
| Storage conditions | -40°C... +70°C / min. humidity 40% | – |
| Environmental level | IP67 (mated) | DIN EN 60529 |
| Contamination level | 2 | DIN 60664-1 |
| Installation altitude | Up to 2000 m | EN 61984 |
| Fire & Smoke | Recognition file No E 178462 | UL 1977 |
| RoHS | Compliant | |

Note:

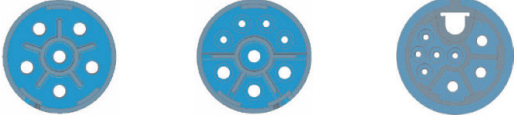
For detailed information please contact factory and ask for data sheet.

Technical Characteristics

M23 Power Connector Series L

Electrical

Standards

| | | |
|---|---|----------|
| Contact diameter | 
6 x 2 4 x 2 4 x 1 4 x 2 5 x 1 | |
| Contact resistance (machined contacts) | $\leq 5.0 \text{ m}\Omega$ ($\varnothing 1\text{mm}$)
$\leq 3.0 \text{ m}\Omega$ ($\varnothing 2\text{mm}$) | –
– |
| Contact resistance (stamped contacts) | $\leq 5.0 \text{ m}\Omega$ ($\varnothing 1\text{mm}$)
$\leq 5.0 \text{ m}\Omega$ ($\varnothing 2\text{mm}$) | –
– |
| Overvoltage category | III | EN 61984 |

INNOVATION Series L (UL Version Series A)

| | | | | | |
|-------------------------------|-----|-----|-----|---|--------------|
| Nominal voltage [Vrms] | 630 | 630 | 250 | – | DIN EN 60512 |
| | 600 | 600 | 250 | – | USR |
| | 600 | 600 | 250 | – | CNR |

SYSTEM 2000 Series L (UL Version Series A)

| | | | | | | |
|-------------------------------|-----|-----|-----|-----|----|--------------|
| Nominal voltage [Vrms] | 630 | 630 | 125 | 600 | 63 | DIN EN 60512 |
| | 600 | 600 | 63 | 600 | 63 | USR |
| | 600 | 600 | 63 | 600 | 63 | CNR |

VERSION 1i Series L

| | | | | | |
|-------------------------------|-----|-----|-----|---|--------------|
| Nominal voltage [Vrms] | 630 | 630 | 125 | – | DIN EN 60512 |
| | 600 | 600 | 125 | – | USR |



How to Order

M23 Power Connector Series L



1 CONNECTOR FAMILY

L M23 CIRCULAR POWER CONNECTORS, SIZE 1
SERIES L (UL VERSION = SERIES A)

2 CONNECTOR LAYOUT

INNOVATION

| | | | |
|----------|----------|----------|---|
| E | E | A | STRAIGHT RECEPTACLE, NICKEL-PLATED LONG VERSION |
| E | B | A | STRAIGHT RECEPTACLE, NICKEL-PLATED THREADED CONNECTION PG13.5 |
| E | D | A | STRAIGHT RECEPTACLE, NICKEL-PLATED THREADED CONNECTION M20x1.5 |
| E | A | B | FIXED ANGLED RECEPTACLE, CHROMIUM-PLATED |
| R | N | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 7.7-14.5 mm |
| R | P | A | EXTENSION, NICKEL-PLATED, THREADED CONNECTION PG16, CABLE CLAMP Ø 7.7-14.5 mm |

SYSTEM 2000

| | | | |
|----------|----------|----------|--|
| E | O | B | ROTATABLE ANGLED RECEPTACLE, CHROMIUM-PLATED |
| F | E | A | STRAIGHT RECEPTACLE, NICKEL-PLATED SHORT VERSION |

VERSION 1i

| | | | |
|----------|----------|----------|---|
| G | D | G | ROTATABLE ANGLED RECEPTACLE, CHROMIUM-PLATED |
| G | F | G | FIXED ANGLED RECEPTACLE, CHROMIUM-PLATED |
| Y | M | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 5-16 mm |

| | | | |
|----------|----------|----------|--|
| R | F | A | EXTENSION, NICKEL-PLATED, THREADED CONNECTION M25x1.5, CABLE CLAMP Ø 7.7-14.5 mm |
| D | A | A | PANEL FEED THROUGH, NICKEL-PLATED, SQUARE FLANGE |
| P | N | A | PLUG, NICKEL-PLATED, CABLE CLAMP Ø 7.7-14.5 mm |
| P | R | A | PLUG, NICKEL-PLATED, SHORT VERSION, CABLE CLAMP Ø 7.7-14.5 mm |
| P | P | A | PLUG, NICKEL-PLATED, THREADED CONNECTION PG16, CABLE CLAMP Ø 7.7-14.5 mm |
| P | F | A | PLUG, NICKEL-PLATED, THREADED CONNECTION M25x1.5, CABLE CLAMP Ø 7.7-14.5 mm |

| | | | |
|----------|----------|----------|---|
| R | L | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 7.7-18.5 mm |
| P | L | A | PLUG, NICKEL-PLATED, CABLE CLAMP Ø 7.7-18.5 mm |

| | | | |
|----------|----------|----------|---|
| V | L | A | PLUG, NICKEL-PLATED, MACHINED SOCKETS, CABLE CLAMP Ø 5-16 mm |
| V | M | A | PLUG, NICKEL-PLATED, STAMPED HCS™ SOCKETS, CABLE CLAMP Ø 5-16 mm |

3 INSERTS

INNOVATION

| | | | |
|----------|----------|----------|--|
| 0 | 6 | A | 6WAY, PINS 6 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 6 | B | 6WAY, SOCKETS 6 x Ø 2 mm; MACHINED CONTACTS |
| 0 | 6 | C | 6WAY, PINS 6 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 6 | D | 6WAY, SOCKETS 6 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 8 | K | 8WAY, PINS 4 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |

VERSION 1i

| | | | |
|----------|----------|----------|--|
| 0 | 6 | E | 6WAY, PINS 6 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 6 | J | 6WAY, PINS 6 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 6 | M | 6WAY, SOCKETS 6 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 6 | F | 6WAY, SOCKETS 6 x Ø 2 mm, STAMPED HCS™ CONTACTS |

| | | | |
|----------|----------|----------|---|
| 0 | 8 | A | 8WAY, PINS 4 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 8 | B | 8WAY, SOCKETS 4 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |

| | | | |
|----------|----------|----------|---|
| 0 | 8 | L | 8WAY, SOCKETS 4 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 9 | A | 9WAY, PINS 5 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 9 | B | 9WAY, SOCKETS 5 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |

| | | | |
|----------|----------|----------|--|
| 0 | 8 | T | 8WAY, PINS 4 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 8 | X | 8WAY, PINS 4 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 8 | Z | 8WAY, SOCKETS 4 x Ø 1 mm, 4 x Ø 2 mm, MACHINED CONTACTS |
| 0 | 8 | U | 8WAY, SOCKETS 4 x Ø 1 mm, 4 x Ø 2 mm, STAMPED HCS™ CONTACTS |

How to Order

M23 Power Connectors Series L

4 TERMINATION STYLE - CRIMP CONTACTS

| | | | | | | | | | |
|----------|----------|----------|----------|---|----------|----------|----------|----------|---|
| N | N | N | N | WITHOUT CONTACTS, CONTACTS TO BE ORDERED SEPARATELY, ALL CONNECTOR DESIGNS | | | | | |
| | | | | INNOVATION | | | | | |
| M | R | C | N | PINS - Ø 2 mm AWG 20-16, RECEPTACLE | F | R | B | N | HYPERTAC SOCKETS - Ø 2 mm AWG 20-16, PLUG |
| M | R | K | N | PINS - Ø 2 mm AWG 18-14, RECEPTACLE | F | R | D | N | HYPERTAC SOCKETS - Ø 2 mm AWG 18-14, PLUG |
| M | R | E | C | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 20-16, RECEPTACLE | F | R | H | N | HYPERTAC SOCKETS - Ø 2 mm AWG 18-14, PLUG (terminals with insulation sleeves) |
| M | R | E | K | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 18-14, RECEPTACLE | F | R | K | B | HYPERTAC SOCKETS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 20-16, PLUG |
| M | R | P | N | PINS - Ø 2 mm AWG 16-14, EXTENSION | F | R | K | D | HYPERTAC SOCKETS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 18-14, PLUG |
| M | R | E | P | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 16-14, EXTENSION | | | | | |
| | | | | SYSTEM 2000 | | | | | |
| M | R | S | N | PINS - Ø 2 mm AWG 18-14, RECEPTACLE | F | R | O | N | HYPERTAC SOCKETS - Ø 2 mm AWG 18-14, PLUG |
| M | R | W | N | PINS - Ø 2 mm AWG 12, RECEPTACLE | F | R | R | N | HYPERTAC SOCKETS - Ø 2 mm AWG 18-12, PLUG |
| M | R | R | S | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 18-14, RECEPTACLE | F | R | F | O | HYPERTAC SOCKETS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 18-14, PLUG |
| M | R | R | W | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 12, RECEPTACLE | F | R | F | R | HYPERTAC SOCKETS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 18-12, PLUG |
| M | R | T | U | PINS - Ø 1 mm, AWG 22-18/16, Ø 2 mm AWG 18-14/12, EXTENSION | F | R | P | O | HYPERTAC SOCKETS - Ø 1 mm, AWG 26-16, Ø 2 mm AWG 18-14, PLUG |
| | | | | | F | R | P | R | HYPERTAC SOCKETS - Ø 1 mm, AWG 26-16, Ø 2 mm AWG 18-12, PLUG |
| | | | | VERSION 1i | | | | | |
| M | R | L | N | PINS - Ø 2 mm AWG 24-16, RECEPTACLE | M | R | I | N | PINS - Ø 2 mm AWG 16-12, EXTENSION |
| M | R | Z | N | PINS - Ø 2 mm AWG 16-14, RECEPTACLE | M | R | Y | J | PINS - Ø 1 mm, AWG 24-16, Ø 2 mm AWG 22-16, EXTENSION |
| M | R | W | N | PINS - Ø 2 mm AWG 12, RECEPTACLE | M | R | Y | I | PINS - Ø 1 mm, AWG 24-16, Ø 2 mm AWG 16-12, EXTENSION |
| M | R | R | L | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 24-16, RECEPTACLE | F | R | H | N | HYPERTAC SOCKETS - Ø 2 mm AWG 18-14, PLUG |
| M | R | R | Z | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 16-14, RECEPTACLE | F | R | U | N | HYPERTAC SOCKETS - Ø 2 mm AWG 14-12, HYPERTAC PLUG |
| M | R | R | W | PINS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 12, RECEPTACLE | F | R | F | H | HYPERTAC SOCKETS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 18-14, PLUG |
| M | R | J | N | PINS - Ø 2 mm AWG 22-16, EXTENSION | F | R | F | U | HYPERTAC SOCKETS - Ø 1 mm, AWG 24-18, Ø 2 mm AWG 14-12, PLUG |

5 CABLE CLAMPING

| | | | | | | | |
|----------|----------|----------|---|----------|----------|----------|--|
| 0 | 0 | 0 | WITHOUT CABLE CLAMP, ALL RECEPTACLES & PANEL FEED THROUGH | 2 | 6 | 0 | VARIABLE CABLE CLAMP, EXTENSION & PLUG VERSION 1i , CLAMP RANGE 5 – 9 mm |
| 1 | 7 | 0 | VARIABLE CABLE CLAMP, EXTENSION & PLUG INNOVATION , CLAMP RANGE 7.7 – 14.5 mm | 2 | 6 | 1 | VARIABLE CABLE CLAMP, EXTENSION & PLUG VERSION 1i , CLAMP RANGE 9 – 15 mm |
| 2 | 1 | 3 | VARIABLE CABLE CLAMP, EXTENSION & PLUG SYSTEM 2000 , CLAMP RANGE 7.7 – 18.5 mm | 2 | 6 | 2 | CABLE CLAMP, EXTENSION & PLUG VERSION 1i , CABLE DIAMETER 16 mm |


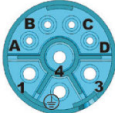
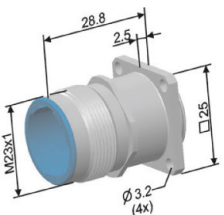
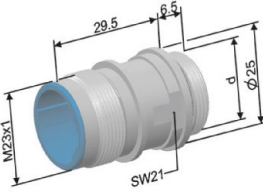
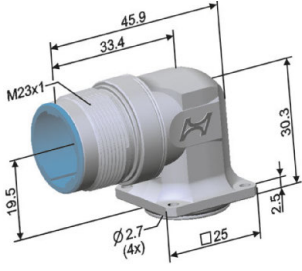
6 VERSION NUMBER

| | | |
|----------|----------|--|
| 0 | 1 | DEPENDING ON TYPE AND SPECIAL DESIGN, SEE DETAILED DESCRIPTION OF THE CONNECTOR DESIGN |
|----------|----------|--|

Available Connectors

M23 Power Connector Series L

Power Receptacles - Innovation

| CONTACT ARRANGEMENTS
VIEW MATING FACE | | |  |  | | | | | |
|--|---|---------------|---|--|------------------------|------------------------|-------------|------------------|------|
| | | | TERMINATION CROSS SECTION | | | | CABLE CLAMP | | |
| | SHELL | INSERT | AWG 20-16 | AWG 18-14 | AWG 24-18
AWG 20-16 | AWG 24-18
AWG 18-14 | | without contacts | |
| | | | | | | | | | |
| | | | | | | | | | |
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | Straight receptacle, long version | | | | | | | 00002 | |
| |  | LEEA
AEEA* | 06A | MRCN | MRKN | | | | NNNN |
| | | | 08A | | | MREC | MREK | | NNNN |
| | | | | 06A | | | | | |
| | | 08A | | | | | NNNN | | |
| Straight receptacle, threaded connection | Straight receptacle, threaded connection | | | | | | | 000 | |
| |  | LEBA
AEBA* | 06A | MRCN | MRKN | | | | NNNN |
| | | | LEDA | 08A | | | MREC | | MREK |
| | | | | 06A | | | | | |
| | | 08A | | | | | NNNN | | |
| Fixed angled receptacle | Fixed angled receptacle | | | | | | | 00002 | |
| |  | LEAB
AEAB* | 06A | MRCN | MRKN | | | | NNNN |
| | | | 08A | | | MREC | MREK | | NNNN |
| | | | | 06A | | | | | |
| | | 08A | | | | | NNNN | | |

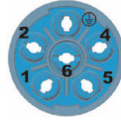
Dimensions are in mm

* UL Version

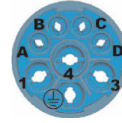
Power Receptacles - System 2000

CONTACT ARRANGEMENTS
VIEW MATING FACE

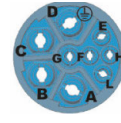
LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR



06C



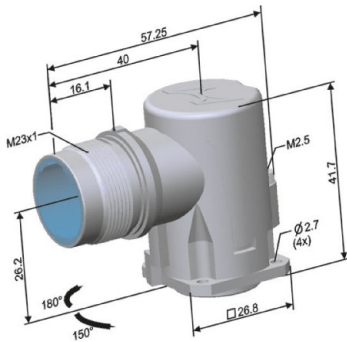
08K



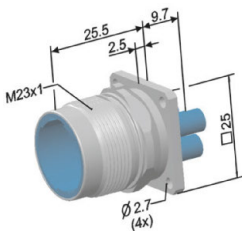
09A

TERMINATION CROSS SECTION

Rotatable angled receptacle



Straight receptacle, short version


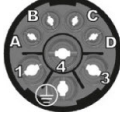
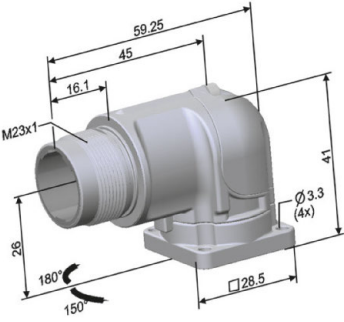
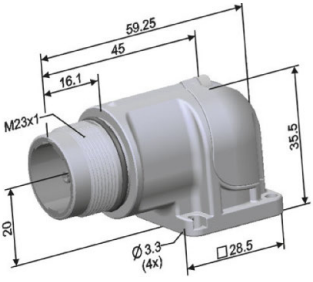


| SHELL | INSERT | TERMINATION CROSS SECTION | | | | | | | CABLE CLAMP |
|---------------|--------|---------------------------|--------|------------------------|---------------------|------------------------|---------------------|------------------|-------------|
| | | AWG 18-14 | AWG 12 | AEG 24-18
AWG 18-14 | AWG 24-18
AWG 12 | AWG 24-18
AWG 18-14 | AWG 24-18
AWG 12 | without contacts | |
| LEOB
AEOB* | 06C | MRSN | | | | | | | 000 |
| | | | MRWN | | | | | NNNN | |
| | | | | | | | | NNNN | |
| | 08K | | | MRRS | | | | | |
| | | | | | MRRW | | | NNNN | |
| | | | | | | | | NNNN | |
| | 09A | | | | | MRRS | | | |
| | | | | | | | MRRW | | |
| | | | | | | | | NNNN | |
| LFEA
AFEA* | 06C | MRSN | | | | | | 000 | |
| | | | MRWN | | | | | | NNNN |
| | | | | | | | | | NNNN |
| | 08K | | | MRRS | | | | | |
| | | | | | MRRW | | | | NNNN |
| | | | | | | | | | NNNN |
| | 09A | | | | | MRRS | | | |
| | | | | | | | MRRW | | |
| | | | | | | | | | NNNN |

Dimensions are in mm

* UL Version

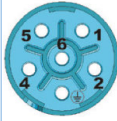

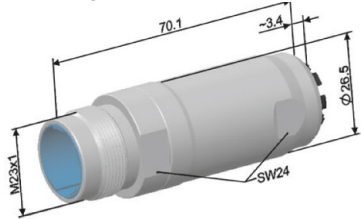
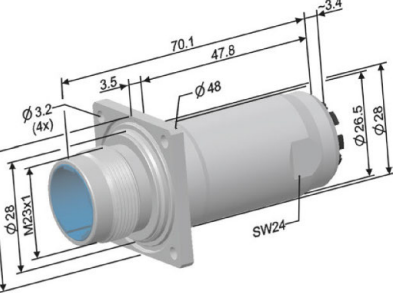
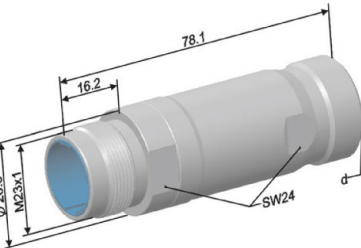
Power Receptacles - System 2000

| CONTACT ARRANGEMENTS
VIEW MATING FACE | | |  | |  | | | | | | |
|--|-------|--------|---|-----------|--|------------------------|------------------------|--------------------|------------------|-------------|------|
| | | | 06E | | 08T | | | | | | |
| | | | TERMINATION CROSS SECTION | | | | | | | | |
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | INSERT | AWG 24-16 | AWG 16-14 | AWG 12 | AWG 24-18
AWG 24-16 | AWG 24-18
AWG 16-14 | AG 24-18
AWG 12 | without contacts | CABLE CLAMP | |
| Rotatable angled receptacle
 | LGDG* | 06E | MRLN | | | | | | | 000 | |
| | | | | MRZN | | | | | | | |
| | | | | | MRWN | | | | | | NNNN |
| | | 08T | | | | | MRRL | | | | |
| | | | | | | | | MRRZ | | | |
| | | | | | | | | | MRRW | | NNNN |
| Fixed angled receptacle
 | LGFG* | 06E | MRLN | | | | | | | 000 | |
| | | | | MRZN | | | | | | | NNNN |
| | | | | | MRWN | | | | | | |
| | | 08T | | | | | MRRL | | | | |
| | | | | | | | | MRRZ | | | |
| | | | | | | | | | MRRW | | NNNN |

Dimensions are in mm

* UL Version

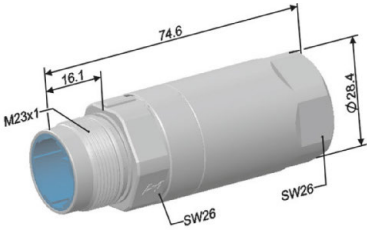
Power Extensions - Innovation

| <p>CONTACT ARRANGEMENTS
VIEW MATING FACE</p> <p>LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR</p> |   | | TERMINATION CROSS SECTION | | | CABLE CLAMP | |
|---|---|--------|---------------------------|------------------------|------------------|-------------|------------------|
| | SHELL | INSERT | AWG 16-14 | AWG 24-18
AWG 16-14 | without contacts | | |
| | | | TERMINATION CROSS SECTION | | | | |
| | | | AWG 16-14 | AWG 24-18
AWG 16-14 | | | without contacts |
| <p>Extension with cable clamp
Ø 7.7-14.5 mm</p>  | LRNA
ARNA* | 06A | MRPN | | NNNN | 170 | |
| | 08A | | MREP | | NNNN | | |
| <p>Extension with cable clamp
Ø 7.7-14.5 mm, square flange</p>  | LRNA
ARNA* | 06A | MRPN | | NNNN | 17002 | |
| | 08A | | MREP | | NNNN | | |
| <p>Extension with cable clamp
Ø 7.7-14.5 mm, threaded connection</p>  <p>d =
LRPA/ARPA PG16
LRFA/ARFA M25x1.5</p> | LRPA
ARPA*
LRFA
ARFA* | 06A | MRPN | | NNNN | 000 | |
| | 08A | | MREP | | NNNN | | |

Dimensions are in mm

* UL Version

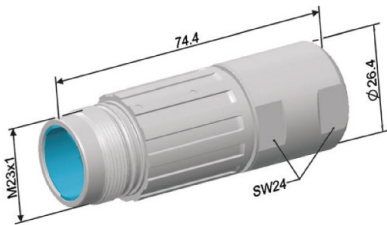
Power Extension - System 2000

| CONTACT ARRANGEMENTS
VIEW MATING FACE | 09A | | | | CABLE CLAMP |
|--|---------------|--------|------------------------------|------------------|-------------|
| | SHELL | INSERT | TERMINATION CROSS SECTION | | |
| | | | AWG 22-18/16
AWG 18-14/12 | without contacts | |
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | | | | | |
| Extension with cable clamp
Ø 7.7-18.5 mm
 | LRLA
ARLA* | 09A | MRTU | | 213 |
| | | | | NNNN | |

Dimensions are in mm

* UL Version

Power Extension - Version 1i

| CONTACT ARRANGEMENTS
VIEW MATING FACE | 06J | | | | 08X | | CABLE CLAMP | |
|--|-------|--------|---------------------------|-----------|------------------------|------------------------|-------------------|------------------|
| | SHELL | INSERT | TERMINATION CROSS SECTION | | | | | |
| | | | AWG 22-16 | AWG 16-12 | AWG 24-16
AWG 22-16 | AWG 24-16
AWG 16-12 | | without contacts |
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | | | | | | | | |
| Extension with cable clamp Ø 5-16 mm
 | LYMA* | 06J | MRJN | | | | 260
261
262 | |
| | | | | MRIN | | | | NNNN |
| | | 08X | | | MRYJ | | | |
| | | | | | | MRYI | | |
| | | | | | | | | NNNN |

Flange can be ordered separately ¹⁾


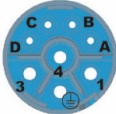
Dimensions are in mm

* UL Version

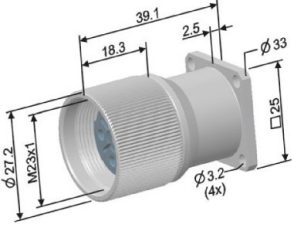
Note:

¹⁾ more information please contact factory

Power Panel Feed Through - Innovation

| CONTACT ARRANGEMENTS
VIEW MATING FACE | | |   | | | | | |
|---|---------------|--------|--|-----------|-----------------------|------------------------|------------------|------|
| | | | TERMINATION CROSS SECTION | | | | | |
| | SHELL | INSERT | AWG 20-16 | AWG 18-14 | AWG 24-18
AWG20-16 | AWG 24-18
AWG 18-14 | without contacts | |
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR

Panel feed through, square flange

 | LDAA
ADAA* | 06B | FRBN | | | | | |
| | | | | FRDN | | | | |
| | | 08B | | | | FRKB | | NNNN |
| | | | | | | | FRKD | |
| | | | | | | | | NNNN |
| | | | | | | | | NNNN |
| | | | | | | | CABLE CLAMP | |
| | | | | | | | 000 | |

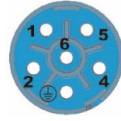
Dimensions are in mm

* UL Version

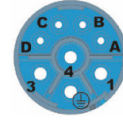
Power Plugs - Innovation

CONTACT ARRANGEMENTS
VIEW MATING FACE

LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR



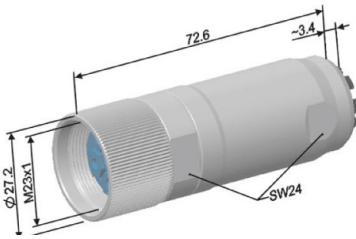
06B



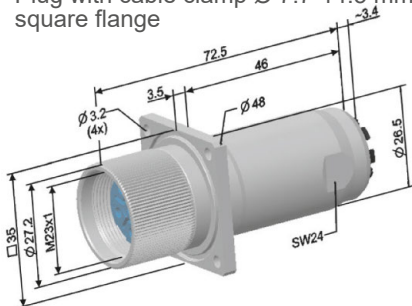
08B

TERMINATION CROSS SECTION

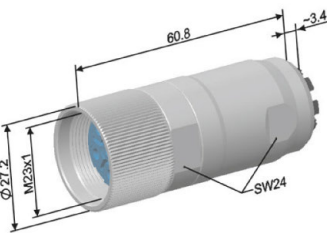
Plug with cable clamp Ø 7.7-14.5 mm



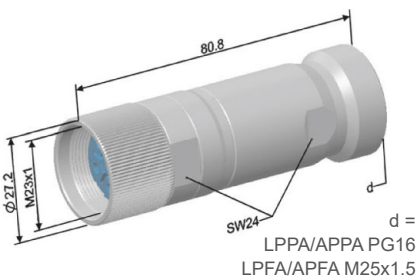
Plug with cable clamp Ø 7.7-14.5 mm, square flange



Plug with cable clamp Ø 7.7-14.5mm, short version



Plug with cable clamp Ø 7.7-14.5 mm and threaded connection



d =
LPPA/APPA PG16
LPFA/APFA M25x1.5

Dimensions are in mm

* UL Version

| SHELL | INSERT | TERMINATION CROSS SECTION | | | | | without contacts | CABLE CLAMP |
|---------------|--------|---------------------------|-----------|-------------------------|------------------------|------------------------|------------------|-------------|
| | | AWG 20-16 | AWG 18-14 | AWG 18-14 ¹⁾ | AWG 24-18
AWG 20-16 | AWG 24-18
AWG 18-14 | | |
| | | FRBN | FRDN | FRHN | FRKB | FRKD | | |
| LPNA
APNA* | 06B | | | | | | 17003 | |
| | 08B | | | | | | | |
| LPNA
APNA* | 06B | FRBN | FRDN | FRHN | | NNNN | 170 | |
| | 08B | | | | FRKB | FRKD | | NNNN |
| LPRA
APRA* | 06B | FRBN | FRDN | | | NNNN | 000 | |
| | 08B | | | | FRKB | FRKD | | NNNN |
| LPPA
APPA* | 06B | FRBN | FRDN | FRHN | | NNNN | 000 | |
| | 08B | | | | FRKB | FRKD | | NNNN |
| LPFA
APFA* | 06B | | | | | NNNN | 000 | |
| | 08B | | | | | NNNN | | |

Note:

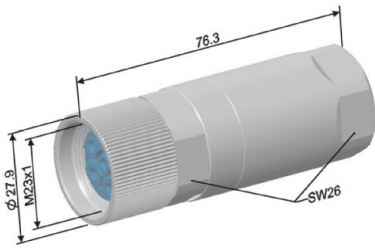
¹⁾ Terminals with insulation sleeve

Power Plugs - System 2000

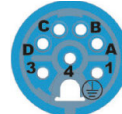
CONTACT ARRANGEMENTS
VIEW MATING FACE

LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR

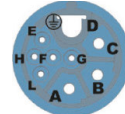
Plug with cable clamp Ø 7.7-18.5 mm



06D



08L



09B


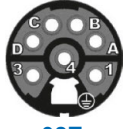
TERMINATION CROSS SECTION

| SHELL | INSERT | TERMINATION CROSS SECTION | | | | | | | | CABLE CLAMP | |
|---------------|--------|---------------------------|-----------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------|------------------|
| | | AWG 18-14 | AWG 18-12 | AWG 24-18
AWG 18-14 | AWG 24-18
AWG 18-12 | AWG 26-16
AWG 18-14 | AWG 26-16
AWG 18-12 | AWG 24-18
AWG 18-14 | AWG 26-16
AWG 18-12 | | without contacts |
| LPLA
APLA* | 06D | FRON | | | | | | | | | |
| | | | FRRN | | | | | | | | |
| | | | | | | | | | | NNNN | |
| | 08L | | | FRFO | | | | | | | |
| | | | | | FRFR | | | | | | |
| | | | | | | FRPO | | | | | |
| | | | | | | | FRPR | | | | NNNN |
| | | | | | | | | | | NNNN | |
| | 09B | | | | | | | FRFO | | | |
| | | | | | | | | | FRPR | | |
| | | | | | | | | | | NNNN | |

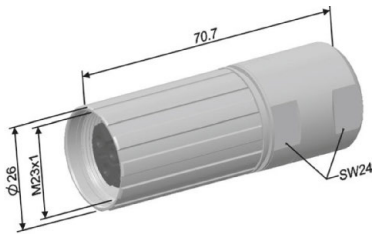
Dimensions are in mm

* UL Version

Power Plugs - Version 1i

| CONTACT ARRANGEMENTS
VIEW MATING FACE | | |   | | CABLE CLAMP | | | | | | |
|---|-------|--------|--|-----------|-------------|------------------------|------------------------|-------------------|------|------|------|
| | | | TERMINATION CROSS SECTION | | | | | | | | |
| | SHELL | INSERT | AWG 18-14 | AWG 14-12 | | AWG 24-18
AWG 18-14 | AWG 24-18
AWG 14-12 | | | | |
| LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR | LVLA* | 06M | FRHN | | | | without contacts | 260
261
262 | | | |
| | | | | FRUN | | | | | NNNN | | |
| | | 08Z | | | | FRFH | | | | | |
| | | | | | | | | | | FRFU | |
| | | | | | | | | | | | NNNN |



Plug with cable clamp Ø 5-16 mm, machined sockets



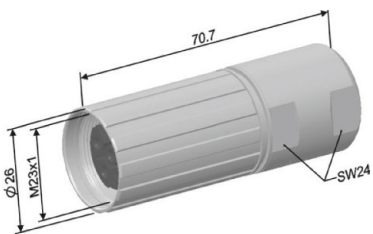
Flange can be ordered separately ¹⁾

Dimensions are in mm

* UL Version

| CONTACT ARRANGEMENTS
VIEW MATING FACE | | |   | | CABLE CLAMP | | |
|---|-------|--------|---|--|-------------|--|-------------------|
| | | | CONTACTS TO BE ORDERED SEPARATELY
STAMPED HCS™ CONTACTS ON REELS ²⁾ | | | | |
| | SHELL | INSERT | without contacts | | | | |
| LAYOUT
DESCRIPTION
PART NUMBER CONFIGURATOR | LVMA* | 06F | NNNN | | | | 260
261
262 |
| | | 08U | NNNN | | | | |

Plug with cable clamp Ø 5-16 mm, stamped HCS™ sockets



Flange can be ordered separately ¹⁾

Dimensions are in mm

* UL Version


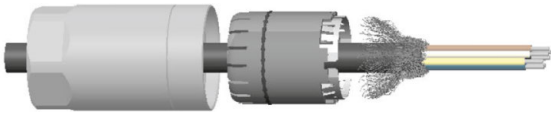





Note:

¹⁾ more information please contact factory

²⁾ contacts are shown on page 22

Cable Clamps & Accessories





M23 Power Connector Series L

| | | |
|---|--|---|
| <p>Cable clamp no. 170 for LPNA/LRNA</p> | <p>Clamp range</p> | |
|  | <p>With reducing sleeve from Ø 7.7–12 mm
 Without reducing sleeve from Ø 11–14.5 mm
 Can be used for shielded and non-shielded cables</p> | |
| <p>Cable clamp no. 213 for LPLA/LRLA</p> | <p>Clamp range</p> | |
|  | <p>Onion ring seal for different cable diameters from Ø 7.5–18.5 mm
 Thickness of shielding up to Ø 1 mm
 Can be used for shielded and non-shielded cables</p> | |
| <p>Cable clamp no. 260/261/262 for LVMA/LYMA</p> | <p>Clamp range</p> | |
|  | <p>.260 cable diameter Ø 5–9 mm
 .261 cable diameter Ø 9–15 mm
 .262 cable diameter Ø 16mm
 Can be used for shielded and non-shielded cables</p> | |
| <p>Thread protection cap</p> | <p>Part number</p> | |
|  | <p>031.001053.1000</p> | |
| <p>Dust shield caps</p> | <p>Part number</p> | <p>Description</p> |
|  | <p>C/BEL/1</p> | <p>Dust shield cap for extension and receptacle</p> |
|  | <p>C/BEL/7</p> | <p>Dust shield cap for extension and receptacle with chain 125 mm</p> |
|  | <p>C/BEL/5</p> | <p>Dust shield cap for plug with chain 125 mm</p> |





Contacts

M23 Power Connector Series L

Machined Pins - Innovation

| Type | | E | C | K | P |
|--|-----------------------------|---|---|---|---|
| Contact diameter [mm] | | 1 | 2 | 2 | 2 |
| PART NUMBER AND LAYOUT | |  |  |  |  |
| | | 021.129.1020 | 021.101.2000 | 021.147.2000 | 021.279.1020 |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 24 – 18
0.24 – 1 | 20 – 16
0.5 – 1.5 | 18 – 14
0.75 – 2.5 | 16 – 14
1.5 – 2.5 |
| Nominal current @ 20°C [A] ²⁾ | VDE | 9 | 20 | 20 | 20 |
| | USR | 8 | 20 | 20 | 20 |
| | CNR | 7 | 14 | 14 | 14 |
| Crimping tool | | B150 | B151 | B151 | B151 |
| Positioner | | B055/A | B157 | B157 | B165 |

Hypertac® Sockets - Innovation






| Type | | K | B | D | H |
|---|-----------------------------|---|---|---|---|
| Contact diameter [mm] | | 1 | 2 | 2 | 2 |
| PART NUMBER AND LAYOUT | |  |  |  |  |
| | | 020.232.2000 | 020.090.1020 | 020.105.1020 | 020.123.1020 |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 24 – 18
0.24 – 1 | 20 – 16
0.5 – 1.5 | 18 – 14
0.75 – 2.5 | 18 – 14
0.75 – 2.5 |
| Nominal current @ 20°C [A] | VDE | 9 | 20 | 22 | 22 |
| | USR | 8 | 20 | 20 | 20 |
| | CNR | 7 | 14 | 14 | 12 |
| Crimping tool | | B150 | B151 | B151 | B151 |
| Positioner | | B055/A | B157 | B157 | B154 |

Note:





¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wired further cross sections and currents can be processed.

²⁾ data only valid when plugged with Hypertac sockets.

Machined Pins - System 2000

| Type | | R | T | S | W | U |
|--|-----------------------------|--|---|--|--|--|
| Contact diameter [mm] | | 1 | 1 | 2 | 2 | 2 |
| PART NUMBER AND LAYOUT | | 021.382.1020  | 021.385.1020  | 021.380.1020  | 021.415.1020  | 021.384.1020  |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 24 – 18
0.24 – 1 | 22 – 18/16
0.34 – 1/1.5 | 18 – 14
0.75 – 2.5 | 12
4 | 18 – 14/12
0.75 – 2.5/4 |
| Nominal current @ 20°C [A] ²⁾ | VDE | 9 | 9 | 30 | 30 | 30 |
| | USR | 9 | 9 | 30 | 30 | 30 |
| | CNR | 7.5 | 7.5 | 18 | 18 | 18 |
| Crimping tool | | B151 | B151 | B179 | B179 | B179 |
| Positioner | | B245 | B252 | B245 | B245 | B252 |

Hypertac® Sockets - System 2000

| Type | | F | P | O | R |
|---|-----------------------------|--|--|--|--|
| Contact diameter [mm] | | 1 | 1 | 2 | 2 |
| PART NUMBER AND LAYOUT | | 020.256.1020  | 020.332.1020  | 020.331.1020  | 020.281.1020  |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 24 – 18
0.24 – 1 | 26 - 16
0.14 – 1.5 | 18 – 14
0.75 – 2.5 | 18 – 12
1 – 4 |
| Nominal current @ 20°C [A] | VDE | 9 | 9 | 30 | 30 |
| | USR | 9 | 9 | 30 | 30 |
| | CNR | 7.5 | 7.5 | 18 | 18 |
| Crimping tol | | B150 | B151 | B151 | B179 |
| Positioner | | B055/A | B252 | B252 | B252 |





Note:

¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295.




It is possible that due to another structure of wired further cross sections and currents can be processed.

²⁾ data only valid when plugged with Hypertac sockets.

Machined Pins - Version 1i

| Type | | R | W | L | Z |
|--|-----------------------------|---|--|--|--|
| Contact diameter [mm] | | 1 | 2 | 2 | 2 |
| PART NUMBER AND LAYOUT | | 021.382.1020
 | 021415.1020
 | 021.001009.1020
 | 021.001004.1020
 |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 24 – 18
0.24 – 1.0 | 12
4 | 24 – 16
0.24 – 1.5 | 16 – 14
1.5 – 2.5 |
| Nominal current @ 20°C [A] ²⁾ | VDE
USR
CNR | 9
9
7.5 | 30
30
18 | 30
30
- | 30
30
- |
| Crimping tool | | B151 | B179 | B151 | B179 |
| Positioner | | B245 | B245 | B297 | B297 |

Machined Pins - Version 1i




| Type | | Y | J | I |
|--|-----------------------------|--|--|--|
| Contact diameter [mm] | | 1 | 2 | 2 |
| PART NUMBER AND LAYOUT | | 021.001017.1020
 | 021.001025.1020
 | 021.001018.1020
 |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 24 - 16
0.24 - 1.5 | 22 - 16
0.34 - 1.5 | 16 - 12
1.5 - 4 |
| Nominal current @ 20°C [A] ²⁾ | VDE
USR
CNR | 9
8
- | 30
30
- | 30
30
- |
| Crimping tool | | B151 | B151 | B179 |
| Positioner | | B306 | B305 | B305 |

Note:

¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wired further cross sections and currents can be processed.

²⁾ data only valid when plugged with Hypertac sockets.





Hypertac® Sockets - Version 1i

| Type | | F | H | U |
|---|-----------------------------|---|---|---|
| Contact diameter [mm] | | 1 | 2 | 2 |
| PART NUMBER AND LAYOUT | | 020.256.1020 | 020.123.1020 | 020.001011.1020 |
| | |  |  |  |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 24 – 18
0.24 – 1 | 18 – 14
0.75 – 2.5 | 14 – 12
2.5 – 4.0 |
| Nominal current @ 20°C [A] | VDE | 9 | 20 | 30 |
| | USR | 9 | 12 | - |
| | CNR | 7.5 | - | - |
| Crimping tool | | B150 | B151 | B151 |
| Positioner | | B055/A | B154 | B341 |




Note:

¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wired further cross sections and currents can be processed.

HCS™ Stamped Sockets Ø 1mm - Version 1i

| Type | | A | B | C | D | |
|---|---|---|---|---|---|-----------------|
| Contact diameter [mm] | | 1 | 1 | 1 | 1 | |
| PART NUMBER AND LAYOUT | |  |  |  |  | |
| | | 020.000376.2000 | 020.000377.2000 | 020.000378.2000 | 020.000379.2000 | |
| | Termination cross section ¹⁾ | [AWG]
[mm ²] | 32 – 28
0.03 – 0.08 | 28 – 24
0.08 – 0.2 | 24 – 20
0.2 – 0.5 | -
0.75 - 1.0 |
| | Nominal current @ 20°C [A] | VDE
USR
CNR | 4
9
- | 6
9
- | 8
9
- | 8
9
- |
| Hand crimping tool with feeder line for small reels | | B287/32-28 | B287/28-24 | B287/24-20 | B287/0.75-1 | |
| Applicator for Schäfer/AMP crimping machines | | B288/32-28 | B288/28-24 | B288/24-20 | B288/0.75-1 | |
| Applicator for Kirsten PP3 crimping machine | | B286/32-28 | B286/28-24 | B286/24-20 | B286/0.75-1 | |
| Number of contacts on reel | [Pieces] | 9000 | 9000 | 9000 | 9000 | |
| Number of contacts on small reel | [Pieces] | 300 | 300 | 300 | 300 | |

HCS™ Stamped Sockets Ø 1mm - Version 1i

| Type | | E | F | G |
|---|---|---|---|---|
| Contact diameter [mm] | | 2 | 2 | 2 |
| PART NUMBER AND LAYOUT | |  |  |  |
| | | 020.001001.2000 | 020.001002.2000 | 020.001003.2000 |
| | Termination cross section ¹⁾ | [AWG]
[mm ²] | 20 - 18
0.5 - 1.0 | 18 - 14
1.0 - 2.0 |
| Nominal current @ 20°C [A] | VDE
USR
CNR | 12
12
- | 18
18
- | 30
30
- |
| Hand crimping tool with feeder line for small reels | | B295/0.5-1 | B295/1.0-2.0 | B295/2.5-4.0 |
| Applicator for Schäfer/AMP crimping machines | | on demand | on demand | on demand |
| Applicator for Kirsten PP3 crimping machine | | on demand | on demand | on demand |
| Number of contacts on reel | [Pieces] | 4000 | 3500 | 2500 |
| Number of contacts on small reel | [Pieces] | 150 | 150 | 150 |

¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wired further cross sections and currents can be processed.

Applications

M23 Connectors



Servos & Drives



- High current and voltage ratings
- Shock and vibration proof
- Low contact resistance
- Minimal insertion/extraction forces
- Earth connection for power connectors

Controls



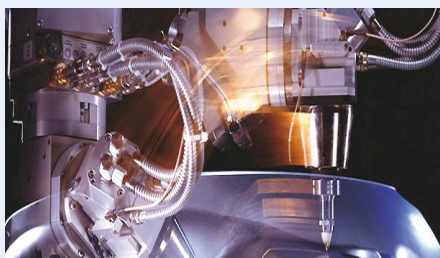
- Hyperboloid contacts
- IP67 sealing
- Low electrical resistance
- Long life
- Low rate of wear

Encoders



- High signal integrity ensuring failure free performance
- 360° EMC shielding connection
- Stamped hyperboloid contacts on reels
- High performance in harsh environment

Machinery



- Minimum service requirements
- Low wear of plating surfaces for long life
- High current rating
- Uniform electrical and mechanical characteristics over a high number of operations

Conveyance



- Resistance against oxidation and corrosion
- Superior reliability for critical applications
- Protection against humidity and pollution
- Customized keying options to prevent mismatching


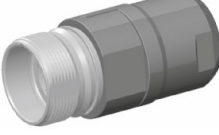
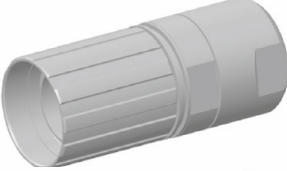













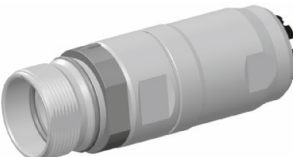
Robotics



- Various types of cable clamps
- Broad variety of contacts
- Quick and easy exchange of the connector system
- ROHS compliant
- UL certified

Type Overview

M23 Signal Connectors Series S

- | | | | |
|---|---|--|---|
|  | Cable plug with coupling ring |  | Cable extension with external thread |
|  | Cable plug with coupling ring |  | Cable extension with external thread |
|  | Cable plug with coupling ring |  | Straight receptacle with external thread |
|  | Cable plug with coupling ring |  | Straight receptacle with external thread |
|  | Cable plug with coupling ring |  | Fixed angled receptacle with external thread |
|  | Cable plug with coupling ring |  | Rotatable / fixed angled receptacle with external thread |
|  | Cable extension with external thread |  | Rotatable / fixed angled receptacle with external thread |
|  | Cable extension with external thread |  | Panel feed through with coupling ring |
|  | Cable extension with external thread | | |

Technical Characteristics

M23 Signal Connectors Series S

Mechanical

Standards

| | | |
|--------------------------------|---|-------------|
| Contact diameter 6/7poles | 6/7 x Ø 2mm | – |
| Contact diameter 9poles | 8 x Ø 1mm + 1 x Ø 2mm
6 x Ø 1mm + 3 x Ø 2mm
9 x Ø 1mm | –
–
– |
| Contact diameter 12/16/17poles | 12/16/17 x Ø 1mm | – |
| Contact diameter 21poles | 21 x Ø 0.6mm | – |

Material

| | | |
|-------------------|------------------------------------|---|
| Shell | CuZn alloy, zinc die-cast, plastic | – |
| Machined contacts | CuZn alloy | – |
| Stamped contacts | Tin bronze, stainless steel | – |
| Inserts | PA, PPS, PBT | – |
| Sealing | FKM, NBR | – |

Finishes

| | | |
|---------------------------|--------------------------------|---|
| Shell plating | Nickel-plated, chromium plated | – |
| Machined contacts plating | Gold plated | – |
| Stamped contacts plating | partly gold plated | – |

Electrical







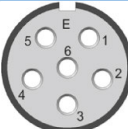
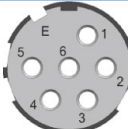
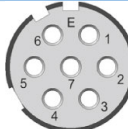
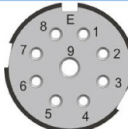

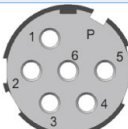
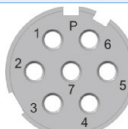
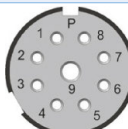
| | | |
|-----------------------|-------|----------|
| Contact resistance | <5 mΩ | |
| Overvoltage categorie | III | EN 61984 |

Physical and Environmental

| | | |
|-----------------------------|------------------------------------|--------------|
| Operating temperature range | -40°C ... 125°C | EN 61984 |
| Storage conditions | -40°C ... 70°C / min. humidity 40% | - |
| Environmental level | IP67 (mated) | DIN EN 60529 |
| Contamination level | 3 | DIN 60664-1 |
| Installation altitude | up to 2000 m | EN 61984 |
| Fire & Smoke | Recognition file No E 178462 | UL 1977 |
| RoHS | Compliant | |

Contact Arrangements (w/electrical data - view mating face)

M23 Signal Connectors Series S

| Contact Arrangements | 6 x 2 | 6 x 2 | 7 x 2 | 8 x 1
1 x 2 |
|--|---|--|---|---|
| INSERTS FOR PLUGS AND PANEL FEED THROUGH CRIMP CONTACTS | |  |  |  |
| | | 06H | 07D | 09F |
| Part number | | 030.704.2000 | 030.637.2000 | 030.627.2000 |
| INSERTS FOR RECEPTACLES AND EXTENSIONS CRIMP CONTACTS | |  |  |  |
| | | 06G | 07C | 09E |
| Part number | | 030.697.2000 | 030.635.2000 | 030.625.2000 |
| Operating Voltage [V] | VDE (DC) | 120 | 120 | 120 |
| IEC 60449 | VDE (AC) | 50 | 50 | 50 |
| UL 1977 | USR (AC) | 125 | 125 | 125 |
| INSERTS FOR RECEPTACLES IP67 UNMATED CRIMP PINS | | | | |
| Part number | SEAB/UEAB
SFOA/SFRA | | | |
| Operating Voltage [V] | VDE (DC) | | | |
| IEC 60449 | VDE (AC) | | | |
| UL 1977 | USR (AC) | | | |
| INSERTS FOR RECEPTACLES AND EXTENSIONS SOLDER CONTACTS |  |  |  |  |
| | | 06C | 06E | 07A |
| Part number | with pins | 060.031.2000 | 1.164 | 1.085 |
| | with Hypertac sockets | 060.032.2000 | 1.139 | 1.086 |
| INSERTS FOR PLUGS SOLDER CONTACTS |  |  |  |  |
| | | 06D | 06F | 07B |
| Part number | with pins | 060.029.2000 | 1.141 | 1.083 |
| | with Hypertac sockets | 060.030.2000 | 1.142 | 1.084 |
| Operating Voltage [V] | VDE (DC) | 120 | 63 | 120 |
| IEC 60449 | VDE (AC) | 50 | 50 | 50 |
| | | | | 16 |

| 6 x 1
3 x 2 | 9 x 1 | 12 x 1 | 12 x 1
code 20° | 16 x 1 | 17 x 1 | 21 x 0.6 |
|----------------|--------------|------------------------------|------------------------------|--------------|------------------------------|--------------|
| | | | | | | |
| 09H | 09K | 12S | 12U | 16B | 17H | 21B |
| 030.629.2000 | 030.677.2000 | 030.619.2000 | 030.623.2000 | 030.691.2000 | 030.679.2000 | 030.226.1000 |
| | | | | | | |
| 09G | 09J | 12T | 12V | 16A | 17G | 21A |
| 030.631.2000 | 030.676.2000 | 030.617.2000 | 030.621.2000 | 030.701.2000 | 030.678.2000 | 030.225.1000 |
| 120 | 120 | 120 | 120 | 120 | 120 | 32 |
| 50 | 50 | 50 | 50 | 50 | 50 | 32 |
| 125 | 125 | 125 | 125 | 125 | 125 | - |
| | | | | | | |
| | | 12A | 12C | | 17A | |
| | | 030.400.2000
030.505.2000 | 030.387.2000
030.506.2000 | | 030.479.2000
030.504.2000 | |
| | | 120 | 120 | | 120 | |
| | | 50 | 50 | | 50 | |
| | | 125 | 125 | | 125 | |
| | | | | | | |
| | 09A | 12E | | | | |
| | 1.129 | 1.023 | | | | |
| | 1.130 | 1.050 | | | | |
| | | | | | | |
| | 09B | 12F | | | | |
| | 1.132 | 1.049 | | | | |
| | 1.120 | 1.024 | | | | |
| | 120 | 120 | | | | |
| | 50 | 50 | | | | |

How to Order

M23 Signal Connectors Series S



1 CONNECTOR FAMILY

S M23 CIRCULAR SIGNAL CONNECTORS, SERIES S

2 CONNECTOR LAYOUT

RECEPTACLES IP67 UNMATED

| | | | |
|---|---|---|--|
| F | O | A | STRAIGHT RECEPTACLE, NICKEL-PLATED |
| F | R | A | STRAIGHT RECEPTACLE, NICKEL-PLATED, THREADED CONNECTION PG13.5 |
| E | A | B | FIXED ANGLED RECEPTACLE, CHROMIUM-PLATED |

RECEPTACLES CRIMP

| | | | |
|---|---|---|---|
| F | F | A | STRAIGHT RECEPTACLE, NICKEL-PLATED |
| F | Q | A | STRAIGHT RECEPTACLE, NICKEL-PLATED, THREADED CONNECTION M20x1.5 |
| F | L | A | STRAIGHT RECEPTACLE, NICKEL-PLATED, THREADED CONNECTION PG13.5 |
| F | T | A | STRAIGHT RECEPTACLE, NICKEL-PLATED, 21WAY ONLY |

EXTENSIONS SOLDER & CRIMP

| | | | |
|---|---|---|--|
| R | N | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 5.5-12 mm |
| R | R | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 5.5-12 mm, THREADED CONNECTION M20x1.5 |
| R | G | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 5.5-12 mm, THREADED CONNECTION PG13.5 |

EXTENSIONS CRIMP

| | | | |
|---|---|---|---|
| R | F | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 7.7-14.5 mm |
| V | R | A | EXTENSION, NICKEL-PLATED, CABLE CLAMP Ø 5-16 mm |

PLUGS SOLDER & CRIMP

| | | | |
|---|---|---|---|
| P | N | A | PLUG, NICKEL-PLATED, CABLE CLAMP Ø 5.5-12 mm |
| P | R | A | PLUG, NICKEL-PLATED, CABLE CLAMP Ø 5.5-12 mm, THREADED CONNECTION M20x1.5 |
| P | G | A | PLUG, NICKEL-PLATED, CABLE CLAMP Ø 5.5-12 mm, THREADED CONNECTION PG13.5 |
| P | H | A | ANGLED PLUG, NICKEL-PLATED, CABLE CLAMP Ø 7.7-14.5 mm |

PLUGS CRIMP

| | | | |
|---|---|---|--|
| P | F | A | PLUG, NICKEL-PLATED, CABLE CLAMP Ø 7.7-14.5 mm |
| V | P | A | PLUG, NICKEL-PLATED, CABLE CLAMP Ø 5-16 mm |

RECEPTACLES SOLDER

| | | | |
|---|---|---|--|
| F | N | A | STRAIGHT RECEPTACLE, NICKEL-PLATED |
| F | P | A | STRAIGHT RECEPTACLE, NICKEL-PLATED, THREADED CONNECTION PG13.5 |

RECEPTACLES CRIMP

| | | | |
|---|---|---|--|
| F | M | B | ROTATABLE ANGLED RECEPTACLE, CHROMIUM-PLATED |
| F | Y | B | FIXED ANGLED RECEPTACLE, CHROMIUM-PLATED |
| G | D | G | ROTATABLE ANGLED RECEPTACLE, CHROMIUM-PLATED |
| G | F | G | FIXED ANGLED RECEPTACLE, CHROMIUM-PLATED |

EXTENSIONS SOLDER & CRIMP

| | | | |
|---|---|---|--|
| R | O | C | EXTENSION, PLASTIC SHELL CABLE CLAMP Ø 5.5-12 mm |
| R | U | C | EXTENSION, PLASTIC SHELL, CABLE SPECIFIC CABLE CLAMPS |
| R | W | C | EXTENSION, PLASTIC SHELL, CABLE SPECIFIC CABLE CLAMPS, SQUARE FLANGE |

PLUGS SOLDER & CRIMP

| | | | |
|---|---|---|---|
| P | O | C | PLUG, PLASTIC SHELL CABLE CLAMP Ø 5.5-12 mm |
| P | U | C | PLUG, PLASTIC SHELL, CABLE SPECIFIC CABLE CLAMPS |
| P | Y | C | PLUG, PLASTIC SHELL, CABLE SPECIFIC CABLE CLAMPS, SQUARE FLANGE |

PANEL FEED THROUGH CRIMP

| | | | |
|---|---|---|---|
| D | B | A | PANEL FEED THROUGH, NICKEL-PLATED SQUARE FLANGE |
|---|---|---|---|

How to Order

M23 Signal Connectors Series S

3 INSERTS

FOR CRIMP PINS (RECEPTACLES IP67 UNMATED)

| | | |
|---|---|---|
| 0 | 0 | 0 |
| 1 | 2 | A |

WITHOUT INSERT,
INSERTS TO BE ORDERD SEPARATELY

12WAY, FOR PINS 12 x Ø 1 mm

| | | |
|---|---|---|
| 1 | 2 | C |
| 1 | 7 | A |

12WAY, CODE 20°, FOR PINS Ø 12 x 1 mm

17WAY, FOR PINS 17 x Ø 1 mm

FOR SOLDER CONTACTS

| | | |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 6 | C |
| 0 | 6 | D |
| 0 | 6 | E |
| 0 | 6 | F |
| 0 | 7 | A |
| 0 | 7 | B |

WITHOUT INSERT,
INSERTS TO BE ORDERD SEPARATELY

6WAY, FOR CONTACTS 6 x Ø 2 mm
E-PART

6WAY, FOR CONTACTS 6 x Ø 2 mm
P-PART

6WAY, FOR CONTACTS 6 x Ø 2 mm
E-PART

6WAY, FOR CONTACTS 6 x Ø 2 mm
P-PART

7WAY, FOR CONTACTS 7 x Ø 2 mm
E-PART

7WAY, FOR CONTACTS 7 x Ø 2 mm
P-PART

FOR SOLDER CONTACTS

| | | |
|---|---|---|
| 0 | 9 | C |
| 0 | 9 | D |
| 0 | 9 | A |
| 0 | 9 | B |
| 1 | 2 | E |
| 1 | 2 | F |

9WAY, FOR CONTACTS 8 x Ø 1 + 1 x Ø 2 mm
E-PART

9WAY, FOR CONTACTS 8 x Ø 1 + 1 x Ø 2 mm
P-PART

9WAY, FOR CONTACTS 9 x Ø 1 mm
P-PART

9WAY, FOR CONTACTS 9 x Ø 1 mm
E-PART

12WAY, FOR CONTACTS 12 x Ø 1 mm
P-PART

12WAY, FOR CONTACTS 12 x Ø 1 mm
E-PART

FOR CRIMP CONTACTS

| | | |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 6 | G |
| 0 | 6 | H |
| 0 | 7 | C |
| 0 | 7 | D |
| 0 | 9 | E |
| 0 | 9 | F |
| 0 | 9 | G |
| 0 | 9 | H |
| 0 | 9 | J |
| 0 | 9 | K |

WITHOUT INSERT,
INSERTS TO BE ORDERD SEPARATELY

6WAY, FOR CONTACTS 6 x Ø 2 mm
E-PART

6WAY, FOR CONTACTS 6 x Ø 2 mm
P-PART

7WAY, FOR CONTACTS 7 x Ø 2 mm
E-PART

7WAY, FOR CONTACTS 7 x Ø 2 mm
P-PART

9WAY, FOR CONTACTS 8 x Ø 1 + 1 x Ø 2 mm
E-PART

9WAY, FOR CONTACTS 8 x Ø 1 + 1 x Ø 2 mm
P-PART

9WAY, FOR CONTACTS 6 x Ø 1 + 3 x Ø 2 mm
E-PART

9WAY, FOR CONTACTS 6 x Ø 1 + 3 x Ø 2 mm
P-PART

9WAY, FOR CONTACTS 9 x Ø 1 mm
E-PART

9WAY, FOR CONTACTS 9 x Ø 1 mm
P-PART

FOR CRIMP CONTACTS

| | | |
|---|---|---|
| 1 | 2 | S |
| 1 | 2 | T |
| 1 | 2 | U |
| 1 | 2 | V |
| 1 | 6 | A |
| 1 | 6 | B |
| 1 | 7 | G |
| 1 | 7 | H |
| 2 | 1 | A |
| 2 | 1 | B |

12WAY, FOR CONTACTS 12 x Ø 1 mm
E-PART

12WAY, FOR CONTACTS 12 x Ø 1 mm
P-PART

12WAY, CODE 20°, FOR CONTACTS 12 x Ø 1 mm
E-PART

12WAY, CODE 20°, FOR CONTACTS 12 x Ø 1 mm
P-PART

16WAY, FOR CONTACTS 16 x Ø 1 mm
E-PART

16WAY, FOR CONTACTS 16 x Ø 1 mm
P-PART

17WAY, FOR CONTACTS 17 x Ø 1 mm
E-PART

17WAY, FOR CONTACTS 17 x Ø 1 mm
P-PART

21WAY, FOR CONTACTS 21 x Ø 0.6 mm
E-PART

21WAY, FOR CONTACTS 21 x Ø 0.6 mm
P-PART

How to Order

M23 Signal Connectors Series S



4 TERMINATION STYLE

WITH CRIMP PINS (RECEPTACLES IP67 UNMATED)

| | | | |
|---|---|---|---|
| N | N | N | N |
| M | R | A | N |

WITHOUT PINS,
PINS TO BE ORDERED SEPARATELY

PINS, Ø 1 mm,
AWG 26 - 22

| | | | |
|---|---|---|---|
| M | R | E | N |
| M | R | M | N |

PINS, Ø 1 mm,
AWG 24 - 18

PINS, Ø 1 mm, AWG 24 - 18
(terminals with insulation sleeves)

WITH CRIMP CONTACTS

| | | | |
|---|---|---|---|
| N | N | N | N |
| M | R | R | N |
| M | R | V | N |
| M | R | S | R |
| M | R | S | V |
| M | R | W | R |
| M | R | W | V |
| M | R | S | N |
| M | R | W | N |
| M | R | G | N |

WITHOUT CONTACTS, MACHINED OR
STAMPED CONTACTS TO BE ORDERED SEPARATELY

PINS - Ø 2 mm,
AWG 18 - 14

PINS - Ø 2 mm,
AWG 22 - 16

PINS - Ø 1 mm + Ø 2 mm,
AWG 24 - 18, AWG 18 - 14

PINS - Ø 1 mm + Ø 2 mm,
AWG 24 - 18, AWG 22 - 16

PINS - Ø 1 mm + Ø 2 mm,
AWG 30 - 22, AWG 18 - 14

PINS - Ø 1 mm + Ø 2 mm,
AWG 30 - 22, AWG 22 - 16

PINS - Ø 1 mm,
AWG 24 - 18

PINS - Ø 1 mm,
AWG 30 - 22

PINS - Ø 0.6 mm,
AWG 26 - 22

| | | | |
|---|---|---|---|
| F | R | R | N |
| F | R | M | N |
| F | R | O | R |
| F | R | O | M |
| F | R | B | R |
| F | R | B | M |
| F | R | O | N |
| F | R | B | N |
| F | R | F | N |

HYPERTAC SOCKETS - Ø 2 mm,
AWG 20 - 16

HYPERTAC SOCKETS - Ø 2 mm,
AWG 18 - 14

HYPERTAC SOCKETS - Ø 1 mm + Ø 2 mm,
AWG 24 - 18, AWG 20 - 16

HYPERTAC SOCKETS - Ø 1 mm + Ø 2 mm,
AWG 24 - 18, AWG 18 - 14

HYPERTAC SOCKETS - Ø 1 mm + Ø 2 mm,
AWG 30 - 22, AWG 20 - 16

HYPERTAC SOCKETS - Ø 1 mm + Ø 2 mm,
AWG 30 - 22, AWG 18 - 14

HYPERTAC SOCKETS - Ø 1 mm,
AWG 24 - 18

HYPERTAC SOCKETS - Ø 1 mm,
AWG 30 - 22

HYPERTAC SOCKETS - Ø 0.6 mm,
AWG 26 - 22

WITH SOLDER CONTACTS (built-in)

| | | | |
|---|---|---|---|
| M | S | B | N |
| M | S | A | B |
| M | S | A | N |

PINS - Ø 2 mm

PINS - Ø 1 mm + Ø 2 mm

PINS - Ø 2 mm

| | | | |
|---|---|---|---|
| F | S | B | N |
| F | S | A | B |
| F | S | A | N |

HYPERTAC SOCKETS - Ø 2 mm

HYPERTAC SOCKETS - Ø 1 mm + Ø 2 mm

HYPERTAC SOCKETS - Ø 2 mm

5 CABLE CLAMPING

| | | |
|---|---|---|
| 0 | 0 | 0 |
| 1 | 6 | 9 |
| 1 | 7 | 0 |
| . | . | . |

WITHOUT CABLE CLAMP,
ALL RECEPTACLES & PANEL FEED THROUGH

VARIABLE CABLE CLAMP, EXTENSION & PLUG
CLAMP RANGE 5.5 - 12 mm

VARIABLE CABLE CLAMP, EXTENSION & PLUG
CLAMP RANGE 7.7 - 14.5 mm

SPECIFIC CABLE CLAMP, CONNECTORS WITH
PLASTIC SHELL, PLEASE CONTACT FACTORY

| | | |
|---|---|---|
| 2 | 6 | 0 |
| 2 | 6 | 1 |
| 2 | 6 | 2 |

VARIABLE CABLE CLAMP, EXTENSION & PLUG
CLAMP RANGE 5-9 mm

VARIABLE CABLE CLAMP, EXTENSION & PLUG
CLAMP RANGE 9-15 mm

CABLE CLAMP, EXTENSION & PLUG
CABLE DIAMETER 16 mm

6 VERSION NUMBER

| | |
|---|---|
| 0 | 1 |
|---|---|

DEPENDENT ON TYPE AND SPECIAL DESIGN, SEE
DETAILED DESCRIPTION OF THE CONNECTOR DESIGN



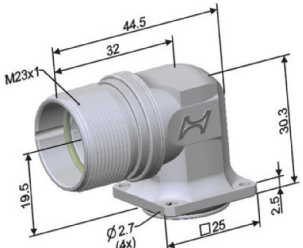
Note:

¹⁾ Contacts are shown on page 60 - 63

Available Connectors

M23 Signal Connectors Series S

Signal receptacles - IP67 unmated

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | CONTACT STYLE | TERMINATION CROSS SECTION | CONTACT ARRANGEMENTS VIEW MATING FACE | | | CABLE CLAMP | | | |
|--|---------------|---------------------|--------------------------------|---------------------------------------|--------------------------|---------------|-------------|------|------|------|
| | | | | 12A
12 x 1 | 12C
12 x 1 (code 20°) | 17A
17 x 1 | | | | |
| Straight receptacle
 | SFOA | MACHINED CRIMP PINS | AWG 26-22 | 12A | 12C | 17A | 000 | | | |
| AWG 24-18 | | | MRAN | | | | | MRAN | MRAN | |
| AWG 24-18 ¹⁾ | | | MREN | | | | | MREN | MREN | |
| without contacts ²⁾ | | | MRMN | | | | | MRMN | MRMN | |
| Straight receptacle, threaded connection PG13.5
 | SFRA | MACHINED CRIMP PINS | AWG 26-22 | 12A | 12C | 17A | 000 | | | |
| | | | AWG 24-18 | | | | | MRAN | MRAN | MRAN |
| | | | AWG 24-18 ¹⁾ | | | | | MREN | MREN | MREN |
| | | | without contacts ²⁾ | | | | | MRMN | MRMN | MRMN |
| Fixed angled receptacle
 | SEAB
UEAB* | MACHINED CRIMP PINS | AWG 26-22 | 12A | 12C | 17A | 000 | | | |
| | | | AWG 24-18 | | | | | MRAN | MRAN | MRAN |
| | | | AWG 24-18 ¹⁾ | | | | | MREN | MREN | MREN |
| | | | without contacts ²⁾ | | | | | MRMN | MRMN | MRMN |

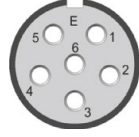
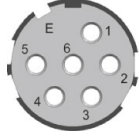
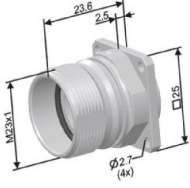

Dimensions are in mm

* UL Version

Note:

¹⁾ Terminals with insulation sleeves, ²⁾ Machined contacts are shown on page 60-61


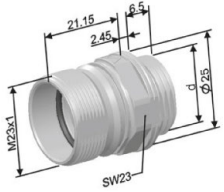
Signal receptacles with solder contacts 6 - 12way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | NUMBER OF CONTACTS |   | | |
|---|-------|-------------------------|---|------|------|
| | | CONTACT STYLE | CONTACT ARRANGEMENTS
VIEW MATING FACE | | |
| Straight receptacle
 | SFNA | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | | FSBN | FSBN |
| Straight receptacle with threaded connection PG 13.5
 | SFPA | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | | FSBN | FSBN |



Dimensions are in mm

| | | | | | | | | |
|---------------------------------------|------|-------------------------------------|------|-----------------------------|------|------------------------------|------|-------------|
| | | | | | | | | CABLE CLAMP |
| <p>07A
7 x 2</p> | | <p>09C
8 x 1 / 1 x 2</p> | | <p>09A
9 x 1</p> | | <p>12E
12 x 1</p> | | |
| CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | |
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | 000 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | 000 |
| | FSBN | | FSAB | | FSAN | | FSAN | |

Signal receptacles for crimp contacts 6 - 17way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL |
|---|----------------|
| Straight receptacle
 | SFFA* |
| Straight receptacle with threaded connection
 <p style="margin-left: 20px;">d =
SFQA = M20x1.5
SFLA = PG 13.5</p> | SFQA*
SFLA* |

Dimensions are in mm * UL Version

| CONTACT STYLE
GENDER REVERSIBLE | TERMINATION
CROSS SECTION | CONTACT ARRANGEMENTS
VIEW MATING FACE | | | |
|---|---|--|------|--------------|------|
| | | 06G
6 x 2 | | 07C
7 x 2 | |
| MACHINED CRIMP PINS | AWG 18-14 | 06G | MRRN | 07C | MRRN |
| | AWG 22-16 | | MRVN | | MRVN |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 24-18, 22-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 30-22, 22-16 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CRIMP SOCKETS | AWG 20-16 | 06G | FRRN | 07C | FRRN |
| | AWG 18-14 | | FRMN | | FRMN |
| | AWG 24-18, 20-16 | | - | | - |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 30-22, 20-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CONTACTS | CONTACTS TO BE ORDERED SEPARATELY ¹⁾
 | 06G | NNNN | 07C | NNNN |
| STAMPED HCS TM CONTACTS | CONTACTS ON REELS TO BE ORDERED SEPARATELY ²⁾
 | | - | | - |

Note:

¹⁾ Machined contacts are shown on page 60-61, ²⁾ Stamped contacts are shown on page 62-63



09E
8 x 1 / 1 x 2



09G
6 x 1 / 3 x 2



09J
9 x 1



12T
12 x 1



12V
12 x 1 (code 20°)



16A
16 x 1



17G
17 x 1

CONTACT ARRANGEMENTS VIEW MATING FACE

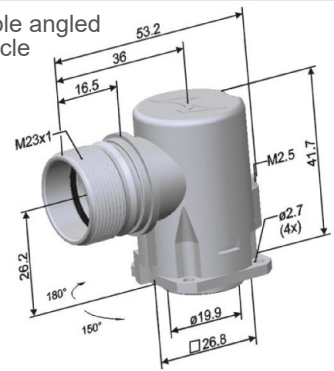
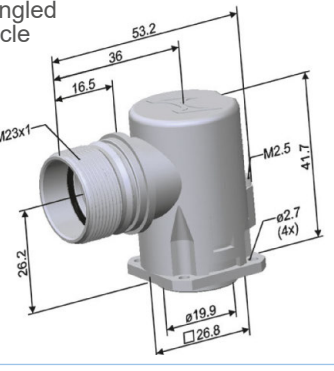
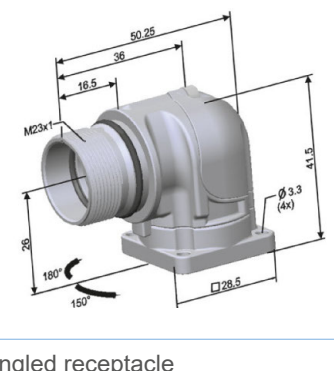
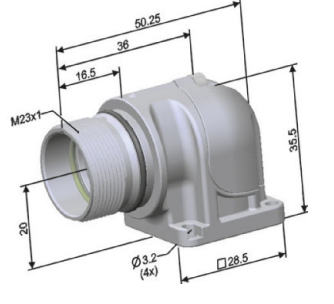
| | | | | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|-----|------|-----|------|-----|------|
| 09E | - | 09G | - | 09J | - | 12T | - | 12V | - | 16A | - | 17G | - |
| | - | | - | | - | | - | | - | | - | | - |
| | MRSR | | MRSR | | - | | - | | - | | - | | - |
| | MRSV | | MRSV | | - | | - | | - | | - | | - |
| | MRWR | | MRWR | | - | | - | | - | | - | | - |
| | MRWV | | MRWV | | - | | - | | - | | - | | - |
| | - | | - | | MRSN | | MRSN | | MRSN | | MRSN | | MRSN |
| - | - | MRWN | MRWN | MRWN | MRWN | MRWN | | | | | | | |
| 09E | - | 09G | - | 09J | - | 12T | - | 12V | - | 16A | - | 17G | - |
| | - | | - | | - | | - | | - | | - | | - |
| | FROR | | FROR | | - | | - | | - | | - | | - |
| | FROM | | FROM | | - | | - | | - | | - | | - |
| | FRBR | | FRBR | | - | | - | | - | | - | | - |
| | FRBM | | FRBM | | - | | - | | - | | - | | - |
| | - | | - | | FRON | | FRON | | FRON | | FRON | | FRON |
| - | - | FRBN | FRBN | FRBN | FRBN | FRBN | | | | | | | |
| 09E | NNNN | 09G | NNNN | 09J | NNNN | 12T | NNNN | 12V | NNNN | 16A | NNNN | 17G | NNNN |
| | - | | - | | NNNN | | NNNN | | NNNN | | NNNN | | NNNN |

CABLE CLAMP

000

000

Signal receptacles for crimp contacts 6 - 17way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL |
|--|-------|
| <p>Rotatable angled receptacle</p>  | SFMB* |
| <p>Fixed angled receptacle</p>  | SFYB* |
| <p>Rotatable angled receptacle</p>  | SGDG* |
| <p>Fixed angled receptacle</p>  | SGFG* |




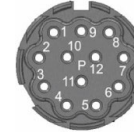
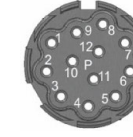

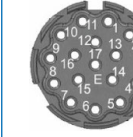
Dimensions are in mm

* UL Version

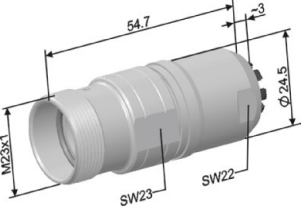
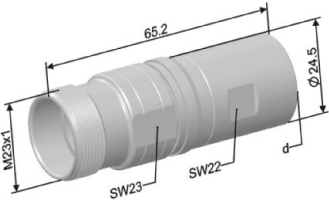
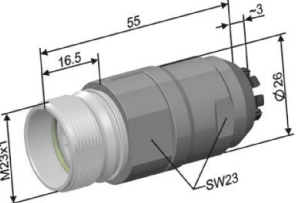
| CONTACT STYLE
GENDER REVERSIBLE | TERMINATION
CROSS SECTION | CONTACT ARRANGEMENTS
VIEW MATING FACE | | | |
|------------------------------------|--|--|------|--------------|------|
| | | 06G
6 x 2 | | 07C
7 x 2 | |
| MACHINED CRIMP PINS | AWG 18-14 | 06G | MRRN | 07C | MRRN |
| | AWG 22-16 | | MRVN | | MRVN |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 24-18, 22-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 30-22, 22-16 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CRIMP SOCKETS | AWG 20-16 | 06G | FRRN | 07C | FRRN |
| | AWG 18-14 | | FRMN | | FRMN |
| | AWG 24-18, 20-16 | | - | | - |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 30-22, 20-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 24-18 | | - | | - |
| AWG 30-22 | - | - | | | |
| MACHINED CONTACTS | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | 06G | NNNN | 07C | NNNN |
| | without contacts | | | | |
| STAMPED HCS™ CONTACTS | CONTACTS ON REELS TO BE ORDERED SEPARATELY ²⁾ | 06G | - | 07C | - |
| | without contacts | | | | |

Note:

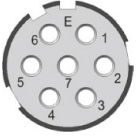
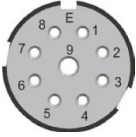
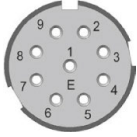
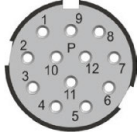
¹⁾ Machined contacts are shown on page 60-61, ²⁾ Stamped contacts are shown on page 62-63

| CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | | | | | | | CABLE CLAMP |
|--|---|---|---|---|---|---|------|------|------|------|------|------|------|-------------|
|  |  |  |  |  |  |  | | | | | | | | |
| 09E | 09G | 09J | 12T | 12V | 16A | 17G | | | | | | | | |
| 8 x 1 / 1 x 2 | 6 x 1 / 3 x 2 | 9 x 1 | 12 x 1 | 12 x 1 (code 20°) | 16 x 1 | 17 x 1 | | | | | | | | |
| 09E | 09G | 09J | 12T | 12V | 16A | 17G | - | - | - | - | - | - | - | 000 |
| | | | | | | | - | - | - | - | - | - | - | |
| | | | | | | | MRSR | MRSR | - | - | - | - | - | |
| | | | | | | | MRSV | MRSV | - | - | - | - | - | |
| | | | | | | | MRWR | MRWR | - | - | - | - | - | |
| | | | | | | | MRWV | MRWV | - | - | - | - | - | |
| | | | | | | | - | - | MRSN | MRSN | MRSN | MRSN | MRSN | |
| | | | | | | | - | - | MRWN | MRWN | MRWN | MRWN | MRWN | |
| 09E | 09G | 09J | 12T | 12V | 16A | 17G | - | - | - | - | - | - | - | 000 |
| | | | | | | | - | - | - | - | - | - | - | |
| | | | | | | | FROR | FROR | - | - | - | - | - | |
| | | | | | | | FROM | FROM | - | - | - | - | - | |
| | | | | | | | FRBR | FRBR | - | - | - | - | - | |
| | | | | | | | FRBM | FRBM | - | - | - | - | - | |
| | | | | | | | - | - | FRON | FRON | FRON | FRON | FRON | |
| | | | | | | | - | - | FRBN | FRBN | FRBN | FRBN | FRBN | |
| 09E | 09G | 09J | 12T | 12V | 16A | 17G | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | 000 |
| | | | | | | | - | - | NNNN | NNNN | NNNN | NNNN | NNNN | |

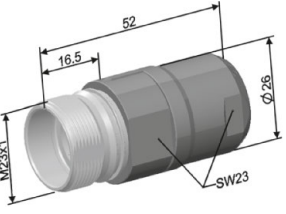
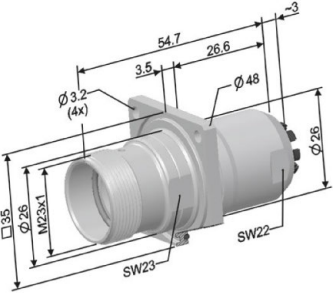
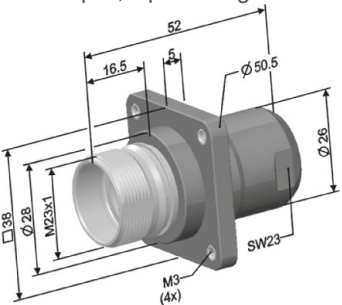
Signal receptacles with solder contacts 6 - 12way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | NUMBER OF CONTACTS | CONTACT ARRANGEMENTS
VIEW MATING FACE | | |
|--|--------------|-------------------------|--|--|------|
| | | | CONTACT STYLE | CONTACT ARRANGEMENTS
VIEW MATING FACE | |
| Extension with cable clamp Ø 5.5-12 mm
 | SRNA | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | 06C | FSBN | FSBN |
| Extension with cable clamp Ø 5.5-12 mm, threaded connection

d =
SRRA = M20x1.5
SRGA = PG13.5 | SRRA
SRGA | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | | | |
| Extension, plastic shell, with cable clamp Ø 5.5-12 mm
 | SROC | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | | | |

Dimensions are in mm

| | | | | | | | | |
|---|------|---|------|---|------|---|------|-------------|
|  | |  | |  | |  | | CABLE CLAMP |
| <p>07A
7 x 2</p> | | <p>09C
8 x 1 / 1 x 2</p> | | <p>09A
9 x 1</p> | | <p>12E
12 x 1</p> | | |
| CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | |
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | 169 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | 000 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | 169 |
| | FSBN | | FSAB | | FSAN | | FSAN | |

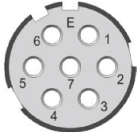
Signal extensions with solder contacts 6 - 12way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | NUMBER OF CONTACTS | CONTACT ARRANGEMENTS
VIEW MATING FACE | | |
|---|-------|-------------------------|--|--|------|
| | | | CONTACT STYLE | CONTACT ARRANGEMENTS
VIEW MATING FACE | |
| Extension, plastic shell, with cable specific cable clamps ¹⁾
 | SRUC | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | 06E | FSBN | FSBN |
| Extension with cable clamp Ø 5.5-12 mm, square flange
 | SRNA | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | 06E | FSBN | FSBN |
| Extension, plastic shell, with cable specific cable clamps ¹⁾ , square flange
 | SRWC | PINS WITH SOLDER CUP | 06C | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | 06E | FSBN | FSBN |

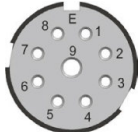
Dimensions are in mm

Note:

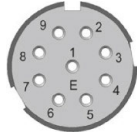
¹⁾ Cable specific cable clamp please contact factory



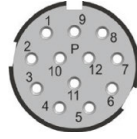
07A
7 x 2



09C
8 x 1 / 1 x 2



09A
9 x 1



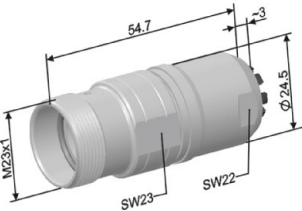
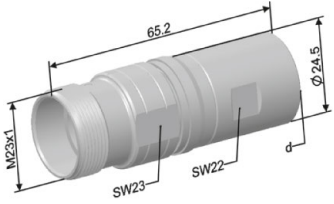
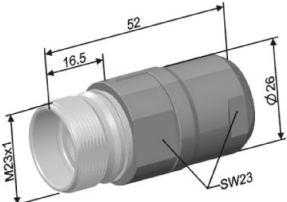
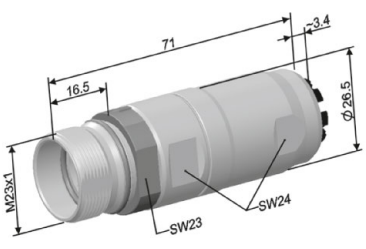
12E
12 x 1

CABLE CLAMP

CONTACT ARRANGEMENTS VIEW MATING FACE



| | | | | | | | | |
|-----|------|-----|------|-----|------|-----|------|-------|
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | ... |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | 16901 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07A | MSBN | 09C | MSAB | 09A | MSAN | 12E | MSAN | ... |
| | FSBN | | FSAB | | FSAN | | FSAN | |

Signal extensions for crimp contacts 6 - 17way

| LAYOUT DESCRIPTION PART NUMBER CONFIGURATOR | | SHELL |
|--|---|----------------|
| Extension with cable clamp Ø 5.5-12 mm |  | SRNA* |
| Extension with cable clamp Ø 5.5-12 mm, threaded connection | 
d =
SRRA = M20x1.5
SRGA = PG13.5 | SRRA*
SRGA* |
| Extension, plastic shell, with cable specific cable clamps ³⁾ |  | SRUC* |
| Extension with cable clamp Ø 7.7-14.5 mm |  | SRFA* |








Dimensions are in mm

* UL Version

| CONTACT STYLE
GENDER REVERSIBLE | TERMINATION
CROSS SECTION | CONTACT ARRANGEMENTS
VIEW MATING FACE | | | |
|------------------------------------|---|--|------|--------------|------|
| | | 06G
6 x 2 | | 07C
7 x 2 | |
| MACHINED CRIMP PINS | AWG 18-14 | 06G | MRRN | 07C | MRRN |
| | AWG 22-16 | | MRVN | | MRVN |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 24-18, 22-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 30-22, 22-16 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CRIMP SOCKETS | AWG 20-16 | 06G | FRRN | 07C | FRRN |
| | AWG 18-14 | | FRMN | | FRMN |
| | AWG 24-18, 20-16 | | - | | - |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 30-22, 20-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 24-18 | | - | | - |
| AWG 30-22 | - | - | | | |
| MACHINED CONTACTS | CONTACTS TO BE ORDERED SEPARATELY ¹⁾
 | 06G | NNNN | 07C | NNNN |
| STAMPED HCS™ CONTACTS | CONTACTS ON REELS TO BE ORDERED SEPARATELY ²⁾
 | | - | | - |

Note:

¹⁾ Machined contacts are shown on page 60-61, ²⁾ Stamped contacts are shown on page 62-63, ³⁾ Cable specific cable clamp please contact factory

|  | |  | |  | |  | |  | |  | |  | | CABLE CLAMP |
|--|---------------|---|---------------|---|-------|---|--------|--|-------------------|---|--------|---|--------|-------------|
| 09E | 8 x 1 / 1 x 2 | 09G | 6 x 1 / 3 x 2 | 09J | 9 x 1 | 12T | 12 x 1 | 12V | 12 x 1 (code 20°) | 16A | 16 x 1 | 17G | 17 x 1 | |
| CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | | | | | | | |
| 09E | - | 09G | - | 09J | - | 12T | - | 12V | - | 16A | - | 17G | - | 169 |
| | - | | - | | - | | - | | - | | - | | - | |
| | MRSR | | MRSR | | - | | - | | - | | - | | - | |
| | MRSV | | MRSV | | - | | - | | - | | - | | - | |
| | MRWR | | MRWR | | - | | - | | - | | - | | - | |
| | MRWV | | MRWV | | - | | - | | - | | - | | - | |
| | - | | - | | MRSN | | MRSN | | MRSN | | MRSN | | MRSN | |
| - | - | MRWN | MRWN | MRWN | MRWN | MRWN | MRWN | | | | | | | |
| 09E | - | 09G | - | 09J | - | 12T | - | 12V | - | 16A | - | 17G | - | 000 |
| | - | | - | | - | | - | | - | | - | | - | |
| | FROR | | FROR | | - | | - | | - | | - | | - | |
| | FROM | | FROM | | - | | - | | - | | - | | - | |
| | FRBR | | FRBR | | - | | - | | - | | - | | - | |
| | FRBM | | FRBM | | - | | - | | - | | - | | - | |
| | - | | - | | FRON | | FRON | | FRON | | FRON | | FRON | |
| - | - | FRBN | FRBN | FRBN | FRBN | FRBN | | | | | | | | |
| 09E | NNNN | 09G | NNNN | 09J | NNNN | 12T | NNNN | 12V | NNNN | 16A | NNNN | 17G | NNNN | 170 |
| | - | | - | | NNNN | | NNNN | | NNNN | | NNNN | | NNNN | |

Signal extensions for crimp contacts 6 - 17way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL |
|--|-------|
| Extension with cable clamp Ø 5.5-12 mm
 | SROC* |
| Extension with cable clamp Ø 5.5-12 mm, square flange
 | SRNA* |
| Extension, plastic shell, with cable specific cable clamps ³⁾ , square flange
 | SRWC* |
| Extension with cable clamp Ø 5-16 mm
 | SVRA* |

Flange can be ordered separately⁴⁾

Dimensions are in mm

* UL Version

| CONTACT STYLE
GENDER REVERSIBLE | TERMINATION
CROSS SECTION | CONTACT ARRANGEMENTS
VIEW MATING FACE | | | |
|------------------------------------|--|--|-----|--------------|------|
| | | 06G
6 x 2 | | 07C
7 x 2 | |
| MACHINED CRIMP PINS | AWG 18-14 | 06G | 07C | MRRN | MRRN |
| | AWG 22-16 | | | MRVN | MRVN |
| | AWG 24-18, 18-14 | | | - | - |
| | AWG 24-18, 22-16 | | | - | - |
| | AWG 30-22, 18-14 | | | - | - |
| | AWG 30-22, 22-16 | | | - | - |
| | AWG 24-18 | | | - | - |
| | AWG 30-22 | | | - | - |
| MACHINED CRIMP SOCKETS | AWG 20-16 | 06G | 07C | FRRN | FRRN |
| | AWG 18-14 | | | FRMN | FRMN |
| | AWG 24-18, 20-16 | | | - | - |
| | AWG 24-18, 18-14 | | | - | - |
| | AWG 30-22, 20-16 | | | - | - |
| | AWG 30-22, 18-14 | | | - | - |
| | AWG 24-18 | | | - | - |
| AWG 30-22 | - | - | | | |
| MACHINED CONTACTS | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | | | NNNN | NNNN |
| STAMPED HCS™ CONTACTS | CONTACTS ON REELS TO BE ORDERED SEPARATELY ²⁾ | 06G | 07C | - | - |






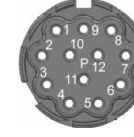
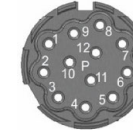


06G
6 x 2

07C
7 x 2

CONTACT ARRANGEMENTS
VIEW MATING FACE

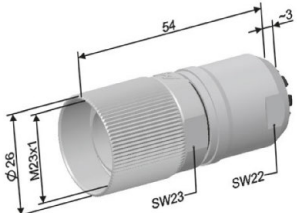
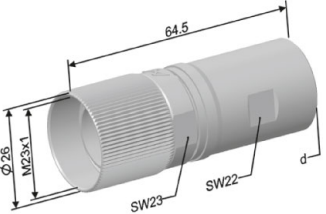
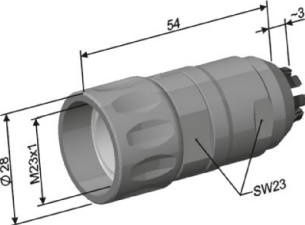
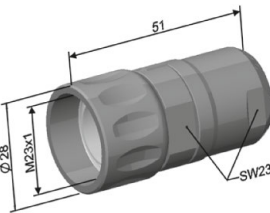
¹⁾ Machined contacts are shown on page 60-61, ²⁾ Stamped contacts are shown on page 62-63

Note:

|  | |  | |  | |  | |  | |  | |  | | CABLE CLAMP |
|--|-----------------------------|---|----------------------|---|----------------------|---|---------------------------------------|---|------|---|------|---|------|-------------------|
| 09E
8 x 1 / 1 x 2 | 09G
6 x 1 / 3 x 2 | 09J
9 x 1 | 12T
12 x 1 | 12V
12 x 1 (code 20°) | 16A
16 x 1 | 17G
17 x 1 | CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | |
| 09E | 09G | 09J | 12T | 12V | 16A | 17G | - | - | - | - | - | - | - | 169 |
| | | | | | | | - | - | - | - | - | - | - | |
| | | | | | | | MRSR | MRSR | - | - | - | - | - | |
| | | | | | | | MRSV | MRSV | - | - | - | - | - | |
| | | | | | | | MRWR | MRWR | - | - | - | - | - | |
| | | | | | | | MRWV | MRWV | - | - | - | - | - | |
| | | | | | | | - | - | MRSN | MRSN | MRSN | MRSN | MRSN | |
| - | - | MRWN | MRWN | MRWN | MRWN | MRWN | 16901 | | | | | | | |
| - | - | - | - | - | - | - | | | | | | | | |
| - | - | - | - | - | - | - | | | | | | | | |
| FROR | FROR | - | - | - | - | - | | | | | | | | |
| FROM | FROM | - | - | - | - | - | | | | | | | | |
| FRBR | FRBR | - | - | - | - | - | | | | | | | | |
| FRBM | FRBM | - | - | - | - | - | | | | | | | | |
| - | - | FRON | FRON | FRON | FRON | FRON | ... | | | | | | | |
| - | - | FRBN | FRBN | FRBN | FRBN | FRBN | | | | | | | | |
| 09E | 09G | 09J | 12T | 12V | 16A | 17G | | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | 260
261
262 |
| | | | | | | | | - | - | NNNN | NNNN | NNNN | NNNN | |

Note: ³⁾ Cable specific cable clamp please contact factory. ⁴⁾ More information please contact factory.


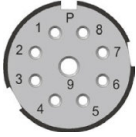
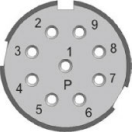
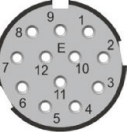
Signal plugs with solder contacts 6 - 12way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | NUMBER OF CONTACTS | CONTACT ARRANGEMENTS
VIEW MATING FACE | | | |
|---|--------------|-------------------------|--|------|-----|------|
| | | CONTACT STYLE | VIEW MATING FACE | | | |
| Plug with cable clamp Ø 5.5–12 mm
 | SPNA | PINS WITH SOLDER CUP | 06D | MSBN | 06F | MSBN |
| | | SOCKETS WITH SOLDER CUP | | FSBN | | FSBN |
| Plug with cable clamp Ø 5.5–12 mm, threaded connection

d =
SPRA = M20x1.5
SPGA = PG13.5 | SPRA
SPGA | PINS WITH SOLDER CUP | 06D | MSBN | 06F | MSBN |
| | | SOCKETS WITH SOLDER CUP | | FSBN | | FSBN |
| Plug, plastic shell, with cable clamp Ø 5.5–12 mm
 | SPOC | PINS WITH SOLDER CUP | 06D | MSBN | 06F | MSBN |
| | | SOCKETS WITH SOLDER CUP | | FSBN | | FSBN |
| Plug, plastic shell, with cable specific cable clamps ¹⁾
 | SPUC | PINS WITH SOLDER CUP | 06D | MSBN | 06F | MSBN |
| | | SOCKETS WITH SOLDER CUP | | FSBN | | FSBN |

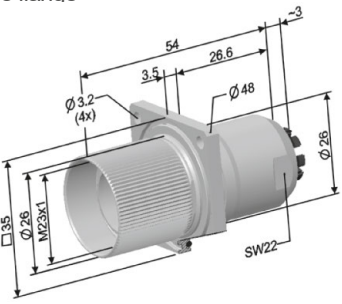
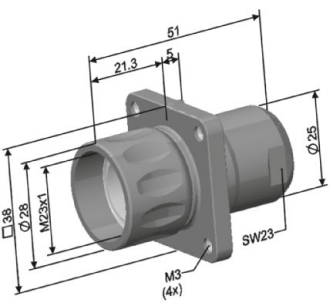
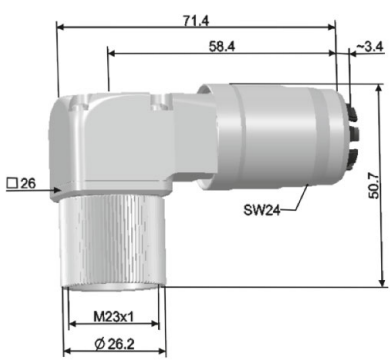
Dimensions are in mm

Note:

¹⁾ Cable specific cable clamp please contact factory

| | | | | | | | | |
|---|------|---|------|---|------|---|------|-------------|
|  | |  | |  | |  | | CABLE CLAMP |
| <p>07B
7 x 2</p> | | <p>09D
8 x 1 / 1 x 2</p> | | <p>09B
9 x 1</p> | | <p>12F
12 x 1</p> | | |
| CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | |
| 07B | MSBN | 09D | MSAB | 09B | MSAN | 12F | MSAN | 169 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07B | MSBN | 09D | MSAB | 09B | MSAN | 12F | MSAN | 000 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07B | MSBN | 09D | MSAB | 09B | MSAN | 12F | MSAN | 169 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07B | MSBN | 09D | MSAB | 09B | MSAN | 12F | MSAN | ... |
| | FSBN | | FSAB | | FSAN | | FSAN | |

Signal plugs with solder contacts 6 - 12way

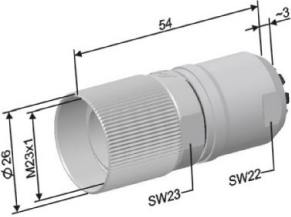


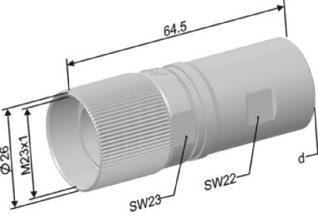
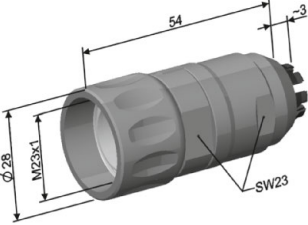
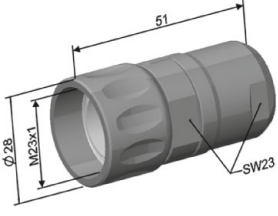
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | NUMBER OF CONTACTS | CONTACT ARRANGEMENTS
VIEW MATING FACE | | |
|--|-------|-------------------------|--|------|------|
| | | | CONTACT STYLE | | |
| Plug with with cable clamp \varnothing 5.5–12 mm, square flange
 | SPNA | PINS WITH SOLDER CUP | 06D | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | 06D | FSBN | FSBN |
| Plug, plastic shell, with cable specific cable clamps ¹⁾ , square flange
 | SPYC | PINS WITH SOLDER CUP | 06D | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | 06D | FSBN | FSBN |
| Angled plug with cable clamp \varnothing 7.7-14.5 mm
 | SPHA | PINS WITH SOLDER CUP | 06D | MSBN | MSBN |
| | | SOCKETS WITH SOLDER CUP | 06D | FSBN | FSBN |

Dimensions are in mm

¹⁾ Cable specific cable clamp please contact factory

| | | | | | | | | |
|---------------------------------------|------|-----------------------------|------|---------------------|------|----------------------|------|-------------|
| | | | | | | | | CABLE CLAMP |
| 07B
7 x 2 | | 09D
8 x 1 / 1 x 2 | | 09B
9 x 1 | | 12F
12 x 1 | | |
| CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | |
| 07B | MSBN | 09D | MSAB | 09B | MSAN | 12F | MSAN | 16914 |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07B | MSBN | 09D | MSAB | 09B | MSAN | 12F | MSAN | ... |
| | FSBN | | FSAB | | FSAN | | FSAN | |
| 07B | MSBN | 09D | MSAB | 09B | MSAN | 12F | MSAN | 17003 |
| | FSBN | | FSAB | | FSAN | | FSAN | |

Signal plugs for crimp contacts 6 - 17way

| LAYOUT DESCRIPTION PART NUMBER CONFIGURATOR | | SHELL | CONTACT STYLE GENDER REVERSIBLE | | TERMINATION CROSS SECTION | | CONTACT ARRANGEMENTS VIEW MATING FACE | |
|---|----------------|---|---|-----------------------------------|---------------------------|---|---------------------------------------|------|
| <p>Plug with cable clamp Ø 5.5-12 mm</p>  | SPNA* |  <p>06H
6 x 2</p> |  <p>07D
7 x 2</p> | <p>MACHINED CRIMP PINS</p> | <p>06H</p> | <p>07D</p> | MRRN | MRRN |
| | | MRVN | MRVN | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| <p>Plug with cable clamp Ø 5.5-12 mm, threaded connection</p>  <p>d =
SRRa = M20x1.5
SRGA = PG13.5</p> | SPRA*
SPGA* | <p>06H</p> | <p>07D</p> | | FRRN | FRRN | | |
| | | | | | FRMN | FRMN | | |
| | | | | | - | - | | |
| | | | | | - | - | | |
| | | | | | - | - | | |
| | | | | | - | - | | |
| | | | | - | - | | | |
| | | | | - | - | | | |
| <p>Plug, plastic shell, with cable clamp Ø 5.5-12 mm</p>  | SPOC* | | | <p>06H</p> | <p>07D</p> | FRRN | FRRN | |
| | | | | | | FRMN | FRMN | |
| | | | | | | - | - | |
| | | | | | | - | - | |
| | | | | | | - | - | |
| | | | | | | - | - | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| | | - | - | | | | | |
| <p>Plug, plastic shell, with cable specific cable clamps³⁾</p>  | SPUC* | <p>06H</p> | <p>07D</p> | | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | NNNN | |
| | | | | without contacts | NNNN | | | |
| | | CONTACTS ON REELS TO BE ORDERED SEPARATELY ²⁾ | - | - | | | | |
| | | without contacts | - | - | | | | |

Dimensions are in mm

* UL Version

¹⁾ Machined contacts are shown on page 60-61, ²⁾ Stamped contacts are shown on page 62-63, ³⁾ Cable specific cable clamp please contact factory

Note:



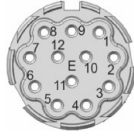
09F
8 x 1 / 1 x 2



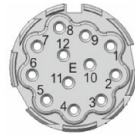
09H
6 x 1 / 3 x 2



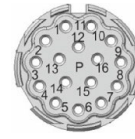
09K
9 x 1



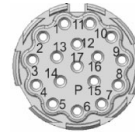
12S
12 x 1



12U
12 x 1 (code 20°)



16B
16 x 1



17H
17 x 1

CONTACT ARRANGEMENTS VIEW MATING FACE

| | | CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | | | | CABLE CLAMP |
|------|------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|-------------|
| | | 09F | 09H | 09K | 12S | 12U | 16B | 17H | | | | | |
| 09F | - | - | - | - | - | - | - | - | - | - | - | - | 169 |
| | - | - | - | - | - | - | - | - | - | - | - | - | |
| | MRSR | MRSR | MRSR | MRSR | MRSR | MRSR | MRSR | MRSR | MRSR | MRSR | MRSR | MRSR | |
| | MRSV | MRSV | MRSV | MRSV | MRSV | MRSV | MRSV | MRSV | MRSV | MRSV | MRSV | MRSV | |
| | MRWR | MRWR | MRWR | MRWR | MRWR | MRWR | MRWR | MRWR | MRWR | MRWR | MRWR | MRWR | |
| | MRWV | MRWV | MRWV | MRWV | MRWV | MRWV | MRWV | MRWV | MRWV | MRWV | MRWV | MRWV | |
| | - | - | MRSN | MRSN | MRSN | MRSN | MRSN | MRSN | MRSN | MRSN | MRSN | MRSN | |
| - | - | MRWN | MRWN | MRWN | MRWN | MRWN | MRWN | MRWN | MRWN | MRWN | MRWN | MRWN | 000 |
| - | - | - | - | - | - | - | - | - | - | - | - | | |
| - | - | - | - | - | - | - | - | - | - | - | - | | |
| FROR | FROR | FROR | FROR | FROR | FROR | FROR | FROR | FROR | FROR | FROR | FROR | | |
| FROM | FROM | FROM | FROM | FROM | FROM | FROM | FROM | FROM | FROM | FROM | FROM | | |
| FRBR | FRBR | FRBR | FRBR | FRBR | FRBR | FRBR | FRBR | FRBR | FRBR | FRBR | FRBR | | |
| FRBM | FRBM | FRBM | FRBM | FRBM | FRBM | FRBM | FRBM | FRBM | FRBM | FRBM | FRBM | | |
| - | - | FRON | FRON | FRON | FRON | FRON | FRON | FRON | FRON | FRON | FRON | ... | |
| - | - | FRBN | FRBN | FRBN | FRBN | FRBN | FRBN | FRBN | FRBN | FRBN | FRBN | | |
| NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | | |
| - | - | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | | |
| - | - | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | | |
| - | - | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | | |
| - | - | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | | |
| 09F | - | 09H | - | 09K | 12S | 12U | 16B | 17H | 169 | | | | |

Signal plugs for crimp contacts 6 - 17way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL |
|--|-------|
| <p>Plug with cable clamp Ø 5.5-12 mm, square flange</p> | SPNA* |
| <p>Plug, plastic shell, with cable specific cable clamps¹⁾, square flange</p> | SPYC* |
| <p>Angled plug with cable clamp Ø 7.7-14.5 mm</p> | SPHA* |

Dimensions are in mm

* UL Version




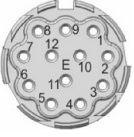
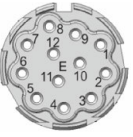


| CONTACT STYLE
GENDER REVERSIBLE | TERMINATION
CROSS SECTION | CONTACT ARRANGEMENTS
VIEW MATING FACE | | | |
|------------------------------------|--|--|------|--------------|------|
| | | 06H
6 x 2 | | 07D
7 x 2 | |
| MACHINED CRIMP PINS | AWG 18-14 | 06H | MRRN | 07D | MRRN |
| | AWG 22-16 | | MRVN | | MRVN |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 24-18, 22-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 30-22, 22-16 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CRIMP SOCKETS | AWG 20-16 | 06H | FRRN | 07D | FRRN |
| | AWG 18-14 | | FRMN | | FRMN |
| | AWG 24-18, 20-16 | | - | | - |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 30-22, 20-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CONTACTS | CONTACTS TO BE ORDERED SEPARATELY ¹⁾

without contacts | 06H | NNNN | 07D | NNNN |
| STAMPED HCS™ CONTACTS | CONTACTS ON REELS TO BE ORDERED SEPARATELY ²⁾

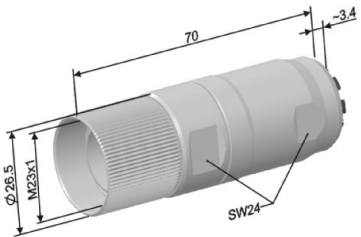
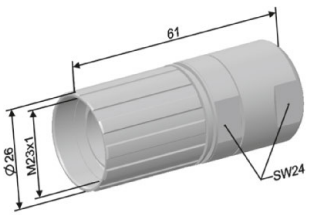
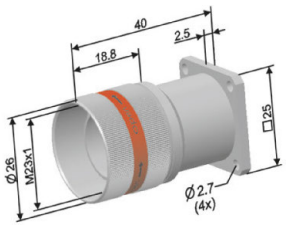
without contacts | | - | | - |

Note:

¹⁾ Machined contacts are shown on page 60-61, ²⁾ Stamped contacts are shown on page 62-63, ³⁾ Cable specific cable clamp please contact factory

|  | |  | |  | |  | |  | |  | |  | | CABLE CLAMP | | |
|--|------|---|------|---|------|---|------|--|------|---|------|---|------|-------------|------|---|
| 09F
8 x 1 / 1 x 2 | | 09H
6 x 1 / 3 x 2 | | 09K
9 x 1 | | 12S
12 x 1 | | 12U
12 x 1 (code 20°) | | 16B
16 x 1 | | 17H
17 x 1 | | | | |
| CONTACT ARRANGEMENTS VIEW MATING FACE | | | | | | | | | | | | | | | | |
| 09F | - | 09H | - | 09K | - | 12S | - | 12U | - | 16B | - | 17H | - | 16914 | | |
| | - | | - | | - | | - | | - | | - | | - | | - | |
| | MRSR | | MRSR | | - | | - | | - | | - | | - | | - | |
| | MRSV | | MRSV | | - | | - | | - | | - | | - | | - | |
| | MRWR | | MRWR | | - | | - | | - | | - | | - | | - | |
| | MRWV | | MRWV | | - | | - | | - | | - | | - | | - | |
| | - | | - | | MRSN | | MRSN | | MRSN | | MRSN | | MRSN | | MRSN | |
| | - | | - | | MRWN | | MRWN | | MRWN | | MRWN | | MRWN | | MRWN | |
| 09F | - | 09H | - | 09K | - | 12S | - | 12U | - | 16B | - | 17H | - | | ... | |
| | - | | - | | - | | - | | - | | - | | - | | | - |
| | FROR | | FROR | | - | | - | | - | | - | | - | | | - |
| | FROM | | FROM | | - | | - | | - | | - | | - | | | - |
| | FRBR | | FRBR | | - | | - | | - | | - | | - | | | - |
| | FRBM | | FRBM | | - | | - | | - | | - | | - | | | - |
| | - | | - | | FRON | | FRON | | FRON | | FRON | | FRON | FRON | | |
| | - | | - | | FRBN | | FRBN | | FRBN | | FRBN | | FRBN | FRBN | | |
| 09F | NNNN | 09H | NNNN | 09K | NNNN | 12S | NNNN | 12U | NNNN | 16B | NNNN | 17H | NNNN | 17003 | | |
| | - | | - | | NNNN | | NNNN | | NNNN | | NNNN | | NNNN | | | |

Signal plugs for crimp contacts 6 - 17way

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL |
|--|-------|
| Plug with cable clamp Ø 7.7-14.5 mm
 | SPFA* |
| Plug with cable clamp Ø 5-16 mm
 | SVPA* |
| Flange can be ordered separately ³⁾
Panel feed through, square flange
 | SDPA* |

Dimensions are in mm

* UL Version

| CONTACT STYLE
GENDER REVERSIBLE | TERMINATION
CROSS SECTION | CONTACT ARRANGEMENTS
VIEW MATING FACE | | | |
|------------------------------------|--|--|------|--------------|------|
| | | 06H
6 x 2 | | 07D
7 x 2 | |
| MACHINED CRIMP PINS | AWG 18-14 | 06H | MRRN | 07D | MRRN |
| | AWG 22-16 | | MRVN | | MRVN |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 24-18, 22-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 30-22, 22-16 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CRIMP SOCKETS | AWG 20-16 | 06H | FRRN | 07D | FRRN |
| | AWG 18-14 | | FRMN | | FRMN |
| | AWG 24-18, 20-16 | | - | | - |
| | AWG 24-18, 18-14 | | - | | - |
| | AWG 30-22, 20-16 | | - | | - |
| | AWG 30-22, 18-14 | | - | | - |
| | AWG 24-18 | | - | | - |
| | AWG 30-22 | | - | | - |
| MACHINED CONTACTS | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | 06H | NNNN | 07D | NNNN |
| | without contacts | | | | |
| STAMPED HCS™ CONTACTS | CONTACTS ON REELS TO BE ORDERED SEPARATELY ²⁾ | 06H | | 07D | |
| | without contacts | | | | |

Note:

¹⁾ Machined contacts are shown on page 60-61, ²⁾ Stamped contacts are shown on page 62-63, ³⁾ More information please contact factory.



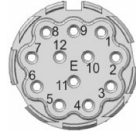
09F
8 x 1 / 1 x



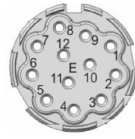
09H
6 x 1 / 3 x 2



09K
9 x 1



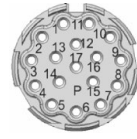
12S
12 x 1



12U
12 x 1 (code 20°)



16B
16 x 1



17H
17 x 1

CONTACT ARRANGEMENTS VIEW MATING FACE

| | 09F | 09H | 09K | 12S | 12U | 16B | 17H |
|--|------|------|------|------|------|------|------|
| | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - |
| | MRSR | MRSR | - | - | - | - | - |
| | MRSV | MRSV | - | - | - | - | - |
| | MRWR | MRWR | - | - | - | - | - |
| | MRWV | MRWV | - | - | - | - | - |
| | - | - | MRSN | MRSN | MRSN | MRSN | MRSN |
| | - | - | MRWN | MRWN | MRWN | MRWN | MRWN |
| | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - |
| | FROR | FROR | - | - | - | - | - |
| | FROM | FROM | - | - | - | - | - |
| | FRBR | FRBR | - | - | - | - | - |
| | FRBM | FRBM | - | - | - | - | - |
| | - | - | FRON | FRON | FRON | FRON | FRON |
| | - | - | FRBN | FRBN | FRBN | FRBN | FRBN |
| | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN | NNNN |
| | - | - | NNNN | NNNN | NNNN | NNNN | NNNN |

CABLE CLAMP

170


260
261
262

000

21 Pin Connectors

M23 Signal Connector Series S

Receptacle for 21 pin inserts

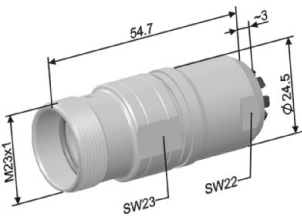
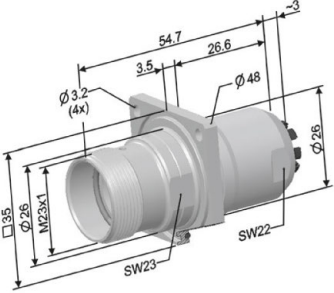
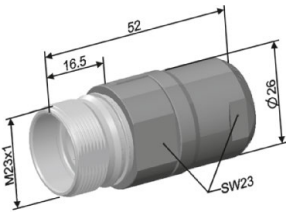
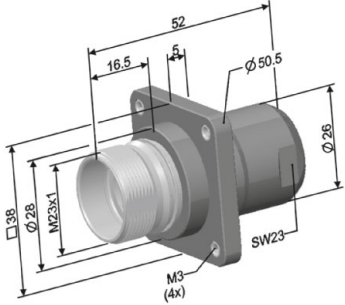
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | CONTACT STYLE | TERMINATION CROSS SECTION | VIEW MATING FACE | | CABLE CLAMP |
|---|-------|---|---------------------------|------------------|------|-------------|
| | | | | 21A
21 x 0.6 | | |
| Straight receptacle
 | SFOA | MACHINED CRIMP PINS | AWG 26-22 | 21A | MRGN | 000 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |

Dimensions are in mm

Note:

¹⁾ Machined contacts are shown on page 60-61

Extensions for 21 pin inserts

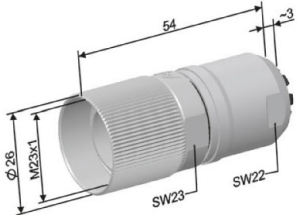
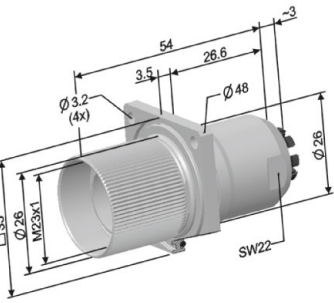
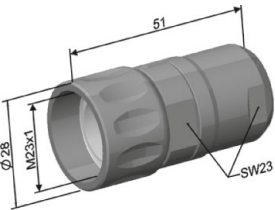
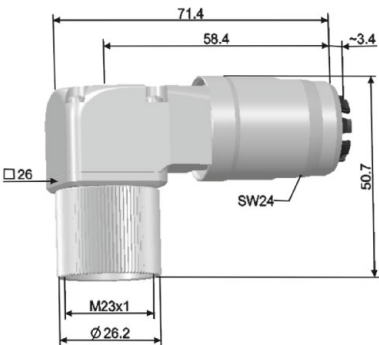
| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | CONTACT STYLE | TERMINATION CROSS SECTION | 21A
21 x 0.6 | | CABLE CLAMP |
|---|-------|---|---------------------------|------------------|------|-------------|
| | | | | VIEW MATING FACE | | |
| Extension with cable clamp Ø 5.5-12 mm,
 | SRNA | MACHINED CRIMP PINS | AWG 26-22 | 21A | MRGN | 16913 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |
| Extension with cable clamp Ø 5.5-12 mm, square flange
 | SRNA | MACHINED CRIMP PINS | AWG 26-22 | 21A | MRGN | 16912 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |
| Extension plastic shell, with cable specific cable clamps ²⁾
 | SRUC | MACHINED CRIMP PINS | AWG 26-22 | 21A | MRGN | ... 09 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |
| Plug, plastic shell, with cable specific cable clamps ²⁾ , square flange
 | SRWC | MACHINED CRIMP PINS | AWG 26-22 | 21A | MRGN | ... 04 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |

Dimensions are in mm

Note:

¹⁾ Machined contacts are shown on page 60-61, ²⁾ Cable specific cable clamp please contact factory

Plugs for 21 pin inserts

| LAYOUT DESCRIPTION
PART NUMBER CONFIGURATOR | SHELL | CONTACT STYLE | TERMINATION CROSS SECTION | 21B
21 x 0.6 | | CABLE CLAMP |
|--|-------|---|---------------------------|------------------|------|-------------|
| | | | | VIEW MATING FACE | | |
| Plug with cable clamp Ø 5.5-12 mm
 | SPNA | MACHINED CRIMP PINS | AWG 26-22 | 21B | MRGN | 16928 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |
| Plug with cable clamp Ø 5.5-12 mm, square flange
 | SPNA | MACHINED CRIMP PINS | AWG 26-22 | 21B | MRGN | 16946 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |
| Plug, plastic shell, with cable specific cable clamps ²⁾
 | SPUC | MACHINED CRIMP PINS | AWG 26-22 | 21B | MRGN | ... 12 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |
| Angled plug with cable clamp Ø 7.7-14.5 mm
 | SPHA | MACHINED CRIMP PINS | AWG 26-22 | 21B | MRGN | 17008 |
| | | MACHINED CRIMP SOCKETS | AWG 26-22 | | FRFN | |
| | | CONTACTS TO BE ORDERED SEPARATELY ¹⁾ | without contacts | | NNNN | |

Dimensions are in mm








Note:

¹⁾ Machined contacts are shown on page 60-61

²⁾ Customized cable clamp please contact factory

Cable Clamps & Accessories






M23 Signal Connector Series S

| | | |
|---|--|---|
| Cable clamp no. 169 | Clamp range | |
|  | <p>With reducing sleeve from 5.5 – 8.5 mm
 Without reducing sleeve from 8 – 12 mm
 Can be used for shielded and non-shielded cables</p> | |
| Cable clamp no. 170 | Clamp range | |
|  | <p>With reducing sleeve from 7.7 – 12 mm
 Without reducing sleeve from 11 – 14.5 mm
 Can be used for shielded and non-shielded cables</p> | |
| Cable clamp no. 260/261/262 for SVPA/SVRA | Clamp range | |
|  | <p>.260 cable diameter 5 – 9 mm
 .261 cable diameter 9 – 15 mm
 .262 cable diameter 16mm
 Can be used for shielded and non-shielded cables</p> | |
| Thread protection cap | Part number | |
|  | <p>031.001053.1000</p> | |
| Dust shield caps | Part number | Description |
|  | <p>C/BEL/1</p> | <p>Dust shield cap for extension and receptacle</p> |
|  | <p>C/BEL/7</p> | <p>Dust shield cap for extension and receptacle with chain 125 mm</p> |
|  | <p>C/BEL/5</p> | <p>Dust shield cap for plug with chain 125 mm</p> |






Contacts

M23 Signal Connector Series S

Machined pins - Series S




| Type | | R | V | S | W | G |
|--|-----------------------------|---|---|--|---|---|
| Contact diameter [mm] | | 2 | 2 | 1 | 1 | 0.6 |
| PART NUMBER AND LAYOUT | | 021.310.1020
 | 021.356.1020
 | 021.311.1020
 | 021.402.1020
 | 021.072.1020
 |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 18 – 14
0.75 – 2.5 | 22 – 16
0.34 – 1.5 | 24 – 18
0.24 – 1.0 | 30 – 22
0.05 – 0.34 | 26 – 22
0.14 – 0.34 |
| Nominal current @ 20°C [A] ²⁾ | VDE
USR
CNR | 20
20
- | 20
20
- | 9
9
- | 9
-
- | 3
-
- |
| Crimping tool | | B179 | B151 | B150 | B150 | B150 |
| Positioner | | B201 | B201 | B055/A | B055/A | B378 |

Hypertac® sockets - Series S

| Type | | R | M | O | B | F |
|---|-----------------------------|---|---|--|---|---|
| Contact diameter [mm] | | 2 | 2 | 1 | 1 | 0.6 |
| PART NUMBER AND LAYOUT | | 020.315.1020
 | 020.263.1020
 | 020.256.1020
 | 020.353.1020
 | 020.060.1020
 |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 20 - 16
0.5 - 1.5 | 18 - 14
0.75 - 2.5 | 24 - 18
0.24 - 1.0 | 30 - 22
0.05 - 0.34 | 26 - 22
0.14 - 0.34 |
| Nominal current @ 20°C [A] | VDE
USR
CNR | 20
20
- | 20
20
- | 9
9
- | 9
9
- | 3
-
- |
| Crimping tool | | B151 | B151 | B150 | B150 | B151 |
| Positioner | | B201 | B201 | B055/A | B055/A | B378 |

Note:
¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wired further cross sections and currents can be processed. ²⁾ data only valid when plugged with Hypertac sockets.

Machined pins - Series S (for receptacles IP67 unmated)

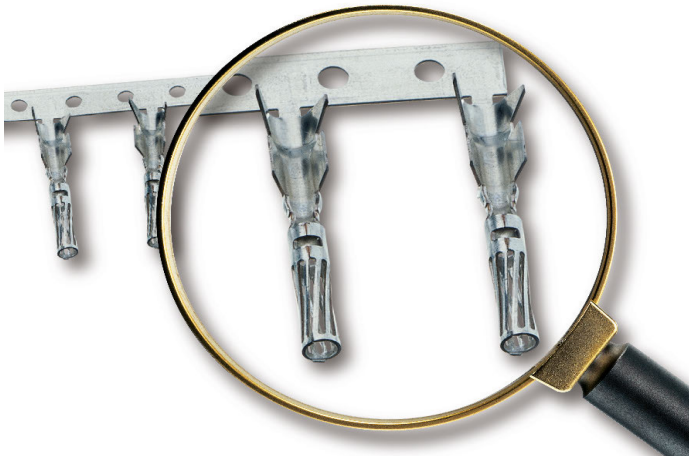
| Type | | A | E | M |
|--|-----------------------------|--|--|--|
| Contact diameter [mm] | | 1 | 1 | 1 |
| PART NUMBER AND LAYOUT | | 021.029.1020  | 021.129.1020  | 021.165.1020  |
| Termination cross section ¹⁾ | [AWG]
[mm ²] | 26 - 22
0.14 - 0.34 | 24 - 18
0.24 - 1.0 | 24 - 18
0.24 - 1.0 |
| Nominal current @ 20°C [A] ²⁾ | VDE | 9 | 9 | 9 |
| | USR | 8 | 8 | 8 |
| | CNR | 7 | 7 | 7 |
| Crimping tool | | B150 | B150 | B150 |
| Positioner | | B055/A | B055/A | B055/A |

Note:

¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wired further cross sections and currents can be processed. ²⁾ data only valid when plugged with Hypertac sockets.

HCS™ Contacts

Stamped Hyperboloid Contacts on Reels



The HCS™ contact (Hyperboloid Contact Stamped) is the advanced evolution of the machined HYPERTAC® Hyperboloid Contact Technology that is ideal for higher volume applications requiring a fully automated process.

The demand for lower cost hyperboloid contacts led Smiths Connectors to the development of the stamped/rolled HCS contact, that is supplied on a reel and features an open crimp barrel design.

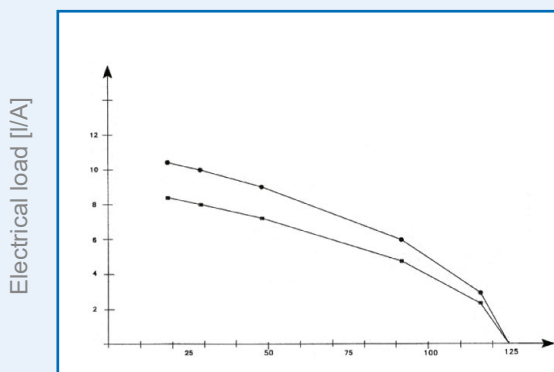
For all variations, the wire cage has the same design characteristics. In the contact area all single contact flaps are made in a circle shape which guarantees "wire quality". The HCS contacts on reels for crimping machines with automatic feeder lines are fully compatible with our machined Hypertac® hyperboloid contacts.

Vibration test acc. to DIN EN 60512/item4 35g X/Y/Z sinusoidal for 50h each without contact interrupts and without any change in contact resistance [$<5\text{m}\Omega$].

Smiths Connectors offers a full service for crimping tools:

- Applicators for all typical crimp devices
- Hand crimping tools for field installation

Electrical load HCS™ Ø 1 mm
Derating curve acc. DIN IEC 512/item3 (in air)



Environmental temperature [Te/°C]

Stamped Hyperboloid Contacts

Features & Benefits

- Favourable price
- Fully automatic processable
- Reduced assembly time
- High reliability wire B-crimp
- Additional insulation crimp
- Intermateable with machined round contacts

Specifications

Materials

Body: Tin-bronze

Plating: partly gold plated

Sleeve: stainless steel (sockets)

Crimp Geometry

Wire crimp: B-Crimp

Insulation crimp: O-Crimp

Mechanical

Operating Temperature: -40°C to 125°C

Insertion/extraction force: $<4\text{ N}$





Electrical

Contact resistance: $<5\text{ m}\Omega$





Note:

HCS™ is a registered Trademark of Smiths Interconnect

HCS™ stamped sockets - Series S

| Type | | A | B | C | D |
|---|---------------------------|---|---|---|---|
| Contact diameter [mm] | | 1 | 1 | 1 | 1 |
| PART NUMBER AND LAYOUT | | 020.000376.2000  | 020.000377.2000  | 020.000378.2000  | 020.000379.2000  |
| Termination cross section ¹⁾ | AWG
[mm ²] | 32 – 28
0.03 – 0.08 | 28 – 24
0.08 – 0.2 | 24 – 20
0.2 – 0.5 | 0.75 – 1.0 |
| Max. nominal current @ 20°C [A] | VDE
USR
CNR | 4
9
- | 6
9
- | 8
9
- | 8
9
- |
| Hand crimping tool with feeder line for small reels | | B287/32-28 | B287/28-24 | B287/24-20 | B287/0.75-1 |
| Applicator for Schäfer/AMP crimping machine | | B288/32-28 | B288/28-24 | B288/24-20 | B288/0.75-1 |
| Applicator for Kirsten PP3 crimping machine | | B286/32-28 | B286/28-24 | B286/24-20 | B286/0.75-1 |
| Number of contacts on reel | [Pieces] | 9000 | 9000 | 9000 | 9000 |
| Number of contacts on small reel | [Pieces] | 300 | 300 | 300 | 300 |

HCS™ stamped pins - Series S






| Type | | A | B | C | D |
|---|---------------------------|---|---|---|---|
| Contact diameter [mm] | | 1 | 1 | 1 | 1 |
| PART NUMBER AND LAYOUT | | 021.001005.1025  | 021.001006.1025  | 021.001007.1025  | 021.001008.1025  |
| Termination cross section ¹⁾ | AWG
[mm ²] | 32 – 28
0.03 – 0.08 | 28 – 24
0.08 – 0.2 | 24 – 20
0.2 – 0.5 | 0.75 – 1.0 |
| Max. nominal current @ 20°C [A] | VDE
USR
CNR | 4
9
- | 6
9
- | 8
9
- | 8
9
- |
| Hand crimping tool with feeder line for small reels | | B287/32-28 | B287/28-24 | B287/24-20 | B287/0.75-1 |
| Applicator for Schäfer/AMP crimping machine | | B288/32-28 | B288/28-24 | B288/24-20 | B288/0.75-1 |
| Applicator for Kirsten PP3 crimping machine | | B286/32-28 | B286/28-24 | B286/24-20 | B286/0.75-1 |
| Number of contacts on reel | [Pieces] | 9000 | 9000 | 9000 | 9000 |
| Number of contacts on small reel | [Pieces] | 300 | 300 | 300 | 300 |

Note:


¹⁾ Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with not compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wired further cross sections and currents can be processed.

Tools

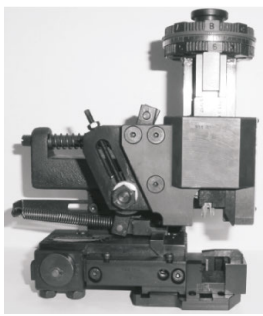
Crimping tools for machined Contacts

| Hand crimping tools | Part number |
|--|---|
|  <p>A hand crimping tool with blue handles and a blue body. It features a circular dial with numbers 1 through 7 and a 'SEL.' button. Text on the tool includes 'PUSH POSITIONER AND RAISE TO ROTATE', 'DMC-USA CAGE 11851', and 'NO.'.</p> | B150 |
|  <p>A hand crimping tool with blue handles and a blue body. It features a circular dial with numbers 1 through 7 and a 'SEL.' button. Text on the tool includes 'DMC-USA CAGE 11851', 'RAISE TO ROTATE', and 'NO.'.</p> | B151 |
|  <p>A hand crimping tool with black handles and a red body. It features a circular dial with numbers 1 through 7 and a 'SEL.' button. Text on the tool includes 'DMC-USA CAGE 11851', 'RAISE TO ROTATE', and 'NO.'.</p> | B179 |
| Crimp accessories | Part number |
|  <p>A cylindrical metal gauge with a green handle and a red handle, used for measuring crimp dimensions.</p> | MASTER GAUGE
B190 (for B150 and B151)
B230 (for B179) |
|  <p>A cylindrical metal component with a red band, used for positioning contacts during crimping.</p> | POSITIONER
B154, B157, B165,
B201, B245, B252, B297,
B305, B306, B341, B378 |
|  <p>A metal component consisting of a spring and a base, used for positioning contacts during crimping.</p> | POSITIONER
B055/A |

Crimping tools for stamped HCS™ contacts

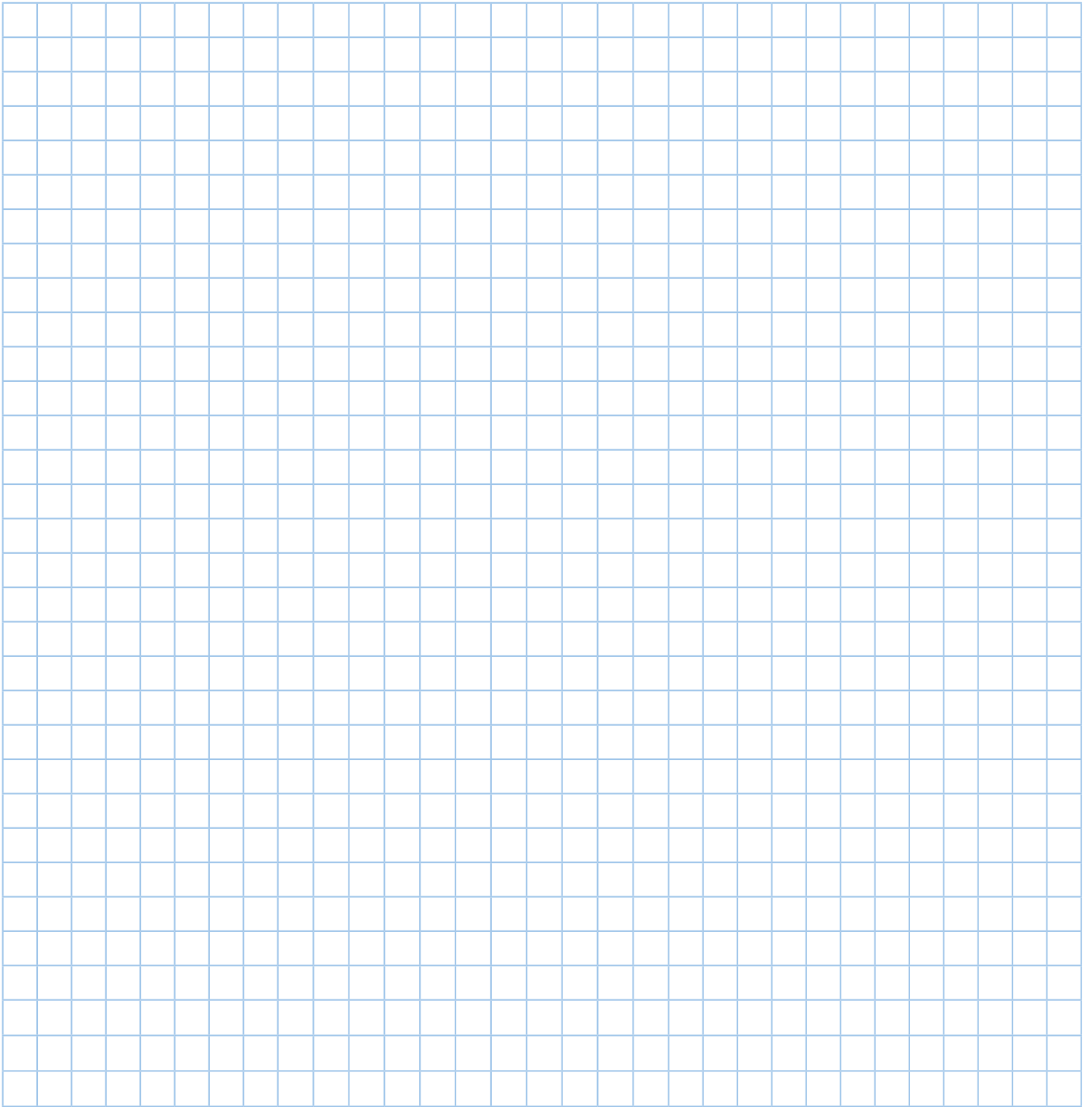
| Hand crimping tool with feeder line for small reels | Termination cross section | Part number |
|---|--|---|
|  | Ø 1 mm CONTACTS
0.032–0.08 mm ² , AWG 32-28
0.08-0.20 mm ² , AWG 28-24
0.20-052 mm ² , AWG 24-20
0.75-1.00 mm ² | Ø 1 mm CONTACTS
B287/32-28
B287/28-24
B287/24-20
B287/0.75-1 |
| | Ø 2 mm CONTACTS
0.50-1.00 mm ² , AWG 20-18
1.00-2.00 mm ² , AWG 18-14 | Ø 2 mm CONTACTS
B295/0.5-1.0
B295/1.0-2.0 |

| Hand crimping tool for discrete contacts | Termination cross section | Part number |
|--|---|--------------------------------------|
|  | Ø 2 mm CONTACTS
2.50–4.00 mm ² , AWG12 | Ø 2 mm CONTACTS
B295/2.5-4 |

| Applicators for crimping machines with feeder line | Termination cross section | Part number |
|--|--|---|
| Schäfer/AMP
 | Ø 1 mm CONTACTS
0.032–0.08 mm ² , AWG 32-28
0.08-0.20 mm ² , AWG 28-24
0.20-052 mm ² , AWG 24-20
0.75-1.00 mm ² | Ø 1 mm CONTACTS
B288/32-28
B288/28-24
B288/24-20
B288/0.75-1 |
| | Ø 2 mm CONTACTS
0.50-1.00 mm ² , AWG 20-18
1.00-2.00 mm ² , AWG 18-14
2.50–4.00 mm ² , AWG12 | Ø 2 mm CONTACTS
on demand
on demand
on demand |

Insertion and extraction tools

| Insertion tools for insulators | Part number | Connector layout | Contact |
|---|---------------------------|---|----------|
|  | B091 | Power
LEAB | NA |
|  | B116 | Signal
SDBA | NA |
| Insertion tools for contacts | Part number | Connector layout | Contact |
|  | B117 | Power Innovation: Plugs, Extensions, Receptacles, Panel Feed Through
Power System 2000, Version 1i: Receptacles | Ø 2 mm |
|  | B118 | Power Innovation: Plugs, Extensions, Receptacles, Panel Feed Through
Power System 2000, Version 1i: Receptacles
Signal: Receptacles IP67 | Ø 1 mm |
|  | S/MONT/1/0060 | Signal: Plugs, Receptacles, Extensions 21way | Ø 0.6 mm |
| Extraction tools for insulators | Part number | Connector layout | Contact |
|  | B202 | Signal: Receptacles with 2part insulators for crimp contacts | NA |
|  | B116 | Signal: Panel Feed Through with 2part insulator for crimp contacts, Receptacles with solder contacts | NA |
|  | B186 | Signal: Receptacles 21way | NA |
| Extraction tools for contacts | Part number | Connector layout | Contact |
|  | B132 | | |
|  | B037A
(B132 + B037/10) | Power Innovation: Receptacles, Extensions, Power System 2000, Version 1i: Receptacles | Ø 2 mm |
|  | B038A
(B132 + B038/10) | Power Innovation: Receptacles, Extensions, Power System 2000, Version 1i: Receptacles
Signal: Receptacles IP67 | Ø 1 mm |
|  | B056A
(B132 + B056/10) | Power Innovation: Plugs, Panel Feed Through | Ø 1 mm |
|  | S/DEM/6/0060 | Signal: Plugs, Receptacles, Extensions 21way | Ø 0.6 mm |



Notes:

Disclaimer 2023

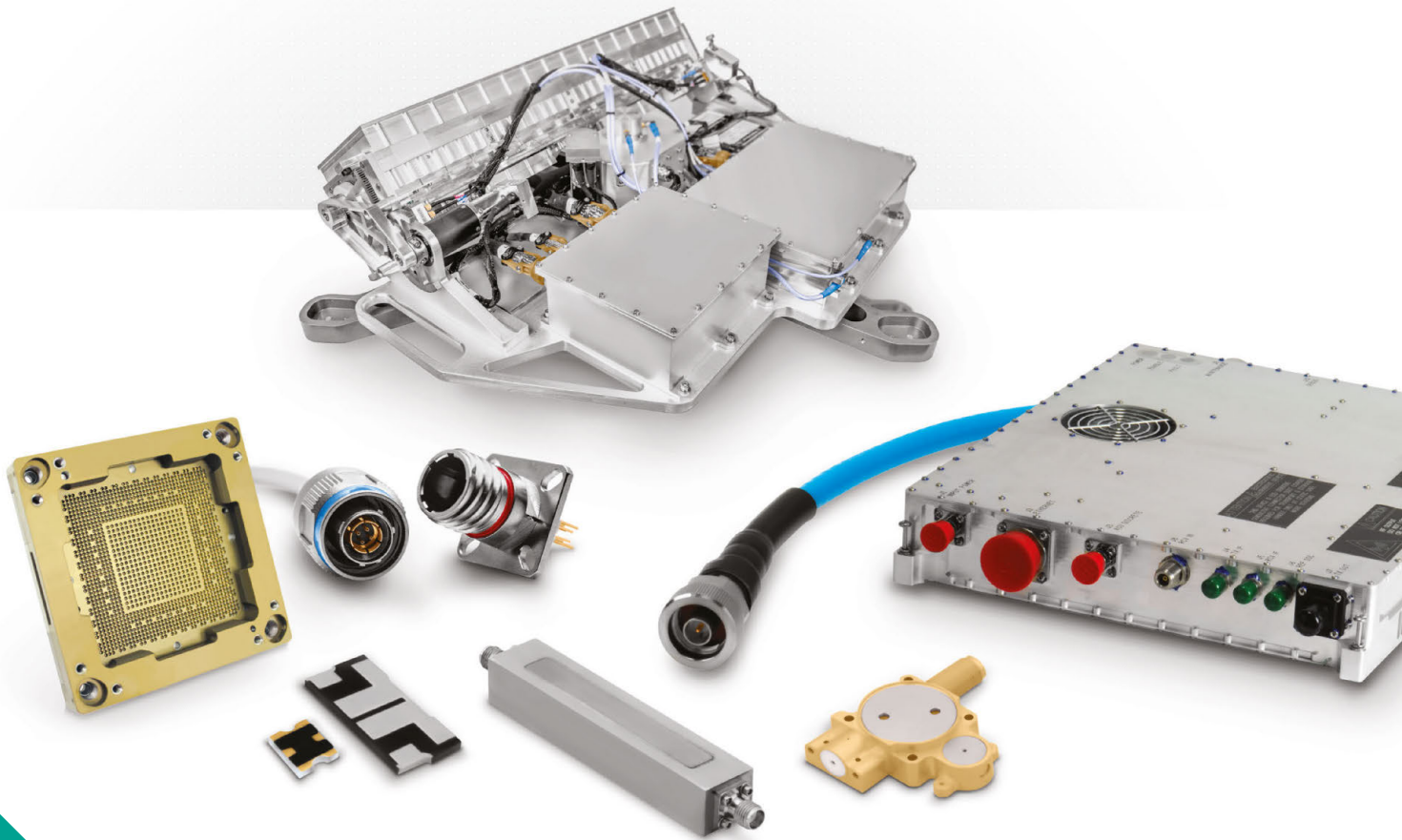
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 - RF Components
 - Test Sockets and WLCSP Probe Heads
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M23 Stainless Steel

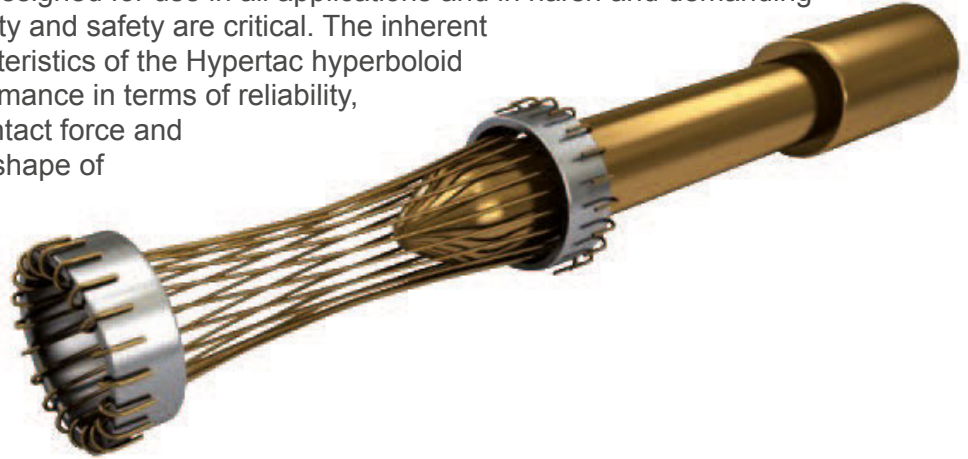
Series L & Series S

Environmentally Sealed Circular Connectors



Hypertac® Hyperboloid Technology

Smiths Interconnect offers an extensive range of superior contact technologies suitable for standard and custom solutions. Hypertac® (HYPERboloid conTACT) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths.



| Features | Benefits |
|---|---|
| <p>Low insertion/extraction forces</p> <p>The angle of the socket wires allows tight control of the pin insertion and extraction forces. The spring wires are smoothly deflected to make line contact with the pin.</p> | <p>High density interconnect systems</p> <p>Significant reductions in size and weight of sub-system designs. No additional hardware is required to overcome mating and un-mating forces.</p> |
| <p>Long contact life</p> <p>The smooth and light wiping action minimizes wear on the contact surfaces. Contacts perform up to 100,000 insertion/extraction cycles with minimal degradation in performance.</p> | <p>Low cost of ownership</p> <p>The Hypertac contact technology will surpass most product requirements, thus eliminating the burden and cost of having to replace the connector or the entire subsystem.</p> |
| <p>Lower contact resistance</p> <p>The design provides a far greater contact area and the wiping action of the wires insures a clean and polished contact surface. Our contact technology has about half the resistance of conventional contact designs.</p> | <p>Low power consumption</p> <p>The lower contact resistance of our technology results in a lower voltage drop across the connector reducing the power consumption and heat generation within the system.</p> |
| <p>Higher current ratings</p> <p>The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times.</p> | <p>Maximum contact performance</p> <p>The lower contact resistance of the Hypertac contact reduces heat build-up; therefore Hypertac contacts are able to handle far greater current in smaller contact assemblies without the detrimental effects of high temperature.</p> |
| <p>Immunity to shock & vibration</p> <p>The low mass and resultant low inertia of the wires enable them to follow the most abrupt or extreme excursions of the pin without loss of contact. The contact area extends 360° around the pin and is uniform over its entire length. The 3 dimensional symmetry of the Hypertac contact design guarantees electrical continuity in all circumstances.</p> | <p>Reliability under harsh environments</p> <p>Harsh environmental conditions require connectors that will sustain their electrical integrity even under the most demanding conditions such as shock and vibration. The Hypertac contact provides unmatched stability in demanding environments when failure is not an option.</p> |

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M23 Stainless Steel

Environmentally Sealed Connectors



The Smiths Interconnect M23 Stainless Steel series have been specifically developed for applications operating in highly corrosive environments.

Manufactured from high grade stainless steel and advanced polymers, these connectors are ideally suited for use in the Medical, Pharmaceutical, Maritime, Automotive and Food and Beverage Industries. Environmentally sealed to IP67 and chemically resistant to both Lye and Acids, these connectors are protected against the harshest of Industrial processing environments.

In addition to specialist materials, these connectors feature a smooth outer body design to aid industrial wash down processes, by preventing the entrapment of dirt and contaminants. A complete range of options and accessories are available as standard, making this series suitable for a wide range of applications.

Hyperboloid contact technology is ideally suited for use in harsh and demanding environments where high reliability and safety are critical. The electrical and mechanical characteristics of the contact ensure unrivalled performance in terms of reliability, number of mating cycles, low contact forces and electrical stability over time.

These performance characteristics provide a real commercial benefit in terms of the total installed cost of ownership.

Protected against
the harshest of
industrial processing
environments

Features & Benefits

Electrical continuity ensuring failure free performance

- Hypertac® contact technology ensures immunity to shock and vibration and minimal contact resistance
- Outstanding protection against electromagnetic interference through a full 360° screen shielding

Superior performance

- Environmentally sealed
- Corrosion resistant
- Vibration protected

Easy of Assembly and Use

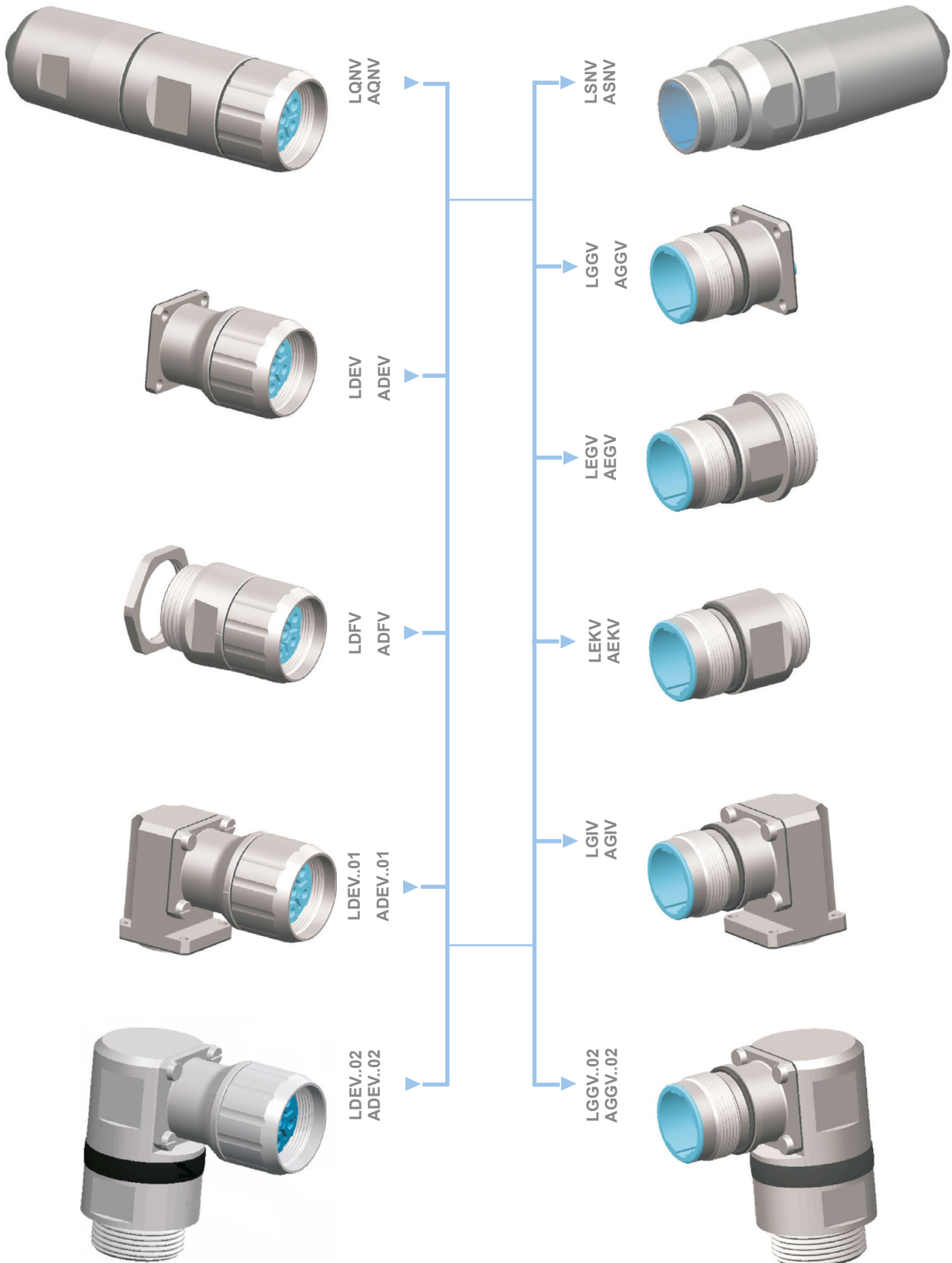
- Hygienic and compact design
- Minimized number of components, simplified assembly and reduced stocking requirements
- Simplified assembly, high contact retention forces

UL certified

- UL/CSA approval file No. 178462

Type Overview

M23 Stainless Steel Power Connectors Series L



Technical Characteristics

M23 Stainless Steel Power Connectors Series L

Mechanical

Standards

| | | |
|-------------------------|-----------------------|---|
| Contact diameter 6poles | 6 x Ø 2mm | - |
| Contact diameter 8poles | 4 x Ø 1mm + 4 x Ø 2mm | - |

Material

| | | |
|----------|---------------------|---|
| Shell | V2A (V4A on demand) | - |
| Contacts | CuZn alloy | - |
| Insert | PA, PBT | - |
| Sealing | FKM, EPDM | - |

Finishes

| | | |
|------------------|------------------|---|
| Shell plating | passivated | - |
| Contacts plating | Gold over nickel | - |

Electrical

| | | |
|-----------------------|---|--|
| Current rating | 9 A (contact Ø 1mm)
8 A (contact Ø 1mm)
7 A (contact Ø 1mm)
22 A (contact Ø 2mm)
20 A (contact Ø 2mm)
14 A (contact Ø 2mm) | EN 61984
USR / UL1977
CNR / UL1977
EN 61984
USR / UL1977
CNR / UL1977 |
| Voltage rating | 250 V (contact Ø 1mm)
250 V (contact Ø 1mm)
630 V (contact Ø 2mm)
600 V (contact Ø 2mm) | EN 61984
USR / CNR / UL1977
EN 61984
USR / CNR / UL1977 |
| Withstanding voltage | 2500 V (contact Ø 1mm)
6000 V (contact Ø 2mm) | EN 61984
EN 61984 |
| Contact resistance | <5 mΩ (contact Ø 1mm)
<3 mΩ (contact Ø 2mm) | EN 61984
EN 61984 |
| Insulation resistance | 10 ¹³ Ωcm | EN 61984 |
| Overvoltage category | III | EN 61984 |

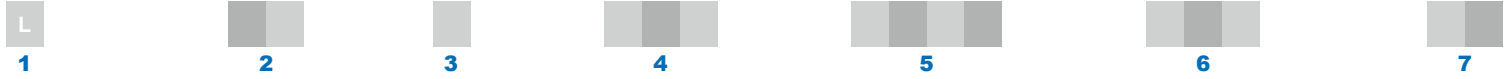
Physical and Environmental

| | | |
|-----------------------------|------------------------------------|--------------------|
| Operating temperature range | -40°C ... 125°C
-40°C ... 110°C | EN 61984
UL1977 |
| Storage conditions | -40°C ... 70°C/ min. humidity 40% | - |
| Environmental level | IP67 (mated) | DIN EN 60529 |
| Contamination level | 3 (mated) | EN 61984 |
| Installation altitude | up to 2000 m | EN 61984 |
| Fire & Smoke | Recognition file No E 178462 | UL 1977 |
| RoHS | Compliant | - |

Consult factory for details

How To Order

M23 Stainless Steel Power Connectors Series L



1 CONNECTOR FAMILY

L M23 stainless steel circular connectors, Series L

2 CONNECTOR DESIGN

| | | | |
|------------|--|------------|---|
| Q N | plug with variable shield connection and variable cable clamp | G G | straight receptacle with flange |
| S N | extension with variable shield connection and variable cable clamp | E G | straight receptacle, threaded connection M 25x1.5 |
| D E | panel feed through with square flange | E K | straight receptacle, threaded connection M 20x1.5 |
| D F | panel feed through, threaded connection M 25x1.5 | E E | straight receptacle, axial sealing, long version |
| | | G I | angled receptacle with flange |

3 PLATING

V passivated

4 INSERTS

| | | | |
|--------------|----------------------------|--------------|--|
| 0 6 A | 6 way for pins 6 x Ø 2mm | 0 8 A | 8way for pins 4 x Ø 1mm + 4 x Ø 2mm |
| 0 6 B | 6way for sockets 6 x Ø 2mm | 0 8 B | 8way for sockets 4 x Ø 1mm + 4 x Ø 2mm |

5 TERMINATION STYLE

| | | | |
|----------------|--|----------------|---|
| N N N N | without contacts, loose contacts to be ordered separately | M R C N | including machined pins, 6 x Ø 2mm AWG 20-16 |
| F R B N | including machined sockets, 6 x Ø 2mm AWG 20-16 | M R K N | including machined pins, 6 x Ø 2mm AWG 18-14 |
| F R D N | including machined sockets, 6 x Ø 2mm AWG 18-14 | M R P N | including machined pins, 6 x Ø 2mm AWG 16-14 |
| F R K B | including machined sockets, 4 x Ø 1mm AWG 24-18 + 4 x Ø 2mm, AWG 20-16 | M R E C | including machined pins, 4 x Ø 1mm AWG 24-18 + 4 x Ø 2mm, AWG 20-16 |
| F R K D | including machined sockets, 4 x Ø 1mm AWG 24-18 + 4 x Ø 2mm, AWG 18-14 | M R E K | including machined pins, 4 x Ø 1mm AWG 24-18 + 4 x Ø 2mm, AWG 18-14 |
| | | M R E P | including machined pins, 4 x Ø 1mm AWG 24-18 + 4 x Ø 2mm, AWG 16-14 |

6 CABLE CLAMPING

| | |
|--------------|---|
| 0 0 0 | without cable clamp for receptacles and panel feed through |
| 1 7 0 | variable clamp for cable Ø 7.7mm to 14.5mm can be used for all shielded and non shielded cables |
| 3 0 5 | for cable diameter 5 - 9 mm, can be used for shielded and non-shielded cables |
| 3 0 6 | for cable diameter 9 - 15 mm, can be used for shielded and non-shielded cables |
| 3 0 7 | for cable diameter 16 mm, can be used for shielded and non-shielded cables |

7 VERSION NUMBER

| | |
|------------|---|
| 0 1 | depending on type and special design see detailed description of connector design LDEV / ADEV |
| 0 2 | depending on type and special design see detailed description of connector design LGGV / AGGV / LDEV / ADEV |

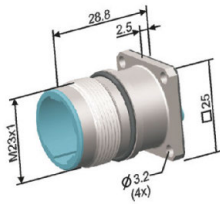
Available Connectors

Power Receptacles Series L with Crimp Contacts

CONTACT ARRANGEMENTS
VIEW MATING FACE

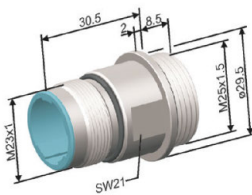
LAYOUT
DESCRIPTION
PART NUMBER CODE

Straight receptacle, radial sealing to the device, mounting flange



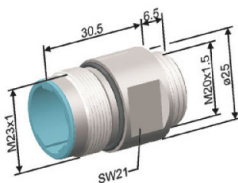
Part number incl. O-ring against vibration on demand

Straight receptacle, axial sealing to the device, connecting thread M25 x 1.5



Part number incl. O-ring against vibration on demand

Straight receptacle, axial sealing to the device, connecting thread M20 x 1.5



Part number incl. O-ring against vibration on demand

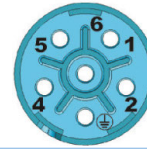
| SHELL | INSERT | Termination cross section of the pins in mm ² | | | | CABLE CLAMP |
|---------------|--------|--|----------------|-------------------------------|--------------------------------|-------------|
| | | 06A | | 08A | | |
| | | 6 x 0.5 - 1.5 | 6 x 0.75 - 2.5 | 4 x 0.24 - 1
4 x 0.5 - 1.5 | 4 x 0.24 - 1
4 x 0.75 - 2.5 | |
| LGGV
AGGV* | 06A | MRCN | MRKN | | | 000 |
| | 08A | | | MREC | MREK | |
| LEGV
AEGV* | 06A | MRCN | MRKN | | | 000 |
| | 08A | | | MREC | MREK | |
| LEKV
AEKV* | 06A | MRCN | MRKN | | | 000 |
| | 08A | | | MREC | MREK | |

* UL-Version

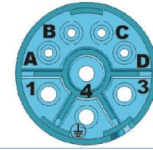
Power Receptacles Series L with Crimp Contacts

CONTACT ARRANGEMENTS
VIEW MATING FACE

LAYOUT
DESCRIPTION
PART NUMBER CODE



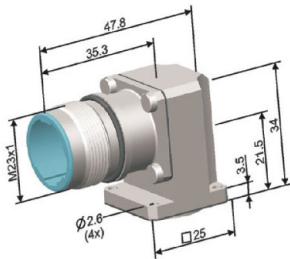
06A



08A

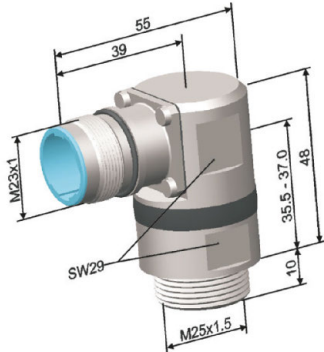
Termination cross section of the pins in mm²

Fixed angled receptacle, radial sealing to the device, mounting flange



Part number incl. O-ring against vibration on demand

Rotatable receptacle, axial sealing to the device, connecting thread M25 x 1.5



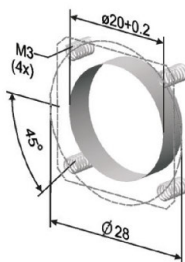
Part number incl. O-ring against vibration on demand

| SHELL | INSERT | Termination cross section of the pins in mm ² | | | | CABLE CLAMP |
|---------------|--------|--|----------------|-------------------------------|--------------------------------|-------------|
| | | 6 x 0.5 - 1.5 | 6 x 0.75 - 2.5 | 4 x 0.24 - 1
4 x 0.5 - 1.5 | 4 x 0.24 - 1
4 x 0.75 - 2.5 | |
| LGIV
AGIV* | 06A | MRCN | | | | 000 |
| | | | MRKN | | | |
| 08A | | | | MREC | | 000 |
| | | | | | MREK | |
| LGGV
AGGV* | 06A | MRCN | | | | 000 02 |
| | | | MRKN | | | |
| 08A | | | | MREC | | 000 02 |
| | | | | | MREK | |

* UL-Version

Drilling drawings

LGGV, LGIV
AGGV, AGIV



LEKV
AEKV



LEGV, LGGV..02
AEGV, AGGV..02

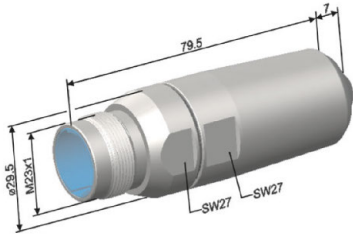


Power Extensions Series L with Crimp Contacts

CONTACT ARRANGEMENTS
VIEW MATING FACE

LAYOUT
DESCRIPTION
PART NUMBER CODE

Extension with earth connection, variable shield connection and variable cable clamp Ø 7.7 - 14.5 mm



Part number incl. O-ring against vibration on demand

| SHELL | INSERT | Termination cross section of the pins in mm ² | | CABLE CLAMP |
|---------------|--------|--|-------------------------------|-------------|
| | | 06A | 08A | |
| | | 6 x 1.5 - 2.5 | 4 x 0.24 - 1
4 x 1.5 - 2.5 | |
| LSNV
ASNV* | 06A | MRPN | | 170 |
| | 08A | | MREP | |

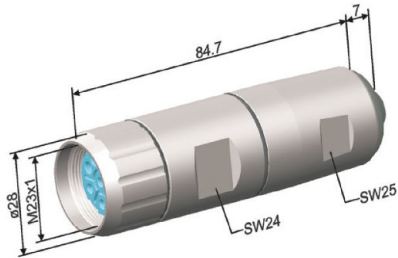
* UL-Version

Power Plugs Series L with Crimp Contacts

CONTACT ARRANGEMENTS
VIEW MATING FACE

LAYOUT
DESCRIPTION
PART NUMBER CODE

Plug with earth connection, variable shield connection and variable cable clamps



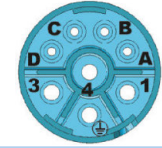
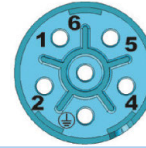
| SHELL | INSERT | Termination cross section of the pins in mm ² | | | | CABLE CLAMP |
|---------------|--------|--|----------------|-------------------------------|--------------------------------|-------------------|
| | | 6 x 0.5 - 1.5 | 6 x 0.75 - 2.5 | 4 x 0.24 - 1
4 x 0.5 - 1.5 | 4 x 0.24 - 1
4 x 0.75 - 2.5 | |
| | | 06B | 08B | | | |
| LQNV
AQNV* | 06B | FRBN | | | | 305
306
307 |
| | | | FRDN | | | |
| | 08B | | | FRKB | | |
| | | | | | FRKD | |

* UL-Version

Power Panel Feed Through Series L with Crimp Contacts

CONTACT ARRANGEMENTS
VIEW MATING FACE

LAYOUT
DESCRIPTION
PART NUMBER CODE



06B

08B

Termination cross section of the pins in mm²

6 x 0.5 - 1.5

6 x 0.75 - 2.5

4 x 0.24 - 1
4 x 0.5 - 1.5

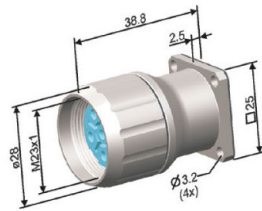
4 x 0.24 - 1
4 x 0.75 - 2.5

CABLE CLAMP

SHELL

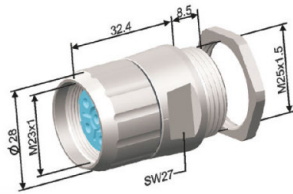
INSERT

Straight panel feed through, radial sealing to the device, mounting flange



| | | | | | |
|---------------|-----|------|------|------|-----|
| LDEV
ADEV* | 06B | FRBN | | | 000 |
| | | | FRDN | | |
| | 08B | | | FRKB | |
| | | | | | |

Straight panel feed through, axial sealing, connecting thread M25x1,5



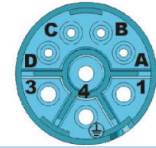
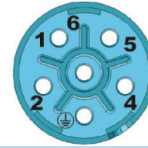
| | | | | | |
|---------------|-----|------|------|------|-----|
| LDFV
ADFV* | 06B | FRBN | | | 000 |
| | | | FRDN | | |
| | 08B | | | FRKB | |
| | | | | | |

* UL-Version

Power Panel Feed Through Series L with Crimp Contacts

CONTACT ARRANGEMENTS
VIEW MATING FACE

LAYOUT
DESCRIPTION
PART NUMBER CODE



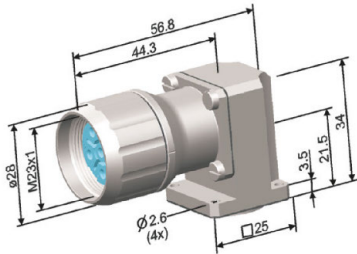
06B

08B

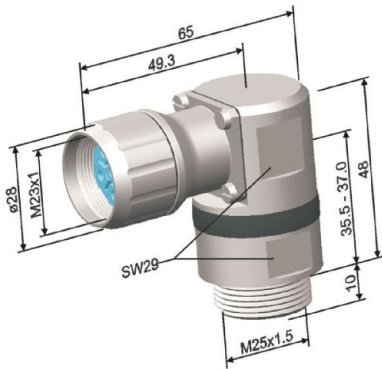
Termination cross section of the pins in mm²

| SHELL | INSERT | Termination cross section of the pins in mm ² | | | | CABLE CLAMP |
|---------------|--------|--|----------------|-------------------------------|--------------------------------|-------------|
| | | 6 x 0.5 - 1.5 | 6 x 0.75 - 2.5 | 4 x 0.24 - 1
4 x 0.5 - 1.5 | 4 x 0.24 - 1
4 x 0.75 - 2.5 | |
| LDEV
ADEV* | 06B | FRBN | | | | 000 01 |
| | | | FRDN | | | |
| 08B | | | | FRKB | | 000 02 |
| | | | | | FRKD | |
| LDEV
ADEV* | 06B | FRBN | | | | 000 02 |
| | | | FRDN | | | |
| 08B | | | | FRKB | | 000 01 |
| | | | | | FRKD | |

Angled panel feed through, axial sealing to the device, mounting flange



Rotatable angled panel feed through, axial sealing, connecting thread M25x1,5

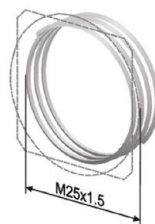
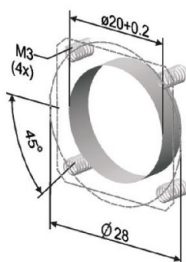


* UL-Version

Drilling drawings





LDEV, LDEV..01
ADEV, ADEV..01

LDFV, LDEV..02
ADFV, ADEV..02



Contacts





Machined Pins Series L

| Type | E | C | K | P |
|---|---|--|---|---|
| Contact diameter [mm] | 1 | 2 | 2 | 2 |
| Part number and layout | 021.129.1020
 | 021.101.2000
 | 021.147.2000
 | 021.279.1020
 |
| Termination cross section* [mm ²] AWG | 0.24 - 1
(24 - 18) | 0.5 - 1.5
(20 - 16) | 0.75 - 2.5
(18 - 14) | 1.5 - 2.5
(16 - 14) |
| Maximum conductor diameter [mm] | 1.3 | 1.8 | 2.3 | 2.3 |
| Maximum insulation diameter [mm] | - | - | - | 3.5 |
| For following number of contacts | 8 | 6/8 | 6/8 | 6/8 |

| Tooling | | | | |
|-----------------|--------|--------|--------|------|
| Crimping tool | B151 | B151 | B151 | B151 |
| Positioner | B156 | B157 | B157 | B165 |
| Insertion tool | B118 | B117 | B117 | - |
| Extraction tool | B038/A | B037/A | B037/A | - |

*Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wires further cross sections and currents can be processed.

Machined Sockets Series L

| Type | K | B | D | H |
|---|---|---|---|---|
| Contact diameter [mm] | 1 | 2 | 2 | 2 |
| Part number and layout | 020.232.2000
 | 020.090.1020
 | 020.105.1020
 | 020.123.1020
 |
| Termination cross section* [mm ²] AWG | 0.24 - 1
(24 - 18) | 0.5 - 1.5
(20 - 16) | 0.75 - 2.5
(18 - 14) | 0.75 - 2.5
(18 - 14) |
| Maximum conductor diameter [mm] | 1.3 | 1.9 | 2.3 | 2.3 |
| Maximum insulation diameter [mm] | 2.1 | - | - | 4.5 |
| For following number of contacts | 8 | 6/8 | 6/8 | 6 |

| Tooling | | | | |
|-----------------|------------------|------|------|----------------------|
| Crimping tool | B151**
B150 | B151 | B151 | B151
B152
B179 |
| Positioner | B252**
B055/A | B157 | B157 | B154 |
| Insertion tool | B118 | - | - | - |
| Extraction tool | B056/A | - | - | - |

*Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wires further cross sections and currents can be processed.

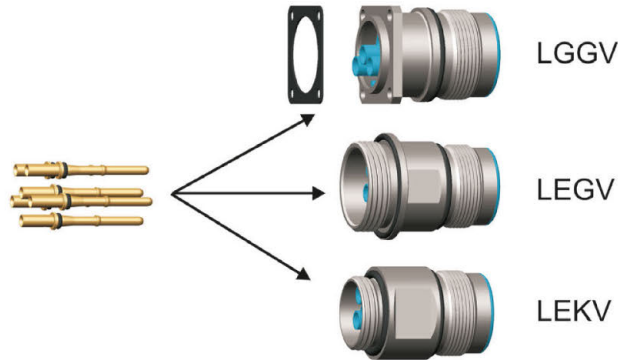
**preferred crimping tool

Assembly instructions

Power receptacle LGGV... LEGV... LEKV... LGIV... LGGV.02

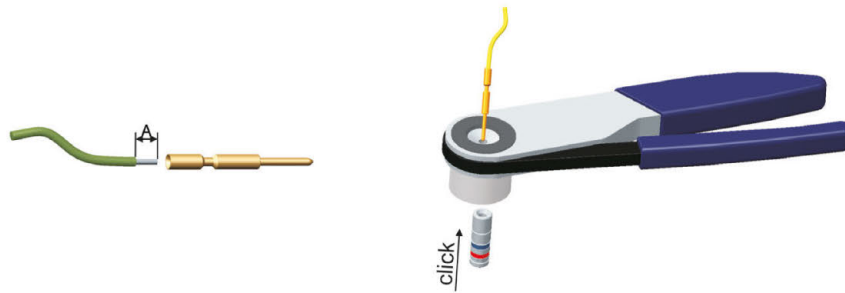
Page 1 of 2

| | Stripping Length |
|---|-------------------|
| | Machined Contacts |
| A | 7 mm |

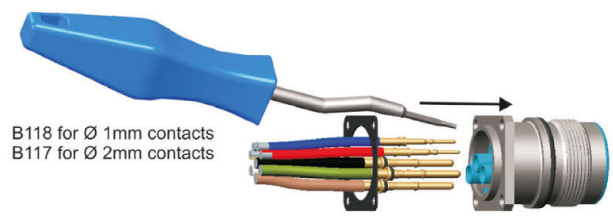


Assembly

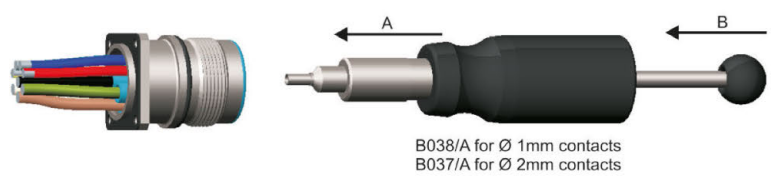
1



2



Dismantling

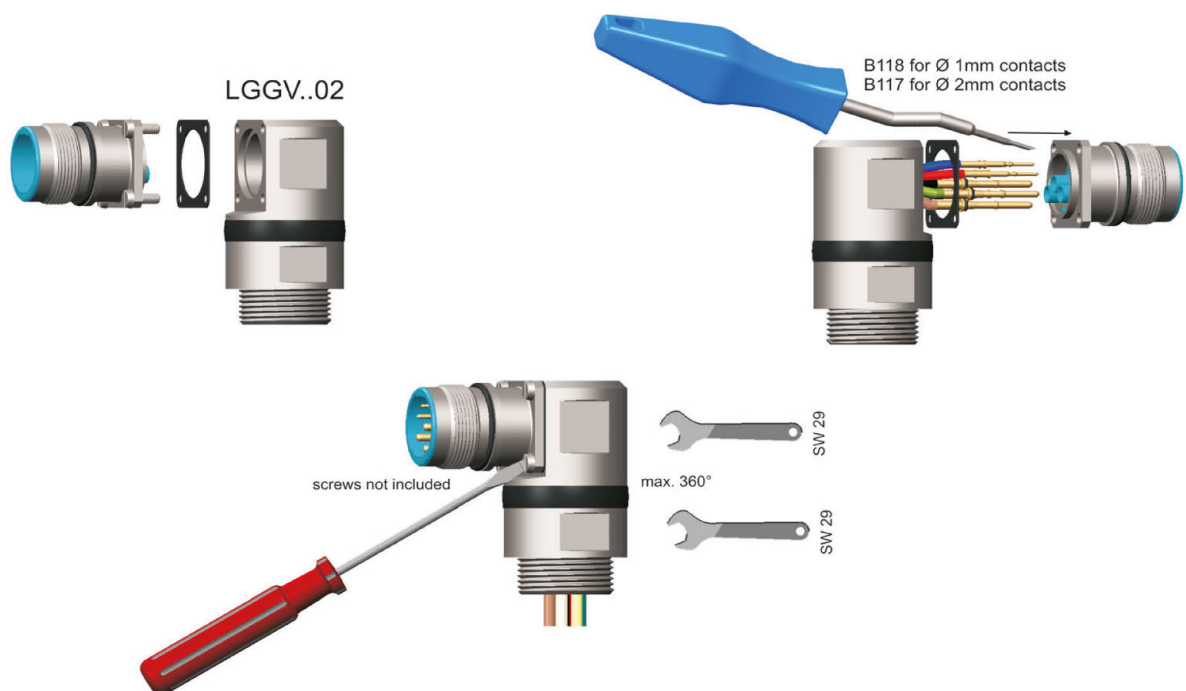
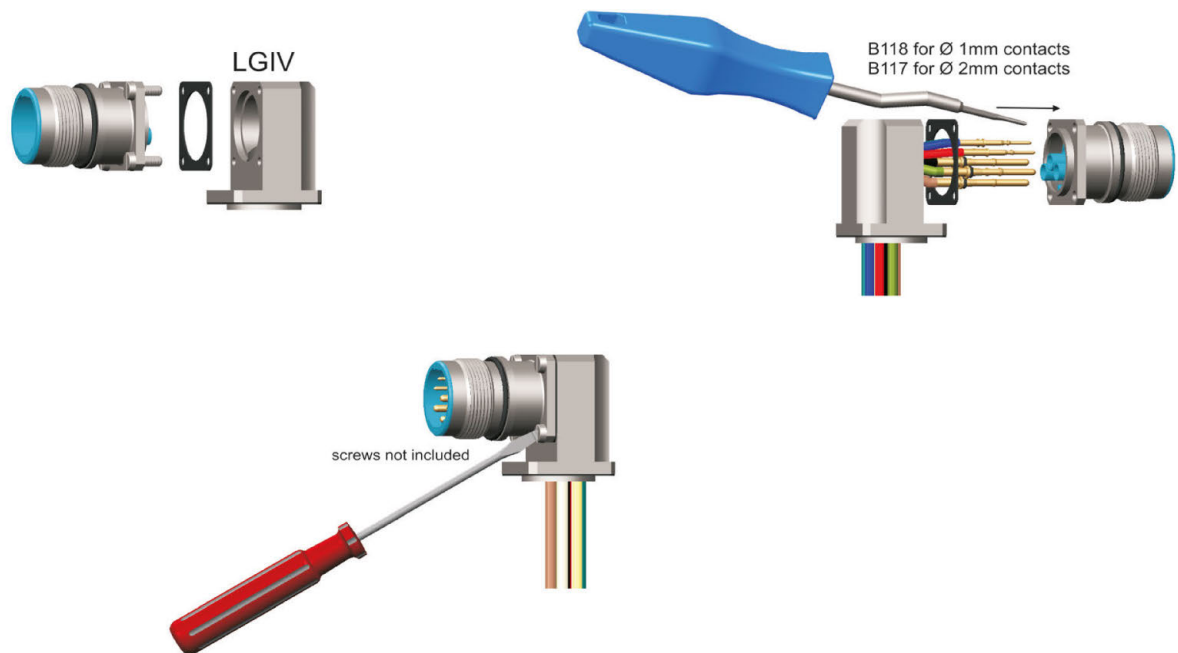


After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

Assembly instructions

Power receptacle LGGV... LEGV... LEKV... LGIV... LGGV..02

Page 2 of 2



After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

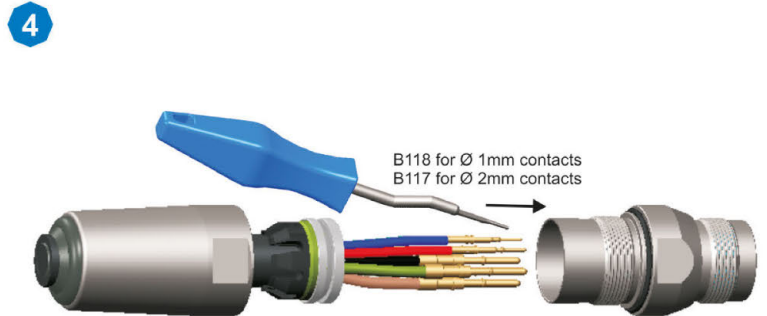
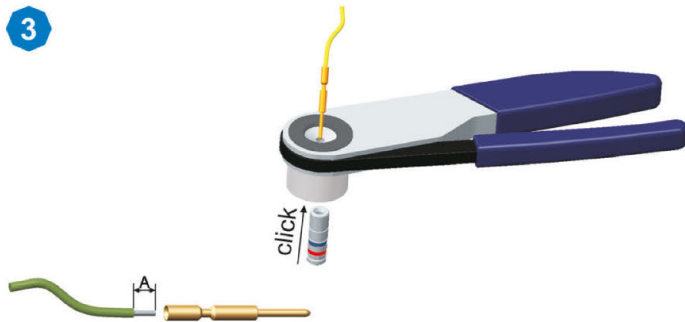
Assembly instructions

Power extension LSNV...

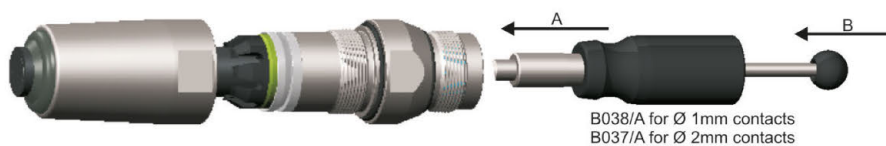
| | Stripping Length |
|---|-------------------|
| | Machined Contacts |
| A | 7 mm |



Assembly



Dismantling



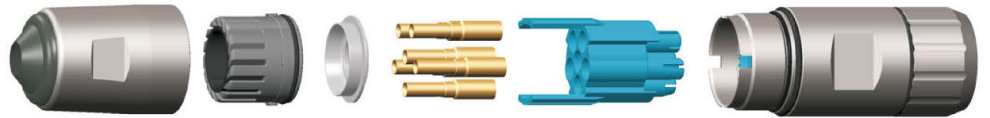
After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

Assembly instructions

Power Plug LQNV...

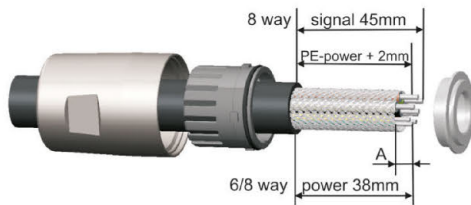
Page 1 of 1

| | Stripping Length |
|---|-------------------|
| | Machined Contacts |
| A | 7 mm |



Assembly

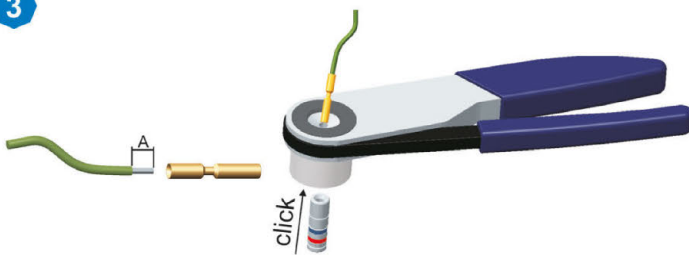
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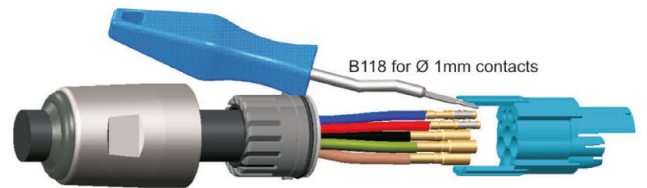
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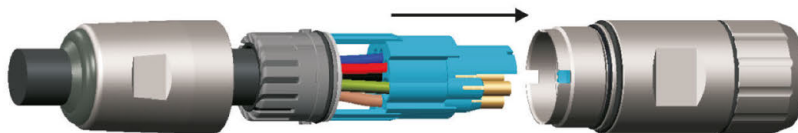
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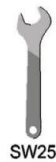
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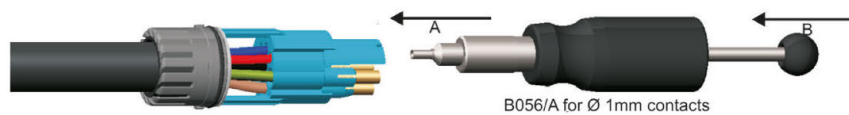
5



6



Dismantling



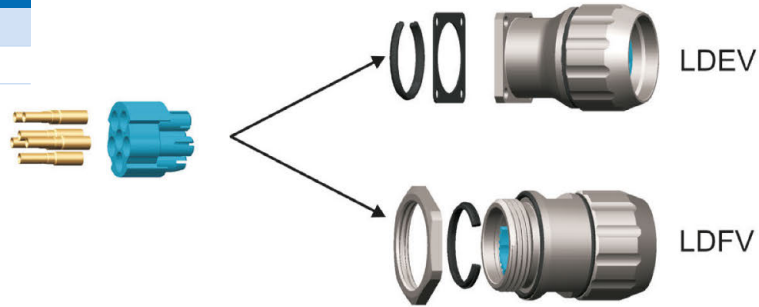
After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

Assembly instructions

Power bushing LDEV... LDFV... LDEV...01 LDEV...02

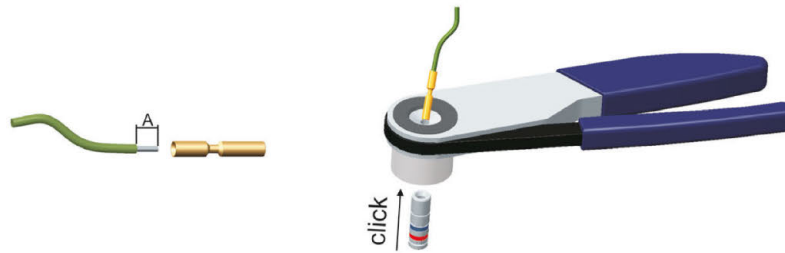
Page 1 of 2

| | Stripping Length |
|---|-------------------|
| | Machined Contacts |
| A | 7 mm |

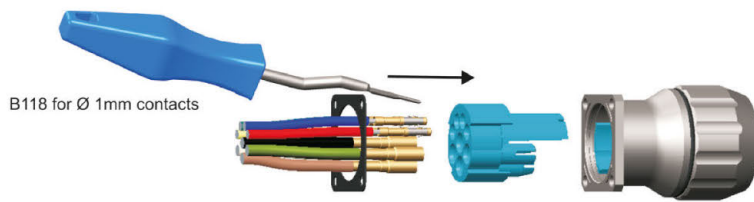


Assembly

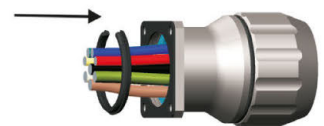
1



2



3



Dismantling

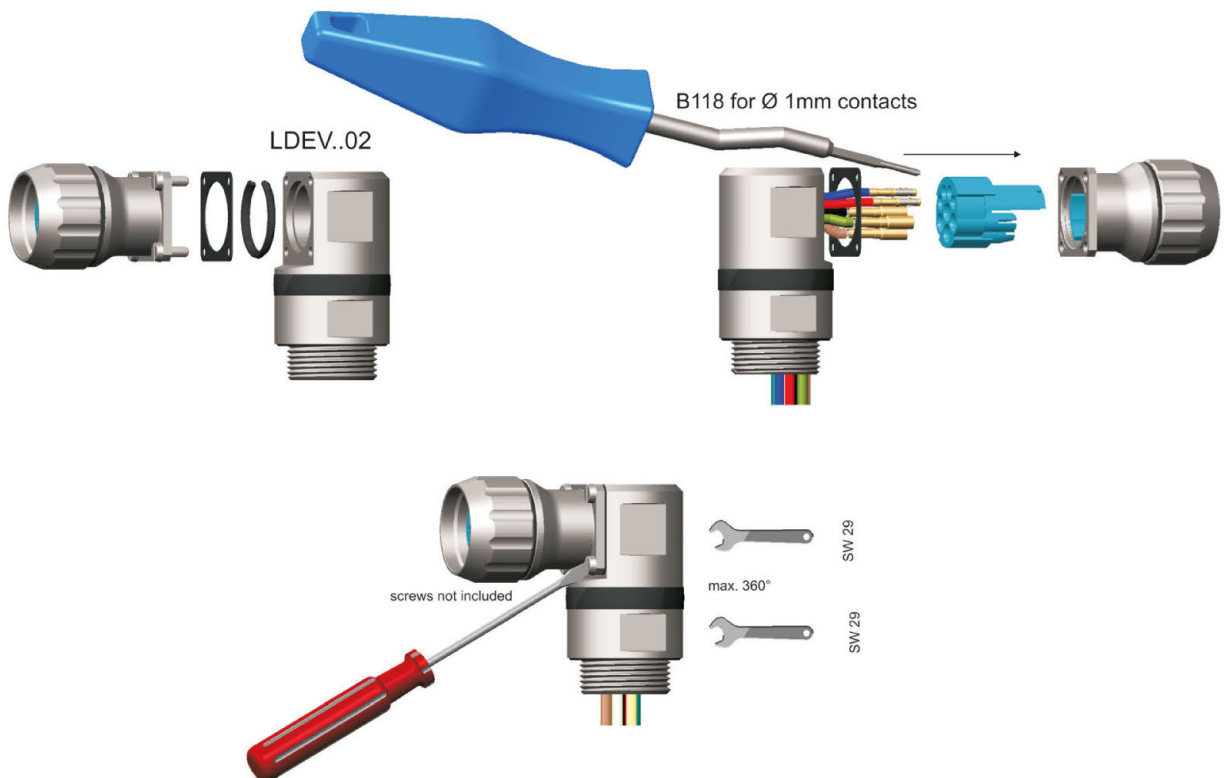
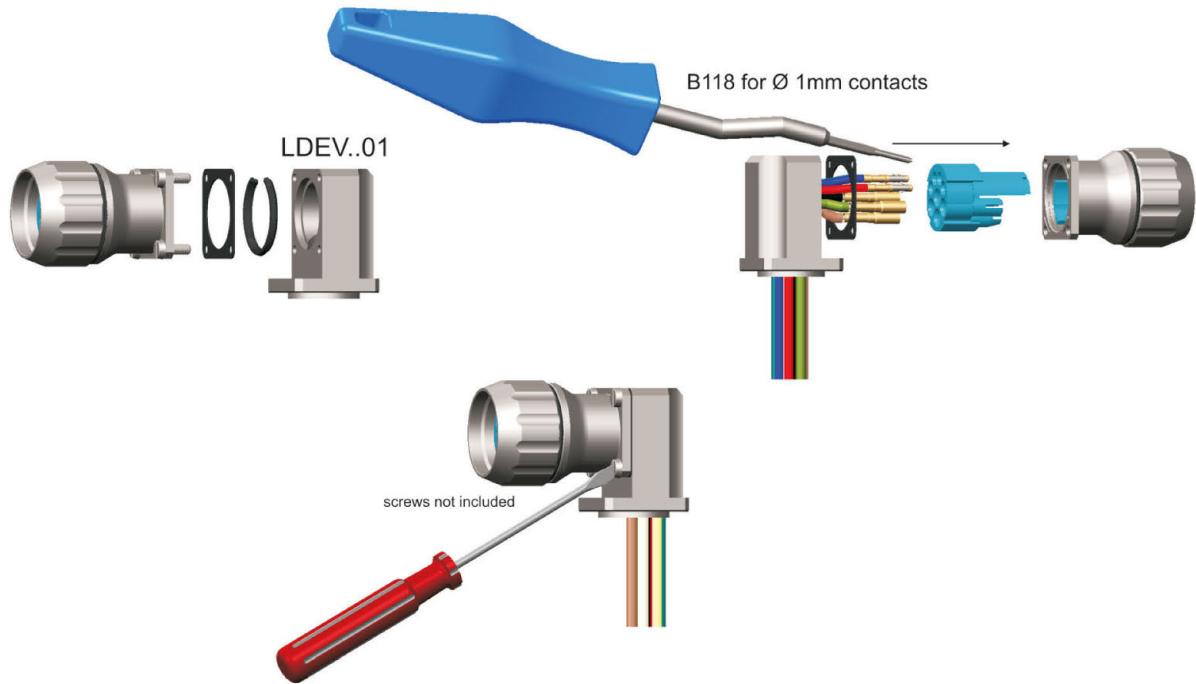


After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

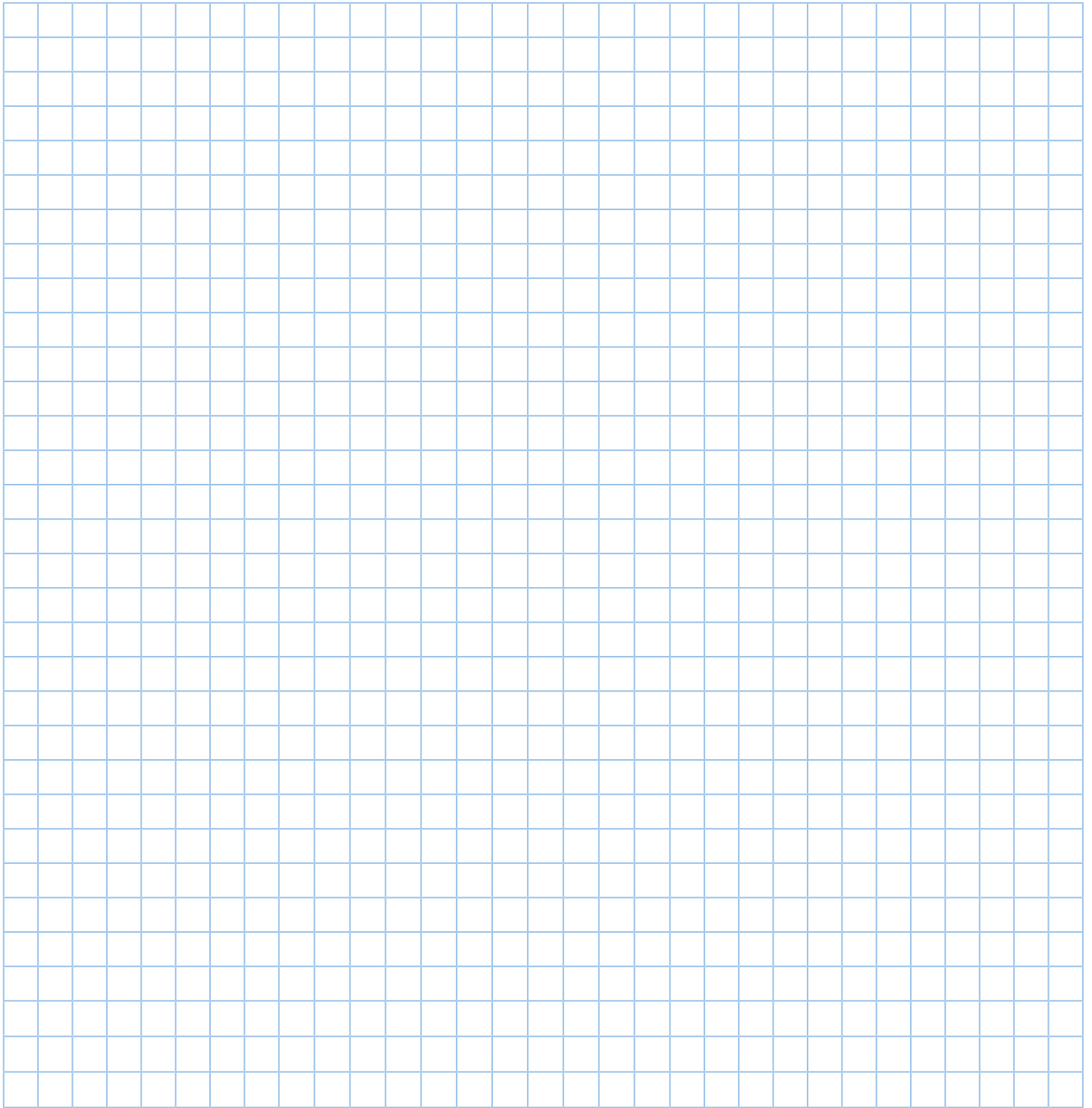
Assembly instructions

Power bushing LDEV... LDFV... LDEV...01 LDEV...02

Page 2 of 2



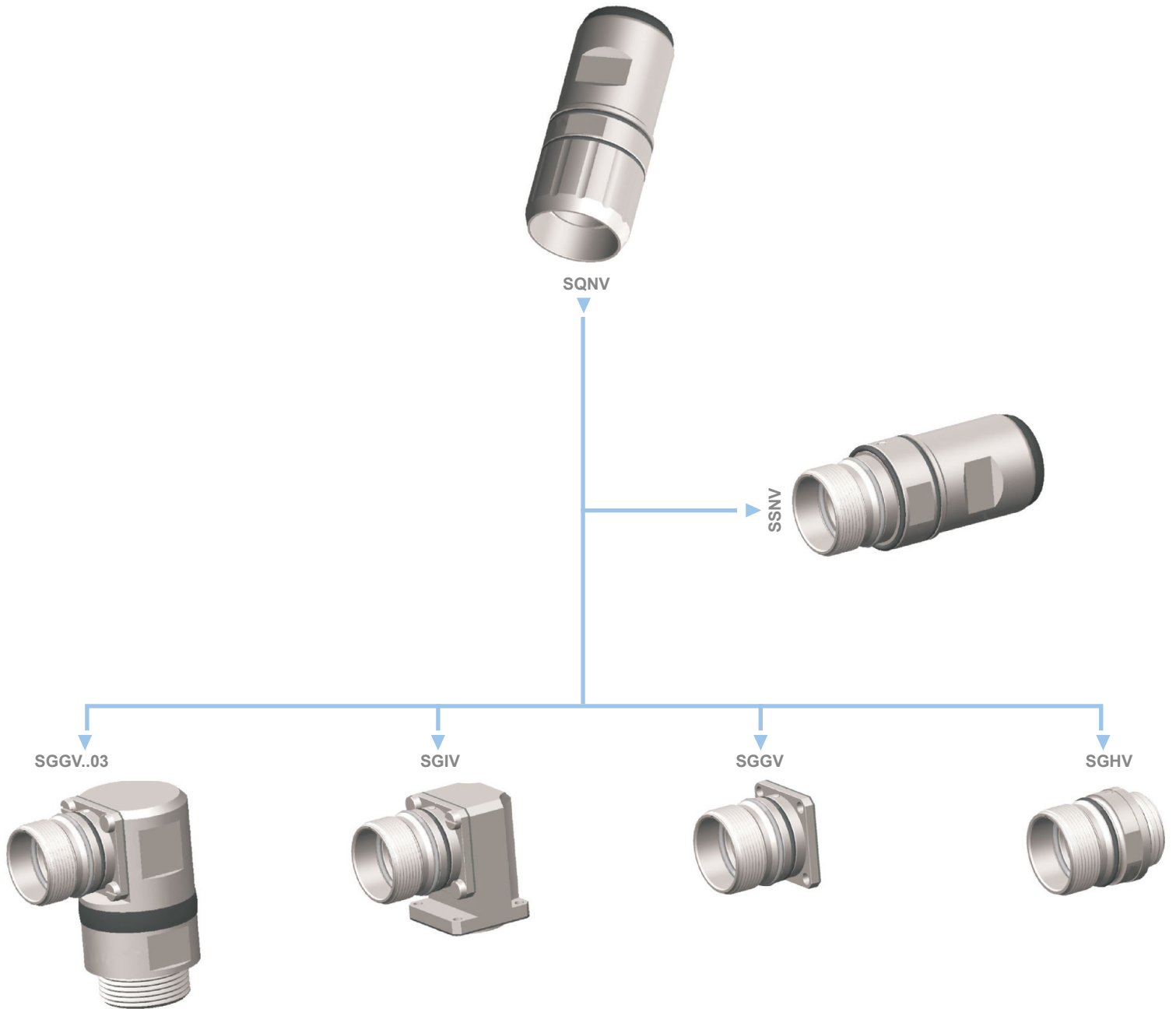
After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)



Notes:

Type Overview

M23 Stainless Steel Signal Connectors Series S



Technical Characteristics

M23 Stainless Steel Signal Connectors Series S

Mechanical

Standards

| | | |
|-------------------------------------|-------|---|
| Contact diameter 6, 7 and 8poles | Ø 2mm | - |
| Contact diameter 9, 12, 16, 17poles | Ø 1mm | - |

Material

| | | |
|----------|---------------------|---|
| Shell | V2A (V4A on demand) | - |
| Contacts | CuZn alloy | - |
| Insert | PA, PBT | - |
| Sealing | FKM, EPDM | - |

Material

| | | |
|---------------------------|--------------------|---|
| Shell plating | passivated | - |
| Machined contacts plating | Gold over nickel | - |
| Stamped contacts plating | Partly gold plated | - |

Electrical

| | | |
|-----------------------|--------------------------------------|--------------|
| Current rating | 9 A (contact Ø 1mm) | EN 61984 |
| | 8 A (contact Ø 1mm) | USR / UL1977 |
| | 20 A (contact Ø 2mm) | EN 61984 |
| | 20 A (contact Ø 2mm) | USR / UL1977 |
| Voltage rating | 50 V AC / 120 V DC | EN 61140 |
| | 125 V | USR / UL1977 |
| Withstanding voltage | 2500 V | EN 61984 |
| Contact resistance | <5 mΩ (contact Ø 1mm) | EN 61984 |
| | <3 mΩ (contact Ø 2mm) | EN 61984 |
| Insulation resistance | 10 ¹³ Ωcm (contact Ø 1mm) | EN 61984 |
| | 10 ¹⁶ Ωcm (contact Ø 2mm) | EN 61984 |
| Overvoltage category | III | EN 61984 |

Physical and Environmental

| | | |
|-----------------------------|-----------------------------------|--------------|
| Operating temperature range | -40°C ... 125°C | EN 61984 |
| | -40°C ... 110°C | UL1977 |
| Storage conditions | -40°C ... 70°C/ min. humidity 40% | - |
| Environmental level | IP67 (mated) | DIN EN 60529 |
| Contamination level | 3 (mated) | EN 61984 |
| Installation altitude | up to 2000 m | EN 61984 |
| Fire & Smoke | Recognition file No E 178462 | UL 1977 |
| RoHS | Compliant | - |

Consult factory for details



How To Order

M23 Stainless Steel Signal Connectors Series S



1 CONNECTOR FAMILY

S M23 stainless steel circular connectors, Series S

2 CONNECTOR DESIGN

Q N plug with variable shield connection and variable cable clamp

S N extension with variable shield connection and variable cable clamp

G G straight receptacle with flange

G I angled receptacle with flange

G H straight receptacle, threaded connection M 20x1.5

3 PLATING

V passivated

4 INSERTS

| | | | |
|---|---|---|---|
| 0 | 6 | G | 6 x Ø 2mm for extensions and receptacles |
| 0 | 7 | C | 7 x Ø 2mm for extensions and receptacle |
| 0 | 9 | E | 8 x Ø 1mm + 1 x Ø 2mm for extensions and receptacle |
| 0 | 9 | G | 6 x Ø 1mm + 3 x Ø 2mm for extensions and receptacle |
| 0 | 9 | J | 9 x Ø 1mm for extensions and receptacle |
| 1 | 2 | T | 12 x Ø 1mm for extensions and receptacle |
| 1 | 2 | V | 12 x Ø 1mm (Code 20°) for extensions and receptacle |
| 1 | 6 | A | 16 x Ø 1mm for extensions and receptacle |
| 1 | 7 | G | 17 x Ø 1mm for extensions and receptacle |

| | | | |
|---|---|---|---------------------------------|
| 0 | 6 | H | 6 x Ø 2mm for plugs |
| 0 | 7 | D | 7 x Ø 2mm for plugs |
| 0 | 9 | F | 8 x Ø 1mm + 1 x Ø 2mm for plugs |
| 0 | 9 | H | 6 x Ø 1mm + 3 x Ø 2mm for plugs |
| 0 | 9 | K | 9 x Ø 1mm for plugs |
| 1 | 2 | S | 12 x Ø 1mm for plugs |
| 1 | 2 | U | 12 x Ø 1mm (Code 20°) for plugs |
| 1 | 6 | B | 16 x Ø 1mm for plugs |
| 1 | 7 | H | 17 x Ø 1mm for plugs |

5 TERMINATION STYLE

| | | | | |
|---|---|---|---|--|
| N | N | N | N | without contacts, loose machined contacts and stamped HCS contacts on reels to be ordered separately |
| M | R | R | N | including machined pins, 6/7 x Ø 2mm AWG 18-14 |
| M | R | V | N | including machined pins, 6/7 x Ø 2mm AWG 24-16 |
| M | R | S | R | including machined pins, 8/6 x Ø 1mm AWG 24-18 + 1/3 x Ø 2mm, AWG 18-14 |
| M | R | S | V | including machined pins, 8/6 x Ø 1mm AWG 24-18 + 1/3 x Ø 2mm, AWG 24-16 |
| M | R | W | R | including machined pins, 8/6 x Ø 1mm AWG 30-22 + 1/3 x Ø 2mm, AWG 18-14 |
| M | R | W | V | including machined pins, 8/6 x Ø 1mm AWG 30-22 + 1/3 x Ø 2mm, AWG 24-16 |
| M | R | S | N | including machined pins, 9/12/16/17 x Ø 1mm AWG 24-16 |
| M | R | W | N | including machined pins, 9/12/16/17 x Ø 1mm AWG 30-22 |

| | | | | |
|---|---|---|---|--|
| F | R | R | N | including machined sockets, 6/7 x Ø 2mm AWG 20-16 |
| F | R | M | N | including machined sockets, 6/7 x Ø 2mm AWG 18-14 |
| F | R | O | R | including machined sockets, 8/6 x Ø 1mm AWG 24-18 + 1/3 x Ø 2mm, AWG 20-16 |
| F | R | O | M | including machined sockets, 8/6 x Ø 1mm AWG 24-18 + 1/3 x Ø 2mm, AWG 18-14 |
| F | R | P | R | including machined sockets, 8/6 x Ø 1mm AWG 20-16 + 1/3 x Ø 2mm, AWG 20-16 |
| F | R | P | M | including machined sockets, 8/6 x Ø 1mm AWG 20-16 + 1/3 x Ø 2mm, AWG 18-14 |
| F | R | B | R | including machined sockets, 8/6 x Ø 1mm AWG 30-22 + 1/3 x Ø 2mm, AWG 20-16 |
| F | R | B | M | including machined sockets, 8/6 x Ø 1mm AWG 30-22 + 1/3 x Ø 2mm, AWG 18-14 |
| F | R | O | N | including machined sockets, 9/12/16/17 x Ø 1mm AWG 24-18 |
| F | R | P | N | including machined sockets, 9/12/16/17 x Ø 1mm AWG 20-16 |
| F | R | B | N | including machined sockets, 9/12/16/17 x Ø 1mm AWG 30-22 |

6 CABLE CLAMPING

0 0 0 without cable clamp for receptacles

1 6 9 variable clamp for cable Ø 5.5mm to 12mm can be used for all shielded and non shielded cables

7 VERSION NUMBER

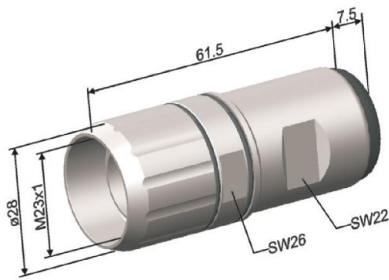
0 3 depending on type and special design see detailed description of connector design SGGV

Available Connectors

Signal plugs Series S with crimp contacts

LAYOUT
DESCRIPTION
PART NUMBER CODE



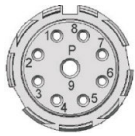


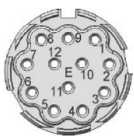
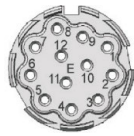


Plug with variable shield connection and variable cable clamp.



| LAYOUT DESCRIPTION PART NUMBER CODE | SHELL TYPE | CONTACT STYLE | TERMINATION CROSS SECTION |
|--|------------------|------------------|---|
| Plug with variable shield connection and variable cable clamp. | SQNV
SQNV* | MACHINED PINS | 0.75 - 2.5
0.24 - 1.5
0.24 - 1 / 0.75 - 2.5
0.24 - 1 / 0.24 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.05 - 0.34 / 0.24 - 1.5
0.24 - 1
0.05 - 0.34 |
| | | MACHINED SOCKETS | 0.5 - 1.5
0.75 - 2.5
0.24 - 1 / 0.5 - 1.5
0.24 - 1 / 0.75 - 2.5
0.34 - 1.5 / 0.5 - 1.5
0.34 - 1.5 / 0.75 - 2.5
0.05 - 0.34 / 0.5 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.24 - 1
0.24 - 1.5
0.05 - 0.34 |
| | WITHOUT CONTACTS | | |

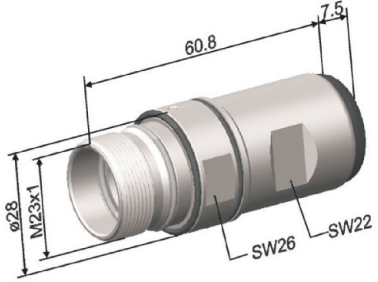
* UL-Version

CONTACT ARRANGEMENTS VIEW MATING FACE

|  | |  | |  | |  | |  | |  | |  | |  | |  | | CABLE CLAMP |
|--|------|---|------|---|------|---|------|---|------|---|------|--|------|---|------|---|------|-------------|
| 06H
(6 x 2) | | 07D
(7 x 2) | | 09F
(8 x 1 / 1 x 2) | | 09H
(6 x 1 / 3 x 2) | | 09K
(9 x 1) | | 12S
(12 x 1) | | 12U
(12 x 1 Code 20°) | | 16B
(16 x 1) | | 17H
(17 x 1) | | |
| 06H | MRRN | 07D | MRRN | | | | | | | | | | | | | | | 169 |
| 06H | MRVN | 07D | MRVN | | | | | | | | | | | | | | | |
| | | | | 09F | MRSR | 09H | MRSR | | | | | | | | | | | |
| | | | | 09F | MRSV | 09H | MRSV | | | | | | | | | | | |
| | | | | 09F | MRWR | 09H | MRWR | | | | | | | | | | | |
| | | | | 09F | MRWV | 09H | MRWV | | | | | | | | | | | |
| | | | | | | | | 09K | MRSN | 12S | MRSN | 12U | MRSN | 16B | MRSN | 17H | MRSN | |
| | | | | | | | | 09K | MRWN | 12S | MRWN | 12U | MRWN | 16B | MRWN | 17H | MRWN | |
| 06H | FRRN | 07D | FRRN | | | | | | | | | | | | | | | |
| 06H | FRMN | 07D | FRMN | | | | | | | | | | | | | | | |
| | | | | 09F | FROR | 09H | FROR | | | | | | | | | | | |
| | | | | 09F | FROM | 09H | FROM | | | | | | | | | | | |
| | | | | 09F | FRPR | 09H | FRPR | | | | | | | | | | | |
| | | | | 09F | FRPM | 09H | FRPM | | | | | | | | | | | |
| | | | | 09F | FRBR | 09H | FRBR | | | | | | | | | | | |
| | | | | 09F | FRBM | 09H | FRBM | | | | | | | | | | | |
| | | | | | | | | 09K | FRON | 12S | FRON | 12U | FRON | 16B | FRON | 17H | FRON | |
| | | | | | | | | 09K | FRPN | 12S | FRPN | 12U | FRPN | 16B | FRPN | 17H | FRPN | |
| | | | | | | | | 09K | FRBN | 12S | FRBN | 12U | FRBN | 16B | FRBN | 17H | FRBN | |
| | | | | | | | | 09K | NNNN | 12S | NNNN | 12U | NNNN | 16B | NNNN | 17H | NNNN | |





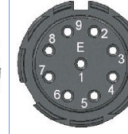
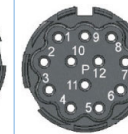
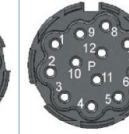

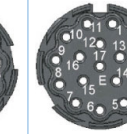
Signal extensions Series S with crimp contacts

| LAYOUT
DESCRIPTION
PART NUMBER CODE | SHELL TYPE | CONTACT STYLE | TERMINATION CROSS SECTION |
|--|---------------|------------------|---|
| Extension with variable shield connection and variable cable clamp.

 | SSNV
SSNV* | MACHINED PINS | 0.75 - 2.5
0.24 - 1.5
0.24 - 1 / 0.75 - 2.5
0.24 - 1 / 0.24 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.05 - 0.34 / 0.24 - 1.5
0.24 - 1
0.05 - 0.34 |
| | | MACHINED SOCKETS | 0.5 - 1.5
0.75 - 2.5
0.24 - 1 / 0.5 - 1.5
0.24 - 1 / 0.75 - 2.5
0.34 - 1.5 / 0.5 - 1.5
0.34 - 1.5 / 0.75 - 2.5
0.05 - 0.34 / 0.5 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.24 - 1
0.24 - 1.5
0.05 - 0.34 |
| | | WITHOUT CONTACTS | |

* UL-Version

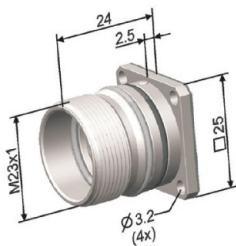
CONTACT ARRANGEMENTS: VIEW MATING FACE

|  | |  | |  | |  | |  | |  | |  | |  | |  | | CABLE CLAMP |
|--|------|---|------|---|------|---|------|---|------|---|------|--|------|---|------|---|------|-------------|
| 06G
(6 x 2) | | 07C
(7 x 2) | | 09E
(8 x 1 / 1 x 2) | | 09G
(6 x 1 / 3 x 2) | | 09J
(9 x 1) | | 12T
(12 x 1) | | 12V
(12 x 1 Code 20°) | | 16A
(16 x 1) | | 17G
(17 x 1) | | |
| 06G | MRRN | 07C | MRRN | | | | | | | | | | | | | | | 169 |
| 06G | MRVN | 07C | MRVN | | | | | | | | | | | | | | | |
| | | | | 09E | MRSR | 09G | MRSR | | | | | | | | | | | |
| | | | | 09E | MRSV | 09G | MRSV | | | | | | | | | | | |
| | | | | 09E | MRWR | 09G | MRWR | | | | | | | | | | | |
| | | | | 09E | MRVV | 09G | MRVV | | | | | | | | | | | |
| | | | | | | | | 09J | MRSN | 12T | MRSN | 12V | MRSN | 16A | MRSN | 17G | MRSN | |
| | | | | | | | | 09J | MRWN | 12T | MRWN | 12V | MRWN | 16A | MRWN | 17G | MRWN | |
| 06G | FRRN | 07C | FRRN | | | | | | | | | | | | | | | |
| 06G | FRMN | 07C | FRMN | | | | | | | | | | | | | | | |
| | | | | 09E | FROR | 09G | FROR | | | | | | | | | | | |
| | | | | 09E | FROM | 09G | FROM | | | | | | | | | | | |
| | | | | 09E | FRPR | 09G | FRPR | | | | | | | | | | | |
| | | | | 09E | FRPM | 09G | FRPM | | | | | | | | | | | |
| | | | | 09E | FRBR | 09G | FRBR | | | | | | | | | | | |
| | | | | 09E | FRBM | 09G | FRBM | | | | | | | | | | | |
| | | | | | | | | 09J | FRON | 12T | FRON | 12V | FRON | 16A | FRON | 17G | FRON | |
| | | | | | | | | 09J | FRPN | 12T | FRPN | 12V | FRPN | 16A | FRPN | 17G | FRPN | |
| | | | | | | | | 09J | FRBN | 12T | FRBN | 12V | FRBN | 16A | FRBN | 17G | FRBN | |
| | | | | | | | | 09J | NNNN | 12T | NNNN | 12V | NNNN | 16A | NNNN | 17G | NNNN | |

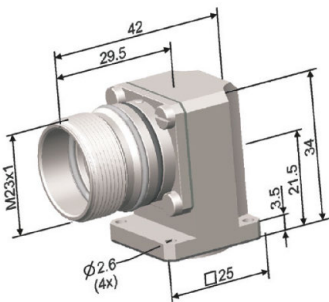
Signal receptacles Series S with crimp contacts

LAYOUT
DESCRIPTION
PART NUMBER CODE

Straight receptacle, radial sealing to the device, mounting flange



Fixed angled receptacle, radial sealing to the device, mounting flange



| SHELL TYPE | CONTACT STYLE | TERMINATION CROSS SECTION |
|---------------|------------------|---|
| SGGV
SGGV* | MACHINED PINS | 0.75 - 2.5
0.24 - 1.5
0.24 - 1 / 0.75 - 2.5
0.24 - 1 / 0.24 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.05 - 0.34 / 0.24 - 1.5
0.24 - 1
0.05 - 0.34 |
| | MACHINED SOCKETS | 0.5 - 1.5
0.75 - 2.5
0.24 - 1 / 0.5 - 1.5
0.24 - 1 / 0.75 - 2.5
0.34 - 1.5 / 0.5 - 1.5
0.34 - 1.5 / 0.75 - 2.5
0.05 - 0.34 / 0.5 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.24 - 1
0.24 - 1.5
0.05 - 0.34 |
| | WITHOUT CONTACTS | |
| SGIV
SGIV* | MACHINED PINS | 0.75 - 2.5
0.24 - 1.5
0.24 - 1 / 0.75 - 2.5
0.24 - 1 / 0.24 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.05 - 0.34 / 0.24 - 1.5
0.24 - 1
0.05 - 0.34 |
| | MACHINED SOCKETS | 0.5 - 1.5
0.75 - 2.5
0.24 - 1 / 0.5 - 1.5
0.24 - 1 / 0.75 - 2.5
0.34 - 1.5 / 0.5 - 1.5
0.34 - 1.5 / 0.75 - 2.5
0.05 - 0.34 / 0.5 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.24 - 1
0.24 - 1.5
0.05 - 0.34 |
| | WITHOUT CONTACTS | |

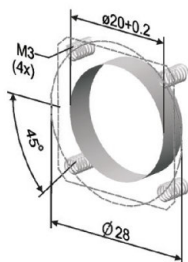
* UL-Version

CONTACT ARRANGEMENTS: VIEW MATING FACE

| 06G
(6 x 2) | | 07C
(7 x 2) | | 09E
(8 x 1 / 1 x 2) | | 09G
(6 x 1 / 3 x 2) | | 09J
(9 x 1) | | 12T
(12 x 1) | | 12V
(12 x 1 Code 20°) | | 16A
(16 x 1) | | 17G
(17 x 1) | | CABLE CLAMP |
|----------------|------|----------------|------|------------------------|------|------------------------|------|----------------|------|-----------------|------|--------------------------|------|-----------------|------|-----------------|------|-------------|
| 06G | MRRN | 07C | MRRN | | | | | | | | | | | | | | | |
| 06G | MRVN | 07C | MRVN | | | | | | | | | | | | | | | |
| | | | | 09E | MRSR | 09G | MRSR | | | | | | | | | | | |
| | | | | 09E | MRSV | 09G | MRSV | | | | | | | | | | | |
| | | | | 09E | MRWR | 09G | MRWR | | | | | | | | | | | |
| | | | | 09E | MRWV | 09G | MRWV | | | | | | | | | | | |
| | | | | | | | | 09J | MRSN | 12T | MRSN | 12V | MRSN | 16A | MRSN | 17G | MRSN | |
| | | | | | | | | 09J | MRWN | 12T | MRWN | 12V | MRWN | 16A | MRWN | 17G | MRWN | |
| 06G | FRRN | 07C | FRRN | | | | | | | | | | | | | | | |
| 06G | FRMN | 07C | FRMN | | | | | | | | | | | | | | | |
| | | | | 09E | FROR | 09G | FROR | | | | | | | | | | | |
| | | | | 09E | FROM | 09G | FROM | | | | | | | | | | | |
| | | | | 09E | FRPR | 09G | FRPR | | | | | | | | | | | |
| | | | | 09E | FRPM | 09G | FRPM | | | | | | | | | | | |
| | | | | 09E | FRBR | 09G | FRBR | | | | | | | | | | | |
| | | | | 09E | FRBM | 09G | FRBM | | | | | | | | | | | |
| | | | | | | | | 09J | FRON | 12T | FRON | 12V | FRON | 16A | FRON | 17G | FRON | |
| | | | | | | | | 09J | FRPN | 12T | FRPN | 12V | FRPN | 16A | FRPN | 17G | FRPN | |
| | | | | | | | | 09J | FRBN | 12T | FRBN | 12V | FRBN | 16A | FRBN | 17G | FRBN | |
| 06G | NNNN | 07C | NNNN | 09E | NNNN | 09G | NNNN | 09J | NNNN | 12T | NNNN | 09G | NNNN | 09J | NNNN | 17G | NNNN | |
| 06G | MRRN | 07C | MRRN | | | | | | | | | | | | | | | |
| 06G | MRVN | 07C | MRVN | | | | | | | | | | | | | | | |
| | | | | 09E | MRSR | 09G | MRSR | | | | | | | | | | | |
| | | | | 09E | MRSV | 09G | MRSV | | | | | | | | | | | |
| | | | | 09E | MRWR | 09G | MRWR | | | | | | | | | | | |
| | | | | 09E | MRWV | 09G | MRWV | | | | | | | | | | | |
| | | | | | | | | 09J | MRSN | 12T | MRSN | 12V | MRSN | 16A | MRSN | 17G | MRSN | |
| | | | | | | | | 09J | MRWN | 12T | MRWN | 12V | MRWN | 16A | MRWN | 17G | MRWN | |
| 06G | FRRN | 07C | FRRN | | | | | | | | | | | | | | | |
| 06G | FRMN | 07C | FRMN | | | | | | | | | | | | | | | |
| | | | | 09E | FROR | 09G | FROR | | | | | | | | | | | |
| | | | | 09E | FROM | 09G | FROM | | | | | | | | | | | |
| | | | | 09E | FRPR | 09G | FRPR | | | | | | | | | | | |
| | | | | 09E | FRPM | 09G | FRPM | | | | | | | | | | | |
| | | | | 09E | FRBR | 09G | FRBR | | | | | | | | | | | |
| | | | | 09E | FRBM | 09G | FRBM | | | | | | | | | | | |
| | | | | | | | | 09J | FRON | 12T | FRON | 12V | FRON | 16A | FRON | 17G | FRON | |
| | | | | | | | | 09J | FRPN | 12T | FRPN | 12V | FRPN | 16A | FRPN | 17G | FRPN | |
| | | | | | | | | 09J | FRBN | 12T | FRBN | 12V | FRBN | 16A | FRBN | 17G | FRBN | |
| | | | | | | | | 09J | NNNN | 12T | NNNN | 12V | NNNN | 16A | NNNN | 17G | NNNN | |

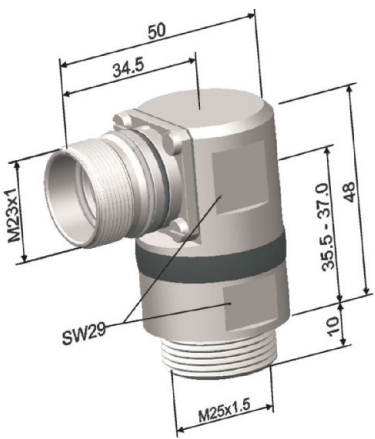
Drilling drawings

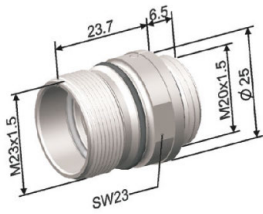
SGGV, SGIV



Signal receptacles Series S with crimp contacts

| LAYOUT
DESCRIPTION
PART NUMBER CODE | SHELL TYPE | CONTACT
STYLE | TERMINATION
CROSS SECTION |
|---|-----------------------------|------------------|---|
| Straight receptacle, radial sealing to the device, mounting flange

 | SGGV
SGGV* | MACHINED PINS | 0.75 - 2.5
0.24 - 1.5
0.24 - 1 / 0.75 - 2.5
0.24 - 1 / 0.24 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.05 - 0.34 / 0.24 - 1.5
0.24 - 1
0.05 - 0.34 |
| Fixed angled receptacle, radial sealing to the device, mounting flange

 | | MACHINED SOCKETS | 0.5 - 1.5
0.75 - 2.5
0.24 - 1 / 0.5 - 1.5
0.24 - 1 / 0.75 - 2.5
0.34 - 1.5 / 0.5 - 1.5
0.34 - 1.5 / 0.75 - 2.5
0.05 - 0.34 / 0.5 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.24 - 1
0.24 - 1.5
0.05 - 0.34 |
| | | WITHOUT CONTACTS | 0.75 - 2.5
0.24 - 1.5
0.24 - 1 / 0.75 - 2.5
0.24 - 1 / 0.24 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.05 - 0.34 / 0.24 - 1.5
0.24 - 1
0.05 - 0.34 |
| | SGHV
SGHV* | MACHINED SOCKETS | 0.5 - 1.5
0.75 - 2.5
0.24 - 1 / 0.5 - 1.5
0.24 - 1 / 0.75 - 2.5
0.34 - 1.5 / 0.5 - 1.5
0.34 - 1.5 / 0.75 - 2.5
0.05 - 0.34 / 0.5 - 1.5
0.05 - 0.34 / 0.75 - 2.5
0.24 - 1
0.24 - 1.5
0.05 - 0.34 |
| | | WITHOUT CONTACTS | |

* UL-Version

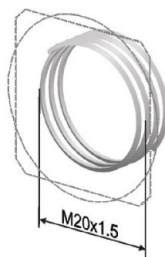
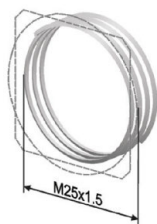
CONTACT ARRANGEMENTS: VIEW MATING FACE

| 06G
(6 x 2) | | 07C
(7 x 2) | | 09E
(8 x 1 / 1 x 2) | | 09G
(6 x 1 / 3 x 2) | | 09J
(9 x 1) | | 12T
(12 x 1) | | 12V
(12 x 1 Code 20°) | | 16A
(16 x 1) | | 17G
(17 x 1) | | CABLE CLAMP |
|----------------|------|----------------|------|------------------------|------|------------------------|------|----------------|------|-----------------|------|--------------------------|------|-----------------|------|-----------------|------|-------------|
| 06G | MRRN | 07C | MRRN | | | | | | | | | | | | | | | |
| 06G | MRVN | 07C | MRVN | | | | | | | | | | | | | | | |
| | | | | 09E | MRSR | 09G | MRSR | | | | | | | | | | | |
| | | | | 09E | MRSV | 09G | MRSV | | | | | | | | | | | |
| | | | | 09E | MRWR | 09G | MRWR | | | | | | | | | | | |
| | | | | 09E | MRWV | 09G | MRWV | | | | | | | | | | | |
| | | | | | | | | 09J | MRSN | 12T | MRSN | 12V | MRSN | 16A | MRSN | 17G | MRSN | |
| | | | | | | | | 09J | MRWN | 12T | MRWN | 12V | MRWN | 16A | MRWN | 17G | MRWN | |
| 06G | FRRN | 07C | FRRN | | | | | | | | | | | | | | | |
| 06G | FRMN | 07C | FRMN | | | | | | | | | | | | | | | |
| | | | | 09E | FROR | 09G | FROR | | | | | | | | | | | |
| | | | | 09E | FROM | 09G | FROM | | | | | | | | | | | |
| | | | | 09E | FRPR | 09G | FRPR | | | | | | | | | | | |
| | | | | 09E | FRPM | 09G | FRPM | | | | | | | | | | | |
| | | | | 09E | FRBR | 09G | FRBR | | | | | | | | | | | |
| | | | | 09E | FRBM | 09G | FRBM | | | | | | | | | | | |
| | | | | | | | | 09J | FRON | 12T | FRON | 12V | FRON | 16A | FRON | 17G | FRON | |
| | | | | | | | | 09J | FRPN | 12T | FRPN | 12V | FRPN | 16A | FRPN | 17G | FRPN | |
| | | | | | | | | 09J | FRBN | 12T | FRBN | 12V | FRBN | 16A | FRBN | 17G | FRBN | |
| 06G | NNNN | 07C | NNNN | 09E | NNNN | 09G | NNNN | 09J | NNNN | 12T | NNNN | 09G | NNNN | 09J | NNNN | 17G | NNNN | |
| 06G | MRRN | 07C | MRRN | | | | | | | | | | | | | | | |
| 06G | MRVN | 07C | MRVN | | | | | | | | | | | | | | | |
| | | | | 09E | MRSR | 09G | MRSR | | | | | | | | | | | |
| | | | | 09E | MRSV | 09G | MRSV | | | | | | | | | | | |
| | | | | 09E | MRWR | 09G | MRWR | | | | | | | | | | | |
| | | | | 09E | MRWV | 09G | MRWV | | | | | | | | | | | |
| | | | | | | | | 09J | MRSN | 12T | MRSN | 12V | MRSN | 16A | MRSN | 17G | MRSN | |
| | | | | | | | | 09J | MRWN | 12T | MRWN | 12V | MRWN | 16A | MRWN | 17G | MRWN | |
| 06G | FRRN | 07C | FRRN | | | | | | | | | | | | | | | |
| 06G | FRMN | 07C | FRMN | | | | | | | | | | | | | | | |
| | | | | 09E | FROR | 09G | FROR | | | | | | | | | | | |
| | | | | 09E | FROM | 09G | FROM | | | | | | | | | | | |
| | | | | 09E | FRPR | 09G | FRPR | | | | | | | | | | | |
| | | | | 09E | FRPM | 09G | FRPM | | | | | | | | | | | |
| | | | | 09E | FRBR | 09G | FRBR | | | | | | | | | | | |
| | | | | 09E | FRBM | 09G | FRBM | | | | | | | | | | | |
| | | | | | | | | 09J | FRON | 12T | FRON | 12V | FRON | 16A | FRON | 17G | FRON | |
| | | | | | | | | 09J | FRPN | 12T | FRPN | 12V | FRPN | 16A | FRPN | 17G | FRPN | |
| | | | | | | | | 09J | FRBN | 12T | FRBN | 12V | FRBN | 16A | FRBN | 17G | FRBN | |
| | | | | | | | | 09J | NNNN | 12T | NNNN | 12V | NNNN | 16A | NNNN | 17G | NNNN | |

Drilling drawings






SGGV..03

SGHV



Contacts

Machined Pins Series S






| Type | R | V | S | T | W |
|--|---|---|---|---|---|
| Contact diameter [mm] | 2 | 2 | 1 | 1 | 1 |
| Part number and layout | | | | | |
| | 021.310.1020
 | 021.356.1020
 | 021.311.1020
 | 021.373.1020
 | 021.402.1020
 |
| Termination cross section* [mm ²] AWG | 0.75 - 2.5
(18 - 14) | 0.34 - 1.5
(24 - 16) | 0.24 - 1.0
(24 - 18) | 0.24 - 1.0
(24 - 18) | 0.05 - 0.34
(30 - 22) |
| Max. nominal current [A] (20°C)
at max. cross section | 20 | 20 | 9 | 9 | 9 |
| Strip length (A) [mm] | ~ 5.5 | ~ 5.5 | (B = $\leq \varnothing 2.1$) ~ 4
(B = $> \varnothing 2.1$) ~ 6 | (B = $\leq \varnothing 2.1$) ~ 4
(B = $> \varnothing 2.1$) ~ 6 | ~ 5 |
| Contact resistance [mΩ] | <3 | <3 | <5 | <5 | <5 |
| Max. conductor diameter [mm] | 2.2 | 1.8 | 1.2 | 1.2 | 0.8 |
| Max. insulation diameter [mm] for
insulation crimp | - | - | 2.1 | 2.1 | - |

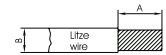


*Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wires further cross sections and currents can be processed.

| Tooling | | | | | |
|--------------------|------|------|--------|--------|--------|
| Hand crimping tool | B151 | B151 | B150 | B150 | B150 |
| Positioner | B201 | B201 | B055/A | B055/A | B055/A |
| Insertion tool | - | - | - | - | - |
| Extraction tool | - | - | - | - | - |

Machined Sockets Series S





| Type | R | M | O | P | B |
|--|---|---|---|---|---|
| Contact diameter [mm] | 2 | 2 | 1 | 1 | 1 |
| Part number and layout | | | | | |
| | 020.315.1020
 | 020.263.1020
 | 020.256.1020
 | 020.328.1020
 | 020.353.1020
 |
| Termination cross section* [mm ²] AWG | 0.5 - 1.5
(20 - 16) | 0.75 - 2.5
(18 - 14) | 0.24 - 1.0
(24 - 18) | 0.5 - 1.5
(20 - 16) | 0.05 - 0.34
(30 - 22) |
| Max. nominal current [A] (20°C)
at max. cross section | 20 | 20 | 9 | 9 | 9 |
| Strip length (A) [mm] | ~ 5.5 | ~ 5.5 | (B = $\leq \varnothing 2.1$) ~ 4
(B = $> \varnothing 2.1$) ~ 6 | ~ 5 | ~ 5 |
| Contact resistance [mΩ] | <3 | <3 | <5 | <5 | <5 |
| Max. conductor diameter [mm] | 1.7 | 2.2 | 1.2 | - | - |
| Max. insulation diameter [mm] for
insulation crimp | - | - | 2.1 | - | - |



*Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wires further cross sections and currents can be processed.

| Tooling | | | | | |
|--------------------|------|------|--------|------|--------|
| Hand crimping tool | B151 | B151 | B150 | B151 | B150 |
| Positioner | B201 | B201 | B055/A | B257 | B055/A |
| Insertion tool | - | - | - | - | - |
| Extraction tool | - | - | - | - | - |

Stamped HCS™ Pins Series S

| Type | A | B | C | D |
|--|--|--|--|--|
| Contact diameter [mm] | 1 | 1 | 1 | 1 |
| Part number and layout | | | | |
| | 021.001005.1025
 | 021.001006.1025
 | 021.001007.1025
 | 021.001008.1025
 |
| Termination cross section* [mm²] AWG | 0.03 - 0.08
(32 - 28) | 0.08 - 0.2
(28 - 24) | 0.2 - 0.5
(24 - 20) | 0.75 - 1.0
(18) |
| Max. nominal current [A] (20°C)
at max. cross section | 4 | 6 | 8 | 8 |
| Strip length (A) [mm] | ~ 3 | ~ 3 | ~ 3 | ~ 3 |
| Contact resistance [mΩ] | <5 | <5 | <5 | <5 |
| 9000 pcs. big reel part number | 021.001005.1025 | 021.001006.1025 | 021.001007.1025 | 021.001008.1025 |
| 300 pcs. small reel part number | 021.001005.1025.A2 | 021.001006.1025.A2 | 021.001007.1025.A2 | 021.001008.1025.A2 |





*Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wires further cross sections and currents can be processed.

| Tooling | | | | |
|------------------------------------|------------|------------|------------|-------------|
| Hand crimping tool for small reels | B287/32-28 | B287/28-24 | B287/24-20 | B287/0.75-1 |
| Applicator for crimping machine | B288/32-28 | B288/28-24 | B288/24-20 | B288/0.75-1 |

Schäfer **

**acc. to AMP standard

Stamped HCS™ Sockets Series S

| Type | A | B | C | D |
|--|--|--|--|--|
| Contact diameter [mm] | 1 | 1 | 1 | 1 |
| Part number and layout | | | | |
| | 020.000376.2000
 | 020.000377.2000
 | 020.000378.2000
 | 020.000379.2000
 |
| Termination cross section* [mm²] AWG | 0.03 - 0.08
(32 - 28) | 0.08 - 0.2
(28 - 24) | 0.2 - 0.5
(24 - 20) | 0.75 - 1.0
(18) |
| Max. nominal current [A] (20°C)
at max. cross section | 4 | 6 | 8 | 8 |
| Strip length (A) [mm] | ~ 3 | ~ 3 | ~ 3 | ~ 3 |
| Contact resistance [mΩ] | <5 | <5 | <5 | <5 |
| 9000 pcs. big reel part number | 020.000376.2000 | 020.000377.2000 | 020.000378.2000 | 020.000379.2000 |
| 300 pcs. small reel part number | 020.000376.2000.A2 | 020.000377.2000.A2 | 020.000378.2000.A2 | 020.000379.2000.A2 |

*Mentioned crimp ranges are recommendations and only valid with flexible wires H05(07)V-K [mm²] acc. to DIN VDE 0281/0282 pp and with non compressed standard cables and wires acc. to DIN VDE 0295. It is possible that due to another structure of wires further cross sections and currents can be processed.

| Tooling | | | | |
|------------------------------------|------------|------------|------------|-------------|
| Hand crimping tool for small reels | B287/32-28 | B287/28-24 | B287/24-20 | B287/0.75-1 |
| Applicator for crimping machine | B288/32-28 | B288/28-24 | B288/24-20 | B288/0.75-1 |

Schäfer **

**acc. to AMP standard

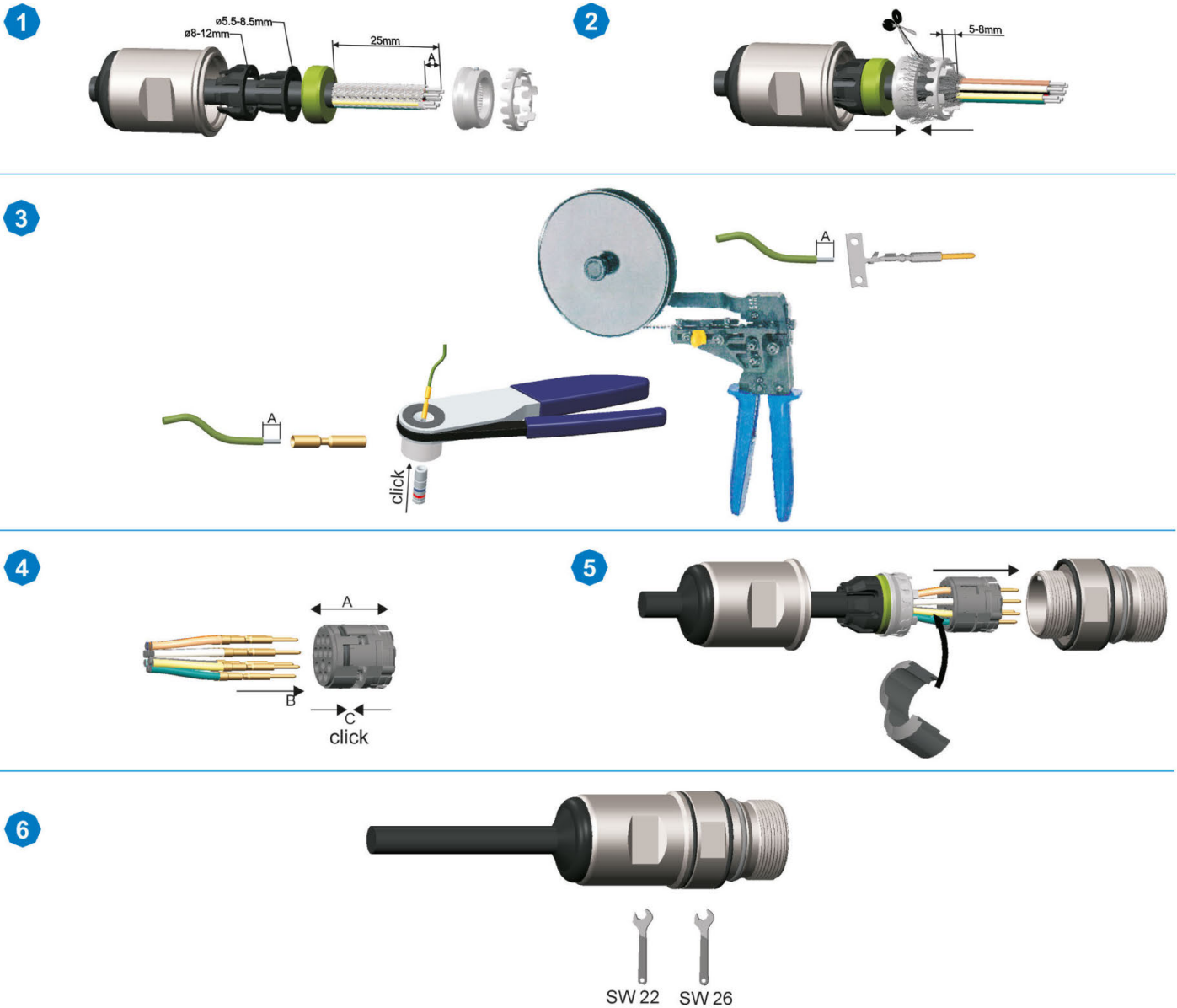
Assembly instructions

Signal extension SSNV...

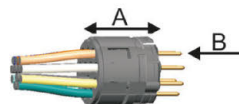
| | Stripping Length | |
|---|----------------------------|------------------|
| | Machined Contacts | Stamped Contacts |
| A | see catalogue page 32 - 33 | ~3 mm |



Assembly



Dismantling



After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

Assembly instructions

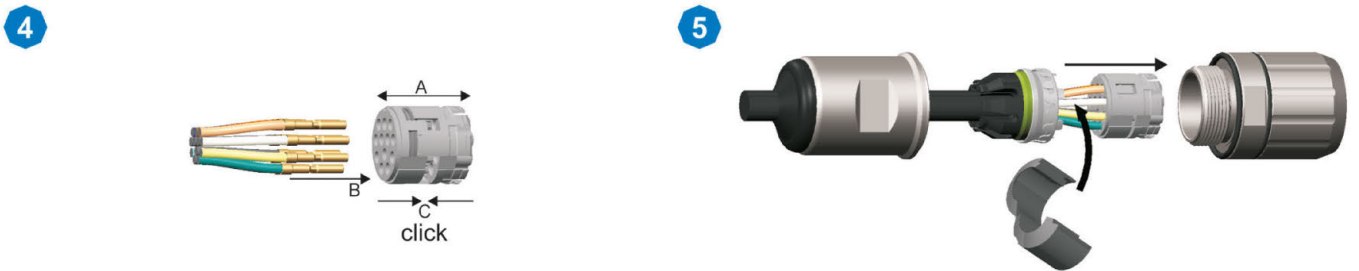
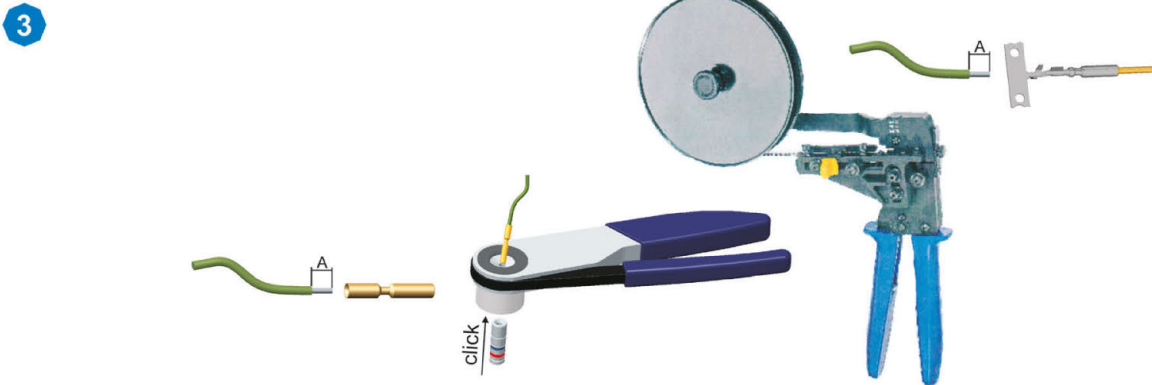
Signal plug SQNV.....

Page 1 of 1

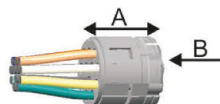
| | Stripping Length | |
|---|----------------------------|------------------|
| | Machined Contacts | Stamped Contacts |
| A | see catalogue page 32 - 33 | ~3 mm |



Assembly



Dismantling



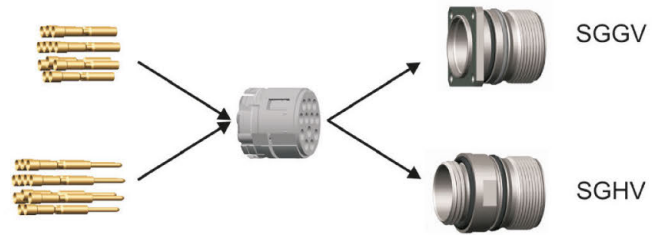
After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

Assembly instructions

Signal receptacles SGGV... SGHV... SGIV... SGGV...03

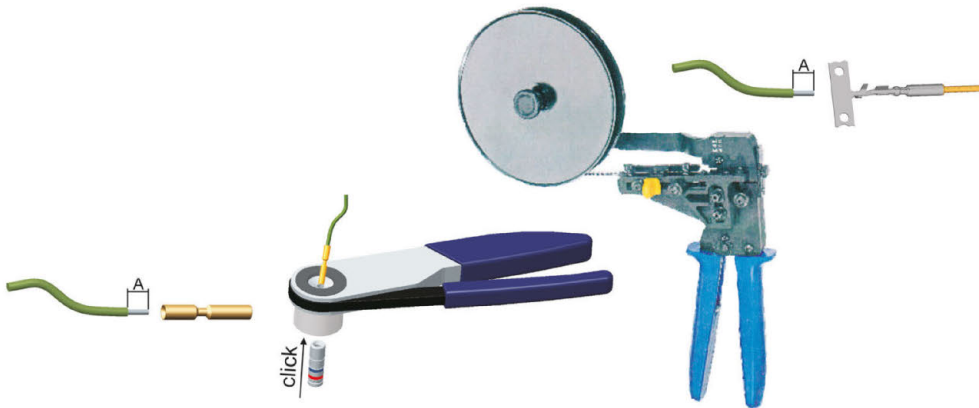
Page 1 of 2

| A | Stripping Length | |
|---|----------------------------|------------------|
| | Machined Contacts | Stamped Contacts |
| | see catalogue page 32 - 33 | ~3 mm |

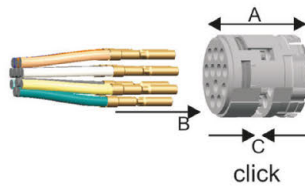


Assembly

1



2



3



Dismantling

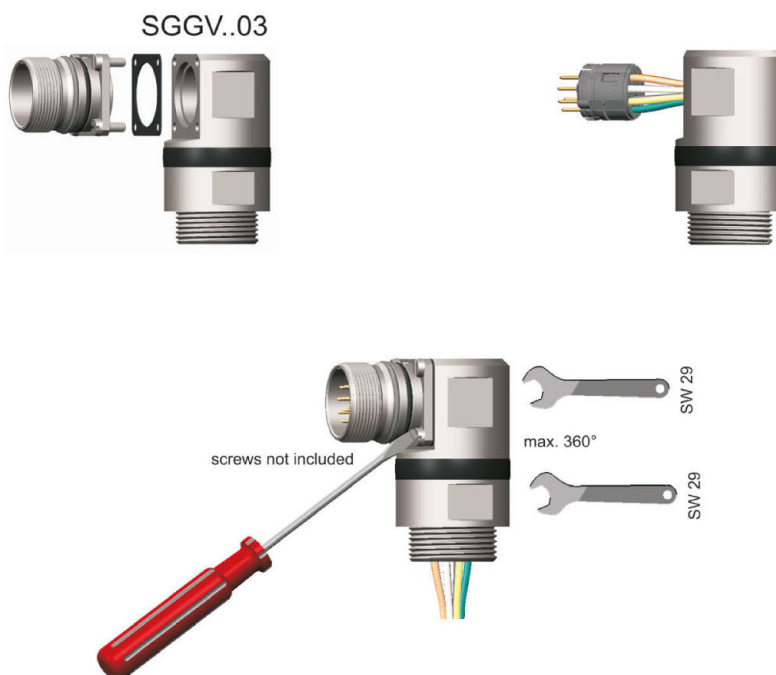
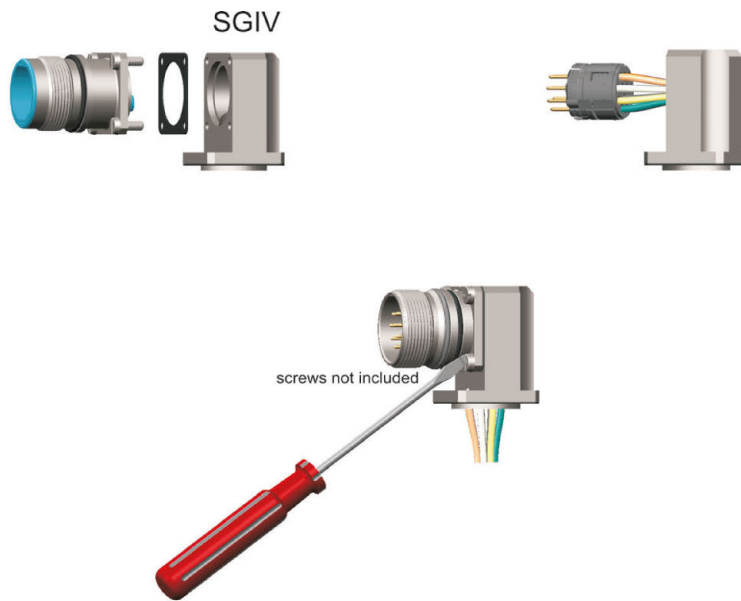


After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

Assembly instructions

Signal receptacles SGGV... SGHV... SGIV... SGGV...03





Page 2 of 2





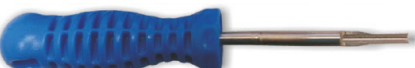
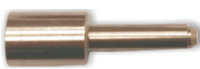

After assembly the connector has to be checked for the functions of the safety precautions (according to EN 60204-1, VDE 0113 Teil 1)

Tools


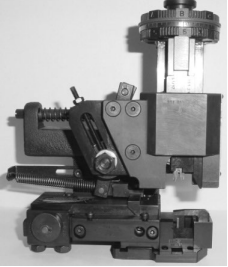
Machined Contacts

| Hand crimping tool | Positioner | Part number |
|--|--|--|
|  <p>B150</p> |  | B055/A
B201
B245
B257
B297
B305
B306 |
| Hand crimping tool | Master Gauge | Part number |
|  <p>B151</p> |  | B190
B230 |

Insertion and Extraction Tools

| Insertion tool | Extraction tool | Part number |
|---|--|-------------|
|  <p>B117</p> |  | B132 |
|  <p>B118</p> |  | B037/10a |
| |  | B038/10 |

Stamped Contacts

| Hand crimping tools with feeder line for HCS™ Ø 1mm | Termination Cross Section | Part number |
|--|--|--|
|  <p data-bbox="400 931 480 958">B287/..</p> | <p data-bbox="852 591 1182 703">0.032 - 0.08mm² (AWG 32-28)
0.08 - 0.20mm² (AWG 28-24)
0.20 - 0.52mm² (AWG 24-20)
0.75 - 1.00mm²</p> | <p data-bbox="1209 591 1378 703">B287/32-28
B287/28-24
B287/24-20
B287/0.75-1.00</p> |
| Applicators for crimping machines with feeder line | Termination cross section | Part number |
|  <p data-bbox="304 1301 576 1328">AMP / Schäfer ESP1000</p> | <p data-bbox="852 1122 1182 1234">0.032 - 0.08mm² (AWG 32-28)
0.08 - 0.20mm² (AWG 28-24)
0.20 - 0.52mm² (AWG 24-20)
0.75 - 1.00mm²</p> | <p data-bbox="1209 1122 1394 1234">B288/32 - 28
B288/28 - 24
B288/24 - 20
B288/0.75 - 1.00</p> |

Cable Clamps

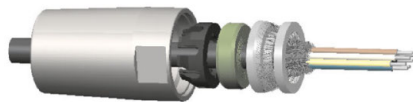
Cable clamp No. 169 for SSNV/SQNV



Clamp range

with reducing sleeve from 5.5 - 8.5mm
without reducing sleeve from 8-12mm
can be used for shielded and non shielded cables

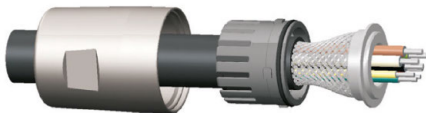
Cable clamp No. 170 for LSNV



Clamp range

with reducing sleeve from 7.7 - 12mm
without reducing sleeve from 11-14.5mm
can be used for shielded and non shielded cables

Cable clamps No. 305/306/307 for LQNV




Clamp range

.305 cable diameter 5 - 9 mm
.306 cable diameter 9 -15 mm
.307 cable diameter 16 mm
can be used for shielded and non shielded cables

Assessories

Caps

| Thread Protection Caps | Part number | |
|---|---|---|
|  | <p>031.287.1000 (short)
031.405.1000 (long)</p> | |
| Dust Shield Caps | Part number | Description |
|  | <p>C/BEL/1</p> | <p>dust shield cap for extension and receptacle</p> |
|  | <p>C/BEL/2</p> | <p>identical to C/BEL/1 with chain 75mm</p> |
|  | <p>C/BEL/7</p> | <p>identical to C/BEL/1 with chain 120mm</p> |
|  | <p>C/BEL/5</p> | <p>dust shield cap for power plug and panel feed through with chain 120mm</p> |
|  | <p>C/BEL/6</p> | <p>dust shield cap for signal plug with chain 120mm</p> |

CuZn alloy dust shield caps, nickel plated. Stainless steel quality on demand

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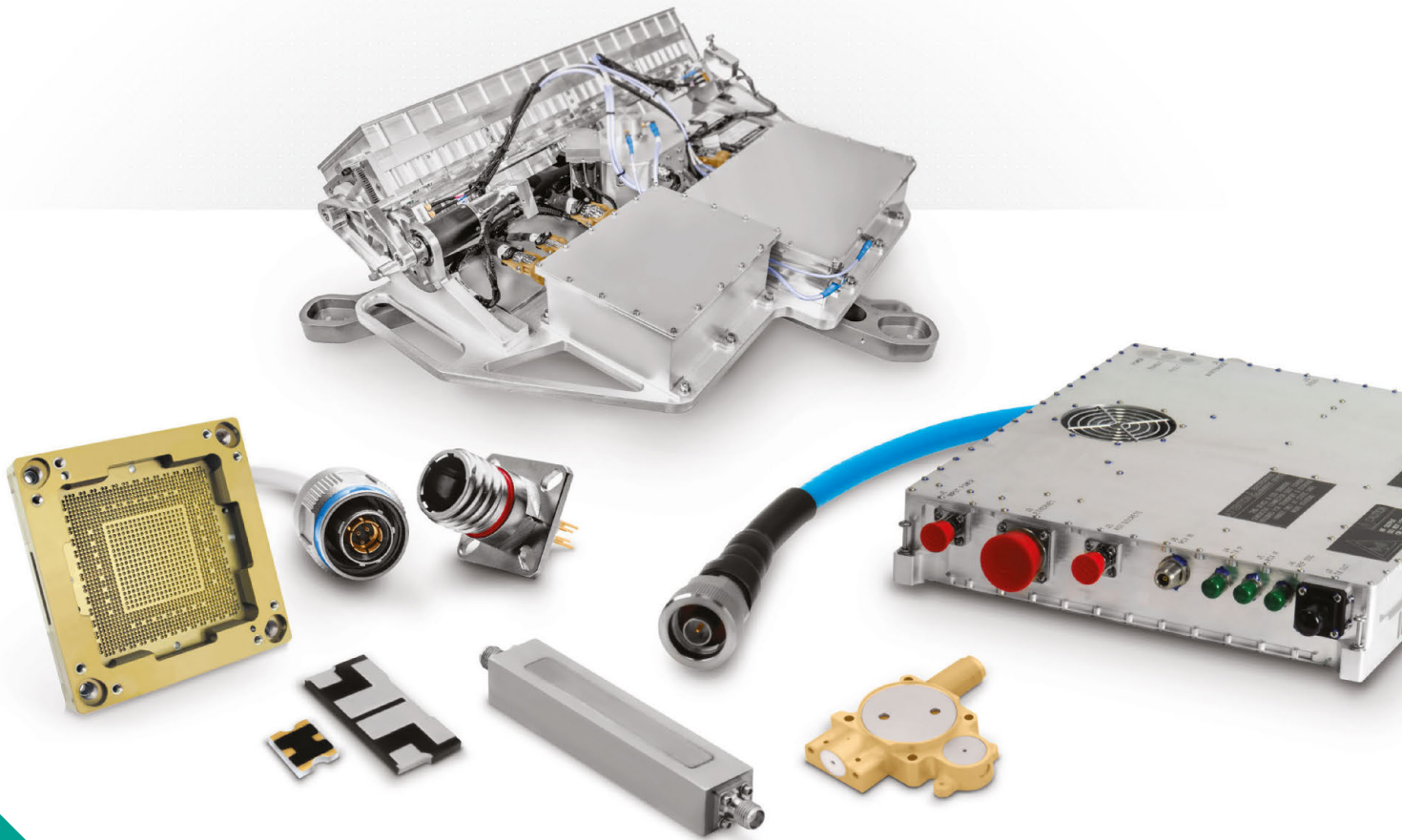
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- Antenna Systems
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 - Connector Solutions
 - Ferrite Components & Assemblies
 - RF Filter Components & Assemblies
 - Integrated Microwave Assemblies
 - Millimeter-Wave Solutions
 - RF Components
 - Test Sockets and WLCSP Probe Heads
 - Time & Frequency Systems

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