



M12 PCB-Connectors 90° Angled

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General



M12 Standard Solutions



Design Features:

- extremely space saving due to be placed on PCB central axis
- the special design of the solder pins compensate assembly tolerances
- identical Layout for male and female version
- 3 - 5 pin configuration (8 pin in realization)
- gold plated contacts
- IP 67 mated and locked condition
- suitable for potting after assembly due to redundant sealing function
- male and female can be used with housings which provide moulded M12 threads
- optional 360° shield ring
- integrated adoption of 3 different most common PCB thicknesses, 1.0 / 1.6 / 2.0 mm
- cylindrical base version, which is also usable for M12 sensor pipes
- high CTI-value of 600 for rough environmental applications
- UL listed polymer plastic
- early mate last break option for pin 5
- mating side according IEC 60076 – 2 – 101
- A-, B- and D-Coding

Processing Features

- first M12 90° version which has full capability for automated pick and place assembly
- T&R packaging
- integrated pick & place area
- pegs and integrated PCB support areas ensure a secure position while soldering
- extremely robust due to pins soldered on top and bottom side of the PCB
- lead-free reflow compatible
- rear mounting of the final assembled PCB in a housing

For technical data refer to ERNI document 225407

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General



M12 Sensor Pipe Solutions

This new development is an innovative product that has never existed before.

It completes the ERNI M12 connector range with a M12 male connector which targets specially the sensor industry, where mostly one single male connector is used for a device.

To save cost and ensure high quality levels, the connector can be fully handled within a standard SMT assembly line.

Mating side according IEC 60076 – 2 – 101.



Design Features:

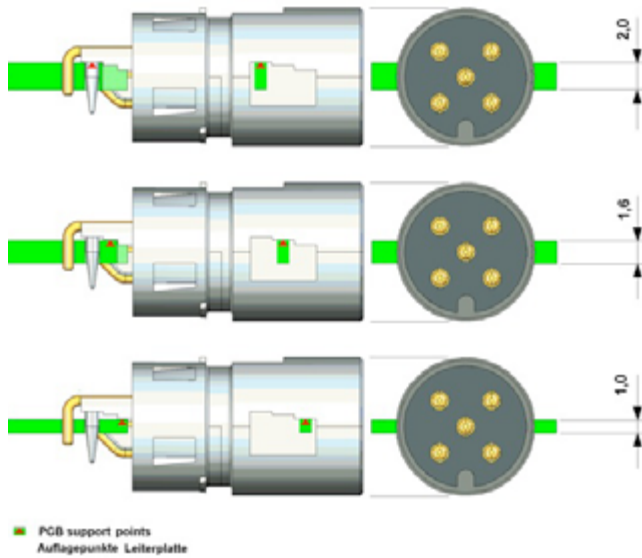
- extremely short version 14 mm length
- specially designed for M12 sensor pipes
- front mounting of final assembled PCB into the sensor pipe
- different sealing options
- additional features see standard version

M12 PCB-Connectors 90° Angled

Assembly and Solder Recommendations



PCB thickness



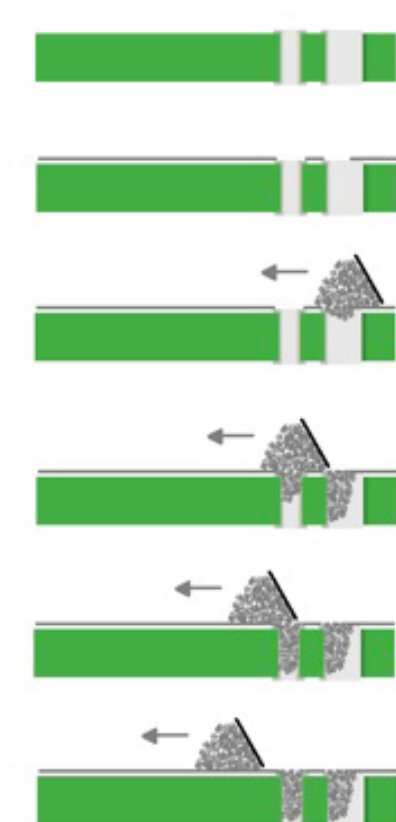
The connector has integrated PCB support points, which are able to adapt the 3 most common thicknesses for PCBs. The thickest PCB could be 2.0 mm followed by the favorite 1.6 mm and further followed by the thinnest 1.0 mm.

Note: Also other thicknesses in between of the mentioned range can be used, if the non centric position of the connector, in this case is taken into account.

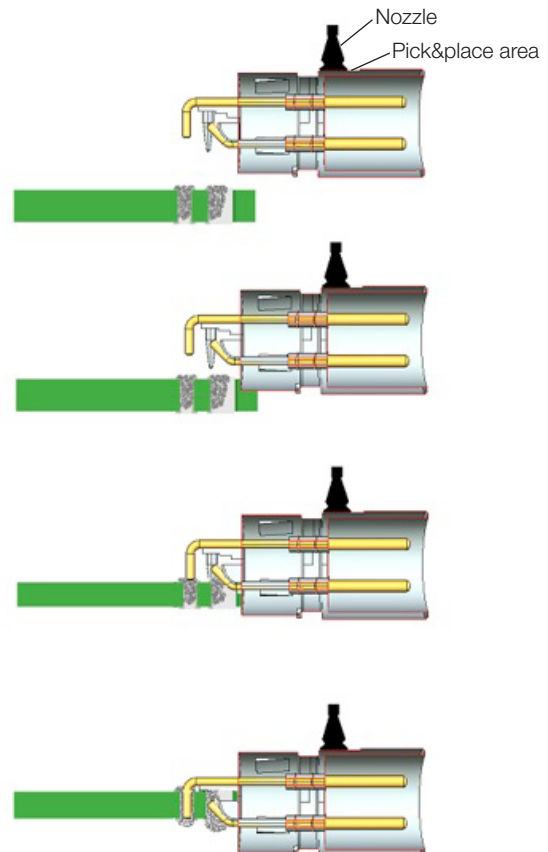
The support points have to be considered according the chosen PCB thickness, see drawing left hand side. The PCB has to be designed to provide those supports. For a proper placing and soldering, refer to the ERNI layout recommendations document 225321.

Assembly Process

Printing of solder paste



Automated assembly



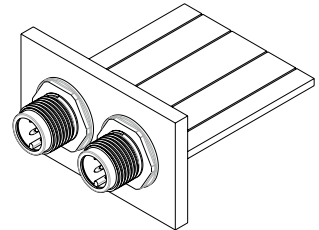
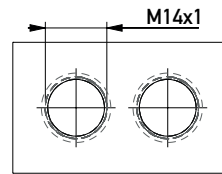
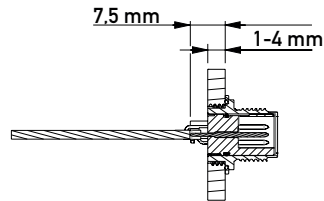
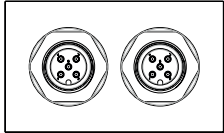
M12 PCB-Connectors 90° Angled

Dimensions and Assembly Recommendation for Standard M12 Male and M12 Female

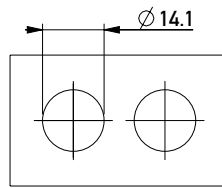
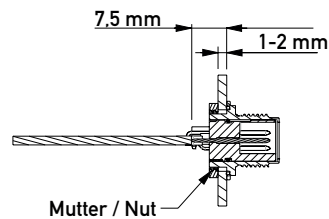
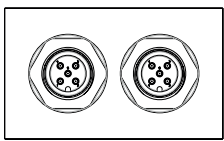


M12 Male with ERNI M12 Locking Shell

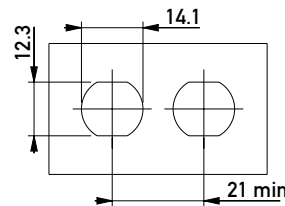
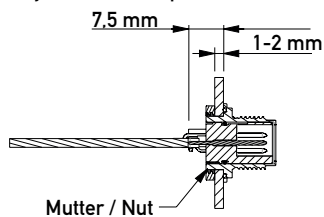
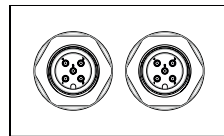
Gewinde-Löcher / Thread holes



Standard-Löcher / Standard holes

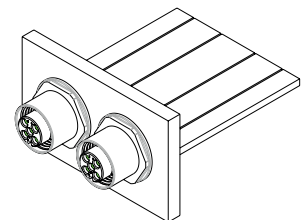
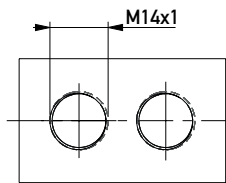
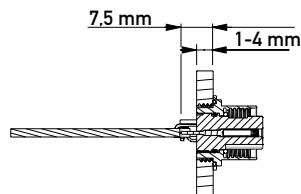
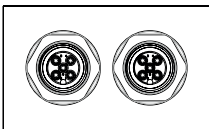


Montageloch für Verdrehschutz / Assembly hole for twist protection

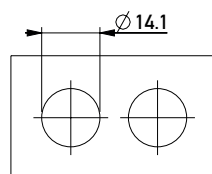
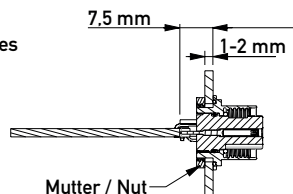
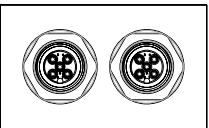


M12 Female with ERNI M12 Locking Shell

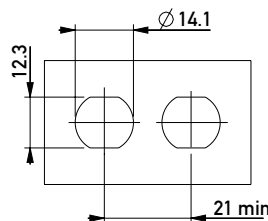
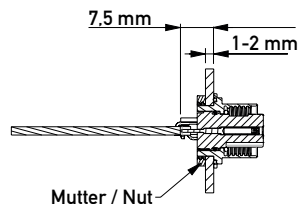
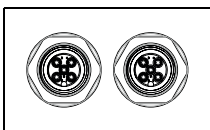
Gewinde-Löcher / Thread holes



Standard-Löcher / Standard holes



Montageloch für Verdrehschutz / Assembly hole for twist protection



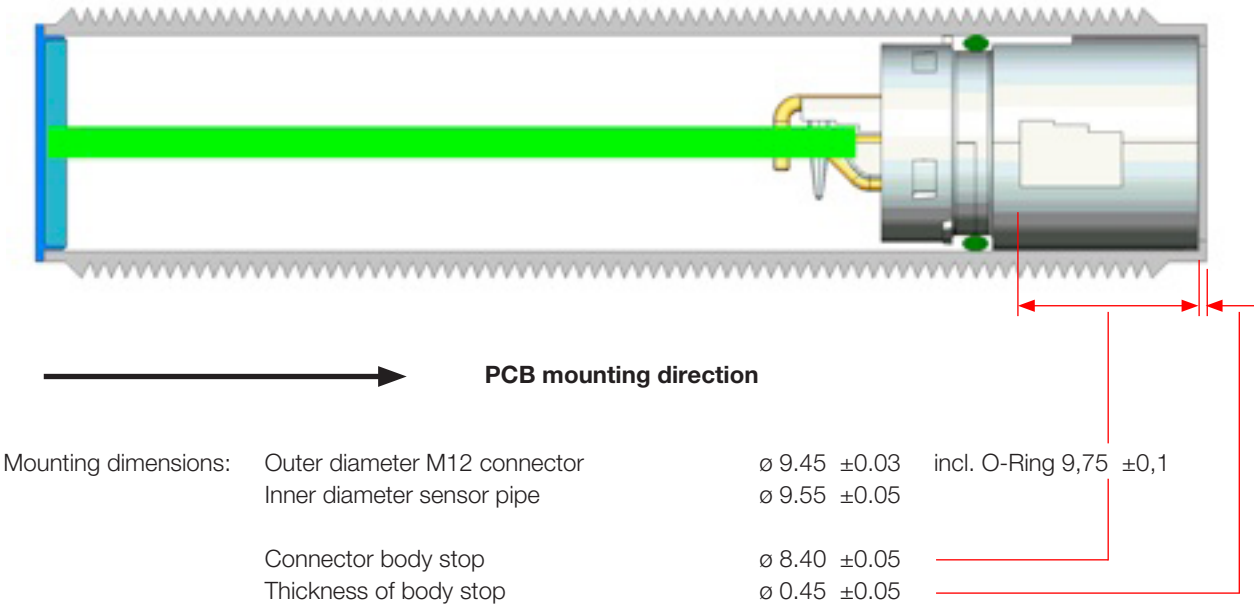
Recommendations for use the M12 90° connectors together with housings which have already an integrated M12 thread, see ERNI document 225406.

M12 PCB-Connectors 90° Angled

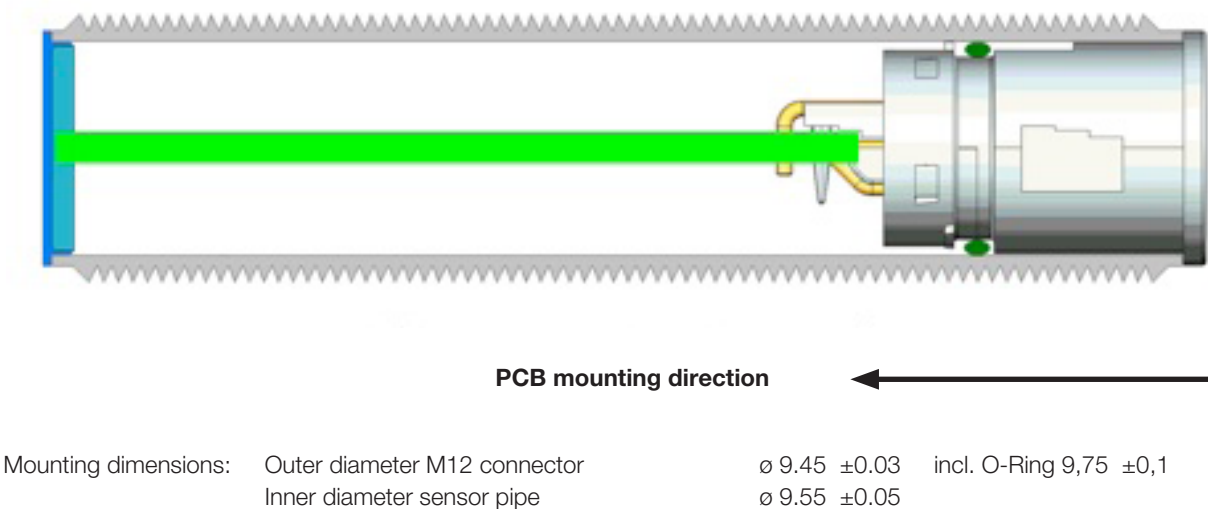
Dimensions and Assembly Recommendation for M12 Male Sensor Pipe Version



Rear mounting sensor pipe (on request)



Front mounting sensor pipe



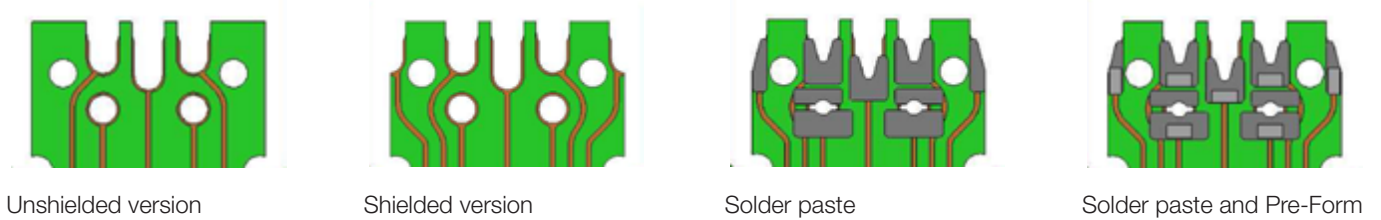
M12 PCB-Connectors 90° Angled

Layout, Shielding, Sealing Options and Packaging



Layout Recommendation (refer to ERNI-Document 225321)

Sensor pipe application



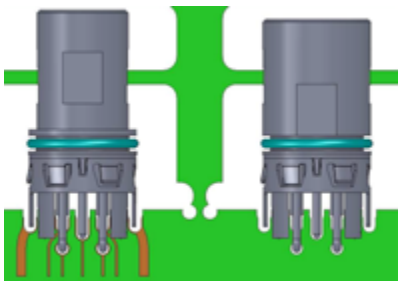
Unshielded version

Shielded version

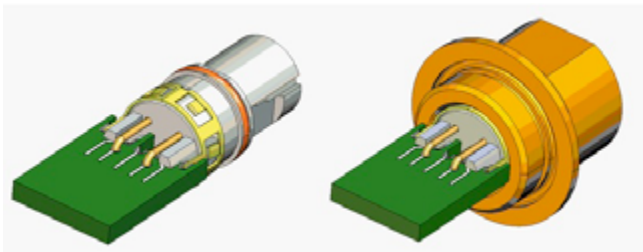
Solder paste

Solder paste and Pre-Form

Standard application



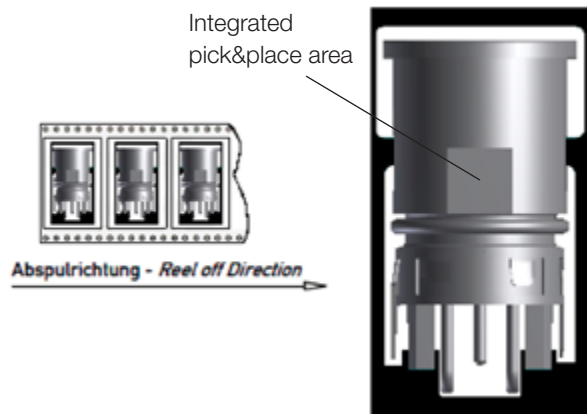
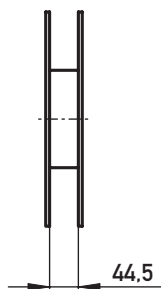
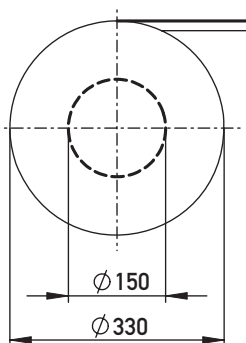
Shielding



The optional shield ring is soldered with two pins to the pcb. Electrical contact to the locking shell is given by three contact tongues placed at the outer contour of the shield ring.

Packaging

Verpackt in Gurtverpackung - *Tape on Reel Packaging*
 Verpackungseinheit: 250 Stück - *Packaging unit: 250 pcs*



M12 PCB-Connectors 90° Angled

Layout, Shielding, Sealing Options and Packaging



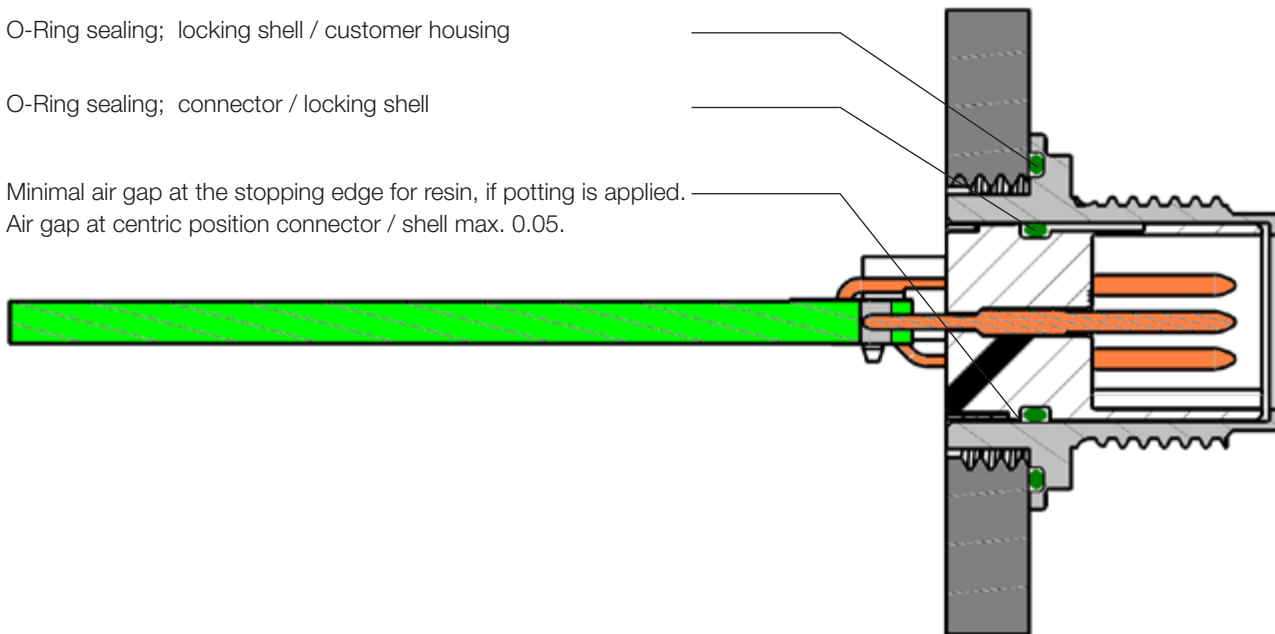
Sealing Options

Sealing options M12 90° Male

O-Ring sealing; locking shell / customer housing

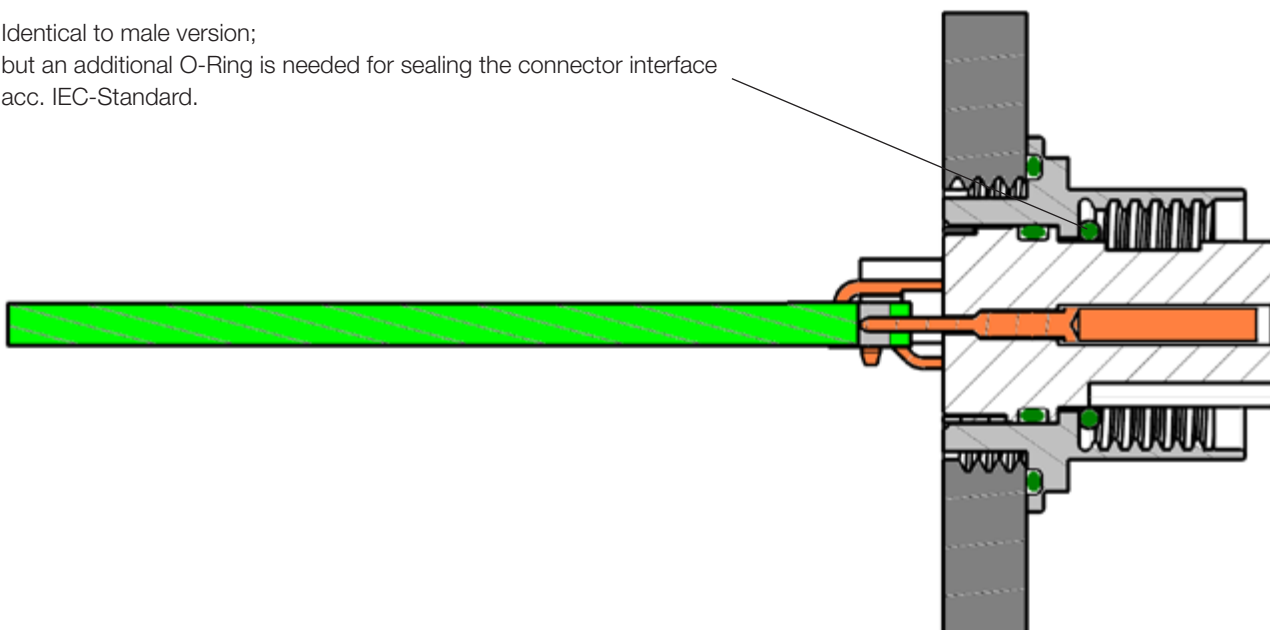
O-Ring sealing; connector / locking shell

Minimal air gap at the stopping edge for resin, if potting is applied.
Air gap at centric position connector / shell max. 0.05.



Sealing options M12 90° Female

Identical to male version;
but an additional O-Ring is needed for sealing the connector interface
acc. IEC-Standard.



M12 PCB-Connectors 90° Angled

Male for Standard Solutions



End assembly rear mount



Description	Coding	No. of Pins	Loaded pins	O-Ring	Partnumber w/o shield	Partnumber shielded
Male, angled, rear mount	A	5	1, 2, 3, 4, 5	no	225251	225254
Male, angled, rear mount	A	5	1, 2, 3, 4, 5	yes	225456	–
Male, angled, rear mount	A	4	1, 2, 3, 4	no	225252	225255
Male, angled, rear mount	A	5	1, 2, 3, 4, 5v	no	225253	225256
Male, angled, rear mount	B	5	1, 2, 3, 4, 5	no	225258	225260
Male, angled, rear mount	B	3	2, 4, 5	no	225259	225261
Male, angled, rear mount	D	4	1, 2, 3, 4	no	225263	225264

v = early mate last break

Optional accessories

Description		Partnumber
O-Ring, 7.2x0.8, Viton	Sealing option between connector and locking shell	225360
M12 locking shell	Male	225361
O-Ring 14x1	Sealing option between housing and locking shell	834899
M12 protection cap	Male	374342

End assembly rear mount, DI type



Description	Coding	No. of Pins	Loaded pins	O-Ring	Partnumber w/o shield	Partnumber shielded
Male, angled, rear mount DI	by customer	5	1, 2, 3, 4, 5	no	225266	225269
Male, angled, rear mount DI	by customer	4	1, 2, 3, 4	no	225267	225270
Male, angled, rear mount DI	by customer	5	1, 2, 3, 4, 5v	no	225268	225271

v = early mate last break

Optional accessories

Description		Partnumber
O-Ring, 7.2x0.8, Viton	Sealing option between connector and customer housing	225360

O-Ring can be used in reflow solder process.

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Male for Sensor Pipe Solutions



End assembly front mount

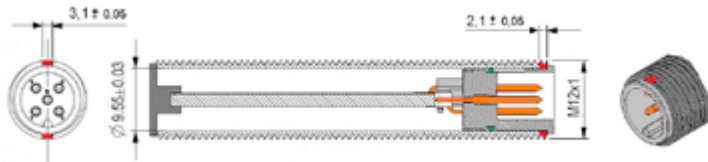


Description	Coding	No. of Pins	Loaded pins	O-Ring	Partnumber w/o shield	Artikelnummer shielded
Male, angled, front mount	A	5	1, 2, 3, 4, 5	yes	225242	225246
Male, angled, front mount	A	4	1, 2, 3, 4	yes	225243	225247
Male, angled, front mount	A	3	1, 3, 4	yes	225244	225248
Male, angled, front mount	A	5	1, 2, 3, 4, 5v	yes	225245	225249

v = early mate last break

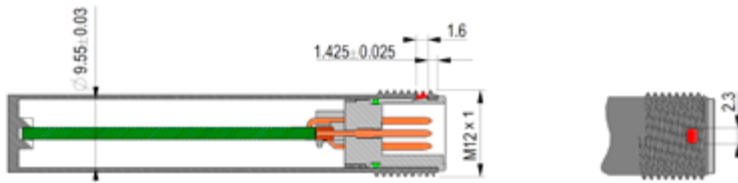
End assembly front mount, anti twist version

Description	Coding	No. of Pins	Loaded pins	O-Ring	Partnumber w/o shield	Artikelnummer shielded
Male, angled, front mount	A	5	1, 2, 3, 4, 5	yes	225515	225518
Male, angled, front mount	A	4	1, 2, 3, 4	yes	225516	225519
Male, angled, front mount	A	3	1, 3, 4	yes	225517	225520



End assembly front mount, Snap-in version

Description	Coding	No. of Pins	Loaded pins	O-Ring	Partnumber w/o shield	Partnumber shielded
Male, angled, front mount	A	5	1, 2, 3, 4, 5	yes	225459	-



Optional accessories

Description		Partnumber
M12 protection cap	Male	374342

M12 PCB-Connectors 90° Angled

Female for Standard Solutions



End assembly rear mount



Description	Coding	No. of Pins	Loaded pins	O-Ring	Partnumber w/o shield	Partnumber shielded
Female, angled, rear mount	A	5	1, 2, 3, 4, 5	no	225273*	225275*
Female, angled, rear mount	A	5	1, 2, 3, 4, 5	yes	225457	–
Female, angled, rear mount	A	4	1, 2, 3, 4	no	225274*	225276*
Female, angled, rear mount	A	4	1, 2, 3, 4	yes	225458	–
Female, angled, rear mount	B	5	1, 2, 3, 4, 5	no	225278*	225280*
Female, angled, rear mount	B	3	2, 4, 5	no	225279*	225281*
Female, angled, rear mount	D	4	1, 2, 3, 4	no	225283*	225284*

Optional accessories

Description		Partnumber
O-Ring, 7.2x0.8, Viton	Sealing option between female and locking shell	225360
O-Ring, 7x1.0, Viton	Sealing option cable side	835284
M12 locking shell	Federleiste	225362
O-Ring, 14x1	Sealing option between housing and locking shell	834899
M12 protection cap	Female	374343

End assembly rear mount, DI type



Description	Coding	No. of Pins	Loaded pins	O-Ring	Partnumber w/o shield	Partnumber shielded
Female, angled, rear mount DI	by customer	5	1, 2, 3, 4, 5	no	225286	225288*
Female, angled, rear mount DI	by customer	4	1, 2, 3, 4	no	225287	225289*

Optional accessories

Description		Artikelnummer
O-Ring, 7.2x0.8, Viton	Sealing option between female and customer housing	225360
O-Ring, 7x1.0, Viton	Sealing option cable side	835284

O-Ring 225360 can be used in reflow solder process.

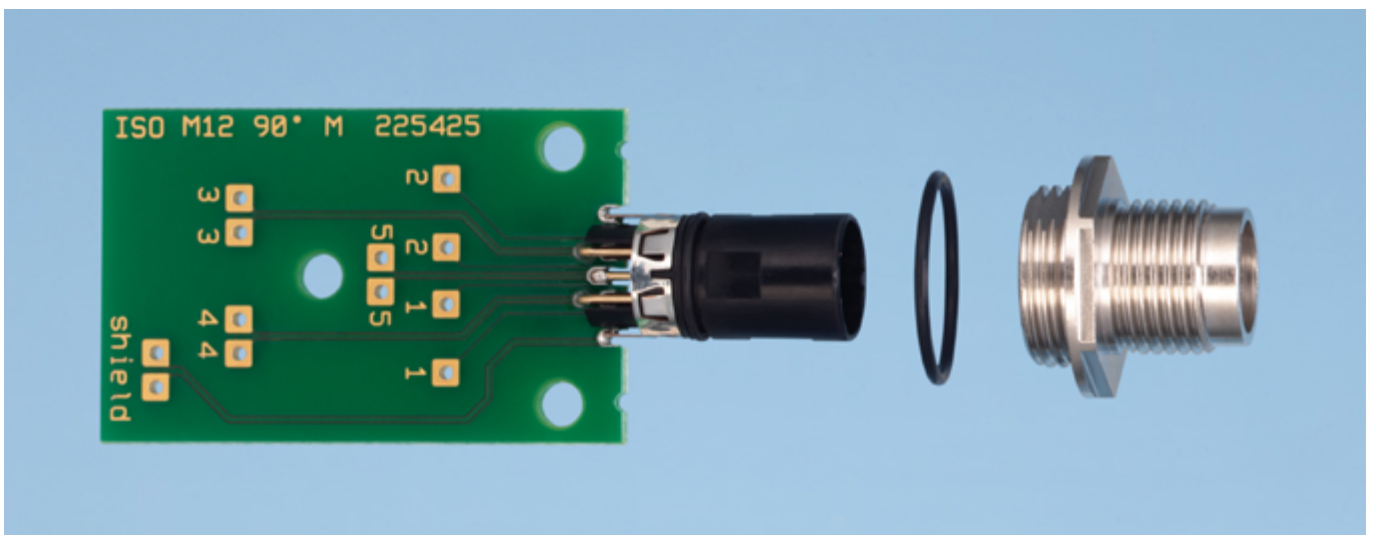
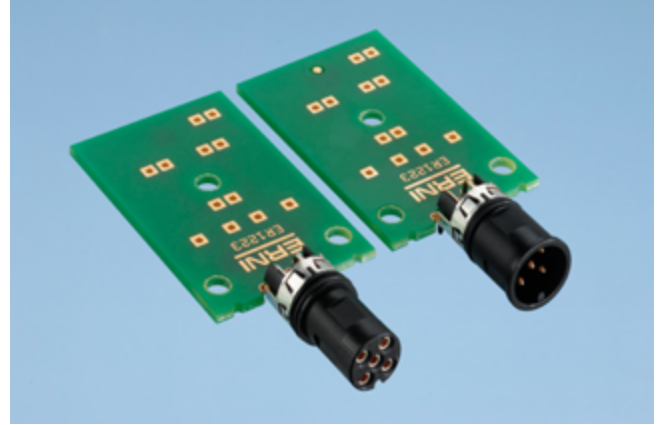
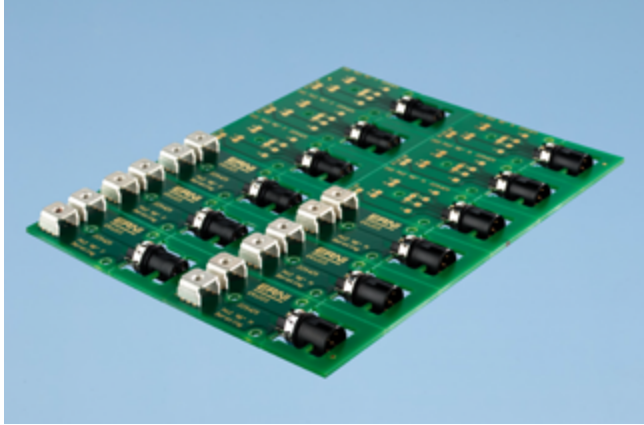
* Available within 8-10 weeks.

M12 PCB-Connectors 90° Angled

Assembly Images



Product images

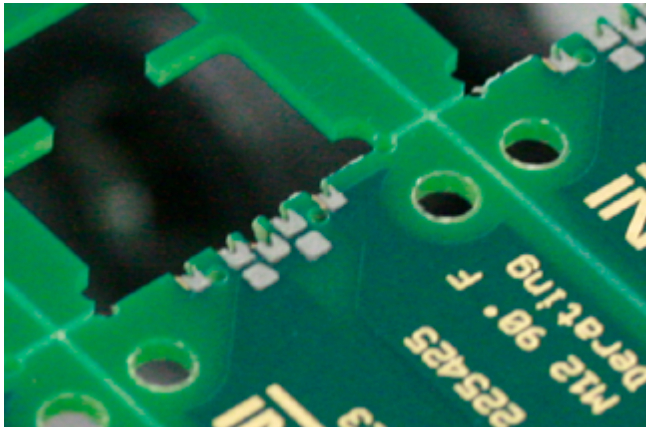


M12 PCB-Connectors 90° Angled

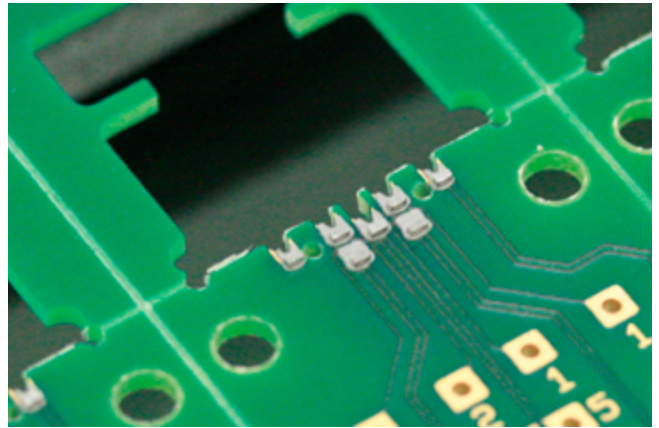
Assembly Images



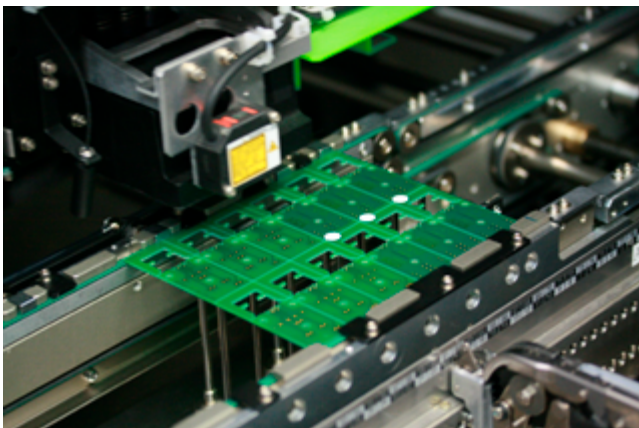
PCB with solder paste



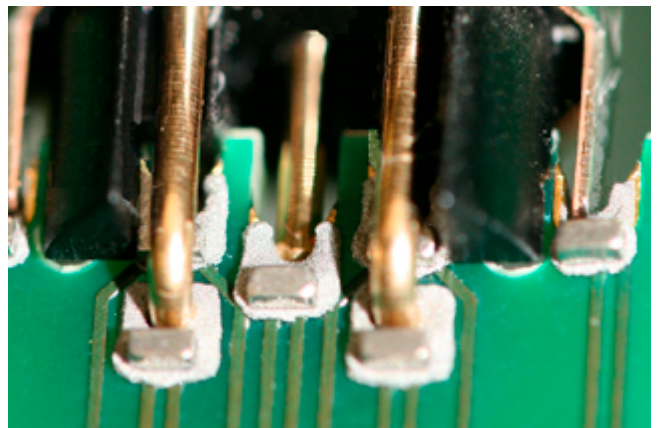
PCB with solder paste and Pre-Form



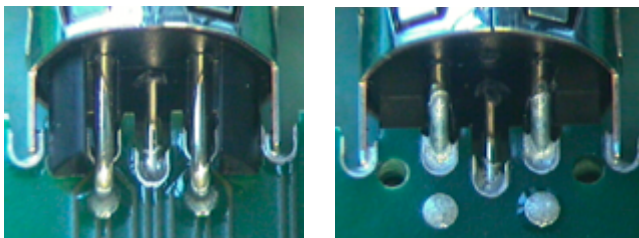
Multiple printed pcb in assembly machine



Connector placed into solder paste



Male solder joints



Female solder joints





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