



Pushing Performance

HARTING M8/M12 Circular Connectors



Transforming customer wishes into concrete solutions



The HARTING Technology Group is skilled in the fields of electrical, electronic and optical connection, transmission and networking, as well as in manufacturing, mechatronics and software creation. The Group uses these skills to develop customized solutions and products such as connectors for energy and data transmission applications including, for example, mechanical engineering, rail technology, wind energy plants, factory automation and the telecommunications sector. In addition, HARTING also produces electro-magnetic components for the automobile industry and offers solutions in the field of Enclosures and Shop Systems. The HARTING Group currently comprises 36 subsidiary companies and worldwide distributors employing a total of approximately 3,600 staff.

**We aspire to top performance.**

Connectors ensure functionality. As core elements of electrical and optical wiring, connection and infrastructure technologies, they are essential in enabling the modular construction of devices, machines and systems across a very wide range of industrial applications. Their reliability is a crucial factor guaranteeing smooth functioning in the manufacturing area, in telecommunications, applications in medical technology – in fact, connectors are at work in virtually every conceivable application area. Thanks to the consistent further development of our technologies, customers enjoy investment security and benefit from durable, long term functionality.

Always at hand, wherever our customers may be.

Increasing industrialization is creating growing markets characterized by widely diverging demands and requirements. The search for perfection, increasingly efficient processes and reliable technologies is a common factor in all sectors across the globe.

HARTING is providing these technologies – in Europe, America and Asia. The **HARTING** professionals at our international subsidiaries engage in close, partnership based interaction with our customers, right from the very early product development phases, in order to realize customer demands and requirements in the best possible manner.

Our people on location form the interface to the centrally coordinated development and production departments. In this way, our customers can rely on consistently high, superior product quality – worldwide.

Our claim: pushing performance.

HARTING provides more than optimally attuned components. In order to serve our customers with the best possible solutions, **HARTING** is able to contribute a great deal more and play a closely integrative role in the value creation process.

From ready assembled cables through to control racks or ready-to-go control desks: Our aim is to generate the maximum benefits for our customers – without compromise!

Quality creates reliability – and warrants trust.

The **HARTING** brand stands for superior quality and reliability – worldwide. The standards we set are the result of consistent, stringent quality management that is subject to regular certifications and audits.

EN ISO 9001, the EU Eco-Audit and ISO 14001:2004 are key elements here. We take a proactive stance to new requirements, which is why **HARTING** ranks among the first companies worldwide to have obtained the new IRIS quality certificate for rail vehicles.



HARTING technology creates added value for customers. Technologies by HARTING are at work worldwide. HARTING's presence stands for smoothly functioning systems, powered by intelligent connectors, smart infrastructure solutions and mature network systems. In the course of many years of close, trust-based cooperation with its customers, the HARTING Technology Group has advanced to one of the worldwide leading specialists for connector technology. Extending beyond the basic functionalities demanded, we offer individual customers specific and innovative solutions. These tailored solutions deliver sustained effects, provide investment security and enable customers to achieve strong added value.

Opting for HARTING opens up an innovative, complex world of concepts and ideas.

In order to develop connectivity and network solutions serving an exceptionally wide range of connector applications and task scopes in a professional and cost optimized manner, HARTING not only commands the full array of conventional tools and basic technologies. Over and beyond these capabilities, HARTING is constantly harnessing and refining its broad base of knowledge and experience to create new solutions that ensure continuity at the same time. In securing this know-how lead, HARTING draws on a wealth of sources from both in-house research and the world of applications alike.

Salient examples of these sources of innovative knowledge include microstructure technologies, 3D design and construction technology, as well as high temperature

or ultrahigh frequency applications that are finding use in telecommunications or automation networks, in the automotive industry, or in industrial sensor and actuator applications, RFID and wireless technologies, in addition to packaging and housing made of plastics, aluminum or stainless steel.

HARTING solutions extend across technology boundaries.

Drawing on the comprehensive resources of the group's technology pool, HARTING devises practical solutions for its customers. Whether this involves industrial networks for manufacturing automation, or hybrid interface solutions for wireless telecommunication infrastructures, 3D circuit carriers with microstructures, or cable assemblies for high-temperature applications in the automotive industry – HARTING technologies offer far more than components, and represent mature, comprehensive solutions attuned to individual customer requirements and wishes. The range covers ready-to-use cable configurations, completely assembled backplanes and board system carriers, as well as fully wired and tested control panels.

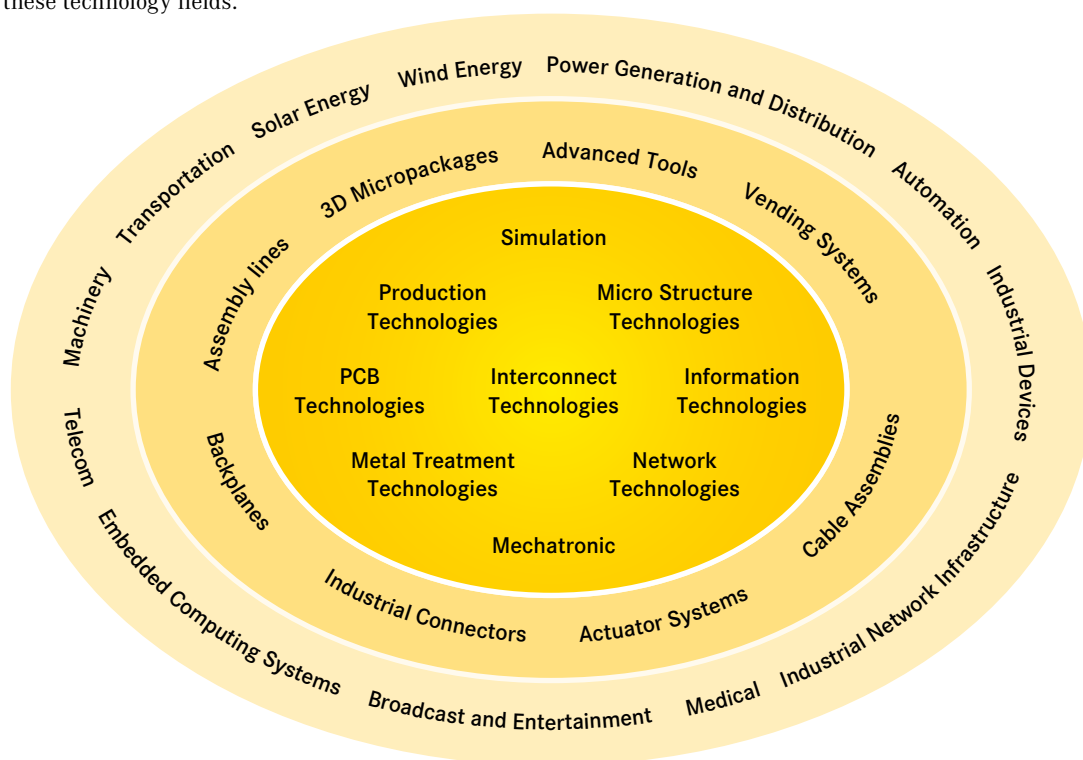
In order to ensure the future proof design of RF- and EMC-compatible interface solutions, the central HARTING laboratory (certified to EN 45001) provides simulation tools, as well as experimental, testing and diagnostics facilities all the way through to scanning electron microscopes. In the selection of materials and processes, lifecycle and environmental aspects play a key role, in addition to product and process capability considerations.

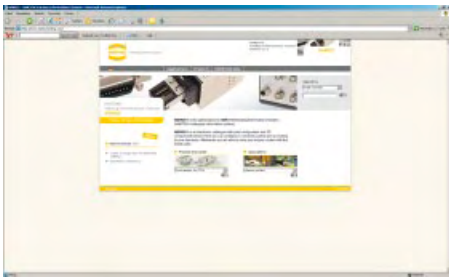


HARTING knowledge is practical know-how generating synergy effects.

HARTING commands decades of experience with regard to the applications conditions of connectors in telecommunications, computer and network technologies and medical technologies, as well as industrial automation technologies, such as the mechanical engineering and plant engineering areas, in addition to the power generation industry or the transportation sector. HARTING is highly conversant with the specific application areas in all of these technology fields.

The key focus is on applications in every solution approach. In this context, uncompromising, superior quality is our hallmark. Every new solution found will invariably flow back into the HARTING technology pool, thereby enriching our resources. And every new solution we go on to create will draw on this wealth of resources in order to optimize each and every individual solution. In this way, HARTING is synergy in action.

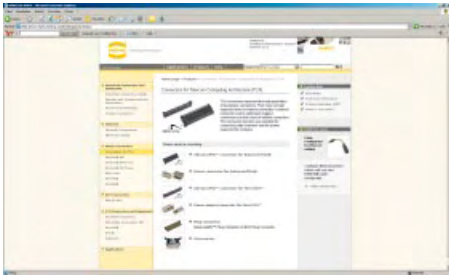




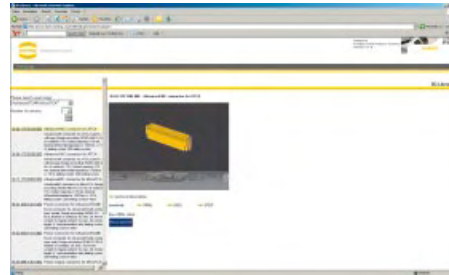
HARKIS® is the abbreviation for **HARTING-Katalog-Informationen-System** (HARTING catalogue information system).

HARKIS® is an electronic catalogue with part configuration and 3D components library. Here you can choose a connector according to your demands. Afterwards you are able to send your inquiry created with the listed parts. The drawings to every single part are available in PDF-format. The parts are downloadable in 2D-format (DXF) and 3D-format (IGES, STEP). The 3D-models can be viewed with a VRML-viewer.

You can find **HARKIS®** at www.HARKIS.HARTING.com. It is also available on DVD.



Piece part consulting



CAD library

Product samples: Fast-track delivery to your desk, free of charge

With immediate effect, the new express sample dispatching service in the HARTING catalogue information system (**HARKIS®**) allows customers to order samples immediately, easily and free of charge on express delivery. A broad selection from the device connectivity product portfolio is now available. In the case of unavailable items the system offers alternative products with similar features that can be requested at a mouse click.

The samples are shipped within 48 hours after your order, free of charge. This service enables tremendous flexibility, especially in the design phase of projects.

Identification

Part number

HARKIS® DVD
Basic product catalogue
2D and 3D CAD files inclusive

98 40 000 0405



General information

It is the customer's responsibility to check whether the components illustrated in this catalogue comply with different regulations from those stated in special fields of application which we are unable to foresee.

We reserve the right to modify designs in order to improve quality, keep pace with technological advancement or meet particular requirements in production.

No part of this catalogue may be reproduced in any form (print, photocopy, microfilm or any other process) or processed, duplicated or distributed by means of electronic systems without the written permission of HARTING Electronics GmbH & Co. KG, Espelkamp. We are bound by the English version only.

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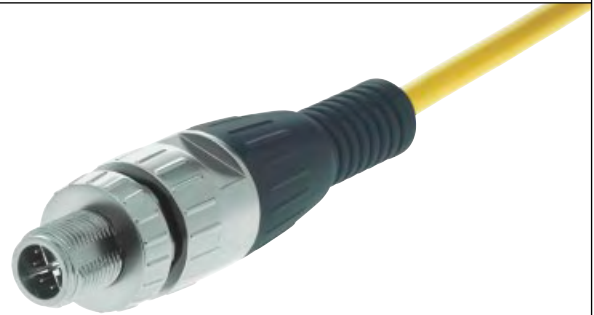
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The innovative solution

With *har-speed* M12 HARTING bases the Ethernet network on a sustainable M12 foundation. The *har-speed* M12 differs significantly from today's M12 connectors for Ethernet because it is based on a 4-pair connector face with paired shielding. This allows *har-speed* M12 to be used for Ethernet transfer rates up to 10 Gigabit. The new HARTING *har-speed* M12 connector is, therefore, capable of complying with the high requirements of the transfer class E_A, respectively the Cat. 6_A. For the first time an M12 cabling system can be used for relevantly high data performance and permanent sustainability.

The *har-speed* M12 connectors can be optimally used for applications with bandwidths in machine and facility engineering, but also for the IP 67 infrastructure. The basis for the new development is the new PAS 61076-2-109 that defines a uniform connector face for 8-pole M12 connectors.



The new connector face complies with the following requirements:

- Maximum data rates through the configuration of the contacts in conformance with Ethernet technology.
- Minimal interaction and perfect shielding through paired shielding of the contacts.
- Fault proof connection through coding of the connector face. A connection error with other 8-pole M12's is impossible.

Overmolded versions in different lengths and a crimp connector for the local cabling are the first system components for a comprehensive cabling infrastructure solution by HARTING.

Technical Data

har-speed M12 connector

- Cabling with crimp technology
- Compact, robust design
- Fully shielded
- Transfer class E_A for 1 and 10 Gigabit Ethernet
- AWG 28 to AWG 24
- Temperature range -40 °C to 85 °C
- Protection class IP 65 / IP 67

har-speed M12 PCB receptacle

- Stable, industrial standard design
- Fully shielded
- Transfer class E_A for 1 and 10 Gigabit Ethernet
- Temperature range -40 °C to 70 °C
- Protection class IP 65 / IP 67

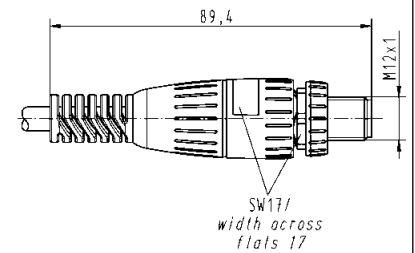
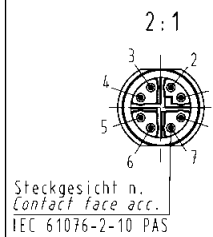


Identification	Part No.	Drawing	Dimensions in mm
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har-speed M12
system cable

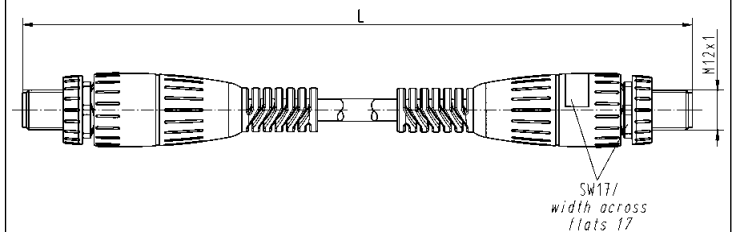
single ended overmoulded
system cable

Length:	1 m	21 03 483 1801
	3 m	21 03 483 1803
	5 m	21 03 483 1805
	7 m	21 03 483 1807
	10 m	21 03 483 1810



double ended overmoulded
system cable

Length:	0.5 m	21 03 483 5850
	1.0 m	21 03 483 5801
	1.5 m	21 03 483 5851
	2.0 m	21 03 483 5802
	2.5 m	21 03 483 5852



Technical characteristics

Specifications

IEC 60352-4
IEC 61076-2-101
IEC 61076-2-104

Approval

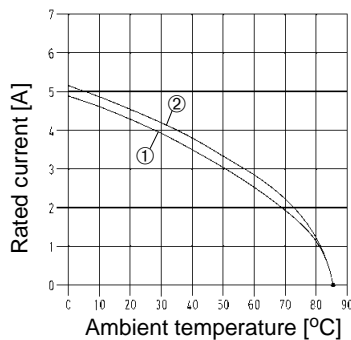


Construction type	HARAX® M8-XS	HARAX® M8-S/ M12-S	HARAX® M12 angled	HARAX® M12-L 3 poles, 4 poles	HARAX® M12-L 5 poles
Rated voltage	32 V	32 V	32 V	50 V	50 V
Rated current (see current carrying capacity)	2 A	4 A	4 A	6 A	4 A
Conductor cross section	0.1 - 0.14 mm ² AWG 27 - 26	0.14 - 0.34 mm ² AWG 26 - 22	0.25 - 0.5 mm ² AWG 24/7 - 20	0.34 - 0.75 mm ² AWG 22 - 18	0.25 - 0.34 mm ² AWG 24 - 22 0.34 - 0.5 mm ² AWG 22 - 20
Diameter of individual strands	≥ 0.05 mm	≥ 0.1 mm	≥ 0.1 mm	≥ 0.1 mm	≥ 0.1 mm
Conductor insulation material	PVC / PP / TPE	PVC / PP / TPE	PVC	PVC	PVC
Conductor diameter	0.6 - 1.0 mm	1.0 - 1.6 mm	1.2 - 1.6 mm	1.6 - 2.0 mm 2.0 - 2.6 mm	1.2 - 2.0 mm
Cable diameter	1.9 - 2.5 mm (transp.) 2.5 - 3.5 mm (grey)	M8-S: 2.5 - 5.1 mm M12-S: 2.9 - 4.0 mm (transp.) 4.0 - 5.1 mm (black)	4 - 5.1 mm	6 - 8 mm	4.7 - 6 mm 6 - 8 mm
Limiting temperatures	- 40 °C / + 85 °C	- 40 °C / + 85 °C	- 40 °C / + 85 °C	- 40 °C / + 85 °C	- 40 °C / + 85 °C
Temperature during connection	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C
Degree of protection	IP 67	IP 67	IP 67	IP 65 / IP 67	IP 65 / IP 67
Termination cycles with the same cross section	10	10	10	10	10
Recommended tightening torque / Hexagonal wrench	0.4 Nm / SW 9	M8-S: 0.4 Nm / SW 9 M12-S: 0.6 Nm / SW 13	0.6 Nm / SW 13	0.6 Nm / SW 17	0.6 Nm / SW 17

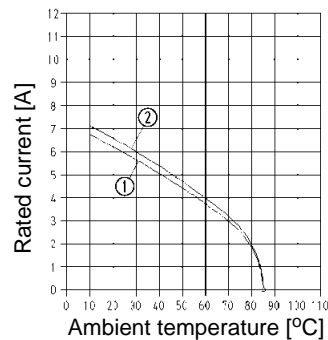
Current carrying capacity The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60512-5.

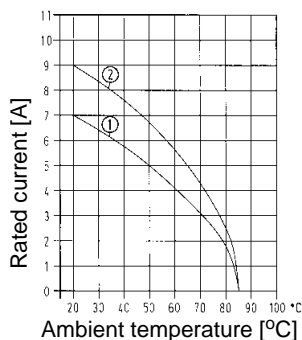
M8-XS, 3 poles 1 = wire gauge 0.1 mm²
M8-S, 3 poles 2 = wire gauge 0.14 mm²



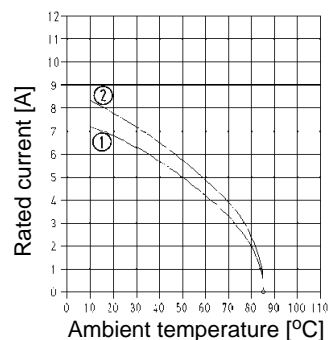
M8-S, 4 poles 1 = wire gauge 0.25 mm²
M12-S, 4 poles 2 = wire gauge 0.34 mm²



M12-L, 3 poles, 4 poles 1 = wire gauge 0.34 mm²
2 = wire gauge 0.75 mm²



M12, 4 poles, angled 1 = wire gauge 0.25 mm²
2 = wire gauge 0.5 mm²



Technical characteristics

Specifications

IEC 60352-4
IEC 61076-2-101
IEC 61076-2-104

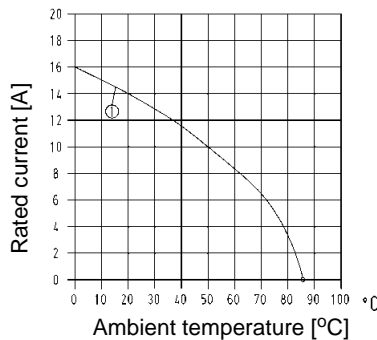
Approval



Construction type	HARAX® M12-XL 5 poles	HARAX® M12-L screened version, A-coded	HARAX® M12-L screened version PROFIBUS Ethernet		Han® M12 Crimp	HARAX® 7/8"
Rated voltage	50 V	50 V	32 V	50 V	250 V	230 V / 400 V
Rated current (see current carrying capacity)	4 A	4 A	4 A	4 A	4 A	10 A
Conductor cross section	0.5 - 1 mm ² AWG 20 - 16	0.14 - 0.34 mm ² AWG 26 - 22	0.25 - 0.34 mm ² AWG 24- 22	① 0.14 - 0.34 mm ² AWG 26 - 22 ② 0.34 - 0.5 mm ² AWG 22-20	0.34 - 0.5 mm ² AWG 22 - 20	0.75 - 1.5 mm ² AWG 18 - 16
Diameter of individual strands	≥ 0.1 mm	≥ 0.1 mm	≥ 0.1 mm	≥ 0.1 mm		≥ 0.15 mm
Conductor insulation material	PVC, ETFE	PVC	PVC, Zell-PE	PVC / PE		PVC, PP, TPE
Conductor diameter	1.6 - 2.0 mm	1.2 - 1.6 mm	2 - 2.6 mm	1.2 - 2.0 mm	2.0 - 2.3 mm	≤ 2.8 mm
Cable diameter	6 - 9 mm	4.5 - 8.8 mm	7.0 - 8.8 mm	4.5 - 8.8 mm	4 poles: 4.5 - 5.4 mm 7.0 - 8.8 mm 5 poles: 4.5 - 8.8 mm	6.8 - 9.5 mm (black) 9 - 12.5 mm (grey)
Limiting temperatures	- 40 °C / + 85 °C	- 40 °C / + 85 °C	- 40 °C / + 85 °C	- 40 °C / + 85 °C	- 40 °C / + 85 °C	- 40 °C / + 85 °C
Temperature during connection	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C	- 5 °C ... + 50 °C
Degree of protection	IP 65 / IP 67	IP 67	IP 67	IP 67	IP 67	IP 65 / IP 67
Termination cycles with the same cross section	10	10	10	10		10
Recommended tightening torque / Hexagonal wrench	0.6 Nm / SW 17	0.6 Nm / SW 17	0.6 Nm / SW 17	0.6 Nm / SW 17	0.5 Nm / SW 17	1.5 Nm / SW 22

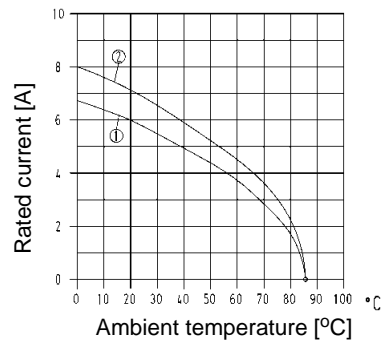
7/8"

1 = wire gauge 0.75 mm² / 1.5 mm²



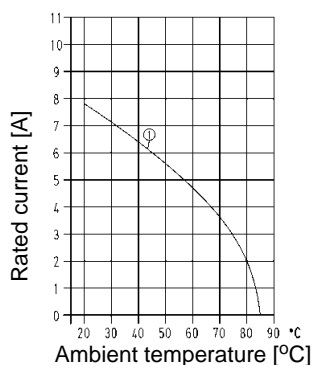
M12L, 5 poles

1 = wire gauge 0.25 mm²
2 = wire gauge 0.34 mm²



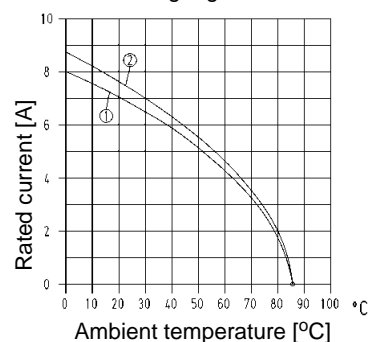
M12, Crimp

1 = wire gauge 0.34 mm² / 0.5 mm²

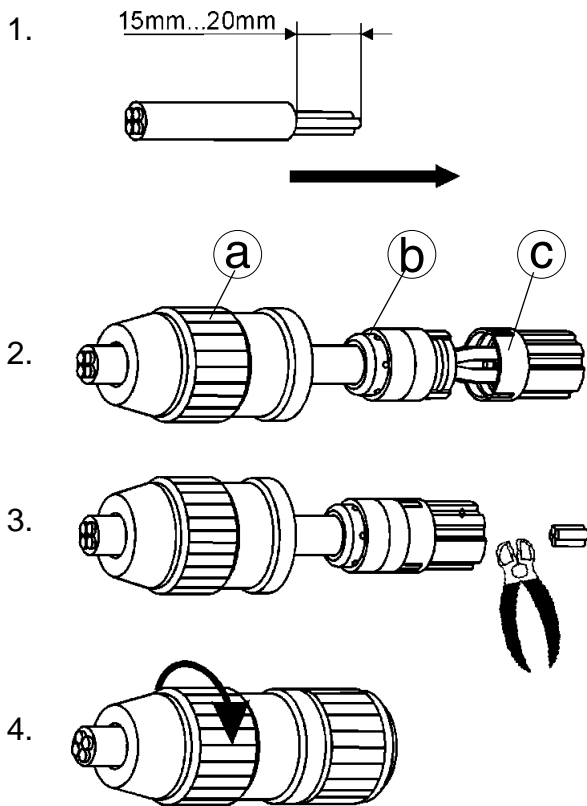


M12L, 5 poles

1 = wire gauge 0.34 mm²
2 = wire gauge 0.5 mm²



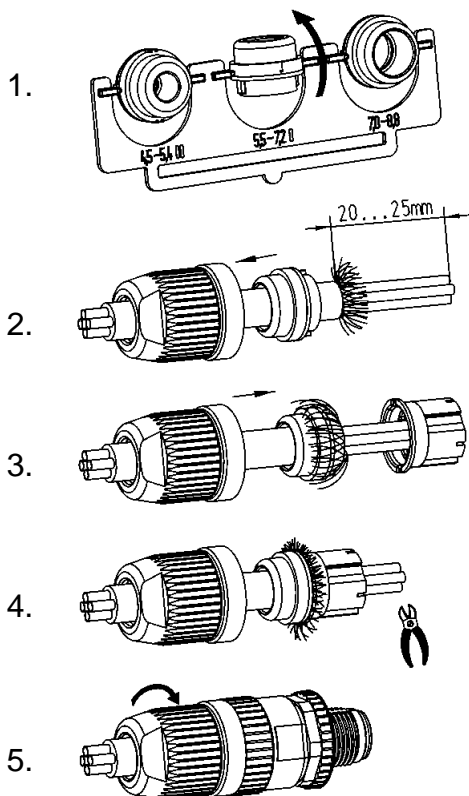
Assembly manual HARAX®, M8-XS, M8-S / M12-S, M12-L, M12-XL unshielded



1. strip cable
 2. assemble HARAX® elements
 - Ⓐ Nut
 - Ⓑ Strain relief
 - Ⓒ Insert
 3. cut off cable ends
Screw the nut onto the insert until a stop is noticeable.
 4. screw the connector
- Note!
For reconnection cut off the used cable ends and repeat steps 1 to 4.

The seal has to be replaced when worn.

Assembly manual HARAX®, M12-L shielded

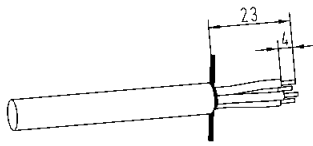


1. Choose the required seal.
 2. Push nut and seal onto the cable.
Remove outer cable sleeve.
 3. Slide seal under braid and form as shown.
Push wires through the contact splicing element.
 4. Assemble seal and contact splicing element.
Cut off protruding shielding braid and cable ends.
 5. Assemble connector.
Screw nut down to the limits.
- Note!
For reconnection, cut off the used connector and repeat steps 2 to 5.

The seal has to be replaced when worn.

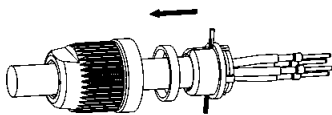
Assembly manual Han® M12 Crimp 4 poles

1.



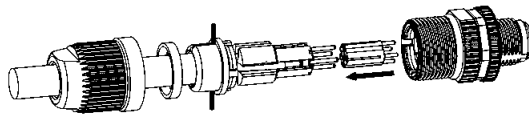
1. Remove cable jacket and strip cores. Twist screening braid as shown and crimp contacts.

2.



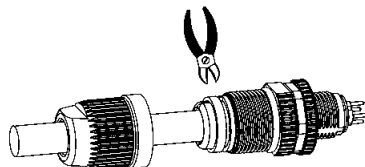
2. Slide screw cap, ring and sealing onto the cable. Push screening braid into the sealing slot.

3.



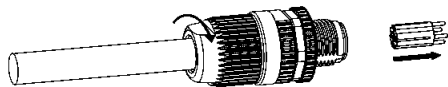
3. Insert contacts into locator from the side. Fix contacts with the aid of assembly aid. Slide locator into connector, pay attention to the coding.

4.



4. Sealing has to be flush with connector. Slide ring over the sealing and cut off screening braid.

5.



5. Tighten screw cap. Remove assembly aid.

The seal has to be replaced when worn.

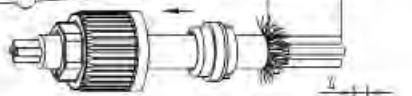
Assembly manual Han® M12 Crimp 5 poles

1.



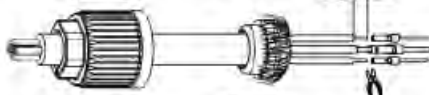
1. Break out the required seal.

2.



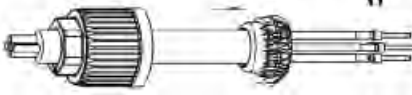
2. Push nut and seal onto the cable. Remove outer cable sleeve.

3.



3. Form braid as shown. Remove foils and cross cables if necessary. Finally strip cable ends and crimp contacts.

4.



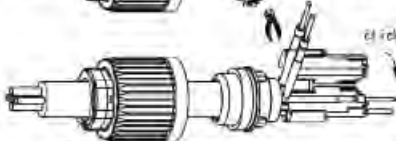
4. Slide seal onto the cable until it stops and form as shown.

5.



5. Slide shielding ring over cable ends onto the braid and seal. Cut off excess shielding braid.

6.



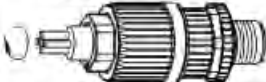
6. Place middle contact in the contact element. Push contact elements together until it snaps.

7.



7. Place all other contacts into side cavities. Push preassembled unit of contact element, shielding ring and seal into the connector. Respect the coding!

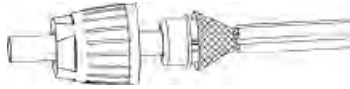
8.



8. Assemble connector. Screw nut down until it stops.

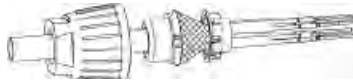
Assembly manual *har-speed* M12

1.-3.



1. Attach locknut and seal.
2. Remove cable sheath.
3. Pull braid apart.

4.-7.



4. Attach shield element.
5. Remove pair shielding.
6. Remove wire insulation.
7. Crimp contacts.

Option – Using covers for high performance.

8.



8. Locating of contacts into insulator body, optionally usage of covers.

9.



9. Assembling of insulator body and housing.

10.



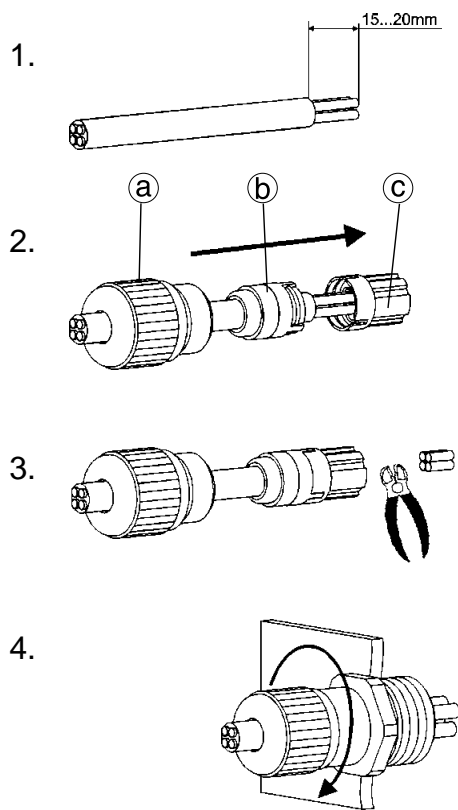
10. Remove excess braid.

11.



11. Tighten locknut.

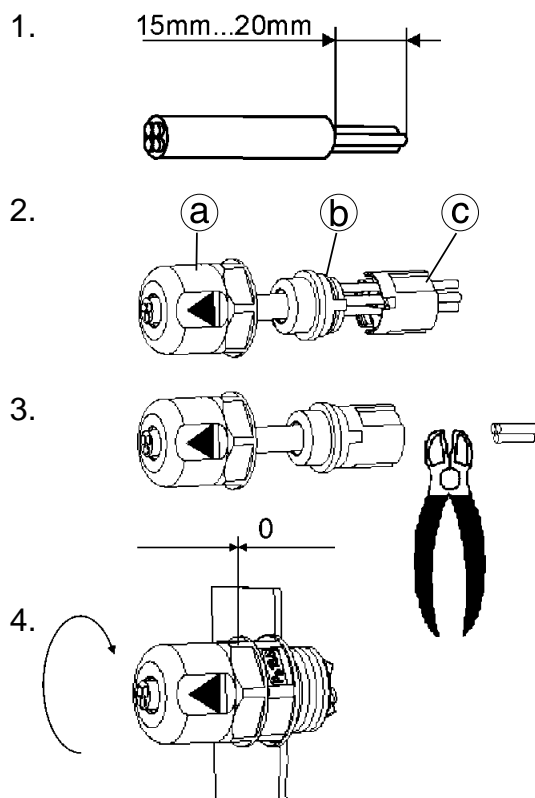
Assembly manual HARAX® Pg 9 panel feed-through



1. Strip cable jacket
 2. Assemble HARAX® elements
 - Ⓐ Nut
 - Ⓑ Strain relief
 - Ⓒ Insert
 3. Cut off cable ends
 4. Twist the nut onto the insert until a stop is noticeable
- Note!
For reconnection cut off the used cable ends and repeat steps 1 to 4.

The seal has to be replaced when worn.

Assembly manual HARAX® Pg 13.5 / M20 panel feed-through


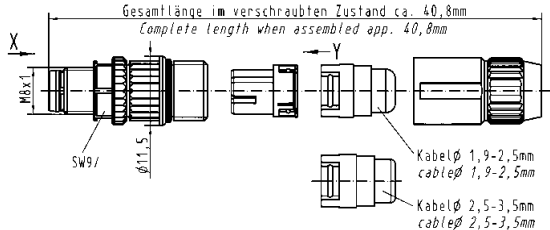

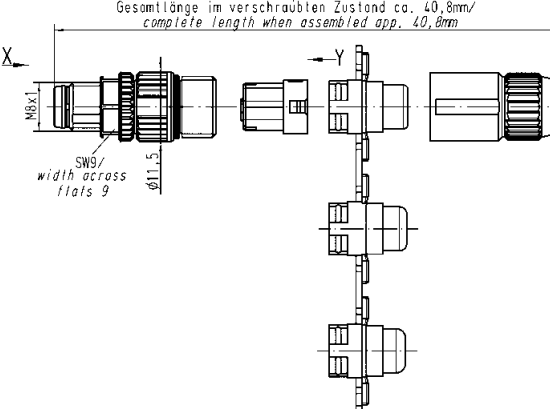

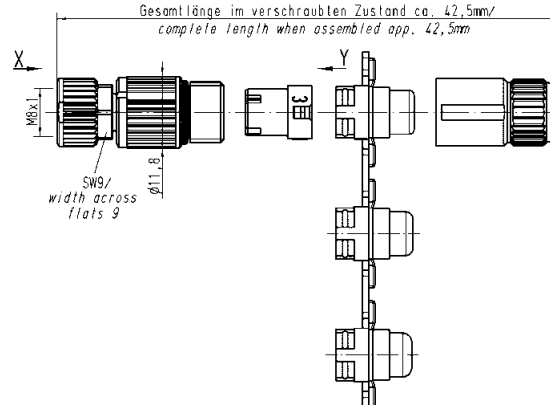

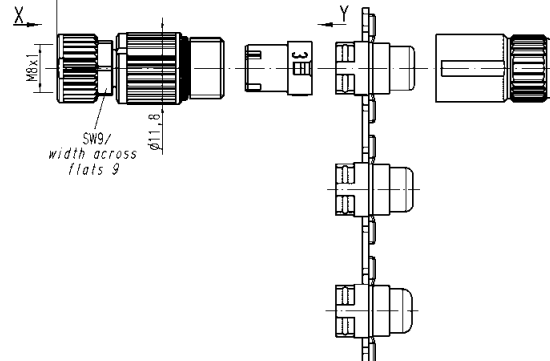

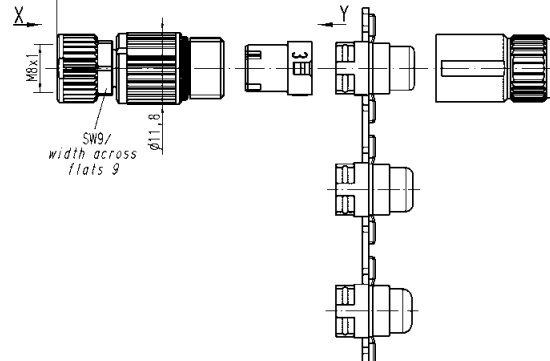




1. Connection and disconnection of the cable must only be performed by suitably qualified persons when supply is isolated.
2. HARAX® Pg 13.5 – 3 contacts – is supplied with either faston blades or solder terminals.
 - Ⓐ Nut
 - Ⓑ Strain relief
 - Ⓒ Insert
3. HARAX® Pg 13.5 / M20 – 4 contacts – is supplied only with solder termination.
4. The nut must be tightened completely down so that the notches engage on the contact carrier.

The opening of the gland always requires a wrench.

Note: For reconnection cut off the used cable ends and repeat steps 1 to 4.



Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
<p>HARAX® M8-XS</p> <p>straight version, 3 poles for 0.1 - 0.14 mm²</p> 	21 02 159 1305		 <p>Gesamtlänge im verschraubten Zustand ca. 40,8mm Complete length when assembled app. 40,8mm</p> <p>Kabelø 1,9-2,5mm cableø 1,9-2,5mm</p> <p>Kabelø 2,5-3,5mm cableø 2,5-3,5mm</p>	
<p>HARAX® M8-S</p> <p>straight version, 3 poles for 0,14 - 0,34 mm²</p> 	21 02 151 1305		 <p>Gesamtlänge im verschraubten Zustand ca. 40,8mm/ complete length when assembled app. 40,8mm</p> <p>SW9/ width across flats 9</p> <p>Ø11,5</p>	
<p>straight version, 4 poles for 0,14 - 0,34 mm²</p> 	21 02 151 1405		 <p>Gesamtlänge im verschraubten Zustand ca. 42,5mm/ complete length when assembled app. 42,5mm</p> <p>SW9/ width across flats 9</p> <p>Ø11,5</p>	
<p>straight version, 3 poles for 0,14 - 0,34 mm²</p> 		21 02 151 2305	 <p>Gesamtlänge im verschraubten Zustand ca. 42,5mm/ complete length when assembled app. 42,5mm</p> <p>SW9/ width across flats 9</p> <p>Ø11,5</p>	
<p>straight version, 4 poles for 0,14 - 0,34 mm²</p> 		21 02 151 2405	 <p>Gesamtlänge im verschraubten Zustand ca. 42,5mm/ complete length when assembled app. 42,5mm</p> <p>SW9/ width across flats 9</p> <p>Ø11,5</p>	<p>View mating side: 3 poles, male version</p>  <p>View mating side: 4 poles, male version</p> 



System cables with
Han® M8 Circular connector

Technical characteristics

Han® M8 Circular connector, without PE

Rated voltage	max. 60 V AC/DC
Rated current/contact	max. 4 A
Locking	Screw locking M8x1, self securing
Recommended torque	0.4 Nm
Temperature range (dependant on connected conductor)	-25 °C ... +85 °C
Degree of protection	IP 67
Number of wires / wire gauge	3 x 0.25 mm ²
Conductor insulation	PP (br, bl, sw)
Arrangement of insulated strands	32 x 0.1 mm
Sheath	PUR (UL, CSA)
Outer diameter	appr. 4.1 mm
Bending radius	10 x outer diameter
Temperature range (working and storage)	-5 °C ... + 80 °C

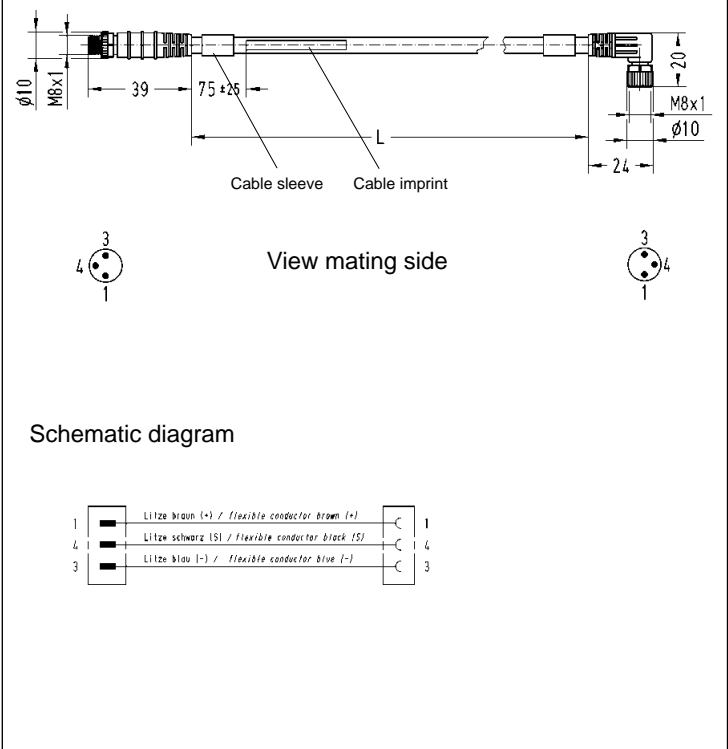


Identification	Part No.	Drawing	Dimensions in mm
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Han® M8 Circular connector
Female angled, Male straight

Length: 0.3 m
 0.6 m
 1.0 m
 1.5 m
 2.0 m

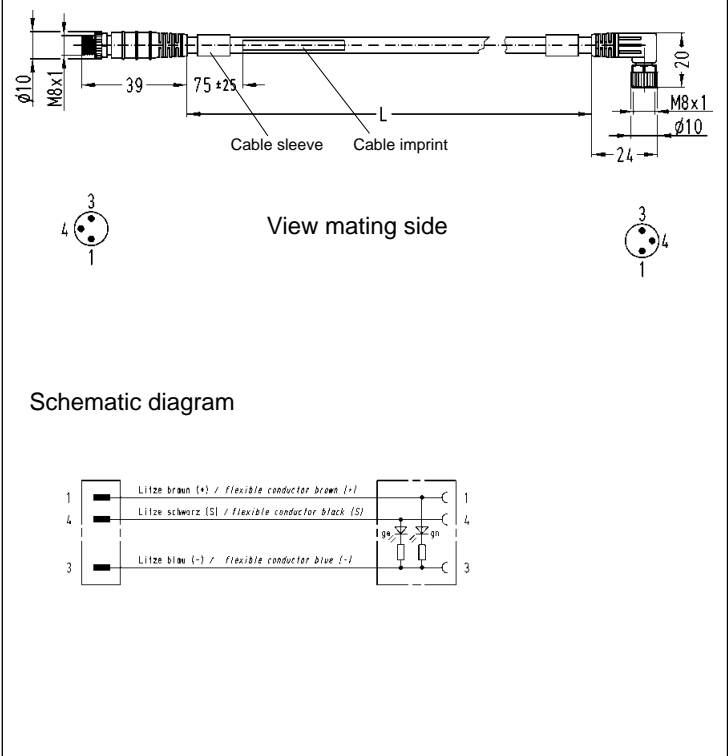
21 02 454 5301
21 02 454 5302
21 02 454 5303
21 02 454 5304
21 02 454 5305



Han® M8 Circular connector
Female angled, with LED
Male straight


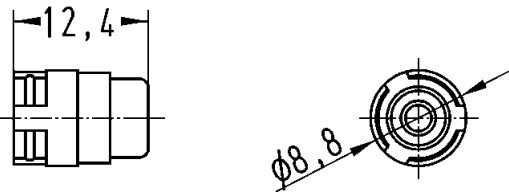

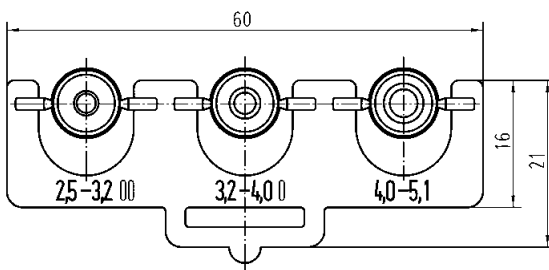

Length: 0.3 m
 0.6 m
 1.0 m
 1.5 m
 2.0 m

21 02 454 7301
21 02 454 7302
21 02 454 7303
21 02 454 7304
21 02 454 7305



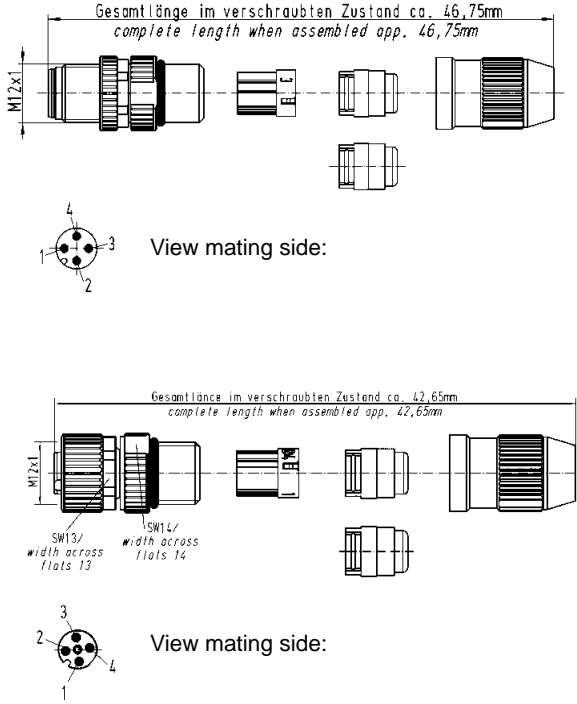


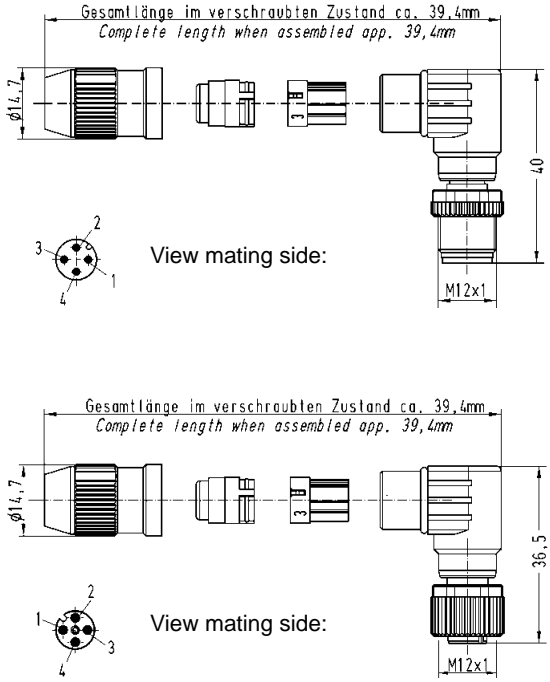


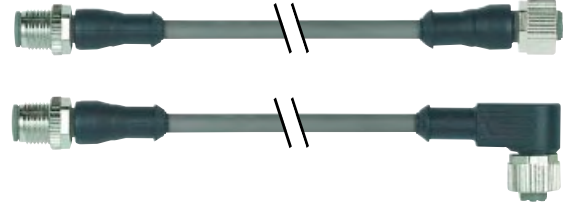
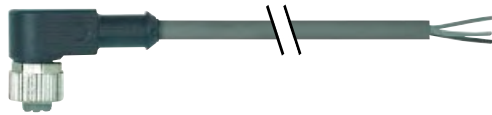


Identification	Part No.	Drawing	Dimensions in mm
<p>Han® M8 Circular connector Female angled pre-assembled on one end</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 02 554 4301 21 02 554 4302 21 02 554 4303 21 02 554 4304 21 02 554 4305</p>	<p>Schematic diagram</p> <ul style="list-style-type: none"> 1 — Litze braun (+) / flexible conductor brown (+) 4 — Litze schwarz (S) / flexible conductor black (S) 3 — Litze blau (-) / flexible conductor blue (-) <p>View mating side</p>	
<p>Han® M8 Circular connector Female angled, with LED pre-assembled on one end</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 02 554 7301 21 02 554 7302 21 02 554 7303 21 02 554 7304 21 02 554 7305</p>	<p>Schematic diagram</p> <ul style="list-style-type: none"> 1 — Litze braun (+) / flexible conductor brown (+) 4 — Litze schwarz (S) / flexible conductor black (S) 3 — Litze blau (-) / flexible conductor blue (-) <p>View mating side</p>	
<p>HARAX® M8 cable-Set without LED</p> <p>Delivery range: Han® M8 connector with individually adaptable cable and HARAX® M8-S</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 82 554 4301 21 82 554 4302 21 82 554 4303 21 82 554 4304 21 82 554 4305</p>	<p>Schematic diagram</p> <ul style="list-style-type: none"> 1 — Litze braun (+) / flexible conductor brown (+) 4 — Litze schwarz (S) / flexible conductor black (S) 3 — Litze blau (-) / flexible conductor blue (-) <p>View mating side</p> <p>HARAX® M8-S (21 02 151 1305) ca. 40,8</p>	
<p>HARAX® M8 cable-Set with LED</p> <p>Delivery range: Han® M8 connector with individually adaptable cable and HARAX® M8-S</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 82 554 7301 21 82 554 7302 21 82 554 7303 21 82 554 7304 21 82 554 7305</p>	<p>Schematic diagram</p> <ul style="list-style-type: none"> 1 — Litze braun (+) / flexible conductor brown (+) 4 — Litze schwarz (S) / flexible conductor black (S) 3 — Litze blau (-) / flexible conductor blue (-) <p>View mating side</p> <p>HARAX® M8-S (21 02 151 1305) ca. 40,8</p>	

Identification	Part No.	Drawing	Dimensions in mm
<p>Seal M8</p> <p>for 1.9 - 2.5 mm cable Ø for 2.5 - 3.5 mm cable Ø</p> 	<p>21 01 010 2016 21 01 010 2008</p>		
<p>Set of 3 seals for HARAX® M8-S</p> <p>for 2.5 - 3.2 mm cable Ø for 3.2 - 4.0 mm cable Ø for 4.0 - 5.1 mm cable Ø</p> 	<p>21 01 010 2013</p>		
<p>Han® M8 dynamometric screwdriver</p> <p>Tightening torque 0.4 Nm</p>	<p>SW 9</p> <p>09 99 000 0380</p>		



Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
HARAX® M12-S straight version, 4 poles  	21 03 111 1405	21 03 111 2405		
HARAX® M12 angled version, 4 poles  angled version, 4 poles 	21 01 140 5081	21 01 140 5091		



System cables with
Han® M12 Circular connector, A-coded

Technical characteristics

Han® M12 Circular connector, without PE

Rated voltage	max. 250 V AC/DC, max. 30 V DC (with LED)
Rated current/contact	max. 4 A
Locking	Screw locking M12x1, self securing
Recommended torque	0.6 Nm
Temperature range (dependant on connected conductor)	- 25 °C ... +85 °C
Degree of protection	IP 67
Number of wires / wire gauge	4 x 0.34 mm ²
Conductor insulation	PP (br, ws, bl, sw)
Arrangement of insulated strands	42 x 0.1 mm
Sheath	PUR (UL, CSA)
Outer diameter	appr. 4.7 mm
Bending radius	10 x outer diameter
Temperature range (working and storage)	-25 °C ... + 80 °C

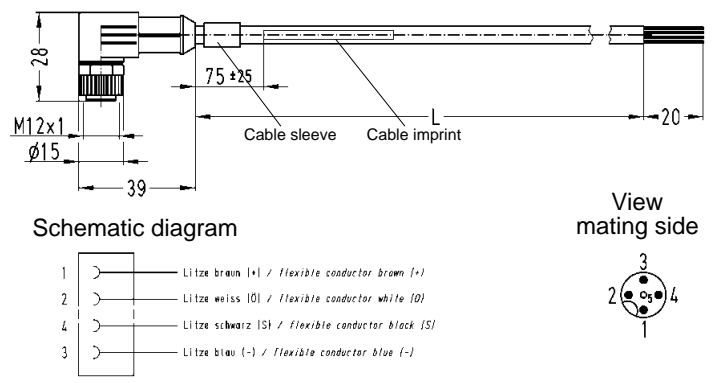


Identification	Part No.	Drawing	Dimensions in mm
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Han® M12 Circular connector
 Female angled
 pre-assembled on one end

Length: 1.5 m
 3.0 m
 5.0 m
 7.5 m
 10.0 m

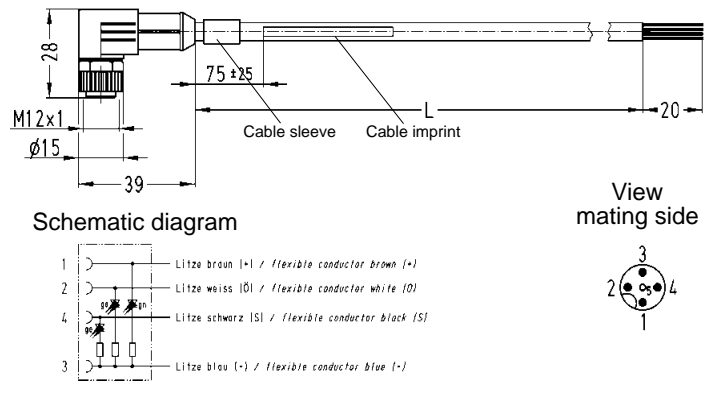
21 03 515 4401
21 03 515 4402
21 03 515 4403
21 03 515 4404
21 03 515 4405



Han® M12 Circular connector
 Female angled, with LED
 pre-assembled on one end

Length: 1.5 m
 3.0 m
 5.0 m
 7.5 m
 10.0 m

21 03 515 7401
21 03 515 7402
21 03 515 7403
21 03 515 7404
21 03 515 7405

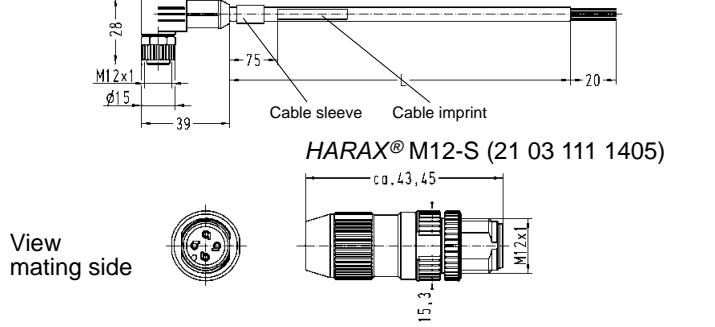


HARAX® M12 cable-Set
 without LED

Delivery range: Han® M12 connector
 with individually adaptable cable and
HARAX® M12-S

Length: 1.5 m
 3.0 m
 5.0 m
 7.5 m
 10.0 m

21 83 515 4401
21 83 515 4402
21 83 515 4403
21 83 515 4404
21 83 515 4405

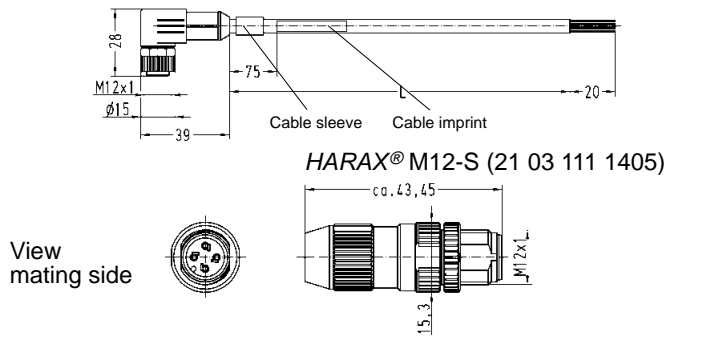


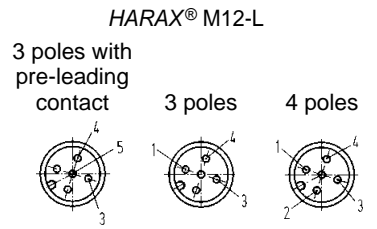
HARAX® M12 cable-Set
 with LED

Delivery range: Han® M12 connector
 with individually adaptable cable and
HARAX® M12-S

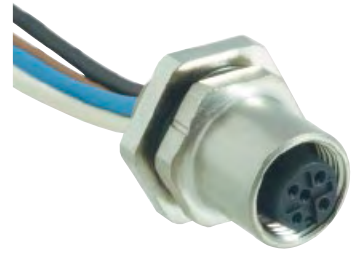
Length: 1.5 m
 3.0 m
 5.0 m
 7.5 m
 10.0 m

21 83 515 7401
21 83 515 7402
21 83 515 7403
21 83 515 7404
21 83 515 7405






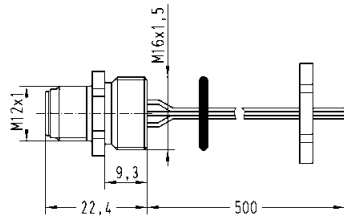
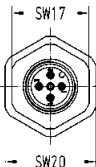

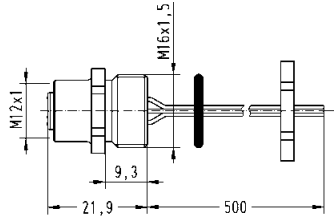


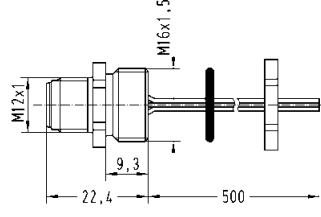
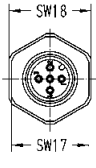

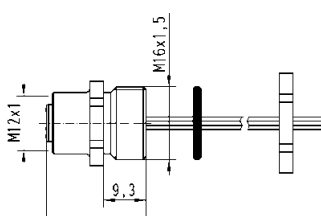
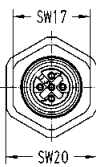
Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
<p>HARAX® M12-L, unshielded</p> <p>3 poles, A-coded, with pre-leading contact (assignment 3, 4, 5)</p> <p>3 poles, A-coded (assignment 1, 3, 4)</p> <p>4 poles, A-coded (assignment 1, 2, 3, 4)</p> <p>4 poles, A-coded, to 2.6 mm core diameter (assignment 1, 2, 3, 4)</p> <p>0.34 - 0.75 mm² AWG 22 - 18</p>	<p>21 03 212 1400</p> <p>21 03 212 1306</p> <p>21 03 212 1305</p> <p>21 03 212 1407</p>	<p>21 03 212 2400</p> <p>21 03 212 2306</p> <p>21 03 212 2305</p> <p>21 03 212 2407</p>		
<p>HARAX® M12-L, unshielded</p> <p>5 poles, A-coded</p> <p>0.34 - 0.5 mm² AWG 22 - 20</p> <p>Cable diameter: 6 - 8 mm</p>	<p>21 03 272 1505</p>	<p>21 03 272 2505</p>		
<p>HARAX® M12-XL, unshielded</p> <p>5 poles, A-coded</p> <p>0.5 - 1 mm² AWG 20 - 18</p> <p>Cable diameter: 6 - 9 mm</p>	<p>21 03 216 1505</p>	<p>21 03 216 2505</p>		




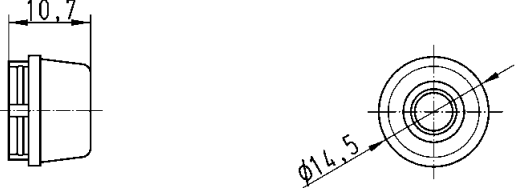

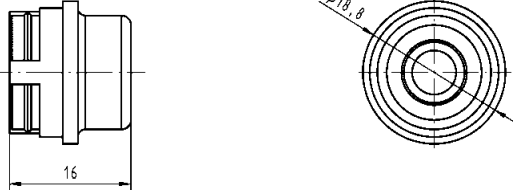

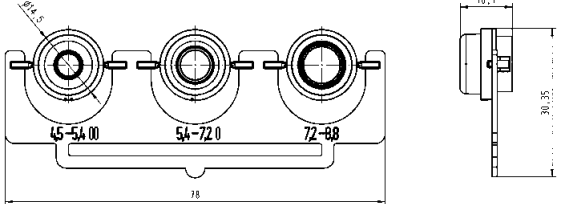

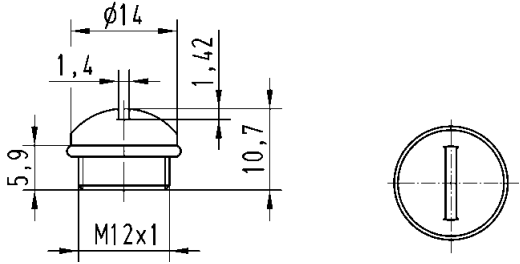



Technical characteristics: Han® M12 panel feed-through

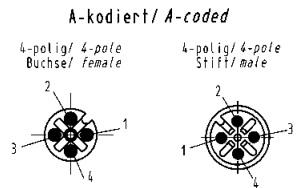
Degree of protection IP 67 when mated and locked
 Rated current max. 4 A (each contact)
 Rated voltage 50 V
 Mating cycles max. 100
 Limiting temperature -25 °C ... +85 °C



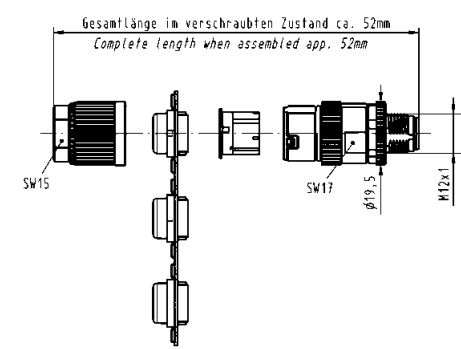


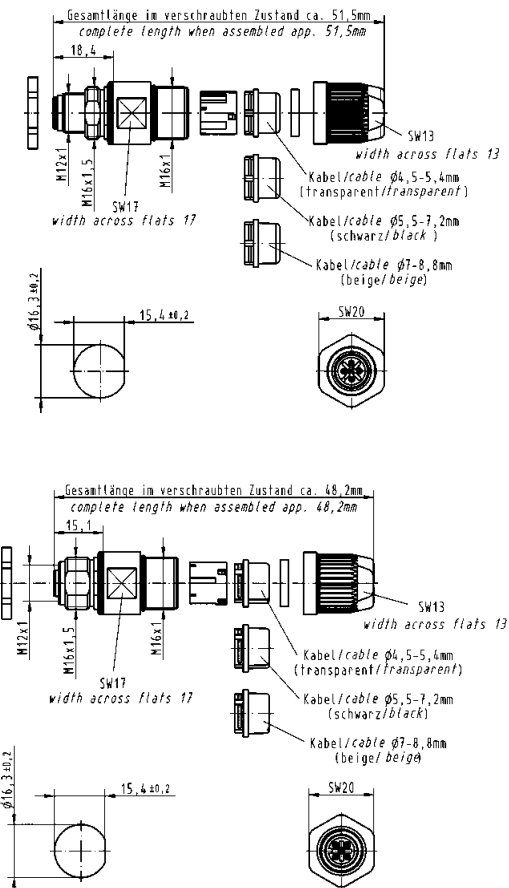
Termination Crimp
 Contact material Copper alloy
 Contact plating Au over Ni
 Housing material Copper alloy
 Insulator material PA

Identification	Part No.	Drawing	Dimensions in mm
<p>Han® M12 panel feed-through Male, A-coded, 50 cm conductors, 0.5 mm²</p> 	21 03 311 1402		
<p>Han® M12 panel feed-through Female, A-coded, 50 cm conductors, 0.5 mm²</p> 	21 03 311 2400		
<p>Han® M12 panel feed-through Male, A-coded, 50 cm conductors, 0.5 mm², 5 poles</p> 	21 03 311 1501		
<p>Han® M12 panel feed-through Female, A-coded, 50 cm conductors, 0.5 mm², 5 poles</p> 	21 03 311 2501		

Identification	Part No.	Drawing	Dimensions in mm
<p>Seal M12-S for 2.9 - 4.0 mm cable-Ø for 4 - 5.1 mm cable-Ø</p> 	<p>21 01 010 2011 21 01 010 2001</p>		
<p>Seal M12-L unshielded for 4.7 - 6 mm cable-Ø for 6 - 8 mm cable-Ø</p> 	<p>21 01 010 2015 21 01 010 2007</p>		
<p>Seal M12-XL unshielded</p> 	<p>21 01 010 2019</p>		
<p>Set of seals for M12-L shielded for 4.5 - 5.4 mm cable-Ø for 5.4 - 7.2 mm cable-Ø for 7.2 - 8.8 mm cable-Ø</p> 	<p>21 01 010 2017</p>		
<p>Cap M12</p> 	<p>21 01 000 0003</p>		
<p>Han® M12 dynamometric screwdriver Tightening torque 0.6 Nm</p>			
<p>for M12-S SW 13</p>	<p>09 99 000 0382</p>		
<p>for M12-L SW 17</p>	<p>09 99 000 0384</p>		

Circular connector M12 shielded, A-coded acc. to IEC 61076-2-101





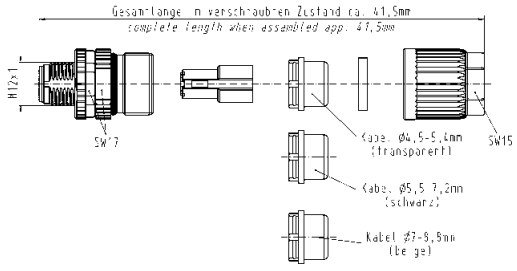
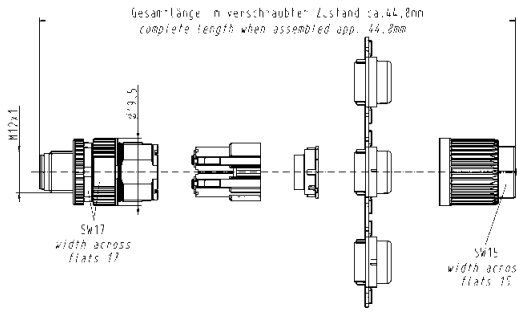





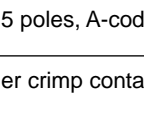
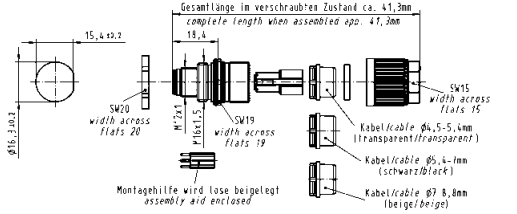
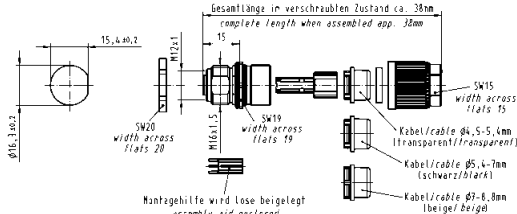
Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
<p>HARAX® M12-L, screened version</p> <p>4 poles, A-coded 0.14 - 0.34 mm² / AWG 26 - 22</p>  <p>4 poles, A-coded 0.14 - 0.34 mm² / AWG 26 - 22</p> 	21 03 221 1405	21 03 221 2405		
<p>HARAX® panel feed-through</p> <p>4 poles, A-coded 0.14 - 0.34 mm² / AWG 26 - 22</p>  <p>4 poles, A-coded 0.14 - 0.34 mm² / AWG 26 - 22</p> 	21 03 321 1425	21 03 321 2425		

Circular connector M12 shielded, A-coded acc. to IEC 61076-2-101



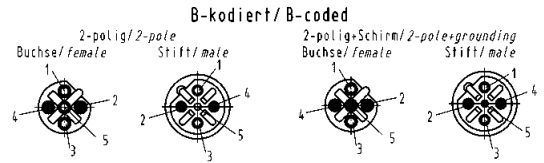
Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		

Han® M12 Crimp 4 poles, A-coded  4 poles, A-coded  5 poles, A-coded  5 poles, A-coded 	21 03 812 1405		 	
		21 03 812 2405		
		21 03 812 1505		
		21 03 812 2505		

Han® M12 Crimp panel feed-through 4 poles, A-coded  5 poles, A-coded  4 poles, A-coded  5 poles, A-coded 	21 03 822 1425		 	
		21 03 822 1525		
		21 03 822 2425		
		21 03 822 2525		

Order crimp contacts separately

Stock items in bold type



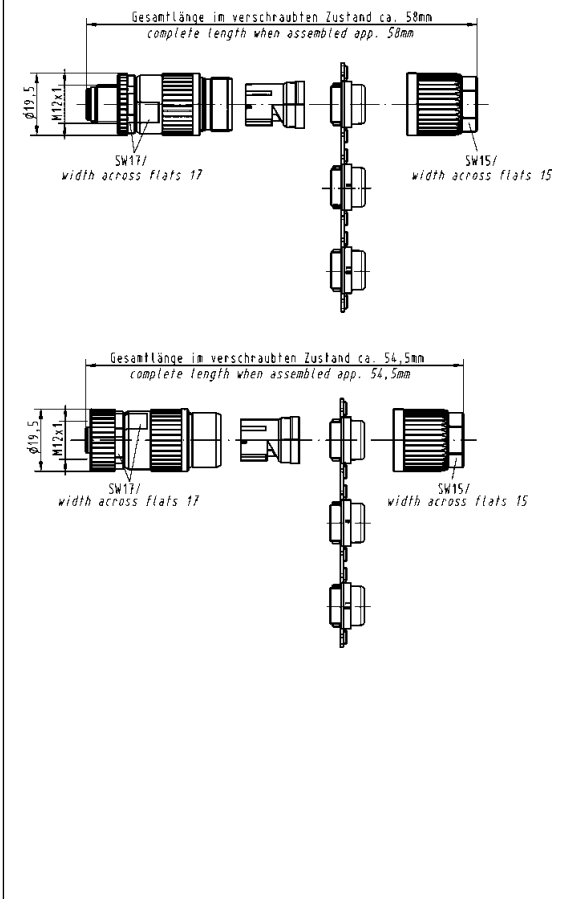
Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		

HARAX® M12-L, screened version

2 poles, B-coded
2 poles and shield, B-coded
0.25 - 0.34 mm² / AWG 24 - 22

2 poles, B-coded
2 poles and shield, B-coded
0.25 - 0.34 mm² / AWG 24 - 22

21 03 241 1301 21 03 241 1300	21 03 241 2301 21 03 241 2300
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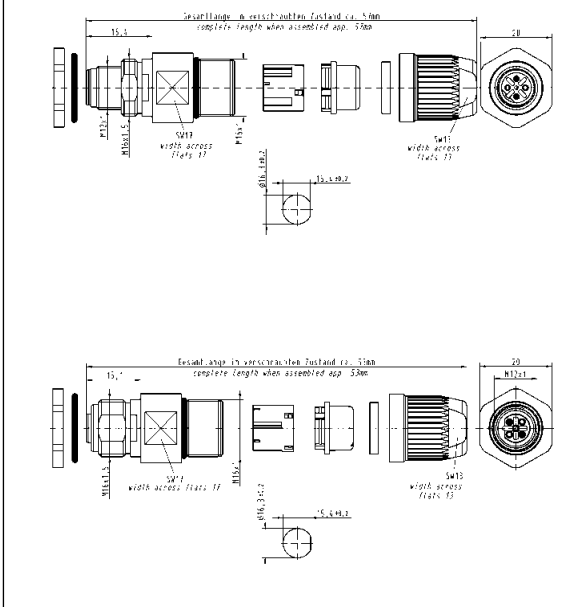


HARAX® panel feed-through

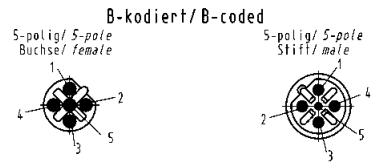
2 poles and shield, B-coded
0.25 - 0.34 mm² / AWG 24 - 22
7 - 8.8 mm

2 poles and shield, B-coded
0.25 - 0.34 mm² / AWG 24 - 22
7 - 8.8 mm

21 03 341 1425	21 03 341 2425
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Circular connector M12 shielded, B-coded acc. to IEC 61 076-2-101



Part No. Identification Male Female Drawing Dimensions in mm

Han® M12 Crimp

5 poles, B-coded

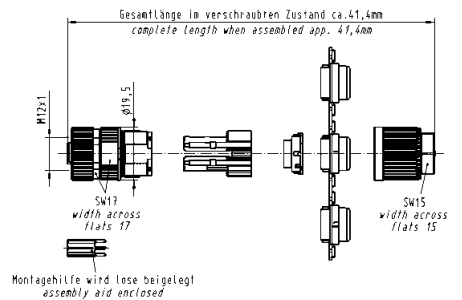
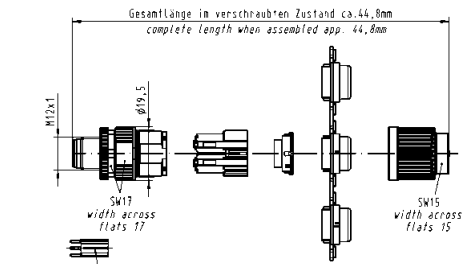


21 03 841 1505

5 poles, B-coded



21 03 841 2505



Han® M12 Crimp panel feed-through

5 poles, B-coded

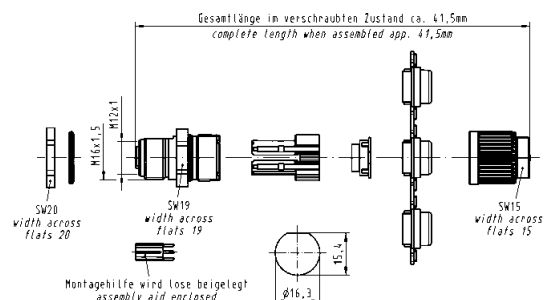
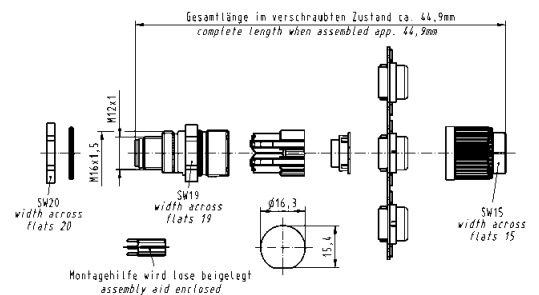


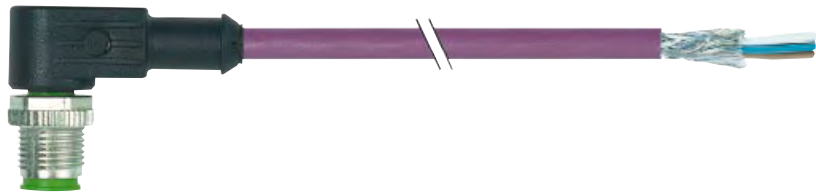
21 03 841 1525

5 poles, B-coded



21 03 841 2525

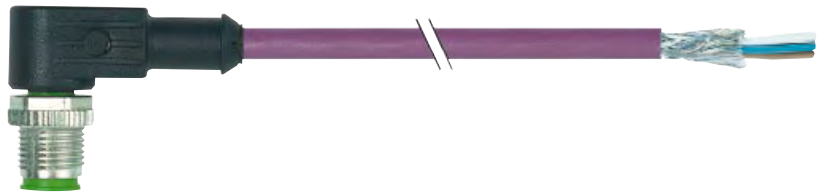



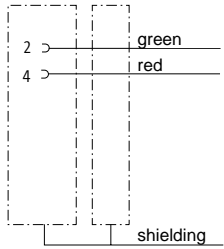

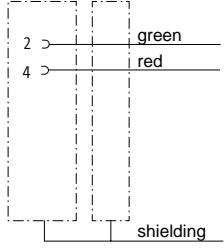

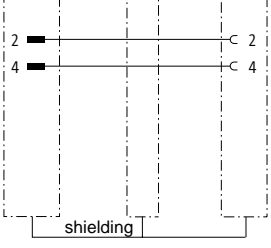

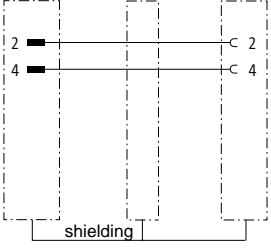


Technical characteristics

Rated voltage	max. 125 V AC/ DC
Rated current/contact	max. 4 A
Locking	Screw locking M12 x 1 mm, self securing
Recommended torque	0.6 Nm
Temperature range (male) °C	-25 °C ... +85 °C (dependant on connected conductor)
Degree of protection	IP 67
Number of wires / wire gauge	1 x 2 x diameter 0.64 mm
Conductor insulation	PUR (rt, gn)
Arrangement of insulated strands	19 x 0.13 mm
Sheath	PUR (UL/CSA)
Outer diameter	appr. 7.8 mm
Bending radius	15 x outer diameter
Temperature range °C (applicate with fixed cable)	-30 °C ... + 80 °C


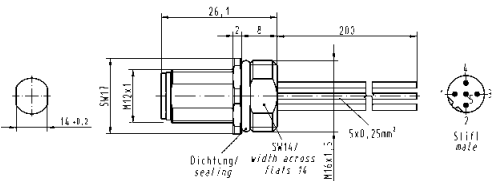

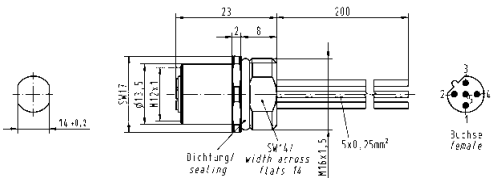

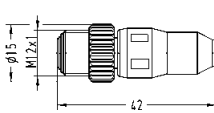

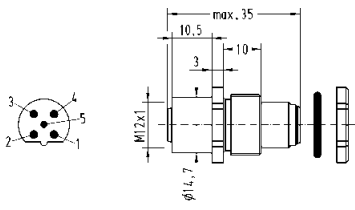
Identification	Part No.	Drawing
<p>Han® M12 Circular connector, Male, straight pre-assembled on one end, useable as trailing cable</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 03 549 1301 21 03 549 1302 21 03 549 1303 21 03 549 1304 21 03 549 1305</p>	<p>Schematic diagram</p>
<p>Han® M12 Circular connector, Male, angled pre-assembled on one end, useable as trailing cable</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 03 549 3301 21 03 549 3302 21 03 549 3303 21 03 549 3304 21 03 549 3305</p>	<p>Schematic diagram</p>



Identification	Part No.	Drawing
<p>Han® M12 Circular connector, Female, straight pre-assembled on one end, useable as trailing cable</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 03 549 2301 21 03 549 2302 21 03 549 2303 21 03 549 2304 21 03 549 2305</p>	 <p>Schematic diagram</p> 
<p>Han® M12 Circular connector, Female, angled pre-assembled on one end, useable as trailing cable</p> <p>Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m</p>	<p>21 03 549 4301 21 03 549 4302 21 03 549 4303 21 03 549 4304 21 03 549 4305</p>	 <p>Schematic diagram</p> 
<p>Han® M12 Circular connector, Male, straight Female, straight pre-assembled on one end, useable as trailing cable</p> <p>Length: 0.3 m 0.6 m 1.0 m 1.5 m 2.0 m</p>	<p>21 03 449 4301 21 03 449 4302 21 03 449 4303 21 03 449 4304 21 03 449 4305</p>	 <p>Schematic diagram</p> 
<p>Han® M12 Circular connector, Male, angled Female, angled pre-assembled on one end, useable as trailing cable</p> <p>Length: 0.3 m 0.6 m 1.0 m 1.5 m 2.0 m</p>	<p>21 03 449 6301 21 03 449 6302 21 03 449 6303 21 03 449 6304 21 03 449 6305</p>	 <p>Schematic diagram</p> 

Technical characteristics: Han® M12 panel feed-through

Degree of protection	IP 67 in locked position
Rated current	max. 4 A (each contact)
Rated voltage	250 V AC/DC
Mating cycles	max. 100
Limiting temperatures	-25 °C ... +85 °C
Termination	solder, with pigtails (TPE insulation) assembled

Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
<p>Han® M12-panel feed-through</p> <p>Male, B-coded, 20 cm conductor, 0.25 mm²</p> 	21 03 339 1301			
<p>Han® M12-panel feed-through</p> <p>Female, B-coded, 20 cm conductor, 0.25 mm²</p> 		21 03 339 2301		
<p>Han® M12-male moving load</p> <p>B-coded</p> 	21 03 030 1300			
<p>Han® M12-male/female panel feed-through</p> <p>B-coded</p> 	21 03 330 1300			<p>Rated voltage 24 V AC/DC</p> <p>Thread M16 x 1.5</p>

Circular connector M12 shielded, D-coded acc. to IEC 61 076-2-101




Part No.


Identification	Male	Female	Drawing	Dimensions in mm
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HARAX® M12-L, screened version

4 poles, D-coded,
0.14 - 0.34 mm², AWG 26-22
0.34 - 0.5 mm², AWG 22-20

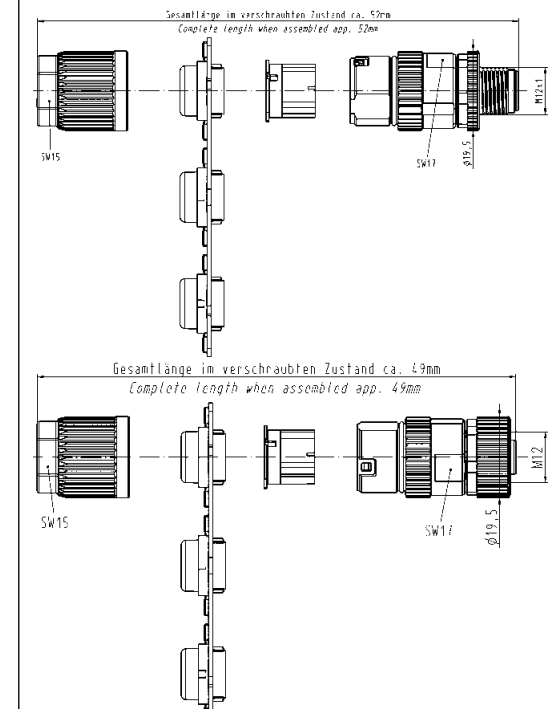


4 poles, D-coded,
0.14 - 0.34 mm², AWG 26-22
0.34 - 0.5 mm², AWG 22-20



21 03 281 1405
21 03 282 1405

21 03 281 2405
21 03 282 2405



HARAX® panel feed-through

D-coded
0.14 - 0.34 mm², AWG 26 - 22

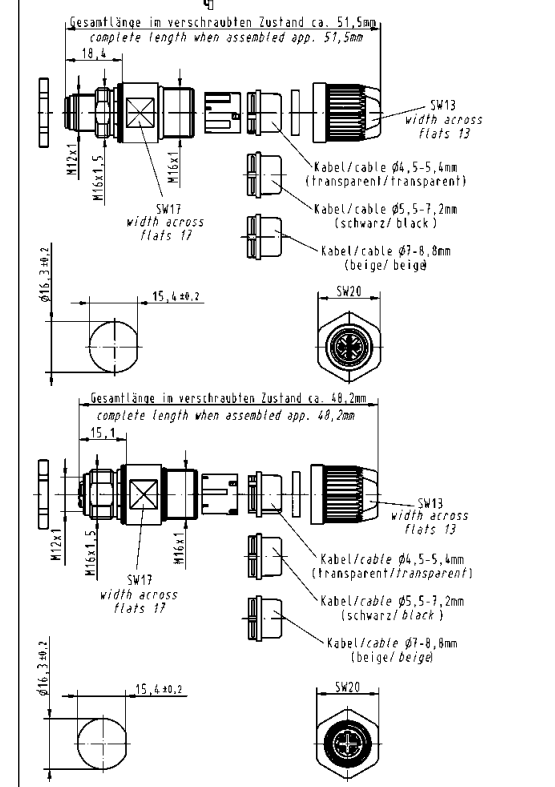


D-coded
0.14 - 0.34 mm², AWG 26 - 22





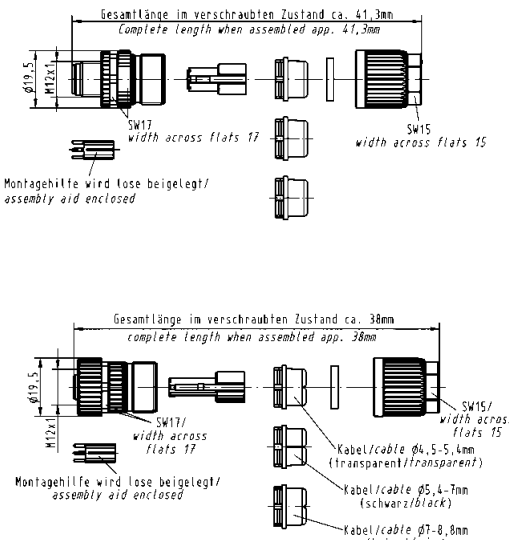

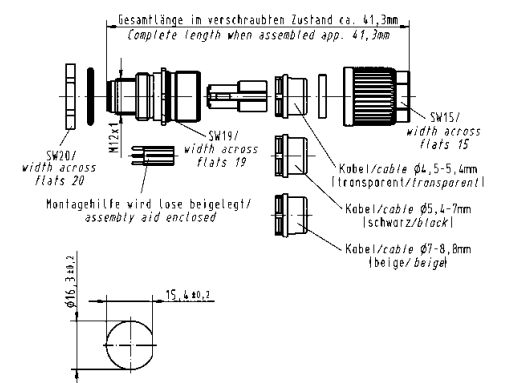

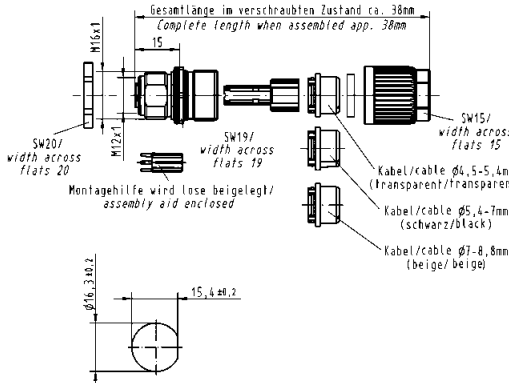
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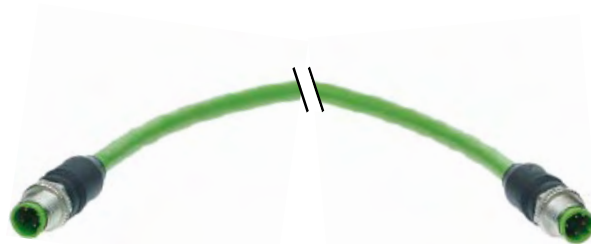
21 03 381 2425



Circular connector M12 shielded, D-coded



Identification	Male	Part No.	Female	Drawing	Dimensions in mm
Han® M12 Crimp D-coded  		21 03 882 1405		 <p>Gesamtlänge im verschraubten Zustand ca. 41,3mm Complete length when assembled app. 41,3mm</p> <p>SW17/ width across flats 17</p> <p>SW15/ width across flats 15</p> <p>Montagehilfe wird lose beigelegt/ assembly aid enclosed</p> <p>Gesamtlänge im verschraubten Zustand ca. 38mm complete length when assembled app. 38mm</p> <p>SW17/ width across flats 17</p> <p>SW15/ width across flats 15</p> <p>Kabel/cable Ø4,5-5,4mm (transparent/transparent)</p> <p>Kabel/cable Ø5,4-7mm (schwarz/black)</p> <p>Kabel/cable Ø7-8,8mm (beige/beige)</p> <p>Montagehilfe wird lose beigelegt/ assembly aid enclosed</p>	
Han® M12 panel feed-through Crimp D-coded 		21 03 882 1425		 <p>Gesamtlänge im verschraubten Zustand ca. 41,3mm Complete length when assembled app. 41,3mm</p> <p>SW19/ width across flats 19</p> <p>SW15/ width across flats 15</p> <p>Kabel/cable Ø4,5-5,4mm (transparent/transparent)</p> <p>Kabel/cable Ø5,4-7mm (schwarz/black)</p> <p>Kabel/cable Ø7-8,8mm (beige/beige)</p> <p>Montagehilfe wird lose beigelegt/ assembly aid enclosed</p> <p>SW20/ width across flats 20</p> <p>Ø15,3±0,2</p> <p>15,4±0,2</p>	
Han® M12 panel feed-through Crimp D-coded 		21 03 882 2425		 <p>Gesamtlänge im verschraubten Zustand ca. 38mm Complete length when assembled app. 38mm</p> <p>SW19/ width across flats 19</p> <p>SW15/ width across flats 15</p> <p>Kabel/cable Ø4,5-5,4mm (transparent/transparent)</p> <p>Kabel/cable Ø5,4-7mm (schwarz/black)</p> <p>Kabel/cable Ø7-8,8mm (beige/beige)</p> <p>Montagehilfe wird lose beigelegt/ assembly aid enclosed</p> <p>SW20/ width across flats 20</p> <p>Ø16,3±0,2</p> <p>15,4±0,2</p>	



Technical characteristics

Pre-assembled and tested system cables

for structured cabling of industrial Ethernet networks, based on Han® M12 Circular connectors, D-coded

Cable type: Shielded Twisted Pair Standard Cable

Mating interface: M12 D-coded acc. to IEC 61 076-2-101

Transmission performance acc. to ISO/IEC 11801:2002: Class D, 100% tested

Degree of protection IP 65 / IP 67 (when mated)

Pin assignment

Signal	Function	Conductor colour PROFInet®	Contact assignment
TD+	Transmission Data+	Yellow	1
TD-	Transmission Data-	Orange	3
RD+	Receiver Data+	White	2
RD-	Receiver Data-	Blue	4

Han® M12 System cables, D-coded



Identification	Part No.	Drawing	Dimensions in mm
2 x Han® M12 Circular connector, D-coded, PUR, straight Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	21 03 485 1401 21 03 485 1451 21 03 485 1403 21 03 485 1405 21 03 485 1457 21 03 485 1410 21 03 485 1420	cable: AWG 22 / 0.34 mm ² 	
1 x Han® M12 Circular connector, D-coded, PUR, straight Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	21 03 585 1401 21 03 585 1451 21 03 585 1403 21 03 585 1405 21 03 585 1457 21 03 585 1410 21 03 585 1420	cable: AWG 22 / 0.34 mm ² 	
2 x Han® M12 Circular connector, D-coded, PUR, angled Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	21 03 485 3401 21 03 485 3451 21 03 485 3403 21 03 485 3405 21 03 485 3457 21 03 485 3410 21 03 485 3420	cable: AWG 22 / 0.34 mm ² 	
1 x Han® M12 Circular connector, D-coded, PUR, angled Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	21 03 585 3401 21 03 585 3451 21 03 585 3403 21 03 585 3405 21 03 585 3457 21 03 585 3410 21 03 585 3420	cable: AWG 22 / 0.34 mm ² 	

* other length on request


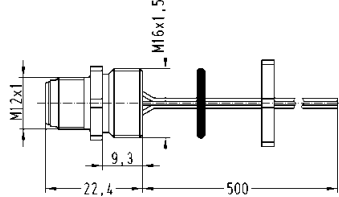
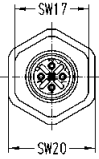

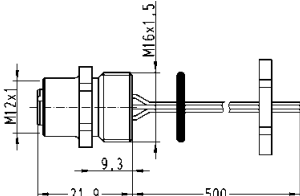
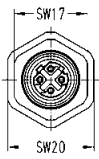

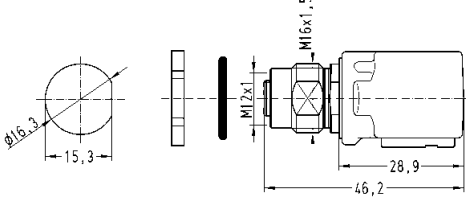
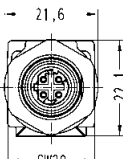

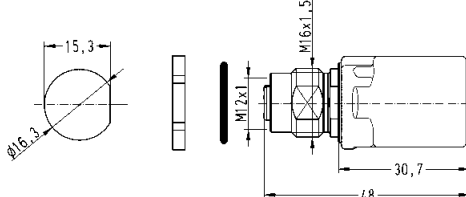
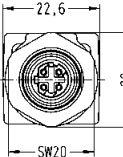

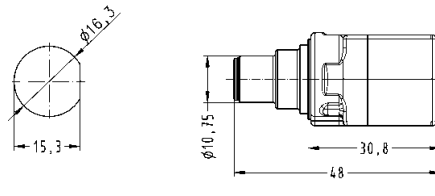
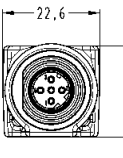

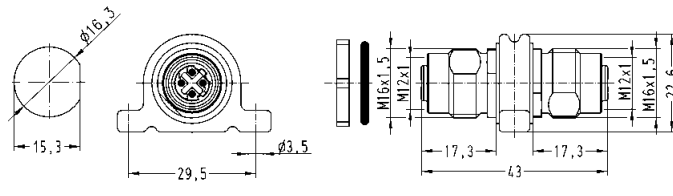
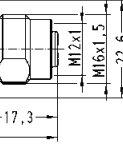






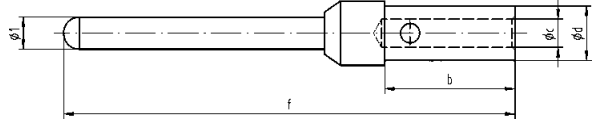
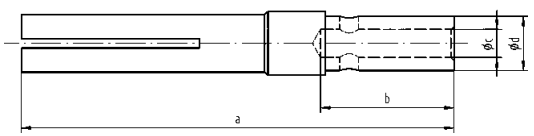



Identification	Part No.	Drawing	Dimensions in mm
2 x Han® M12 Circular connector, D-coded, PVC, straight Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	09 47 222 2002 09 47 222 2003 09 47 222 2005 09 47 222 2006 09 47 222 2022 09 47 222 2011 09 47 222 2013	cable: AWG 22 / 0.34 mm ² 	
1 x Han® M12 Circular connector, D-coded, PVC, straight Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	09 47 220 0002 09 47 220 0003 09 47 220 0005 09 47 220 0006 09 47 220 0022 09 47 220 0011 09 47 220 0013	cable: AWG 22 / 0.34 mm ² 	
2 x Han® M12 Circular connector, D-coded, PVC, angled Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	09 47 808 0002 09 47 808 0003 09 47 808 0005 09 47 808 0006 09 47 808 0022 09 47 808 0011 09 47 808 0013	cable: AWG 22 / 0.34 mm ² 	
1 x Han® M12 Circular connector, D-coded, PVC, angled Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m	09 47 800 0002 09 47 800 0003 09 47 800 0005 09 47 800 0006 09 47 800 0022 09 47 800 0011 09 47 800 0013	cable: AWG 22 / 0.34 mm ² 	

Han® M12 panel feed-through, D-coded




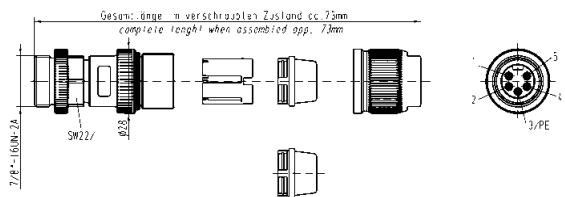

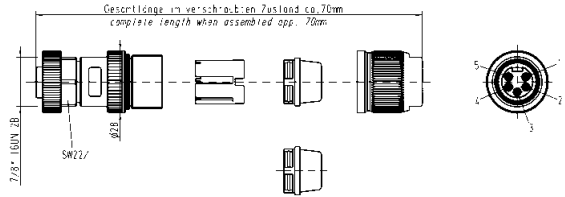
RJ45 acc. to IEC 60603 – Technical characteristics see page 28

Identification	Part No.	Drawing	Dimensions in mm
<p>Han® M12 panel feed-through Male, D-coded, 50 cm conductors, AWG 22, 4 poles</p> 	<p>21 03 371 1403</p>		
<p>Han® M12 panel feed-through Female, D-coded, 50 cm conductors, AWG 22, 4 poles</p> 	<p>21 03 371 2403</p>		
<p>Han® M12 female-RJ45 panel feed-through 4 poles, D-coded, angled</p> 	<p>21 03 381 4400</p>		
<p>Han® M12 female-RJ45 panel feed-through 4 poles, D-coded, straight</p> 	<p>21 03 381 2400</p>		
<p>Han® M12 male-RJ45 adapter 4 poles, D-coded, straight</p> 	<p>21 03 371 1420</p>		
<p>Han® M12 Gender Changer 4 poles, D-coded</p> 	<p>21 03 381 6405</p>		

Identification	Part No.	Drawing																					
<p>Crimping tool for M12 Crimp and <i>har-speed</i> M12</p>	<p>09 99 000 0501</p>																						
<p>Accessories M12 Crimp</p> <p>Locator</p> <p>Single contacts (500 mating cycles)</p> <p>turned male contacts AWG 24-20 / 0.25-0.52 mm² AWG 26-22 / 0.13-0.33 mm²</p>  <p>turned female contacts AWG 24-20 / 0.25-0.52 mm² AWG 26-22 / 0.13-0.33 mm²</p> 	<p>09 99 000 0531</p> <p>09 67 000 8576 09 67 000 5576</p> <p>09 67 000 8476 09 67 000 5476</p>	  <table border="1" data-bbox="742 1108 1468 1198"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> <th>f</th> </tr> </thead> <tbody> <tr> <td>AWG 26-22</td> <td>13.6</td> <td>4.2</td> <td>0.88</td> <td>1.7</td> <td>8.2</td> <td>14.2</td> </tr> <tr> <td>AWG 24-20</td> <td>13.6</td> <td>4.2</td> <td>1.13</td> <td>1.7</td> <td>8.2</td> <td>14.2</td> </tr> </tbody> </table> 		a	b	c	d	e	f	AWG 26-22	13.6	4.2	0.88	1.7	8.2	14.2	AWG 24-20	13.6	4.2	1.13	1.7	8.2	14.2
	a	b	c	d	e	f																	
AWG 26-22	13.6	4.2	0.88	1.7	8.2	14.2																	
AWG 24-20	13.6	4.2	1.13	1.7	8.2	14.2																	
<p>Accessories <i>har-speed</i> M12</p> <p>Locator</p> <p>Single contacts (500 mating cycles)</p> <p><i>har-speed</i> M12 contacts AWG 28-24 / 0.08-0.25 mm²</p> 	<p>09 99 000 0525</p> <p>21 01 100 9014</p>																						
<p>Accessories M12</p> <p>Locknut</p>	<p>21 01 000 0018</p>																						

HARAX® 7/8" Circular connector



Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
<p>HARAX® 7/8" Male</p> 	<p>21 04 116 1505</p>		 <p>Gesamtlänge in verschraubtem Zustand ca. 73mm complete length when assembled app. 73mm</p>	
<p>HARAX® 7/8" Female</p> 		<p>21 04 116 2505</p>	 <p>Gesamtlänge in verschraubtem Zustand ca. 70mm complete length when assembled app. 70mm</p>	



Overmolded cordsets 7/8"


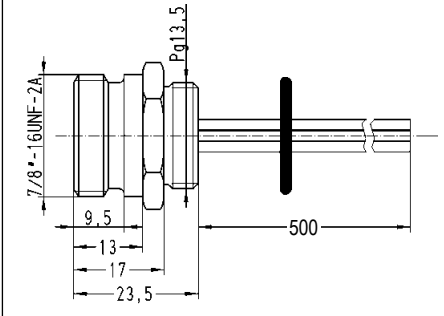
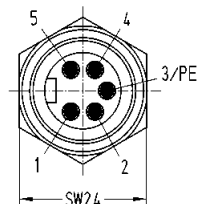

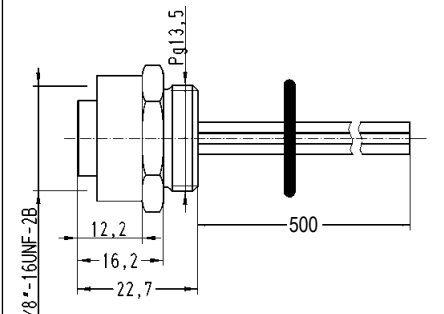
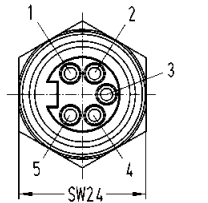

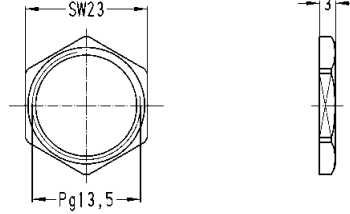

Technical characteristics

Degree of protection	IP 67
Temperature range	
applies to moved cable	-20 °C ... +80 °C
cables permanently installed	-50 °C ... +80 °C
Rated current	max. 8 A every contact (+40 °C)
Rated voltage	230 / 400 V
Rated impulse voltage	3 kV
Pollution degree	3
Material group	Category I acc. to IEC 60664-1
Cable data	
Jacket material	PUR
Jacket colour	grey
Wire isolation	TPM
Wire colours	brown, white, blue, black, green/yellow
Wire gauge	5 x 1.5 mm ²
Standards	UL / CSA



Overmolded cordsets 7/8"

Identification	Part No.	Drawing	Dimensions in mm
Overmolded cordsets 7/8" Female straight 5 pin Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m	21 04 516 2501 21 04 516 2502 21 04 516 2503 21 04 516 2504 21 04 516 2505	<p>Schematic diagram</p> <p>View mating side</p>	
Overmolded cordsets 7/8" Female angled 5 pin Length: 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m	21 04 516 4501 21 04 516 4502 21 04 516 4503 21 04 516 4504 21 04 516 4505	<p>Schematic diagram</p> <p>View mating side</p>	
Overmolded cordsets 7/8" Male-Female straight 5 pin Length: 0.3 m 0.6 m 1.0 m 1.5 m 2.0 m	21 04 416 1501 21 04 416 1502 21 04 416 1503 21 04 416 1504 21 04 416 1505	<p>Schematic diagram</p> <p>View mating side</p>	
Overmolded cordsets 7/8" Male-Female angled 5 pin Length: 0.3 m 0.6 m 1.0 m 1.5 m 2.0 m	21 04 416 3501 21 04 416 3502 21 04 416 3503 21 04 416 3504 21 04 416 3505	<p>Schematic diagram</p> <p>View mating side</p>	

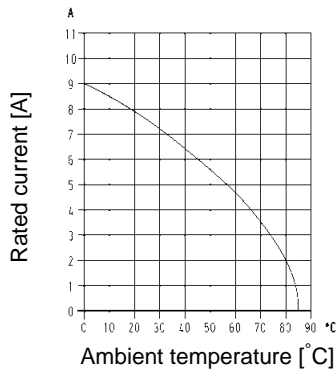
Identification	Part No.	Drawing	Dimensions in mm
<p>Han® 7/8" panel feed-through 50 cm conductors, 0.75 mm², 5 poles</p> <p>Male</p> 	<p>21 04 316 1505</p>		
<p>Han® 7/8" panel feed-through 50 cm conductors, 0.75 mm², 5 poles</p> <p>Female</p> 	<p>21 04 316 2505</p>		
<p>Lock nut Pg 13.5 nickel plated</p> 	<p>21 01 000 0020</p>		
<p>Han® 7/8" dynamometric screwdriver Tightening torque 1.5 Nm</p> <p>for 7/8" SW 23</p>	<p>09 99 000 0395</p>		

Current carrying capacities

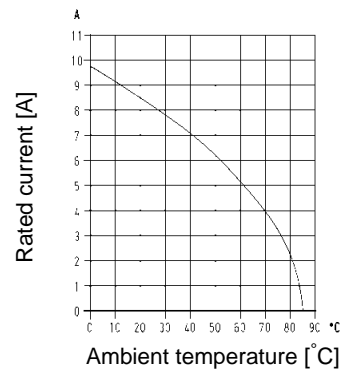
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interruptet current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60512-5.

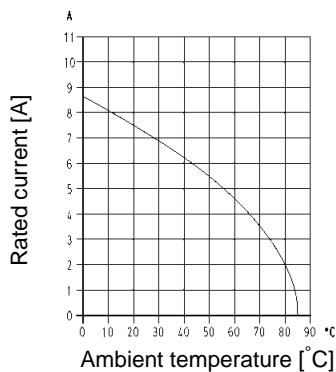
M12, A-coding, straight, male, 4 poles
wire gauge 0.5 mm²



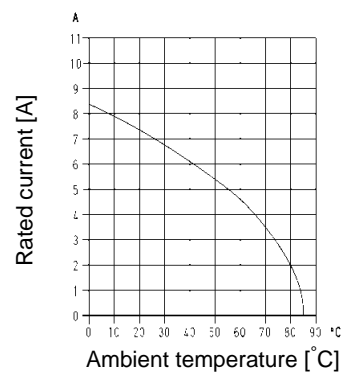
M12, A-coding, straight, female, 4 poles
wire gauge 0.75 mm²



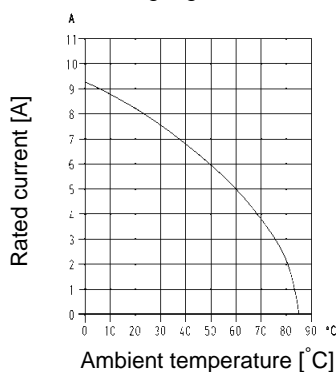
M12, A-coding, straight, female, 5 poles
wire gauge 0.5 mm²



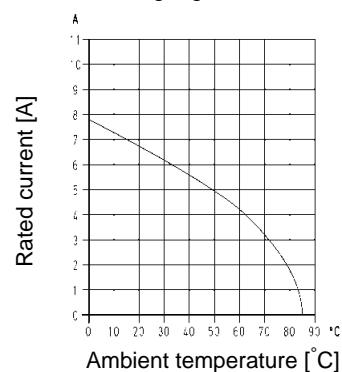
M12, A-coding, straight, male, 5 poles
wire gauge 0.5 mm²



M12, D-coding, straight, female, 4 poles
wire gauge 0.5 mm²




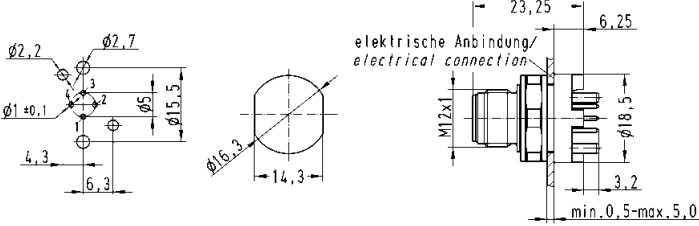
M12, D-coding, angled, female, 4 poles
wire gauge AWG 22


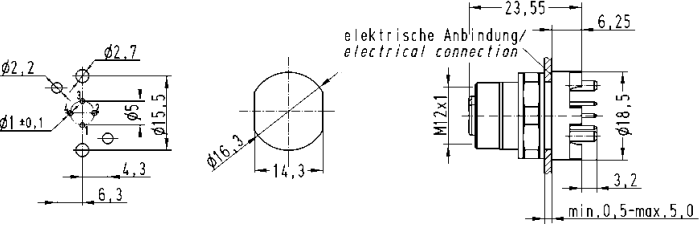


Technical characteristics: Han® M12 pcb

Degree of protection	IP 20, IP 67 (mated and locked)	Temperature during connection	-5 °C ... +50 °C
Rated current	max. 4 A (dependant on pcb layout)	Termination	PIH
Rated voltage	50 V	Contact material	Copper alloy
Mating cycles	max. 100	Contact plating (mating side)	Au over Ni
Limiting temperature	-40 °C ... +85 °C	Insulator material	PA

Identification	Part No.	Drawing	Dimensions in mm
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<p>Han® M12 Male, A-coded, straight</p> 	<p>4 poles, IP 20 4 poles, IP 67</p>	<p>21 03 321 1410 21 03 321 1420</p>	
	<p>5 poles, IP 20 5 poles, IP 67</p>	<p>21 03 321 1510 21 03 321 1520</p>	

<p>Han® M12 Female, A-coded, straight</p> 	<p>4 poles, IP 20 4 poles, IP 67</p>	<p>21 03 321 6410 21 03 321 6420</p>	
	<p>5 poles, IP 20 5 poles, IP 67</p>	<p>21 03 321 6510 21 03 321 6520</p>	

Technical characteristics: Han® M12 pcb D-coded angled

Degree of protection	IP 20, IP 67 (mated and locked)	Temperature during connection	-5 °C ... +50 °C
Rated current	max. 4 A (dependant on pcb layout)	Termination	Reflow
Rated voltage	50 V	Contact material	Copper alloy
Mating cycles	max. 100	Contact plating (mating side)	Au over Ni
Limiting temperature	-40 °C ... +85 °C	Insulator material	LCP

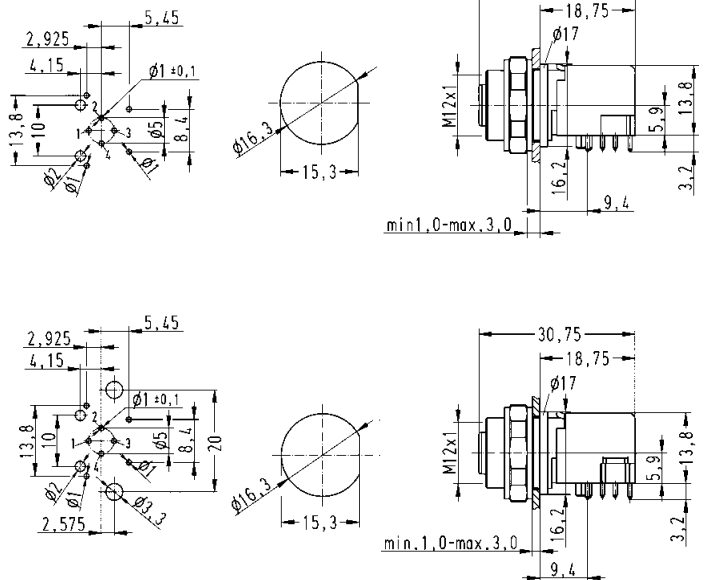
Identification	Part No.	Drawing	Dimensions in mm
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IP 20 **21 03 381 4410**
IP 67 **21 03 381 4430**

with fixing hole

IP 20 **21 03 381 4412**
IP 67 **21 03 381 4432**




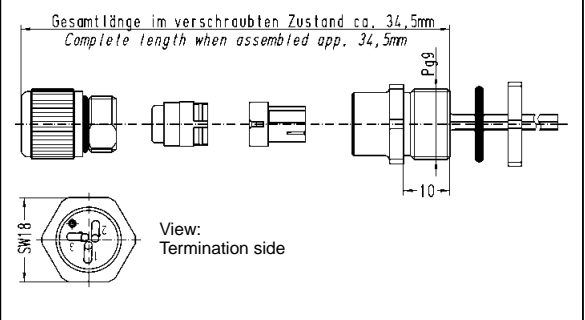

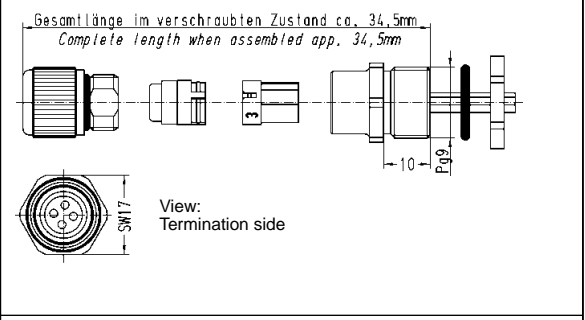

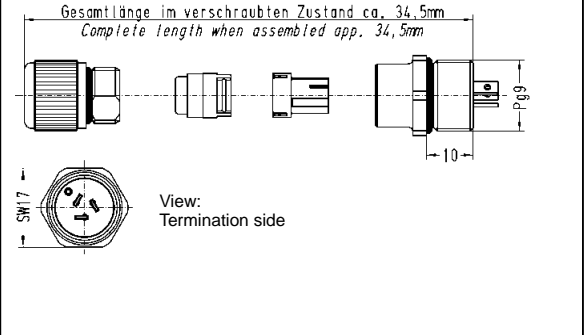
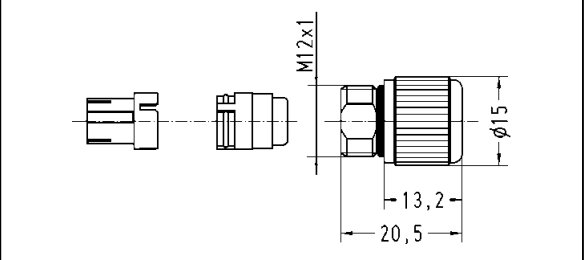
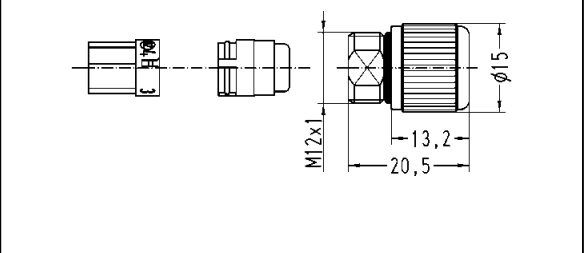


Technical characteristics: HARAX® Pg 9 panel feed-through

Rated voltage	32 V
Rated current	4 A
Wire gauge	0.25 - 0.5 mm ² / 24/7 AWG - 22 AWG
Diameter of individual strands	≥ 0.1 mm
Conductor insulation material	PVC
Conductor diameter	1.2 - 1.6 mm
Cable diameter	4.0 - 5.1 mm
Working temperature	- 25 °C ... + 85 °C
Temperature during connection	- 5 °C ... + 50 °C
Degree of protection	IP 67
Termination cycles with the same cross section	10

HARAX® Pg 9 panel feed-through



Identification	Part No.	Drawing	Dimensions in mm
<p>HARAX® Pg 9 panel feed-through 3 contacts, with pre-assembled 0.5 m / 0.5 mm² pigtail cable</p> 	21 01 130 4241	 <p>Gesamtlänge im verschraubten Zustand ca. 34,5mm Complete length when assembled app. 34,5mm</p> <p>View: Termination side</p>	
<p>HARAX® Pg 9 panel feed-through 4 contacts, with pre-assembled 0.5 m / 0.5 mm² pigtail cable</p> 	21 01 140 4341	 <p>Gesamtlänge im verschraubten Zustand ca. 34,5mm Complete length when assembled app. 34,5mm</p> <p>View: Termination side</p>	
<p>HARAX® Pg 9 panel feed-through 3 contacts with faston blades</p> 	21 01 130 4011	 <p>Gesamtlänge im verschraubten Zustand ca. 34,5mm Complete length when assembled app. 34,5mm</p> <p>View: Termination side</p>	
<p>Termination element M12 HARAX® 3 contacts Screw cap, splice ring, seal</p>	21 01 010 0001	 <p>M12x1</p> <p>13,2</p> <p>20,5</p> <p>∅15</p>	
<p>Termination element M12 HARAX® 4 contacts Screw cap, splice ring, seal</p>	21 01 010 0006	 <p>M12x1</p> <p>13,2</p> <p>20,5</p> <p>∅15</p>	

Technical characteristics

Specifications	IEC 60352-4 DIN 61984	
Approval	VDE	
Construction type	Pg 13.5 3 poles	Pg 13.5 / M20 4 poles
Working voltage	250 V 4 kV 3 with faston terminals with insulation cap	230/400 V 4 kV 3
acc. to UL/CSA	600 V	600 V
Working current (see current carrying capacity)	16 A	16 A
Testing voltage	4 kV (1.2/50)	4 kV (1.2/50)
Conductor cross section	0.75 - 1.5 mm ²	0.75 - 1.5 mm ²
Diameter of individual strands	≥ 0.2 mm	≥ 0.2 mm
Outer cable diameter	6.0 - 9.0 mm	6.0 - 9.0 mm
Termination cycles with the same cross section	10	10
Limiting temperature	- 25 / + 85 °C	- 25 / + 85 °C
Temperature during connection	- 5 ... + 50 °C	- 5 ... + 50 °C
Degree of protection	IP 67	IP 67
Conductor insulation material	PVC	PVC
Max. tightening torque	8 Nm	8 Nm

Current carrying capacity

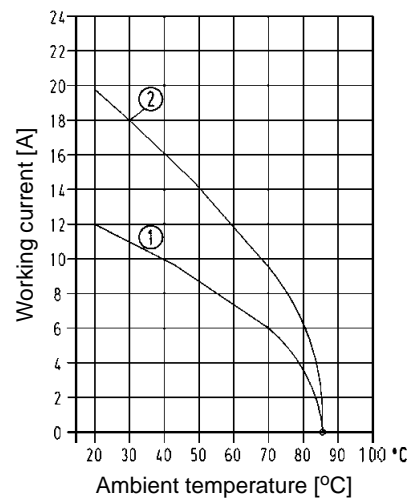
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60512-3.

Pg 13.5 3 contacts

1 = wire gauge
0.75 mm²

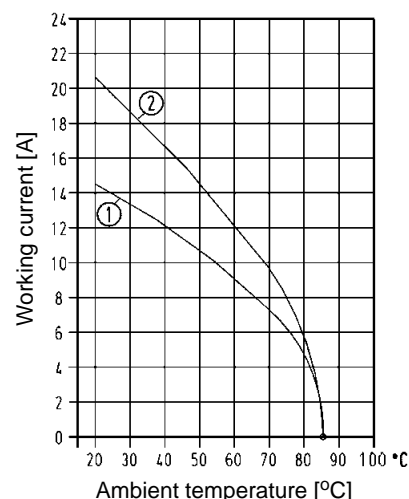
2 = wire gauge
1.5 mm²



Pg 13.5 / M20 4 contacts

1 = wire gauge
0.75 mm²

2 = wire gauge
1.5 mm²



HARAX® Pg 13.5 / M20 panel feed-through



Identification	Part No.	Drawing	Dimensions in mm
HARAX® Pg 13.5 / 3 contacts with faston blades	21 01 130 1013		Pg 13.5
HARAX® Pg 13.5 / 3 contacts with solder termination	21 01 130 1023		
HARAX® Pg 13.5 / 3 contacts with pre-assembled pigtail cable. l = 500 mm, 1.5 mm ²	21 01 130 1223		
HARAX® Pg 13.5 / 2 + PE with faston blades	21 01 130 3013		Pg 13.5
HARAX® Pg 13.5 / 2 + PE with solder termination	21 01 130 3023		
HARAX® Pg 13.5 / 2 + PE with pre-assembled pigtail cable, l = 500 mm, 1.5 mm ²	21 01 130 3233		
HARAX® Pg 13.5 / 4 contacts with solder termination	21 01 140 1023		Pg 13.5
HARAX® Pg 13.5 / 3 + PE with solder termination	21 01 140 3023		
HARAX® Pg 13.5 / 4 contacts with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 140 1323		
HARAX® Pg 13.5 / 3 + PE with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 140 3333		
HARAX® M20 / 4 contacts with solder termination	21 01 141 1023		M20x1.5
HARAX® M20 / 3 + PE with solder termination	21 01 141 3023		
HARAX® M20 / 4 contacts with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 141 1323		
HARAX® M20 / 3 + PE with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 141 3333		

Other length on request

Stock items in bold type

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
09 47 220 0002	42	21 01 010 0001	55	21 02 454 7302	20	21 03 321 1410	50
09 47 220 0003	42	21 01 010 0006	55	21 02 454 7303	20	21 03 321 1420	50
09 47 220 0005	42	21 01 010 2001	29	21 02 454 7304	20	21 03 321 1425	30
09 47 220 0006	42	21 01 010 2007	29	21 02 454 7305	20	21 03 321 1510	50
09 47 220 0011	42	21 01 010 2008	22	21 02 554 4301	21	21 03 321 1520	50
09 47 220 0013	42	21 01 010 2011	29	21 02 554 4302	21	21 03 321 2425	30
09 47 220 0022	42	21 01 010 2013	22	21 02 554 4303	21	21 03 321 6410	50
		21 01 010 2015	29	21 02 554 4304	21	21 03 321 6420	50
09 47 222 2002	42	21 01 010 2016	22	21 02 554 4305	21	21 03 321 6510	50
09 47 222 2003	42	21 01 010 2017	29	21 02 554 7301	21	21 03 321 6520	50
09 47 222 2005	42	21 01 010 2019	29	21 02 554 7302	21	21 03 330 1300	36
09 47 222 2006	42			21 02 554 7303	21	21 03 339 1301	36
09 47 222 2011	42	21 01 100 9014	44	21 02 554 7304	21	21 03 339 2301	36
09 47 222 2013	42			21 02 554 7305	21		
09 47 222 2022	42	21 01 130 1013	57			21 03 341 1425	32
		21 01 130 1023	57			21 03 341 1505	51
09 47 800 0002	42	21 01 130 1223	57	21 03 030 1300	36	21 03 341 2425	32
09 47 800 0003	42	21 01 130 3013	57	21 03 111 1405	23	21 03 341 2505	51
09 47 800 0005	42	21 01 130 3023	57	21 03 111 2405	23		
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09 47 800 0011	42	21 01 130 4011	55	21 03 212 1306	27	21 03 371 1403	43
09 47 800 0013	42	21 01 130 4241	55	21 03 212 1400	27	21 03 371 1420	43
09 47 800 0022	42			21 03 212 1407	27	21 03 371 2403	43
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09 47 808 0002	42	21 01 140 1323	57	21 03 212 2306	27		
09 47 808 0003	42	21 01 140 3023	57	21 03 212 2400	27	21 03 381 1425	38
09 47 808 0005	42	21 01 140 3333	57	21 03 212 2407	27	21 03 381 2400	43
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09 47 808 0013	42	21 01 140 5091	23			21 03 381 2802	9
09 47 808 0022	42			21 03 221 1405	30	21 03 381 2803	9
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09 67 000 5476	44	21 01 141 1323	57	21 03 241 1300	32	21 03 381 2805	10
09 67 000 5576	44	21 01 141 3023	57	21 03 241 1301	32	21 03 381 4400	43
09 67 000 8476	44	21 01 141 3333	57	21 03 241 2300	32	21 03 381 4410	53
09 67 000 8576	44			21 03 241 2301	32	21 03 381 4412	53
						21 03 381 4430	53
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09 99 000 0380	22	21 02 151 1405	18	21 03 272 1505	27	21 03 381 4802	9
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21 01 000 0018	44	21 02 454 5305	20	21 03 311 2400	28	21 03 415 5401	25
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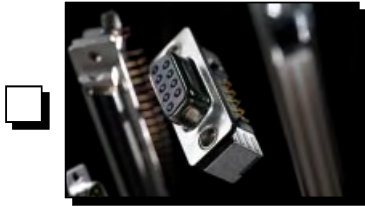
List of part numbers



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21 03 415 7402	25					21 83 515 4405	26
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21 03 415 7405	25	21 03 549 1303	34	21 03 882 1425	39	21 83 515 7403	26
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21 03 449 4304	35	21 03 549 2303	35	21 04 116 1505	45		
21 03 449 4305	35	21 03 549 2304	35	21 04 116 2505	45		
21 03 449 6301	35	21 03 549 2305	35				
21 03 449 6302	35	21 03 549 3301	34	21 04 316 1505	48		
21 03 449 6303	35	21 03 549 3302	34	21 04 316 2505	48		
21 03 449 6304	35	21 03 549 3303	34				
21 03 449 6305	35	21 03 549 3304	34	21 04 416 1501	47		
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21 03 483 1801	11	21 03 549 4301	35	21 04 416 1503	47		
21 03 483 1803	11	21 03 549 4302	35	21 04 416 1504	47		
21 03 483 1805	11	21 03 549 4303	35	21 04 416 1505	47		
21 03 483 1807	11	21 03 549 4304	35	21 04 416 3501	47		
21 03 483 1810	11	21 03 549 4305	35	21 04 416 3502	47		
21 03 483 5801	11			21 04 416 3503	47		
21 03 483 5802	11			21 04 416 3504	47		
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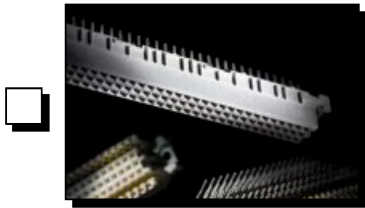
Interface Connectors



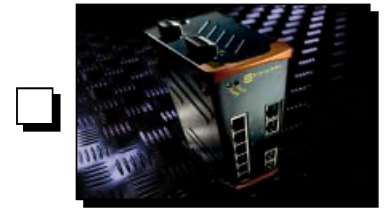
Device Connectivity



Industrial Connectors Han®



Connectors
DIN 41 612



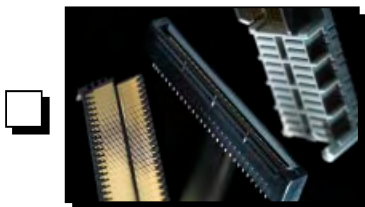
Ethernet
Network Solutions



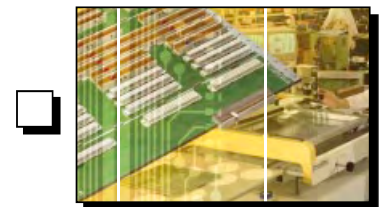
Coaxial and Metric
Connectors



Application
brochure



TCA Connectors



Backplanes and
Integrated Systems

Sender:

Company: _____

Department: _____

Name: _____

Prenome: _____

Function: _____

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Postcode/Town: _____

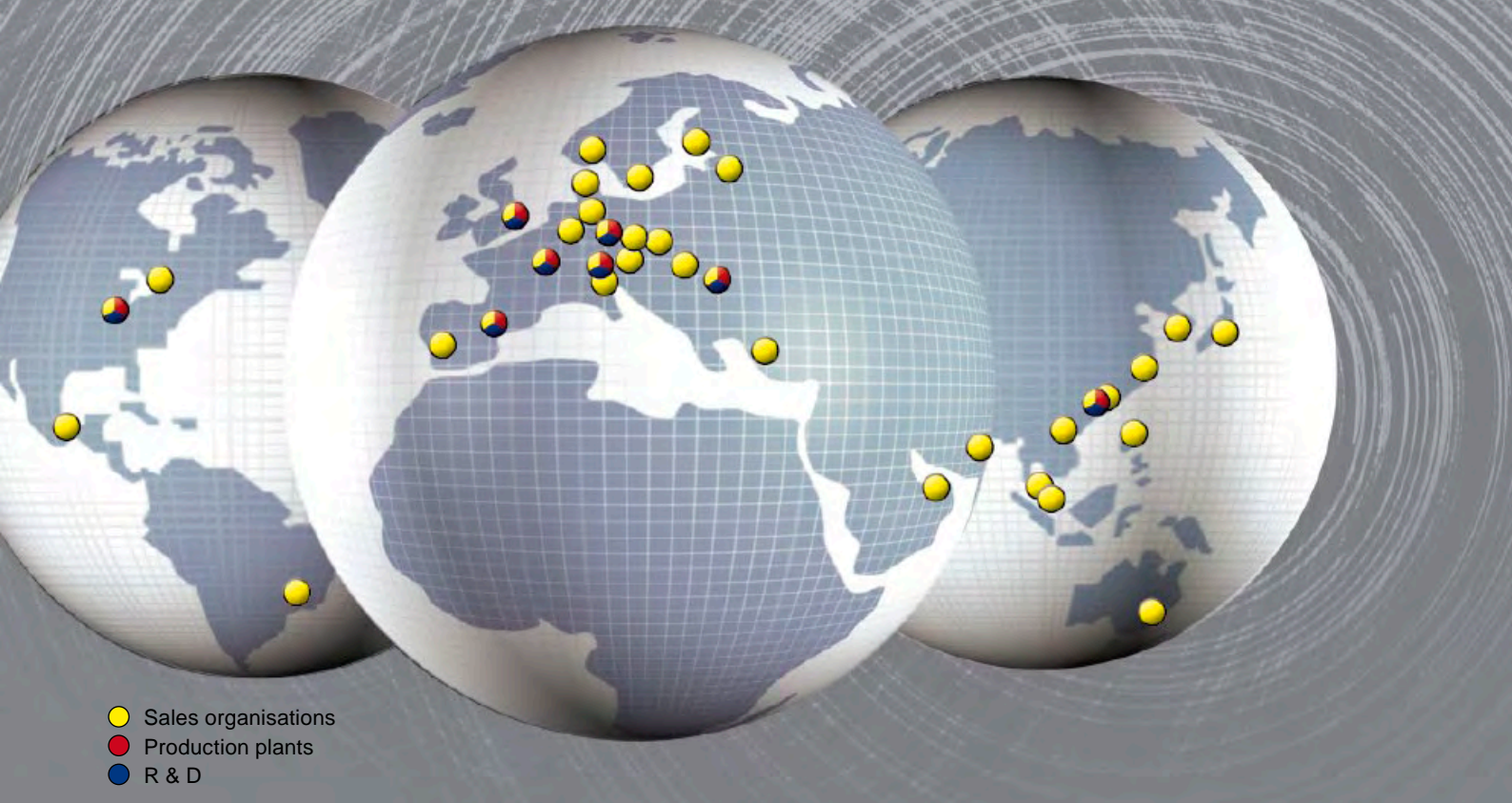
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