

Circular connectors represent a widespread industrial standard for wiring sensors and actuators installed in the field. HARTING offers a portfolio of circular connectors with M8, M12, M 23, 7/8" thread and Han-Max® which are attuned to meet the requirements of industrial applications. In addition to the ready-to-use system cables, HARTING offers connectors equipped with HARAX® quick connection technology for in situ field assembly.

In addition, HARTING is continuing the development of enhanced circular connectors for new applications. HARTING is offering the M12 connector for the electrical and optical cabling for Fast Ethernet applications.

Application profile:

CONNECTION TYPE		ENVIRONMENT		APPLICATION						
Board to Board	Cable/Wire to Board	IP 20	IP 65 / IP 67	Data	Signal	Power	high performance			
							Data transfer rate	Shielding	Number of contacts, contact density	Voltage, working current
Cable termination			PCB termination			Application standard				
Han-Quick Lock®	IDC HARAX®	Crimp	THT	SMC	SMT					
Screw	Cage clamp	Axial screw	Press-in	Housing integration						
				Separate housing	Integrated housing					

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Standardized circular connectors with M8, M12, M 23, 7/8" thread and Han-Max® are in widespread use in the installation of machines and systems.

HARTING offers a portfolio of angled and straight M8, M12, Han® R 23 and 7/8" connectors which are attuned to meet all relevant automation requirements. The housings are available as plastic and as metal variant. In addition to the standard circular connectors for sensors/actuators, Harting is offering standardized circular connectors such as the M12, Han-Max® and *microFX*® variants to meet the special requirements of communication technology (Ethernet, Ethernet/IP, PROFINET, PROFIBUS, Devicenet and CAN).

The HARTING product range comprises connectors, ready-to-use patch cables and corresponding accessories.

The easy-to-handle *HARAX*® quick connection technology is available for the in situ assembly of M8 and M12 connectors and does not require the use of special tools. The optical M12 connector *microFX*® for Fast Ethernet is available for many FOC types. The portfolio of circular connectors is rounded off by the Han® R 23 connector family.

HARTING's comprehensive and user-friendly circular connector range enables cost-effective and quick realization of all wiring and communication tasks in automation projects.

APPLIANCE INTEGRATION:

In order to support the implementation of appliances with degree of protection IP 65 / IP 67, Harting offers panel feed-through devices with ready-to use patch cables and female contact modules for direct mounting on PCBs.



QUICK CONNECTION WITH HARAX®:

The HARTING HARAX® quick connection technology is an ideal solution for the in situ assembly of M8/M12 connectors. Users only have to strip the cable insulation, insert the conductors, and screw the connector together in order to produce a gas-proof and vibration resistant connection.

HARAX® is a universal technology deployed in diverse connector series to wire data, signal and power lines and represents the current standard connection for Fieldbus and Fast Ethernet.



M12 FEMALE SOCKETS FOR PCB MOUNTING:

Straight and angled contact inserts are available for direct soldering on PCBs. HARTING has developed special shielded contact inserts category 5 to ISO/IEC 11801 for Ethernet technology which meet the stringent requirements for railway applications. In addition to the contact inserts for electrical data transfer, HARTING also provides contacts of the microFX® series for data transfer via FOC.



ASSEMBLED SYSTEM CABLES:

HARTING offers a comprehensive range of ready-to-use M8/M12 system cables for the quick wiring of sensors and actuators. HARTING also offers ready-to-use and tested system cables for special Ethernet communication such as PROFINET and Ethernet/IP. HARTING also provides custom patch cables which are also available as overmolded versions. The range of solutions comprises shielded and non-shielded cables with diverse structures, as required in drag chain applications, for example.



RJ45-BASED CIRCULAR CONNECTOR HAN-MAX®

The Han-Max® module offers a standard RJ45 connection in a rugged and vibration-proof metal housing with toggle locking (bayonet lock). The IP 65 / IP 67 connector is designed for use in rugged industrial environments.

The data connector can be assembled in the field, conforms to category 5 and is approved for Ethernet/IP.



Technical characteristics

Specifications

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

Approval

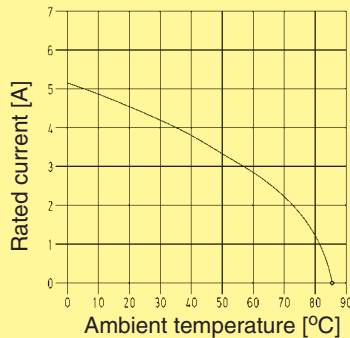


Construction type	HARAX® M8-S (0.08 mm ²)	HARAX® M8-S/ M12-S	HARAX® M12 angled	HARAX® M12-L 3 poles, 4 poles	HARAX® M12-L screened version, A-coded
Rated voltage	32 V	32 V	32 V	50 V	50 V
Rated current (see current carrying capacity)	2 A	4 A	4 A	6 A	4 A
Conductor cross section	0.08 - 0.14 mm ² AWG 28 - 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	0.14 - 0.34 mm ² AWG 26 - 22
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	1.2 - 1.6 mm
Cable diameter	1.9 - 2.5 mm (transp.) 2.5 - 3.5 mm (grey)	M8-S: 2.5 - 5.1 mm M12-S: 2.5 - 4.0 mm (transp.) 4.0 - 5.1 mm (black)	4 - 5.1 mm	3 poles: 5.5 - 7.2 mm 4 poles: 6 - 8 mm	7 - 8.8 mm
Limiting temperatures	- 25 °C / + 85 °C	- 25 °C / + 85 °C	- 25 °C / + 85 °C	- 25 °C / + 85 °C	- 25 °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 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

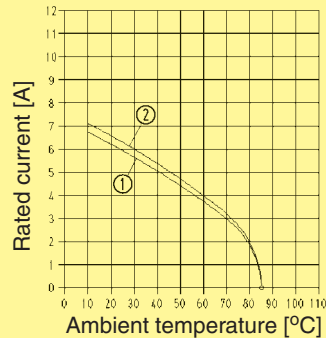
Current carrying capacity The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given,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

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

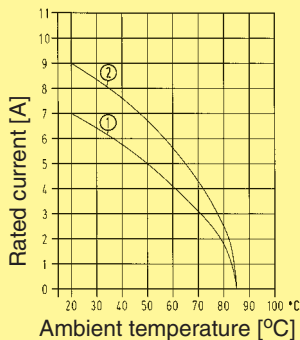
M8-S, 3 poles wire gauge 1.4 mm²



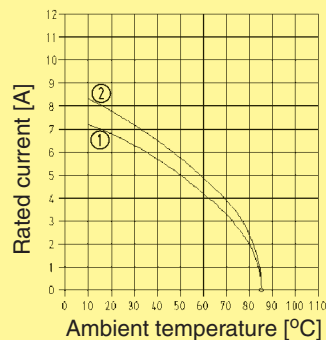
M8-S, 4 poles 1 = wire gauge 0.25 mm²
M12-S, 4 poles 2 = wire gauge 0.34 mm²



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

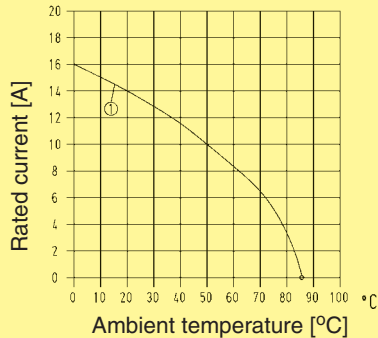
Approval



Construction type	HARAX® M12-L screened version Ethernet	PROFIBUS	Han® 7/8"	HARAX® M12-L 5 poles	Han® M12 Crimp
Rated voltage	50 V	32 V	230 V / 400 V	50 V	50 V
Rated current (see current carrying capacity)	4 A	4 A	10 A	4 A	4 A
Conductor cross section	① 0.14 - 0.34 mm ² AWG 26 - 22 ② 0.34 - 0.5 mm ² AWG 22-20	0.25 - 0.34 mm ² AWG 24- 22	0.75 - 1.5 mm ² AWG 18 - 16	0.25 - 0.34 mm ² AWG 24 - 22 0.34 - 0.5 mm ² AWG 22 - 20	0.34 - 0.5 mm ² AWG 22 - 20
Diameter of individual strands	≥ 0.1 mm	≥ 0.1 mm	≥ 0.15 mm	≥ 0.1 mm	
Conductor insulation material	PVC / PE	PVC, Zell-PE	PVC, PP, TPE	PVC	
Conductor diameter	1.2 - 2.0 mm	2 - 2.6 mm	≤ 2.8 mm	1.2 - 2.0 mm	2.0 - 2.3 mm
Cable diameter	① 5.5 - 7.2 mm (black) ② 7 - 8.8 mm (light grey)	7 - 8.8 mm	6.8 - 9.5 mm (black) 9 - 12.5 mm (grey)	6 - 8 mm	4.5 - 5.4 mm (transparent) 7 - 8.8 mm (light grey)
Limiting temperatures	- 25 °C / + 85 °C	- 25 °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 65 / IP 67	IP 65 / IP 67	IP 67
Termination cycles with the same cross section	10	10	10	10	
Recommended tightening torque / Hexagonal wrench	0.6 Nm / SW 17	0.6 Nm / SW 17	1.5 Nm / SW 22	0.6 Nm / SW 17	0.6 Nm / SW 17

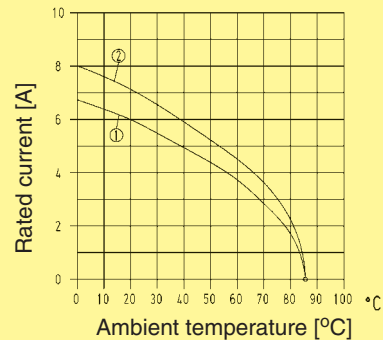
7/8"

1 = wire gauge 0.75 mm² / 1.5 mm²



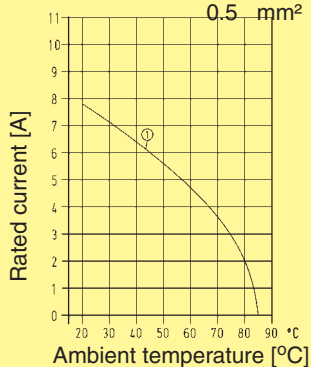
M12L, 5 poles

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



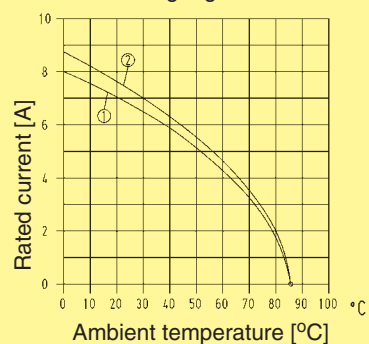
M12, Crimp

1 = wire gauge 0.34 mm² / 0.5 mm²

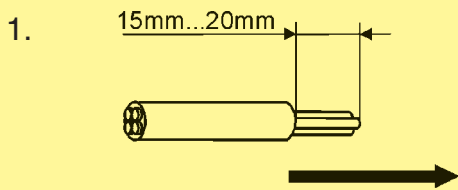


M12L, 5 poles

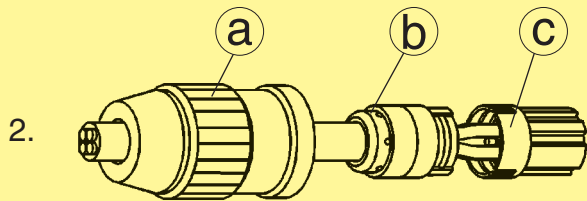
1 = wire gauge 0.34 mm²
2 = wire gauge 0.5 mm²



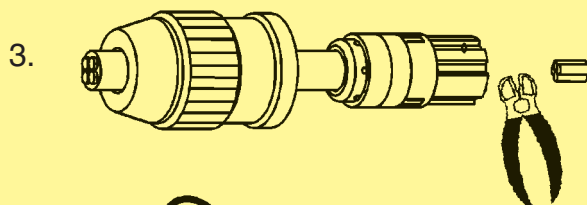
Assembly manual HARAX®



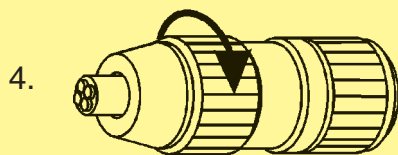
1. strip cable
2. assemble HARAX® elements
3. cut off cable ends
4. screw the connector



- (a) Nut
- (b) Strain relief
- (c) Insert

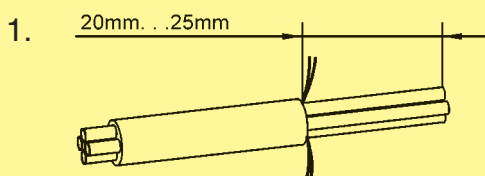


Screw the nut onto the insert until a stop is noticeable.

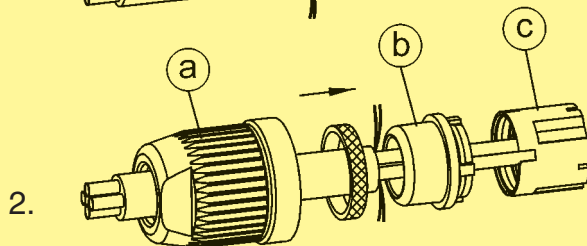


Note!
For reconnection cut off the used cable ends and repeat steps 1 to 4.

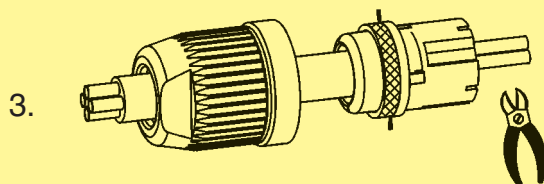
Assembly manual HARAX® shielded



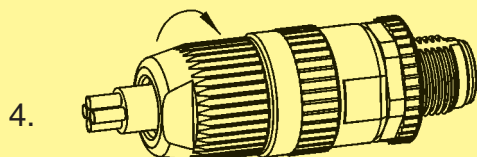
1. strip cable



2. assemble HARAX® elements
twist screening braid and push it into the sealing slot



3. Slide ring over the sealing cut off cable ends and the screening braid



4. screw the connector

- (a) Nut
- (b) Strain relief
- (c) Insert

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

HARAX® Circular connector



Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
HARAX® M8-S straight version, 3 poles straight version, 4 poles straight version, 3 poles for 0.08 - 0.14 mm ²	21 02 151 1305			
	21 02 151 1405			
straight version, 3 poles straight version, 4 poles		21 02 151 2305 21 02 151 2405		View mating side: 3 poles, male version
HARAX® M12-S straight version, 4 poles	21 03 111 1405			
		21 03 111 2405		
HARAX® M12 angled version, 4 poles	21 01 140 5081			View mating side:
	angled version, 4 poles			

HARAX® Circular connector



Circular Connectors

Identification Part No. Male Female Drawing Dimensions in mm

HARAX® M12-L

3 poles, A-coded, with pre-leading contact
3 poles, A-coded
4 poles, A-coded



3 poles, A-coded, with pre-leading contact
3 poles, A-coded
4 poles, A-coded



5 poles, A-coded, 0.25 - 0.34 mm², AWG 24 - 22

21 03 212 1400
21 03 212 1306
21 03 212 1305

21 03 212 2400
21 03 212 2306
21 03 212 2305

5 poles, A-coded, 0.34 - 0.5 mm², AWG 22 - 20



21 03 271 1505

21 03 271 2505

21 03 272 1505

21 03 272 2505

Han® M12 panel feed-through

Male, A-coded, 50 cm conductors, 0.5 mm², 5 poles

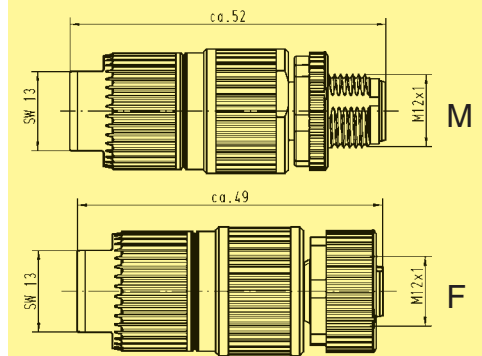


Female, A-coded, 50 cm conductors, 0.5 mm², 5 poles

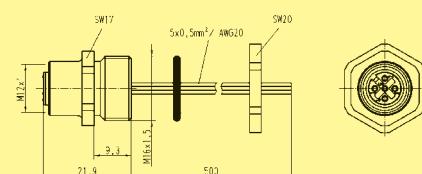
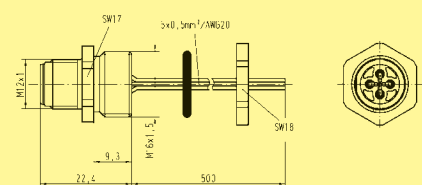
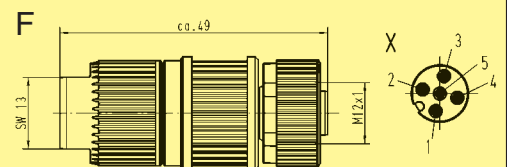
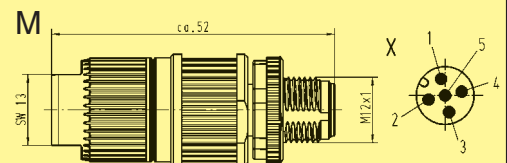
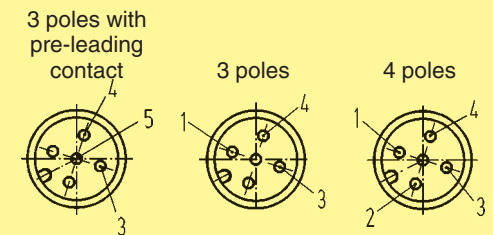


21 03 311 1501

21 03 311 2501







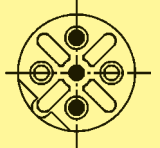
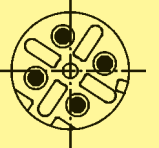
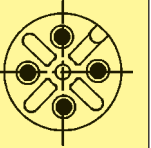
View mating side, male version: HARAX® M12-L




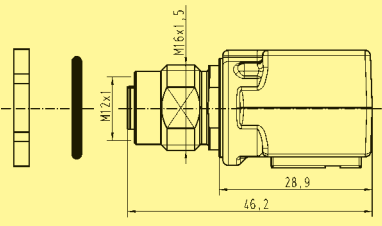
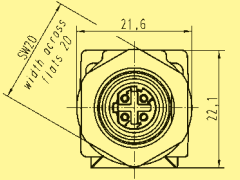

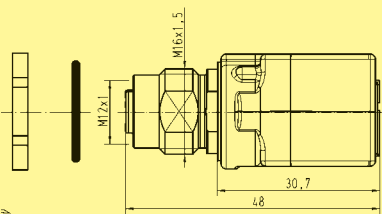
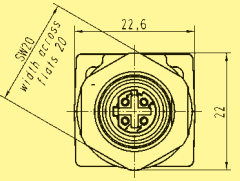

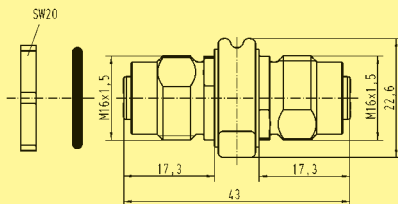
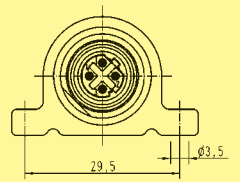
Stock items in bold type

HARAX® Circular connector



Identification	Part No.		Drawing	Dimensions in mm
	Male	Female		
HARAX® M12-L, screened version 2 poles, B-coded 2 poles + shielding, B-coded 4 poles, D-coded, 0.14 - 0.34 mm ² , AWG 26-22 0.34 - 0.5 mm ² , AWG 22-20 4 poles, A-coded  2-poles, B-coded 2 poles + shielding, B-coded 4 poles, D-coded, 0.14 - 0.34 mm ² , AWG 26-22 0.34 - 0.5 mm ² , AWG 22-20 4 poles, A-coded 	21 03 241 1301 21 03 241 1300 21 03 281 1405 21 03 282 1405 21 03 221 1405	21 03 241 2301 21 03 241 2300 21 03 281 2405 21 03 282 2405 21 03 221 2405	View mating side, male version: HARAX® M12-L, screened version 2 poles 21 03 241 1301 B-coded  2 poles 21 03 241 2301 B-coded  3 poles PROFIBUS B-coded  4 poles Ethernet D-coded  4 poles A-coded 	

Circular Connectors

Identification	Part No.	Drawing	Dimensions in mm
Han® M12-RJ45 panel feed-through 4 poles, D-coded, angled 	21 03 381 4400		
Han® M12-RJ45 panel feed-through 4 poles, D-coded, straight 	21 03 381 2400		
Han® M12 Gender Changer 4 poles, D-coded 	21 03 381 6405		

Stock items in bold type

Han® M12 panel feed-through



Identification

Part No.

Drawing

Dimensions in mm

Han® M12 panel feed-through

Female, D-coded,
50 cm conductors, AWG 22,
4 poles

21 03 371 2403



Male, D-coded,
50 cm conductors, AWG 22,
4 poles

21 03 371 1403



Han® M12 panel feed-through

Female, A-coded,
50 cm conductors, 0.5 mm²

21 03 311 2400



Male, A-coded,
50 cm conductors, 0.5 mm²

21 03 311 1402



Identification

Part No.

Drawing

Dimensions in mm

HARAX® panel feed-through

Female, A-coded
0.14 - 0.34 mm², AWG 26 - 22
5.5 - 7.2 mm

21 03 321 2425



Male, A-coded
0.14 - 0.34 mm², AWG 26 - 22
5.5 - 7.2 mm

21 03 321 1425



Han® M12 panel feed-through Crimp

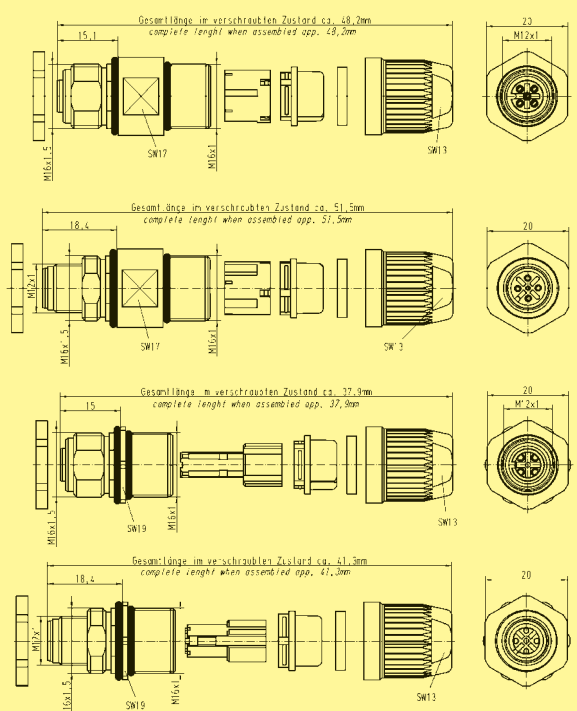
Female, A-coded
4.5 - 5.4 / 7 - 8.8 mm

21 03 822 2425


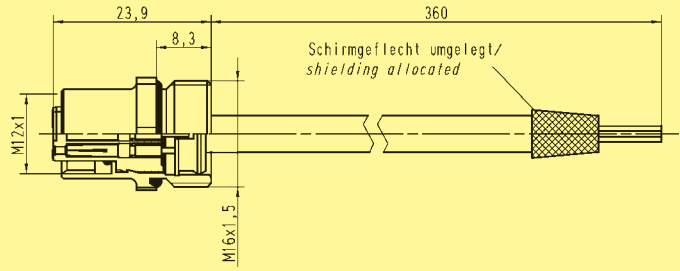

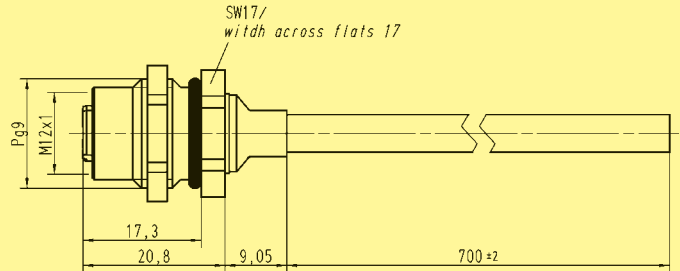
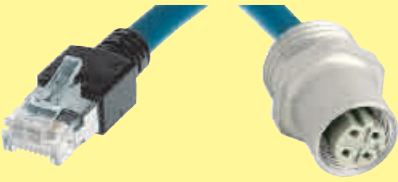
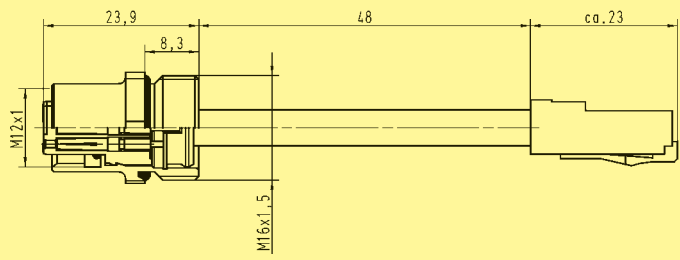

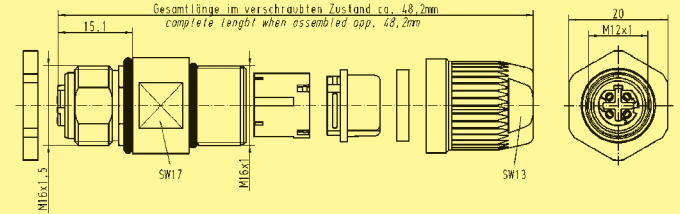

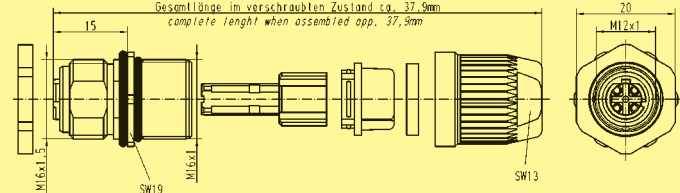


Male, A-coded
4.5 - 5.4 / 7 - 8.8 mm

21 03 822 1425



Stock items in bold type

Identification	Part No.	Drawing	Dimensions in mm
<p>Han® M12 panel feed-through for outer termination</p> <p>Female, D-coded, screened version, 360 mm cable¹⁾, AWG 26, 4 poles</p> 	<p>21 03 383 6407</p>	 <p>Schirmgeflecht umgelegt/ shielding allocated</p>	
<p>Han® M12 panel feed-through for inner termination</p> <p>Female, D-coded, screened version, 700 mm cable¹⁾, AWG 26, 4 poles</p> 	<p>21 03 383 6405</p>	 <p>SW17/ width across flats 17</p>	
<p>Han® M12 panel feed-through with RJ45</p> <p>Female, D-coded, screened version, 48 mm cable¹⁾, AWG 26, 4 poles</p> 	<p>21 03 683 6401</p>		
<p>HARAX® panel feed-through</p> <p>Female, D-coded</p> <p>0.14 - 0.34 mm², AWG 26 - 22 5.5 - 7.2 mm</p> 	<p>21 03 381 2425</p>	 <p>Gesamtlänge im verschraubten Zustand ca. 48,2mm complete length when assembled app. 48,2mm</p>	
<p>Han® M12 panel feed-through Crimp</p> <p>Female, D-coded</p> <p>4.5 - 5.4 / 7 - 8.8 mm</p> 	<p>21 03 882 2425</p>	 <p>Gesamtlänge im verschraubten Zustand ca. 37,9mm complete length when assembled app. 37,9mm</p>	

¹⁾ Other length on request

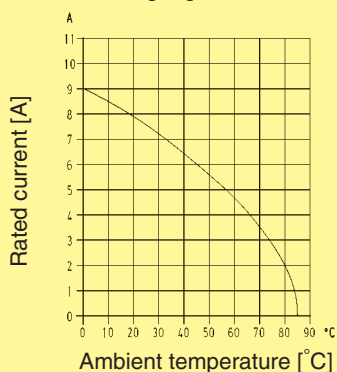
Technical characteristics: Han® M12 pcb

Degree of protection	IP 20
Rated current	max. 4 A (dependent on pcb layout)
Rated voltage	50 V
mating cycles	max. 100
Limiting temperatures	- 25 °C / + 85 °C
Temperature during connection	- 5 °C / + 50 °C

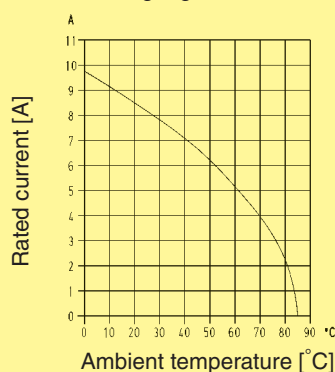
Current carrying capacity The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given,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

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

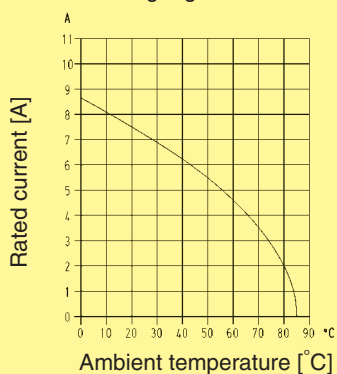
M12, A-Kodierung, straight, male, 4 poles
wire gauge 0.5 mm²



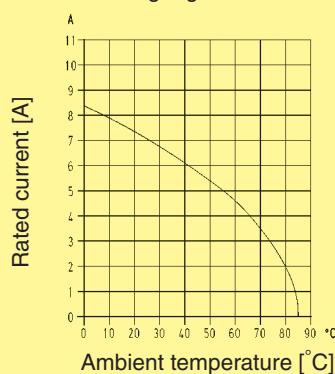
M12, A-Kodierung, straight, female, 4 poles
wire gauge 0.75 mm²



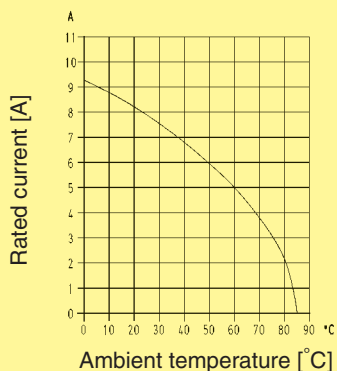
M12, A-Kodierung, straight, female, 5 poles
wire gauge 0.5 mm²



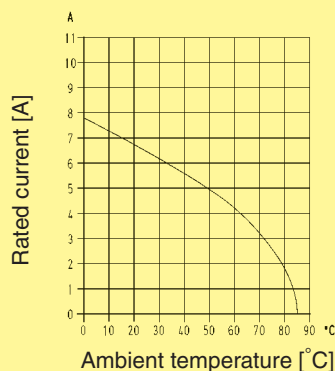
M12, A-Kodierung, straight, male, 5 poles
wire gauge 0.5 mm²



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



M12, D-Kodierung, gewinkelt, female, 4 poles
wire gauge AWG 22



Han® M12 pcb adapter



Identification

Part No.

Drawing

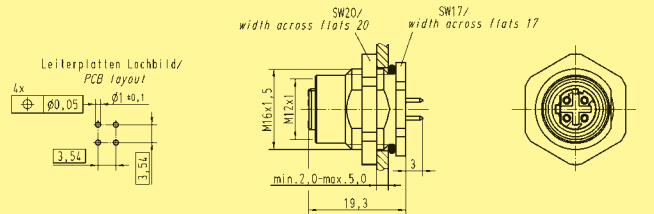
Dimensions in mm

Han® M12

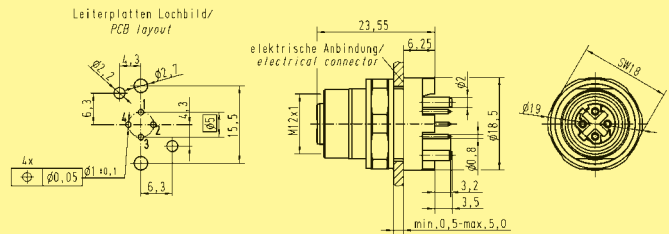
Female, D-coded, straight, 4 poles



21 03 371 2415



21 03 381 6410

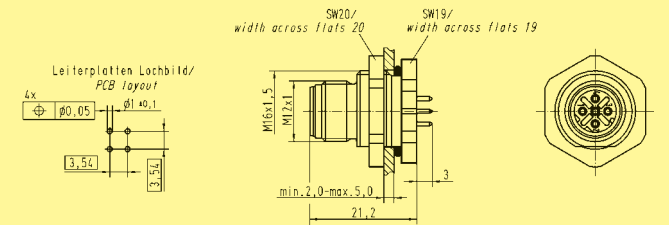


Han® M12

Male, D-coded, straight, 4 poles



21 03 371 1400



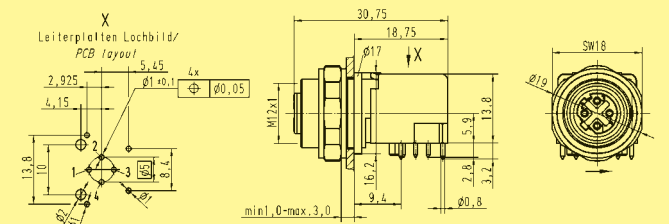
Han® M12

Female, D-coded, angled, 4 poles

without fixing hole

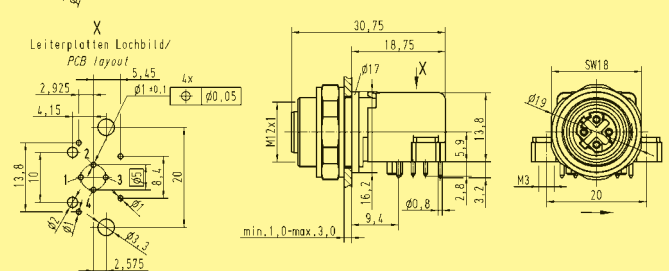


21 03 381 4410



with fixing hole

21 03 381 4412





Identification

Part No.

Drawing

Dimensions in mm

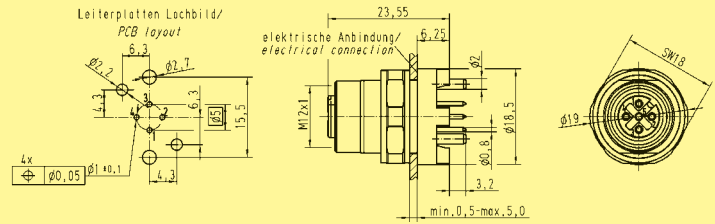
Han® M12

Female, A-coded, straight



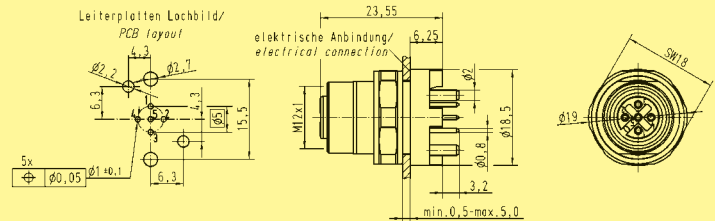
4 poles

21 03 321 6410



5 poles

21 03 321 6510



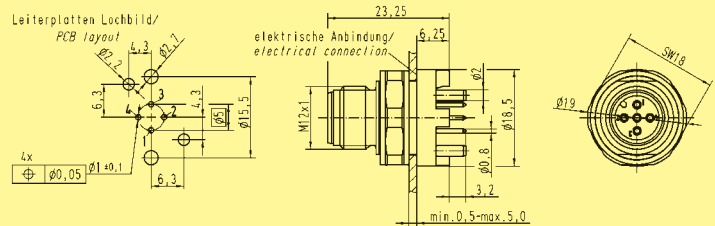
Han® M12

Male, A-coded, straight



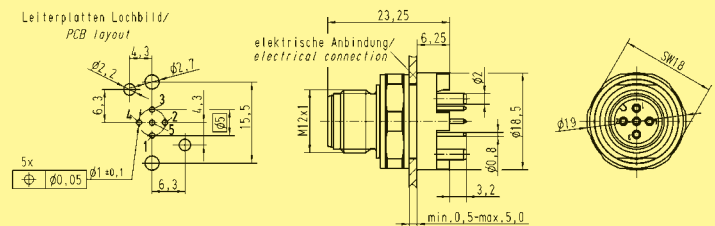
4 poles

21 03 321 1410



5 poles

21 03 321 1510





General Description

- Fibre optic data transmission system for industrial applications
- Optical transceiver for 1300 nm
- Passive interface as coupling unit and panel feed-through
- Based on M12 hoods and housings in accordance with IEC 61 076-2-101
- Suitable for multimode glass fibre
- 2 supplementary electrical contacts
- Degree of protection: IP 65 / IP 67
- Wide temperature range of -40 °C up to +85 °C
- Minimum insertion loss: < 0.3 dB

Technical characteristics

Mechanical Features

Storage temperature	-40 °C / +85 °C
Working temperature	-25 °C / +85 °C
Degree of protection	IP 65/67
Tightening torque	50 - 60 Ncm

Electrical Data

Rated voltage of electrical contacts	60 V DC
Rated current	4 A max.

Optical Data Transceiver for Multimode

Center wave length (λ_C)	1270 nm up to 1380 nm
Output optical power max. (P_0)	-14 dBm
Input optical power min. (P_{SAT})	-31 dBm
Data transmission rate	125 Mbit/s in accordance with Fast Ethernet 100Base-FX; IEE 802.3u

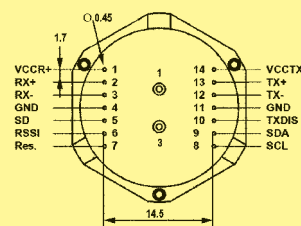
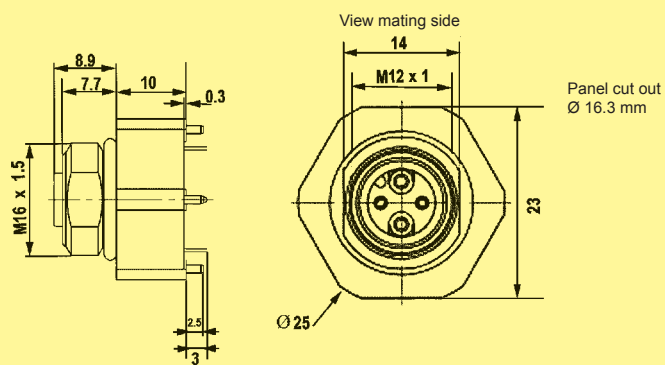
Identification	Part No.	Drawing	Dimensions in mm
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Transceiver


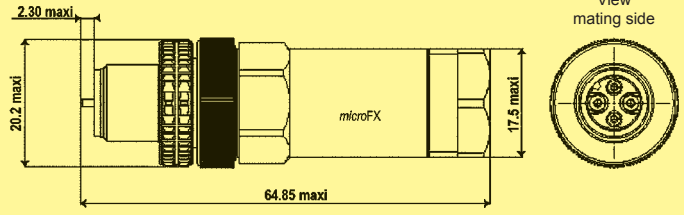
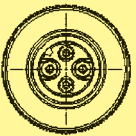
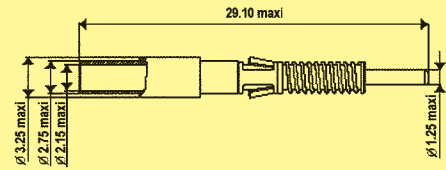
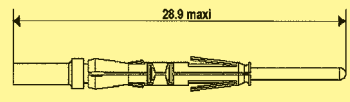
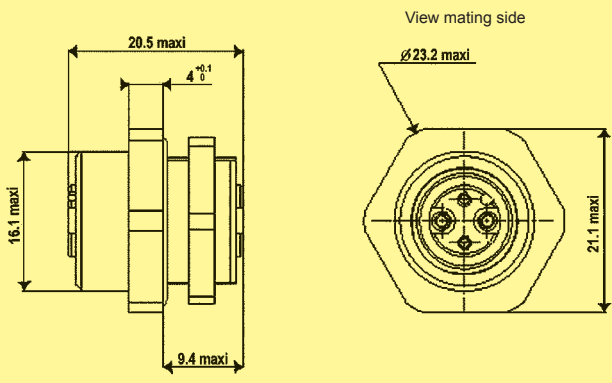
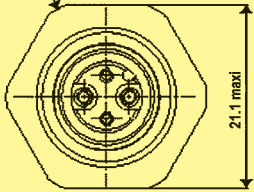
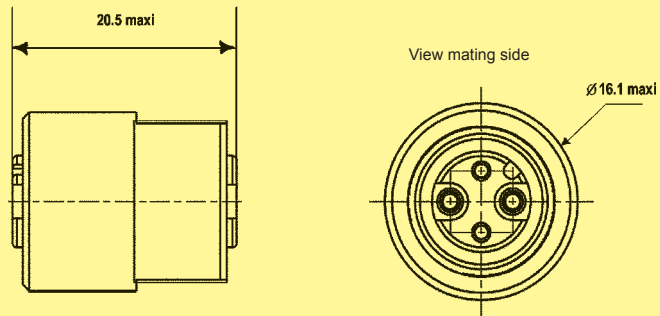
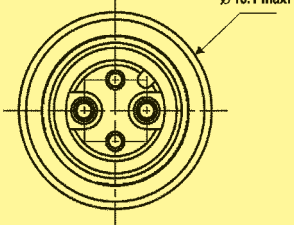
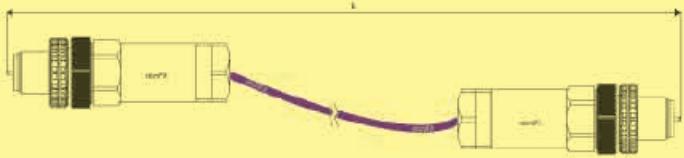
for multimode with glass fibres, 1300 nm



20 50 004 3411



Contact	Function	Description
1	VCCR _X	Receiver supply voltage 3.3 V
2	RX+	Receiver data output, noninverted, PECL
3	RX-	Receiver data output, inverted, PECL
4	GND	Ground (Receiver)
5	SD	Signal Defect, PECL
6	RSSI	Receiver signal strength indicator output, analog voltage
7	Res.	Reserved for future use
8	SCL	
9	SDA	
10	TXDIS	
11	GND	Ground (Transmitter)
12	TX-	Transmitter data input, inverted, PECL
13	TX+	Transmitter data input, noninverted, PECL
14	VCCTX	Transmitter supply voltage 3.3 V

Identification	Part No.	Drawing	Dimensions in mm
<p>Connector order contacts separately</p> 	<p>20 10 004 3411</p>		<p>View mating side</p> 
<p>Optical Contacts for GI-fibres 50 - 60 / 125 µm</p>	<p>20 10 125 3411</p>		
<p>Electrical Contacts 1 mm² wire gauge</p>	<p>20 10 000 3411</p>		
<p>Panel feed-through</p>	<p>20 80 004 3411</p>		<p>View mating side</p> 
<p>Coupling unit</p>	<p>20 80 004 3412</p>		<p>View mating side</p> 
<p>Cordset</p> <p>Length: 1 m 2 m 5 m 10 m</p>	<p>20 25 050 0010 20 25 050 0020 20 25 050 0050 20 25 050 0100</p>		

Han® 7/8" Circular connector



Identification

Part No.

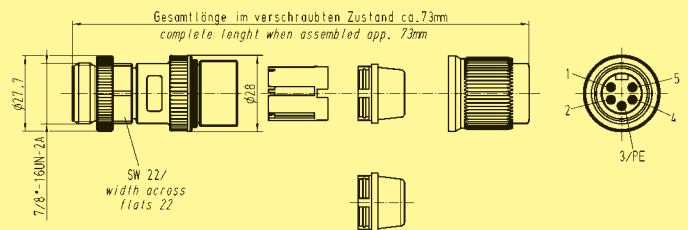
Drawing

Dimensions in mm

HARAX® 7/8" Male



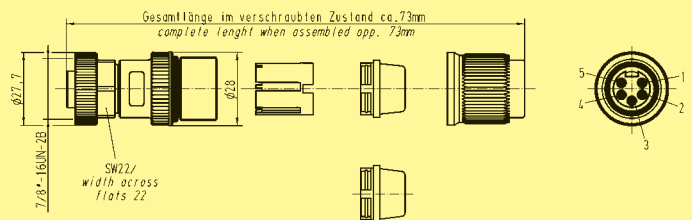
21 04 116 1505



HARAX® 7/8" Female



21 04 116 2505

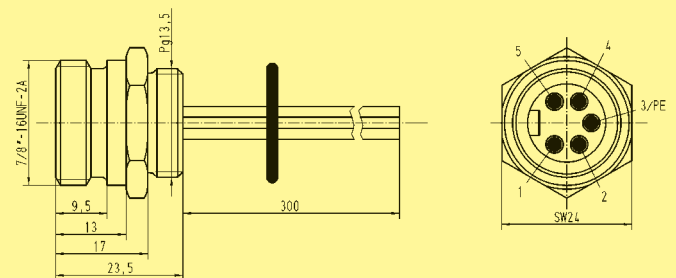


Han® 7/8" panel feed-through
30 cm conductors, 0.75 mm²



Male

21 04 316 1505

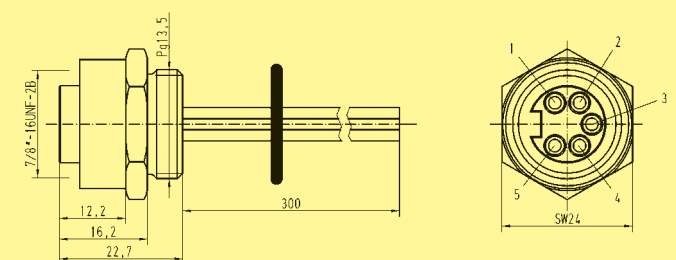


30 cm conductors, 0.75 mm²



Female

21 04 316 2505



Stock items in bold type

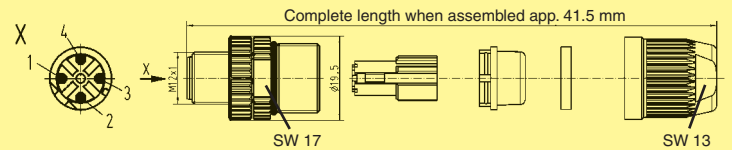


Identification Part No. Drawing Dimensions in mm

Han® M12 Crimp

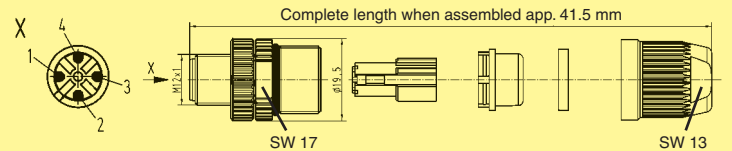
Male, D-coded
4.5 - 5.4 mm / 7 - 8.8 mm

21 03 882 1405



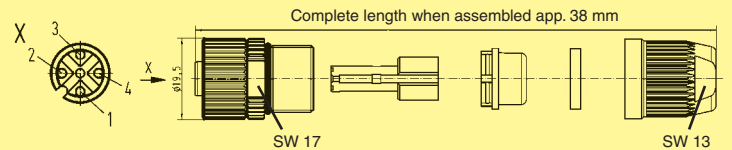
Male, A-coded
4.5 - 5.4 mm / 7 - 8.8 mm

21 03 812 1405



Female, A-coded
4.5 - 5.4 mm / 7 - 8.8 mm

21 03 812 2405



Order crimp contacts separately

Crimping tool

09 99 000 0501



Locator

61 03 600 0023



Single contacts

turned male contacts*
AWG 22-20 / 0.33-0.52
AWG 26-22 / 0.13-0.33

61 03 000 0073

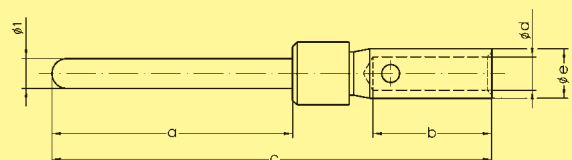
61 03 000 0094



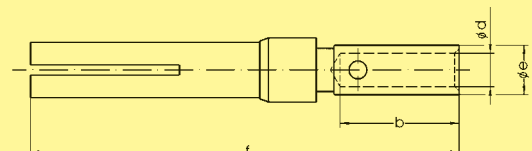
turned female contacts*
AWG 22-20 / 0.33-0.52
AWG 26-22 / 0.13-0.33

61 03 000 0074

61 03 000 0096



	a	b	c	d	e	f
AWG 22-20	8.10	4.0	14.8	1.12	1.66	14.4
AWG 26-22	8.10	4.0	14.8	0.90	1.66	14.4



* Performance level 1 as per CECC 75301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60512

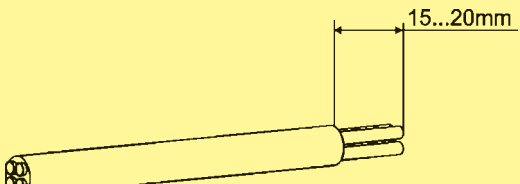
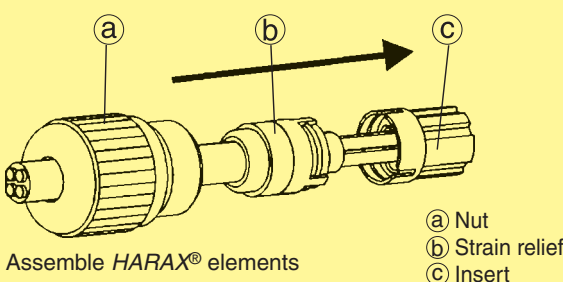
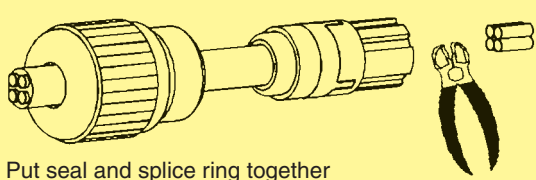
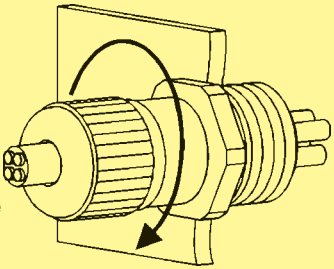
Features

- ❑ The faston blade was chosen acc. to DIN 46 330 - A 2.8
- ❑ Each type is delivered with a termination element consisting of a nut, a seal and a splice ring
- ❑ Splice ring with Pg 9
- ❑ For assembly in openings without threads a Pg 9 locknut is available
- ❑ Diameter of the mounting cutout: $d = 15.5 \text{ mm}$

Technical characteristics

Rated voltage	32 V
Rated current (see current carrying capacity)	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

Assembly manual

1. 
Strip cable jacket
2. 
Assemble HARAX® elements
a) Nut
b) Strain relief
c) Insert
3. 
Put seal and splice ring together
Cut off cable ends
4. 
Twist the nut onto the insert until a stop is noticeable

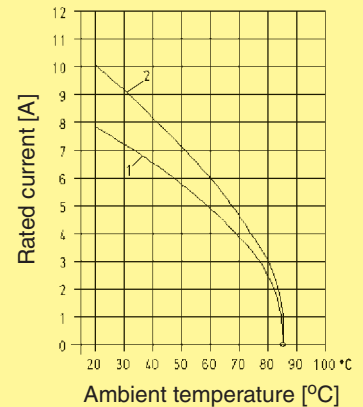
Current carrying capacity

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.

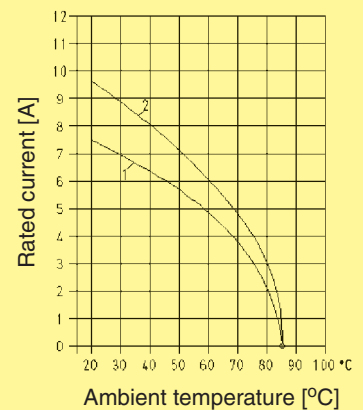
Pg 9, 3 contacts

- 1 = wire gauge
3 x 0.25 mm²
- 2 = wire gauge
3 x 0.5 mm²



Pg 9, 4 contacts

- 1 = wire gauge
4 x 0.25 mm²
- 2 = wire gauge
4 x 0.5 mm²



HARAX® Pg 9 panel feed-through



Identification

Part No.

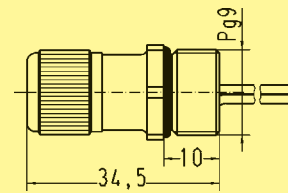
Drawing

Dimensions in mm

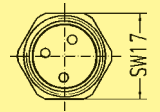
HARAX® Pg 9 panel feed-through
3 contacts, with pre-assembled
0.5 m / 0.5 mm² pigtail cable



21 01 130 4241



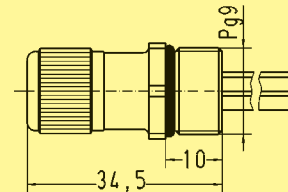
View:
Termination side



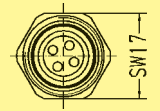
HARAX® Pg 9 panel feed-through
4 contacts, with pre-assembled
0.5 m / 0.5 mm² pigtail cable



21 01 140 4341



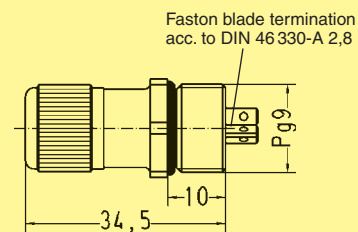
View:
Termination side



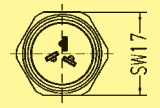
HARAX® Pg 9 panel feed-through
3 contacts
with faston blades



21 01 130 4011

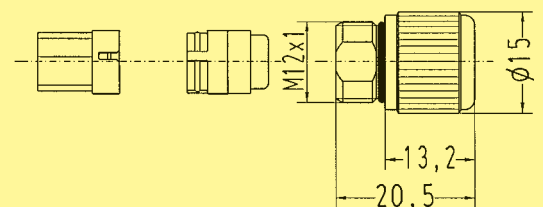


View:
Termination side



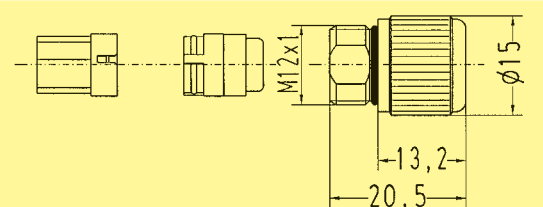
Termination element M12 HARAX® 3 contacts
Screw cap, splice ring, seal

21 01 010 0001



Termination element M12 HARAX® 4 contacts
Screw cap, splice ring, seal

21 01 010 0006



Stock items in bold type

Technical characteristics

Specifications	IEC 60352-4 DIN 61984	
Approval	VDE	
Construction type	Pg 13,5 3 poles	Pg 13,5 / M20 4 poles
Rated voltage	250 V 4 kV 3 with faston terminals with insulation cap 600 V	230/400 V 4 kV 3
acc. to UL/CSA	600 V	
Rated 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

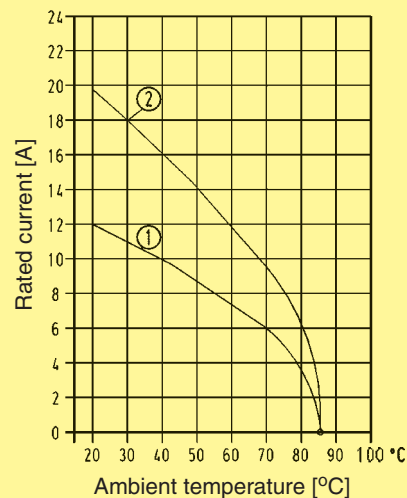
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the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

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

Pg 13,5 3 contacts

1 = wire gauge
0.75 mm²

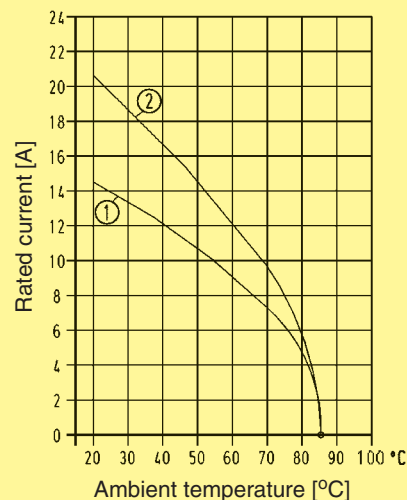
2 = wire gauge
1.5 mm²



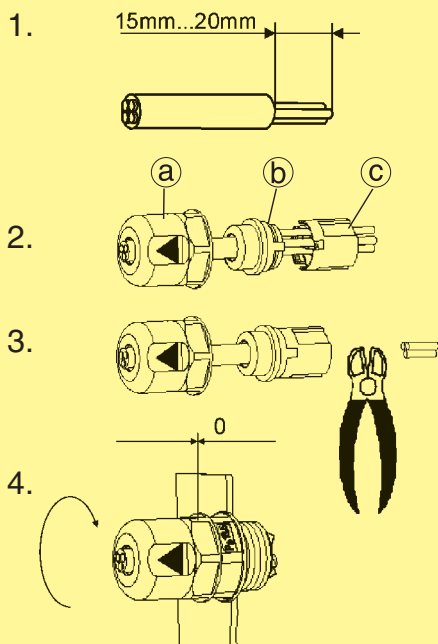
Pg 13,5 / M20 4 contacts

1 = wire gauge
0.75 mm²

2 = wire gauge
1.5 mm²



Assembly manual



Connection and disconnection of the cable must only be performed by suitably qualified persons when supply is isolated.

- (a) Nut
- (b) Strain relief
- (c) Insert

HARAX® Pg 13.5 – 3 contacts – is supplied with either faston blades or solder terminals.

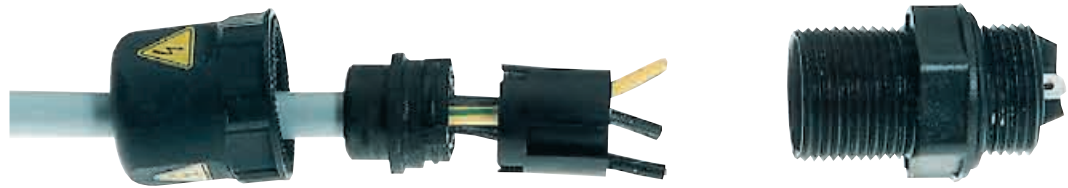
HARAX® Pg 13.5 / M20 – 4 contacts – is supplied only with solder termination.

The nut must be tightened completely down so that the notches engage on the contact carrier.

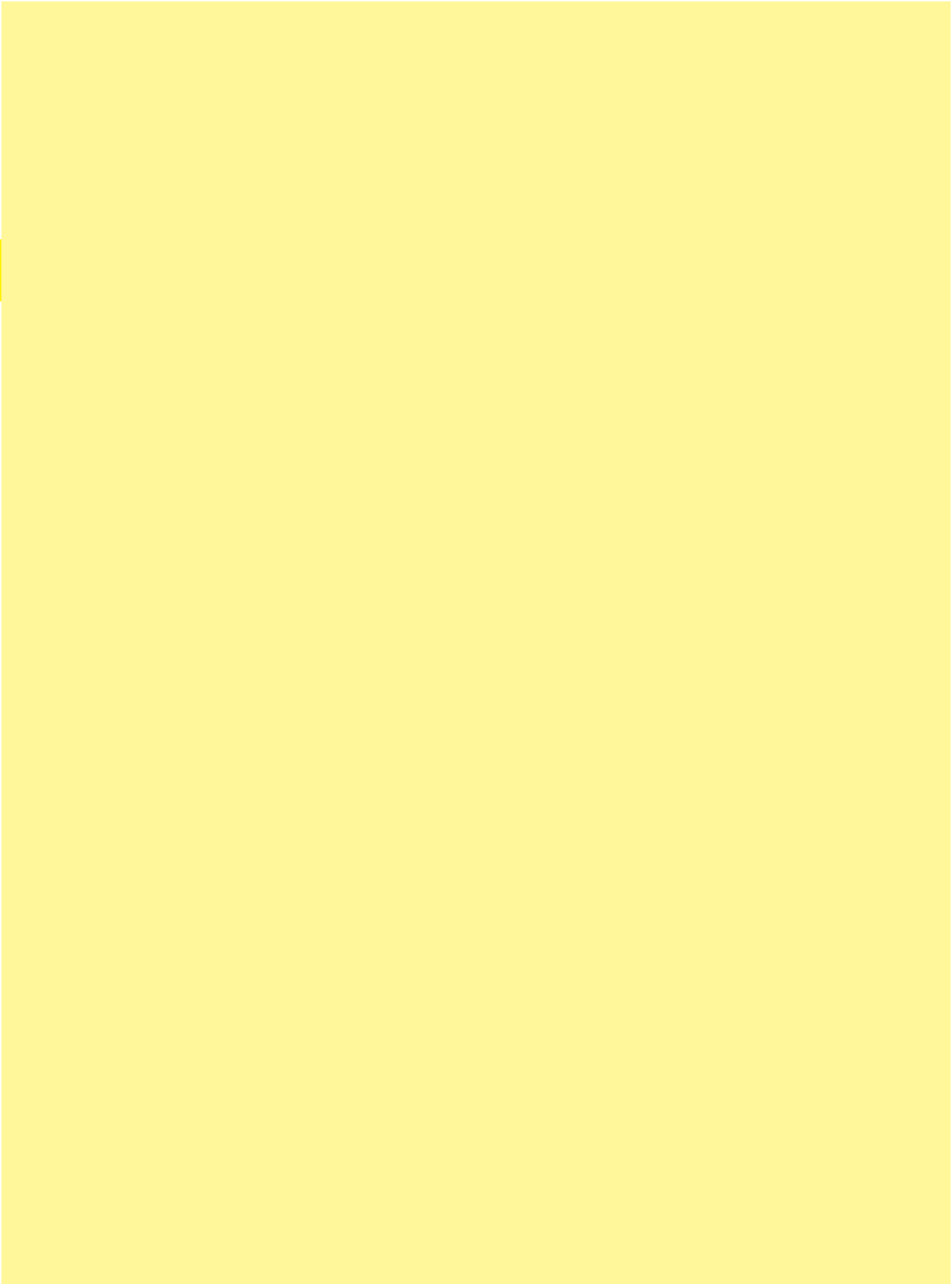
The opening of the gland always requires a wrench.

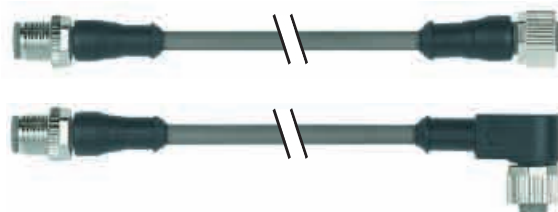
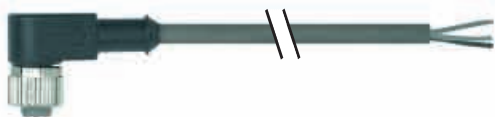
Note: For reconnection cut off the used cable ends and repeat steps 1 to 4.

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		View: Mating side SW24
HARAX® Pg 13.5 / 3 contacts with solder termination	21 01 130 1023		View: Mating side SW24
HARAX® Pg 13.5 / 3 contacts with pre-assembled pigtail cable. l = 500 mm, 1.5 mm ²	21 01 130 1223		View: Mating side SW24
HARAX® Pg 13.5 / 2 + PE with faston blades	21 01 130 3013		View: Mating side SW24
HARAX® Pg 13.5 / 2 + PE with solder termination	21 01 130 3023		View: Mating side SW24
HARAX® Pg 13.5 / 2 + PE with pre-assembled pigtail cable, l = 500 mm, 1.5 mm ²	21 01 130 3233		View: Mating side SW24
HARAX® Pg 13.5 / 4 contacts with solder termination	21 01 140 1023		View: Mating side SW24
HARAX® Pg 13.5 / 3 + PE with solder termination	21 01 140 3023		View: Mating side SW24
HARAX® Pg 13.5 / 4 contacts with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 140 1323		View: Mating side SW24
HARAX® Pg 13.5 / 3 + PE with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 140 3333		View: Mating side SW24
HARAX® M20 / 4 contacts with solder termination	21 01 141 1023		View: Mating side SW24
HARAX® M20 / 3 + PE with solder termination	21 01 141 3023		View: Mating side SW24
HARAX® M20 / 4 contacts with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 141 1323		View: Mating side SW24
HARAX® M20 / 3 + PE with pre-assembled strand, l = 500 mm, 1.5 mm ²	21 01 141 3333		View: Mating side SW24





System cables with
Han® M12 Circular connector, A-coded
Han® M8 Circular connector

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 (dependent 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

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 (dependent 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

Han® M12 Circular connector



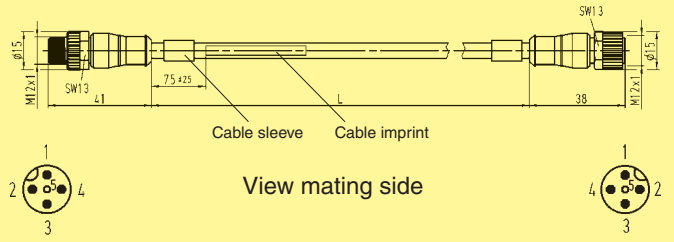
System cables with
Han® M12 Circular connector, A-coded

Identification Part No. Drawing Dimensions in mm

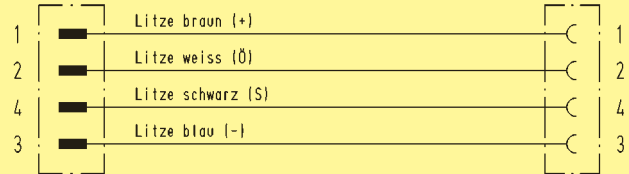
Han® M12 Circular connector
Female straight, Male straight

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

21 03 415 2401
21 03 415 2402
21 03 415 2403
21 03 415 2404
21 03 415 2405



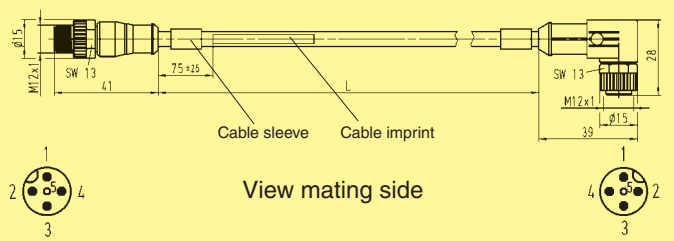
Schematic diagram



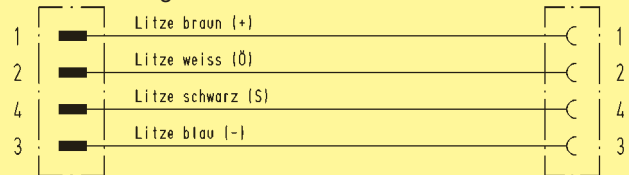
Han® M12 Circular connector
Female angled, Male straight

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

21 03 415 5401
21 03 415 5402
21 03 415 5403
21 03 415 5404
21 03 415 5405



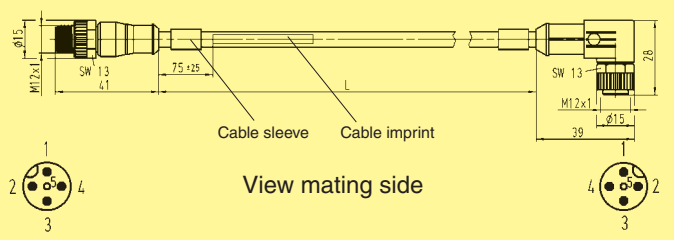
Schematic diagram



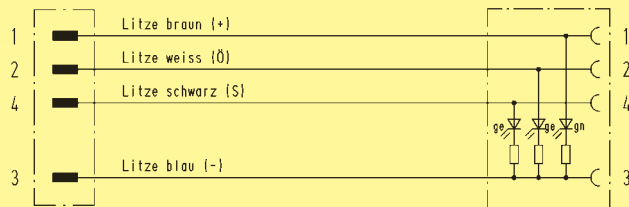
Han® M12 Circular connector
Female angled, with LED,
Male straight

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

21 03 415 7401
21 03 415 7402
21 03 415 7403
21 03 415 7404
21 03 415 7405



Schematic diagram



Stock items in bold type

Han® M12 Circular connector



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

Identification	Part No.	Drawing	Dimensions in mm
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	 Schematic diagram 1 Litze braun (+) 2 Litze weiss (0) 4 Litze schwarz (S) 3 Litze blau (-) View mating side 	
HARAX® M12 cable-Set 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-S (21 03 111 1405) ca. 43,5 View mating side	
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	 Schematic diagram 1 Litze braun (+) 2 Litze weiss (0) 4 Litze schwarz (S) 3 Litze blau (-) View mating side 	
HARAX® M12 cable-Set 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	 HARAX® M12-S (21 03 111 1405) ca. 43,5 View mating side	



System cables with Han® M8 Circular connector

Identification

Part No.

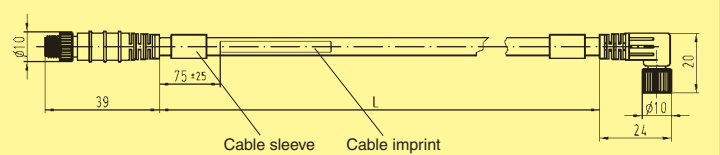
Drawing

Dimensions in mm

Han® M8 Circular connector
Female angled, Male straight

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

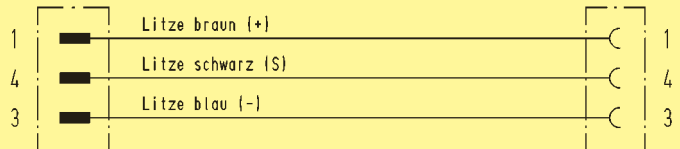
21 02 454 5301
21 02 454 5302
21 02 454 5303
21 02 454 5304
21 02 454 5305



View mating side



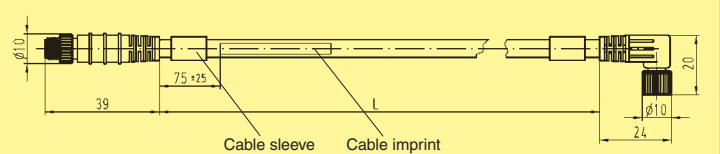
Schematic diagram



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

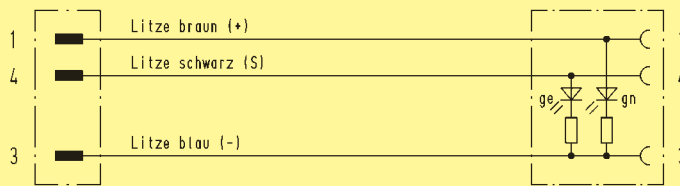
21 02 454 7301
21 02 454 7302
21 02 454 7303
21 02 454 7304
21 02 454 7305



View mating side



Schematic diagram



Han® M8 Circular connector



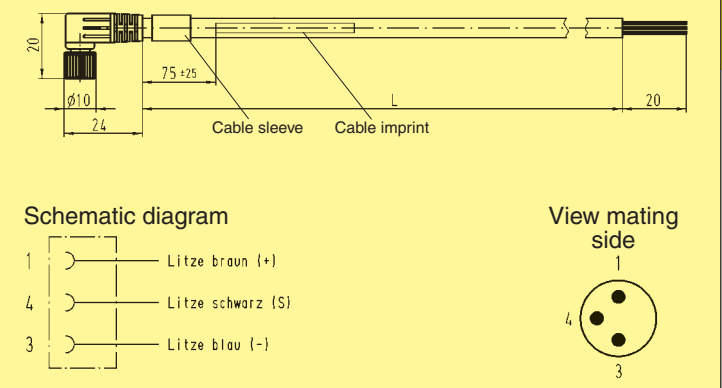
System cables with Han® M8 Circular connector

Identification Part No. Drawing Dimensions in mm

Han® M8 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 02 554 4301
21 02 554 4302
21 02 554 4303
21 02 554 4304
21 02 554 4305

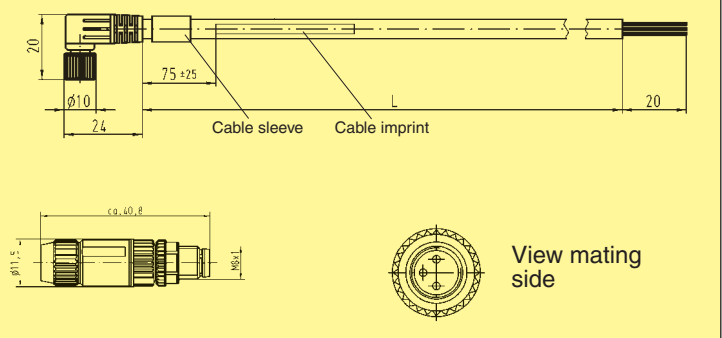


Circular Connectors

HARAX® M8 cable-Set
Delivery range: Han® M8 connector
with individually adaptable cable and
HARAX® M8-S

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

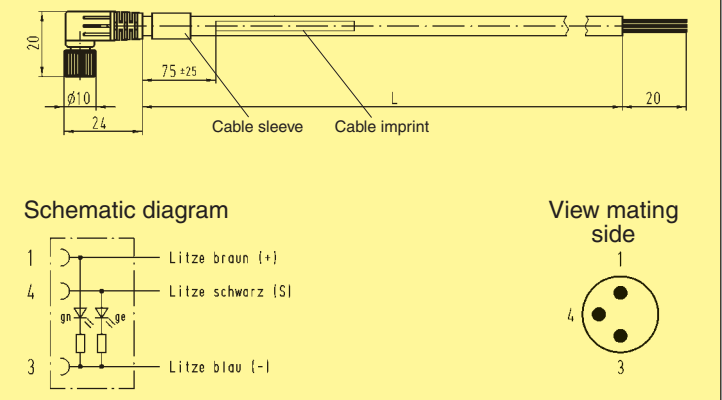
21 82 554 4301
21 82 554 4302
21 82 554 4303
21 82 554 4304
21 82 554 4305



Han® M8 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

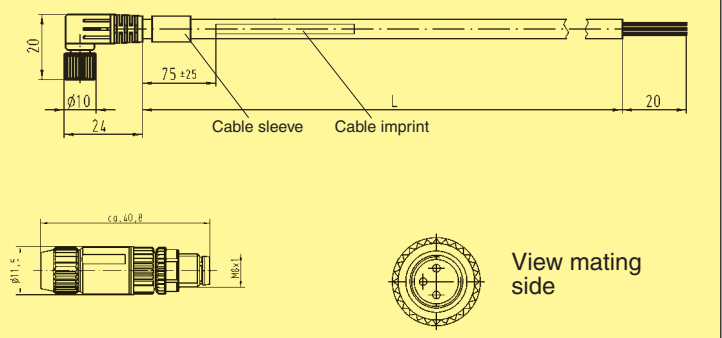
21 02 554 7301
21 02 554 7302
21 02 554 7303
21 02 554 7304
21 02 554 7305



HARAX® M8 cable-Set
Delivery range: Han® M8 connector
with individually adaptable cable and
HARAX® M8-S

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

21 82 554 7301
21 82 554 7302
21 82 554 7303
21 82 554 7304
21 82 554 7305



Stock items in bold type



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

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 (dependent on connected conductor)
Degree of protection	IP 67
Number of wires / wire gauge	4 x 0.64 mm ²
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	65 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 21 03 549 1301 3.0 m 21 03 549 1302 5.0 m 21 03 549 1303 7.5 m 21 03 549 1304 10.0 m 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 21 03 549 3301 3.0 m 21 03 549 3302 5.0 m 21 03 549 3303 7.5 m 21 03 549 3304 10.0 m 21 03 549 3305</p>		<p>Schematic diagram</p>

Han® M12 Circular connector



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

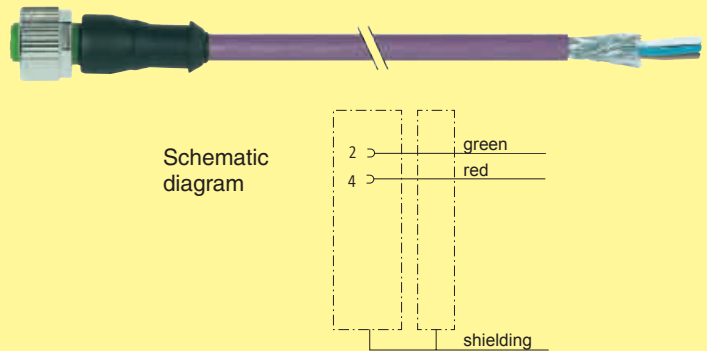
Identification Part No. Drawing

Han® M12 Circular connector, Female, straight

pre-assembled on one end, useable as trailing cable

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

21 03 549 2301
21 03 549 2302
21 03 549 2303
21 03 549 2304
21 03 549 2305

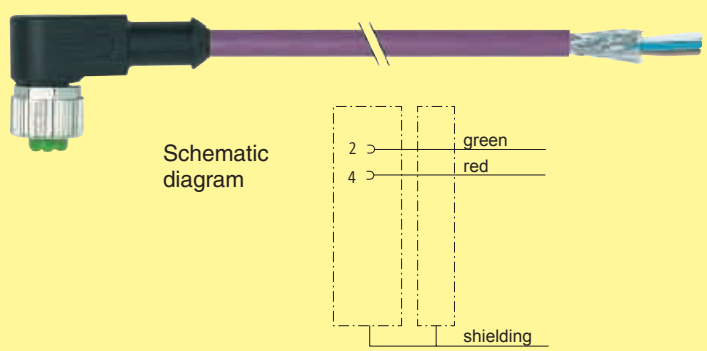


Han® M12 Circular connector, Female, angled

pre-assembled on one end, useable as trailing cable

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

21 03 549 4301
21 03 549 4302
21 03 549 4303
21 03 549 4304
21 03 549 4305

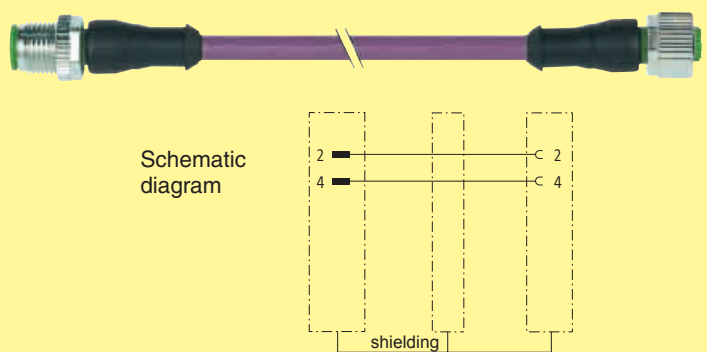


Han® M12 Circular connector, Male, straight Female, straight

pre-assembled on one end, useable as trailing cable

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

21 03 449 4301
21 03 449 4302
21 03 449 4303
21 03 449 4304
21 03 449 4305

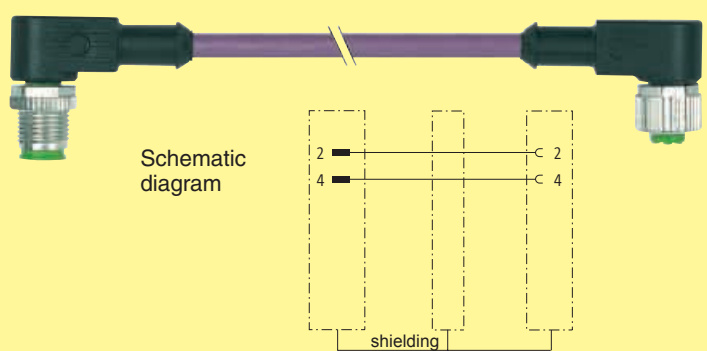








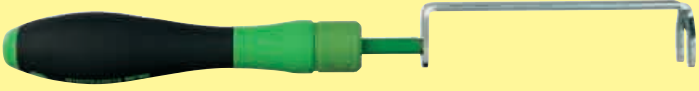
Han® M12 Circular connector, Male, angled Female, angled

pre-assembled on one end, useable as trailing cable

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

21 03 449 6301
21 03 449 6302
21 03 449 6303
21 03 449 6304
21 03 449 6305



Identification	Part No.	Technical characteristics
Han® M12-male moving load B-coded 	21 03 030 1300	
Han® M12-male/female panel feed-through B-coded 	21 03 330 1300	Rated voltage 24 V AC/DC Voltage/contact 4 A Thread M16 x 1.5 Degree of protection IP 67 in locked position (EN 60529) Temperature range -25 °C ... + 85 °C
Han® M12-panel feed-through Male, B-coded, 20 cm conductor 	21 03 339 1301	Rated voltage 250 V AC/DC Voltage/contact max. 4A Termination solder, with pigtails (TPE insulation) assembled Conductor cross section 0.25 mm ² Degree of protection IP 67 in locked position (EN 60529) Temperature range -25 °C ... + 85 °C
Han® M12-panel feed-through Female, B-coded, 20 cm conductor 	21 03 339 2301	Rated voltage 250 V AC/DC Voltage/contact max. 4A Termination solder, with pigtails (TPE insulation) assembled Conductor cross section 0.25 mm ² Degree of protection IP 67 in locked position (EN 60529) Temperature range -25 °C ... + 85 °C
PROFIBUS-cable 100 m raw, PUR cable, useable as trailing cable 	21 01 000 0021	
Han® M12 dynamometric screwdriver SW 9 	09 99 000 0380	
Han® M8 dynamometric screwdriver SW 13 SW 17 	09 99 000 0382 09 99 000 0384	



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

Technical characteristics

Han® M12 Circular connector – AWG 22/7

Rated voltage	max. 50 V AC/DC
Rated current/contact	max. 4 A
Locking	Screw locking M12x1, self securing
Recommended torque	0.6 Nm
Temperature range	- 20 °C ... +60 °C
Degree of protection	IP 67
Number of wires / wire gauge	2 x 2 x AWG 22/7
Conductor insulation	PE (yellow, orange, white, blue) acc. to PROFInet®
Arrangement of insulated strands	7 x 0.25 mm
Sheath	PUR (UL, CSA)
Outer diameter	appr. 6.5 mm
Bending radius	10 x outer diameter
Temperature range	-20 °C ... + 60 °C

Han® M12 Circular connector – AWG 26

Rated voltage	max. 50V AC/DC
Rated current/contact	max. 2 A
Locking	Screw locking M12x1, self securing
Recommended torque	0.6 Nm
Temperature range	- 5 °C ... +60 °C
Degree of protection	IP 67
Number of wires / wire gauge	2 x 2 x AWG 26
Conductor insulation	PE (white/orange, orange, white/green, green) acc. to EIA/ TIA 568B
Arrangement of insulated strands	7 x 0.16 mm
Sheath	PUR (UL, CSA)
Outer diameter	appr. 5.6 mm
Bending radius	10 x outer diameter
Temperature range	-5 °C ... + 60 °C



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

Identification	Part No.	Drawing	Dimensions in mm
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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®	Conductor colour EIA/TIA 568B	Contact assignment
TD+	Transmission Data+	Yellow	White/Orange	1
TD-	Transmission Data-	Orange	Orange	3
RD+	Receiver Data+	White	White/Green	2
RD-	Receiver Data-	Blue	Green	4

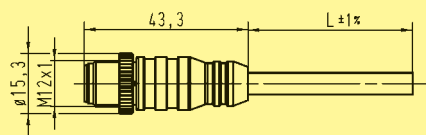
1 x Han® M12
Circular connector,
D-coded,
straight

Length: 1 m
3 m
5 m
10 m
25 m
40 m

21 03 583 1401
21 03 583 1403
21 03 583 1405
21 03 583 1410
21 03 583 1425
21 03 583 1440

other length on request

cable: AWG 26 / 0.14 mm²



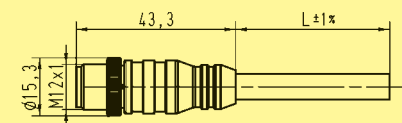
1 x Han® M12
Circular connector,
D-coded,
straight

Length: 1 m
3 m
5 m
10 m
25 m
40 m

21 03 585 1401
21 03 585 1403
21 03 585 1405
21 03 585 1410
21 03 585 1425
21 03 585 1440

other length on request

cable: AWG 22 / 0.34 mm²



Identification

Part No.

Drawing

Dimensions in mm

1 x Han® M12
Circular connector, straight
pre-assembled on one end,
8 poles

Length: 1.0 m

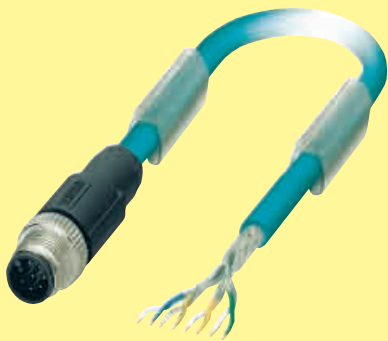
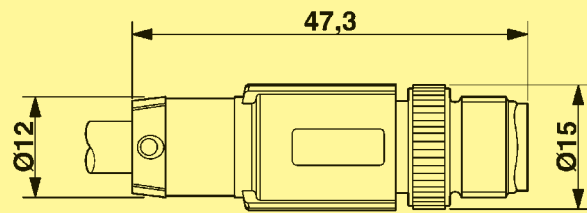
3.0 m

5.0 m

21 03 514 1801

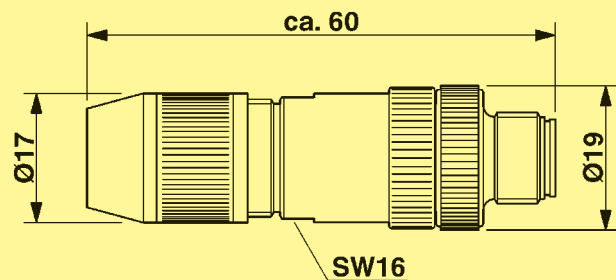
21 03 514 1803

21 03 514 1805



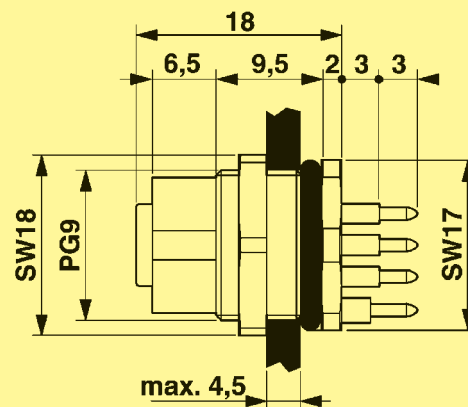
Han® M12 Circular connector
with IDC termination technology,
8 poles

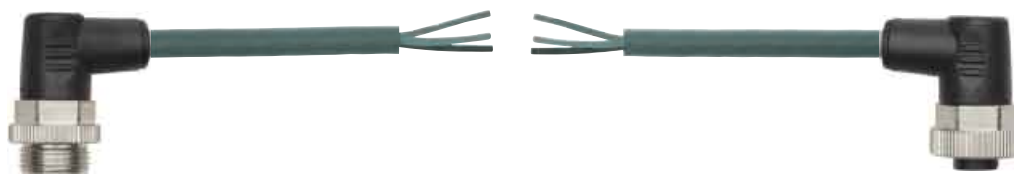
21 03 121 1801



Han® M12 pcb
8 poles

21 03 311 2801





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

Circular connector 7/8"



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	Schematic diagram <p>1 Litze 1 schwarz 2 Litze 2 blau 3 Litze grün-gelb 4 Litze 3 braun 5 Litze 4 weiß</p>	View mating side
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	Schematic diagram <p>1 Litze 1 schwarz/ flexible conductor 1 black 2 Litze 2 blau/ flexible conductor 2 blue 3 Litze grün/gelb/ flexible conductor green/yellow 4 Litze 3 braun/ flexible conductor 3 brown 5 Litze 4 weiß/ flexible conductor 4 white</p>	View mating side
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	Schematic diagram <p>1 Litze 1 schwarz 2 Litze 2 blau 3 Litze grün/gelb 4 Litze 3 braun 5 Litze 4 weiß</p>	View mating side
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	Schematic diagram <p>1 Litze 1 schwarz/ flexible conductor 1 black 2 Litze 2 blau/ flexible conductor 2 blue 3 Litze grün/gelb/ flexible conductor green/yellow 4 Litze 3 braun/ flexible conductor 3 brown 5 Litze 4 weiß/ flexible conductor 4 white</p>	View mating side

Technical characteristics

	MAX® 1) UTP	MAX® 1) ScTP	HARTING RJ Industrial®
Construction type	MAX® 1) UTP	MAX® 1) ScTP	HARTING RJ Industrial®
Locking	Toggle locking	Toggle locking	Toggle locking
Degree of protection	IP 67	IP 67	IP 67
Mating interface	RJ45 acc. to IEC 60 603-7	RJ45 acc. to IEC 60 603-7	RJ45 acc. to IEC 60 603-7
Temperature range	-25 °C to +85 °C	-25 °C to +85 °C	-40 °C to +70 °C
Cable sheath diameter	4 to 8 mm	4 to 8 mm	4 to 8 mm
Conductor cross section	AWG 26 - 24	AWG 26 - 24	AWG 24 - 22 flexible AWG 23 - 22 solid
Mating cycles	min. 500	min. 500	min. 500
Housing material	zinc die cast, nickel plated	zinc die cast, nickel plated	zinc die cast, nickel plated
Transmission performance	Cat 5e	Cat 5e	Cat 5e
Number of contacts	8	8	4
Shielding	TP, unscreened version	TP, screened version	TP, screened version
Termination	Field termination	Field termination	Field termination / tool-less
Approval	ODVA	ODVA	

Advantages

- Robust metal housing with toggle locking
- Vibration and shock resistant
- IP 67 for harsh industrial environment
- Cat 5e-compatible, screened version and unscreened version
- Field-assembly

¹⁾ registered trademark of The Siemon Company



Device side

Circular Connectors

Identification

Part No.

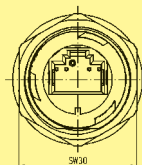
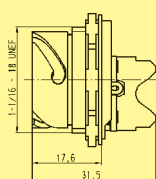
Drawing

Dimensions in mm

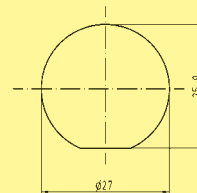
Han-Max[®] panel feed-through

UTP unscreened version

09 15 300 0301

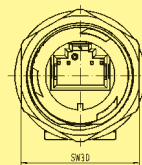
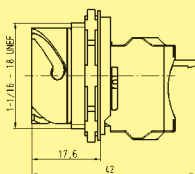


Panel cut out for max. Panel thickness 2.3 mm



ScTP screened version

09 15 300 0302



Han-Max[®] MS Housing bulkhead mounting

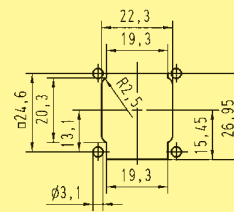
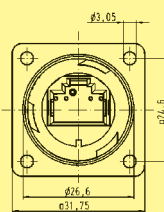
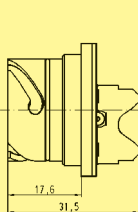
Housing bulkhead mounting

UTP unscreened version

09 15 300 0311

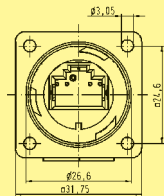
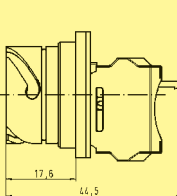


panel feed through



ScTP screened version

09 15 300 0312

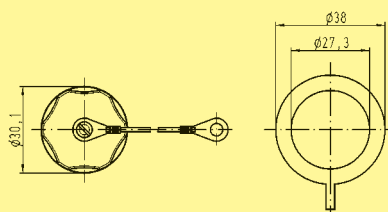


Han-Max[®] Protection cover

Device side



09 15 300 5411





Cable side

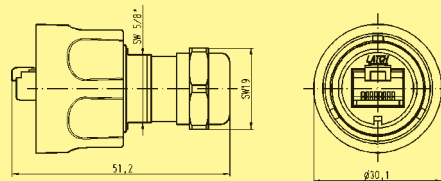
Identification Part No. Drawing Dimensions in mm

Han-Max®
Cable side

UTP unscreened version

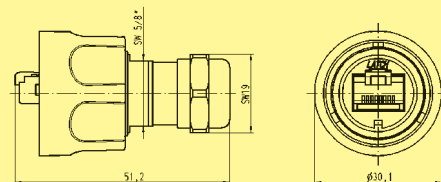


09 15 300 0401



ScTP screened version

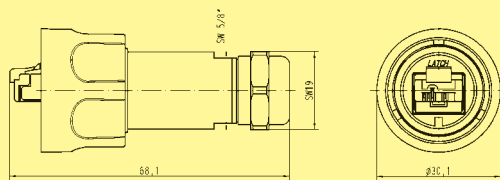
09 15 300 0402



Han-Max® RJ Industrial
Cable side



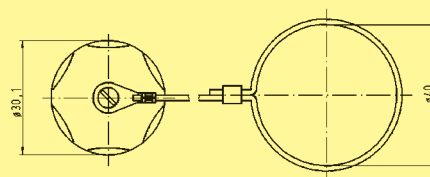
09 15 300 0412



Han-Max® Protection cover
Cable side



09 15 300 5401

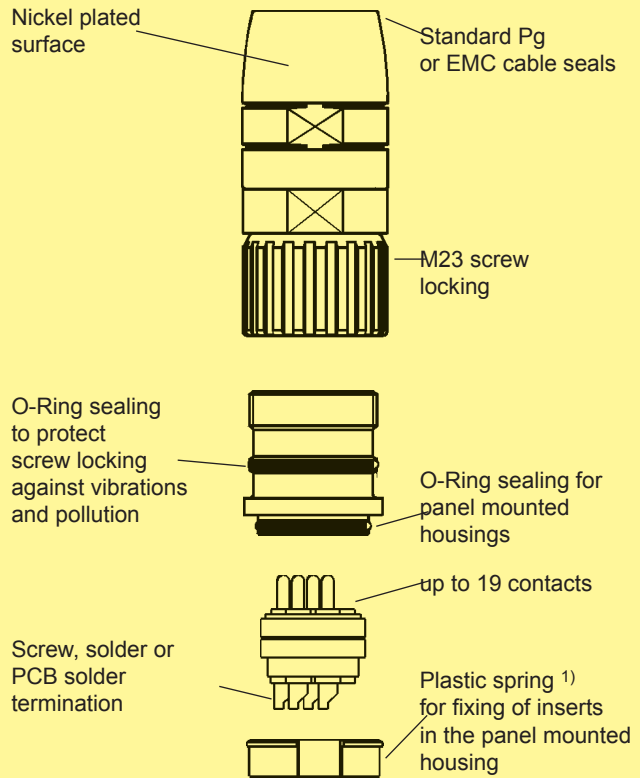




Features

- Size R 23
- Outer diameter 26 mm
- High contact density
- Very robust hoods and housings
- Corrosion resistant
- Excellent EMC properties (with continuous shielding)
- Quick and easy assembly
- Vibration resistant screw locking system
- Up to 19 contacts, 25 V~ / 60 V-
- Ideal for applications such as measurement and automatic control

Description



1) is part of delivery range of bulkhead mounted housings
Part-number of spare part: 09 15 200 9901



Technical characteristics

Specifications DIN VDE 0110
 DIN EN 61 984

Hoods and Housings

Material Copper zinc alloy
 Surface Nickel plated
 Flat sealing NBR
 O-Ring sealing FPM
 Temperature range -40 °C ... +115°C
 Protection degree
 in locked position IP 67

Inserts

Number of contacts	6	9	12	17	19
Rated current					
- power contact	15A	1x15A			3 x 10A
- signal contact		8 x 7A	7A	7A	16 x 7A
(see Derating Diagram)					
Rated voltage ¹⁾	25 V~ / 60 V-				
Degree of pollution	3				
Test voltage U_{rms}	1.5 kV				
Insulation resistance	$\geq 10^{12} \Omega$				
Material	Thermoplastic polyester (PBT)				
Temperature range	-40 °C ... +115 °C				
Flammability accd. to UL 94	V 0				

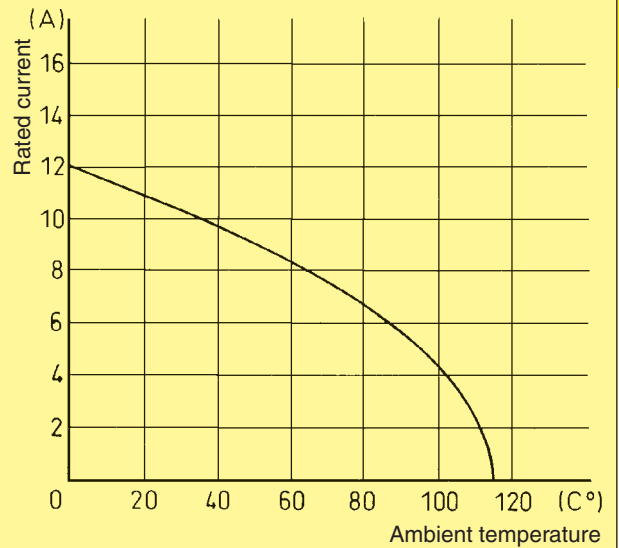
Contacts

Material	Copper alloy
Surface	Gold plated
Contact resistance	$\leq 5 \text{ m}\Omega$
Screw termination	
- power contact	0.14 - 1.0 mm ² / AWG 26 - 16
- signal contact	0.14 - 0.75 mm ² / AWG 26 - 18
Solder termination	
- power contact	0.14 - 2.5 mm ² / AWG 26 - 14
- signal contact	0.14 - 1.0 mm ² / AWG 26 - 16
Crimp termination	
- D-Sub contact	see catalogue Interface Connectors
PCB solder termination	
- power contact	$\varnothing 1.5 \text{ mm}$
- signal contact	$\varnothing 0.6 \text{ mm}$
- reference to bulkhead mounted housing	3.5 mm



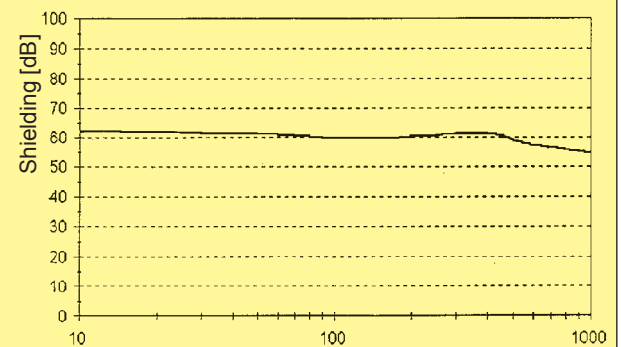
1) Accd. to DIN VDE 0627 metallic parts which may be touched by a person and may have voltages present under fault conditions, must have integral protection. Therefore this R 23 connector is limited for use up to 25 V~/60 V-.


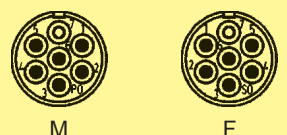



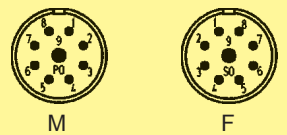

Derating Diagramm



Insert: 12 poles
 Conductor cross section: 1 mm² (AWG 18)

Shielding of the EMC housings




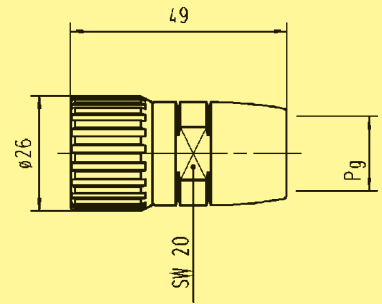

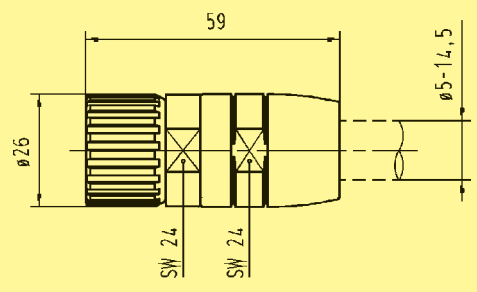

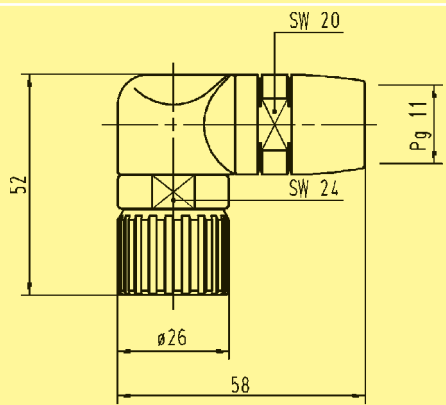

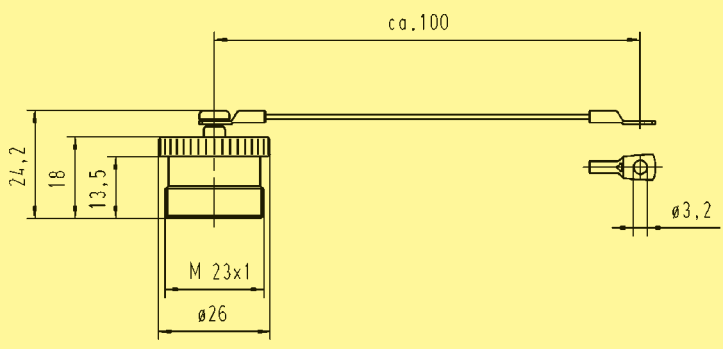
Identification	Number of contacts	Male (M)	Female (F)	Drawing	Dimensions in mm
Screw termination 	6	09 15 206 2601	09 15 206 2701	Contact arrangement: mating side 	
Solder termination 	6	09 15 206 2603	09 15 206 2703		
pcb solder termination ²⁾ 	6	09 15 206 2604	09 15 206 2704		
Screw termination 	9	09 15 209 2601	09 15 209 2701	Contact arrangement: mating side (numbering in opposite direction on request) 	
Solder termination 	9	09 15 209 2603	09 15 209 2703		


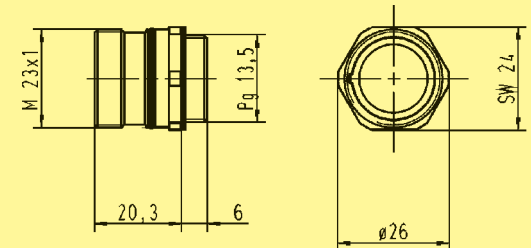

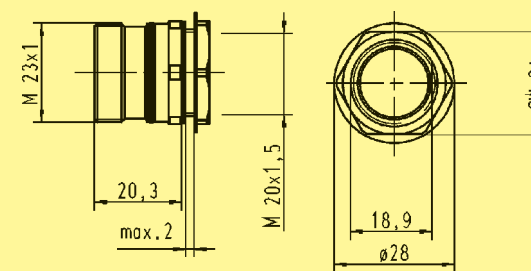

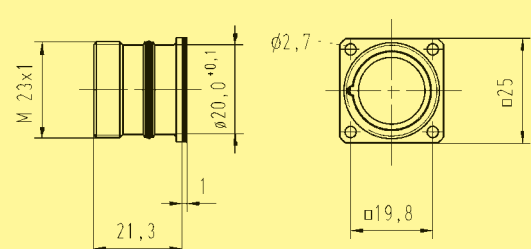

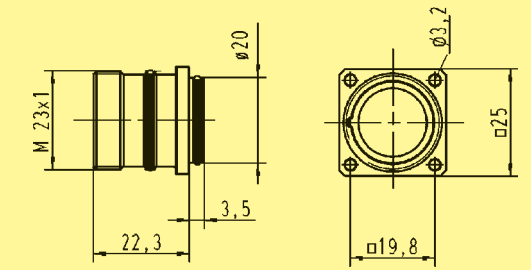

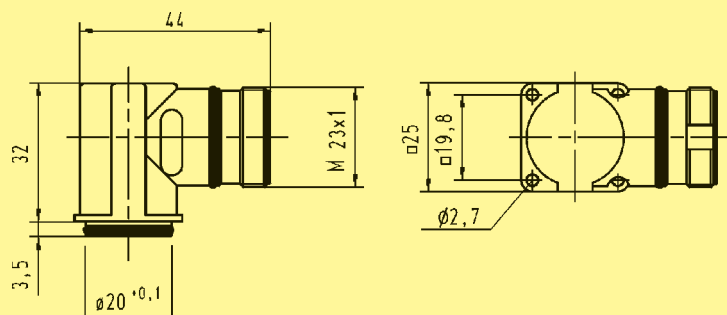
2) Suitable only for bulkhead mounted housings
 09 15 200 0311, 09 15 200 0313 and
 09 15 200 0301

Identification	Number of contacts	Male (M)	Female (F)	Drawing	Dimensions in mm
<p>Solder termination</p>	12	09 15 212 2603	09 15 212 2703	<p>Contact arrangement: mating side (numbering in opposite direction on request)</p>	
<p>Crimp termination for D-Sub contacts</p> <p>pcb solder termination²⁾</p>	12	09 15 212 2602	09 15 212 2702	<p>pcb layout</p>	
	12	09 15 212 2604	09 15 212 2704		
<p>Solder termination</p>	17	09 15 217 2603	09 15 217 2703	<p>Contact arrangement: mating side (numbering in opposite direction on request)</p>	
<p>Crimp termination for D-Sub contacts</p> <p>pcb solder termination²⁾</p>	17	09 15 217 2602	09 15 217 2702	<p>pcb layout</p>	
	17	09 15 217 2604	09 15 217 2704		
<p>Solder termination</p>	19	09 15 219 2603	09 15 219 2703	<p>Contact arrangement: mating side</p>	


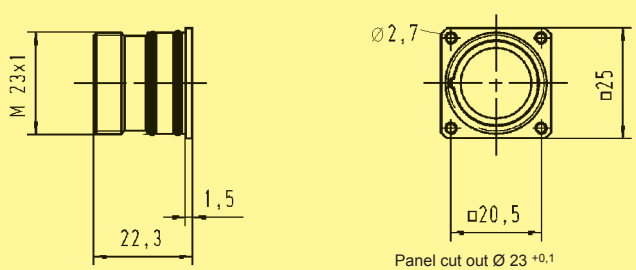

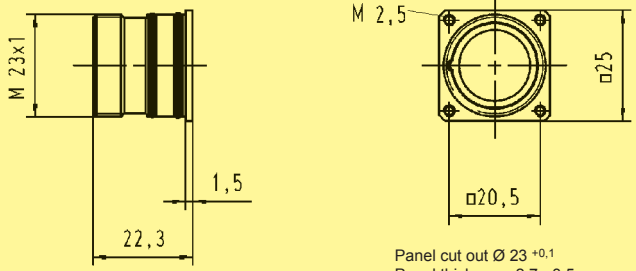

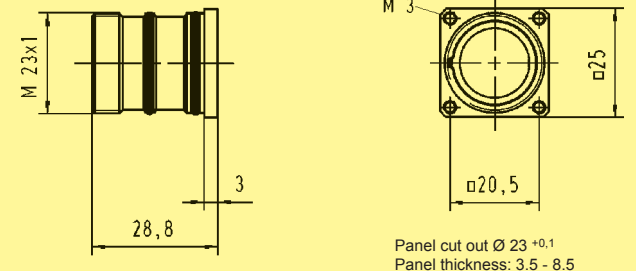

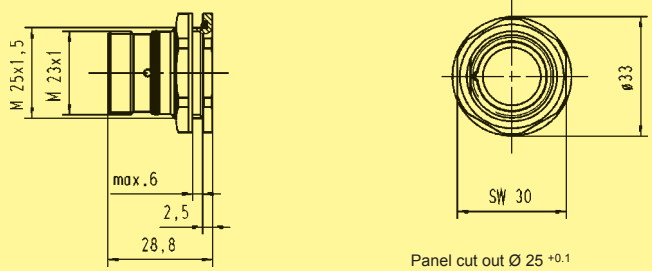

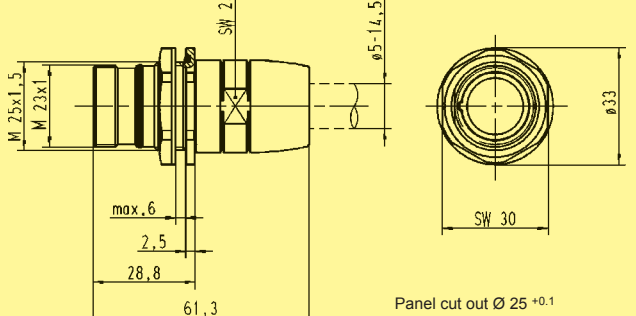
2) Suitable only for bulkhead mounted housings 09 15 200 0311, 09 15 200 0313 and 09 15 200 0301

2) Suitable only for bulkhead mounted housings 09 15 200 0311, 09 15 200 0313 and 09 15 200 0301

Identification	Part No.	Pg	Drawing	Dimensions in mm
Hoods top-entry 	09 15 200 0402 09 15 200 0403	9 11		
Hood top-entry EMC version 	09 15 200 0451	—		
Hood entry 90° 	09 15 200 0603	11		
Identification	Part No.	Drawing	Dimensions in mm	
Screw cover for hoods with tether 	09 15 200 5421			

Identification	Part No.	Drawing	Dimensions in mm
<p>Housing bulkhead mounting front wall assembly with central locking Pg 13.5</p> 	<p>09 15 200 0324</p>	 <p>Panel cut out Pg 13.5</p>	
<p>Housing bulkhead mounting front wall assembly with central locking M20</p> 	<p>09 15 200 0303</p>	 <p>Panel cut out Ø 20 ^{+0.1}</p>	
<p>Housing bulkhead mounting front wall assembly with flat sealing</p> 	<p>09 15 200 0301</p>	 <p>Panel cut out Ø 20 ^{+0.1}</p>	
<p>Housing bulkhead mounting front wall assembly with O-ring sealing</p> 	<p>09 15 200 0305</p>	 <p>Panel cut out Ø 20 ^{+0.1}</p>	
<p>Housing bulkhead mounting front wall assembly with O-ring sealing</p> 	<p>09 15 200 0901</p>	 <p>Panel cut out Ø 20 ^{+0.1}</p>	

Circular Connectors

Identification	Part No.	Drawing	Dimensions in mm
<p>Housing bulkhead mounting back wall assembly with O-ring sealing</p> 	<p>09 15 200 0313</p>		<p>Panel cut out $\varnothing 23^{+0.1}$ Panel thickness: 2.7 - 3.5 when using counter sunk screws</p>
<p>Housing bulkhead mounting back wall assembly with O-ring sealing</p> 	<p>09 15 200 0311</p>		<p>Panel cut out $\varnothing 23^{+0.1}$ Panel thickness: 2.7 - 3.5 when using counter sunk screws</p>
<p>Housing bulkhead mounting back wall assembly with O-ring sealing</p> 	<p>09 15 200 0312</p>		<p>Panel cut out $\varnothing 23^{+0.1}$ Panel thickness: 3.5 - 8.5 when using counter sunk screws</p>
<p>Housing bulkhead mounting back wall assembly with central locking M25</p> 	<p>09 15 200 0314</p>		<p>Panel cut out $\varnothing 25^{+0.1}$ Panel thickness: 6</p>
<p>Housing cable to cable back wall assembly with central locking M25</p> 	<p>09 15 200 0351</p>		<p>Panel cut out $\varnothing 25^{+0.1}$ Panel thickness: 6</p>

Identification	Part No.	Pg	Drawing	Dimensions in mm
Hood cable to cable top-entry	09 15 200 0703	11		
Hood cable to cable top-entry EMC version	09 15 200 0751	—		
Identification	Part No.	Drawing	Dimensions in mm	
Screw cover for housings bulkhead mounting and hoods cable to cable	09 15 200 5401			
Screw cover for housings bulkhead mounting and hoods cable to cable, with tether	09 15 200 5411			

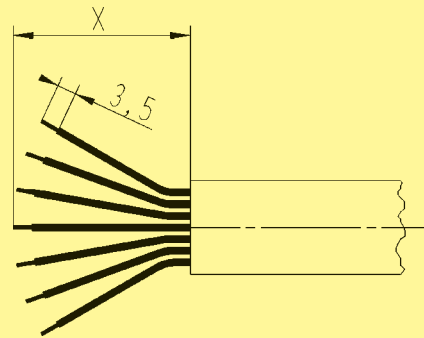
Order inserts separately see page 03.40 - 03.41

Corresponding hoods and housing see page 03.42

Stock items in bold type

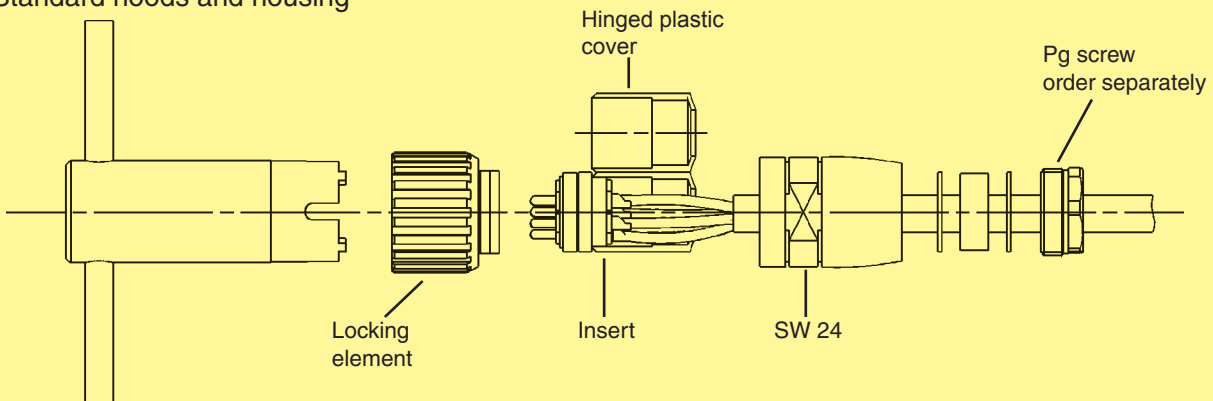
Assembly manuals

Hoods and Housings	Cable stripping length x
09 15 200 0351	26 mm
09 15 200 0403	20 mm
09 15 200 0451	26 mm
09 15 200 0603	30 mm
09 15 200 0703	20 mm
09 15 200 0751	26 mm
09 15 200 0901	30 mm

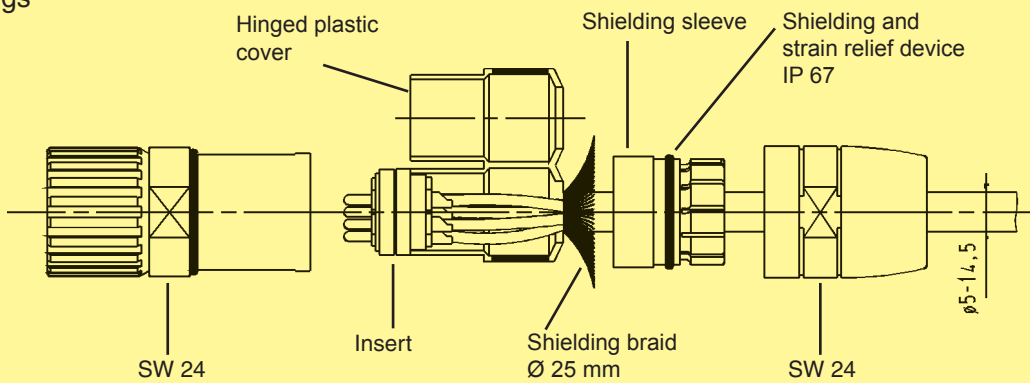


Circular Connectors

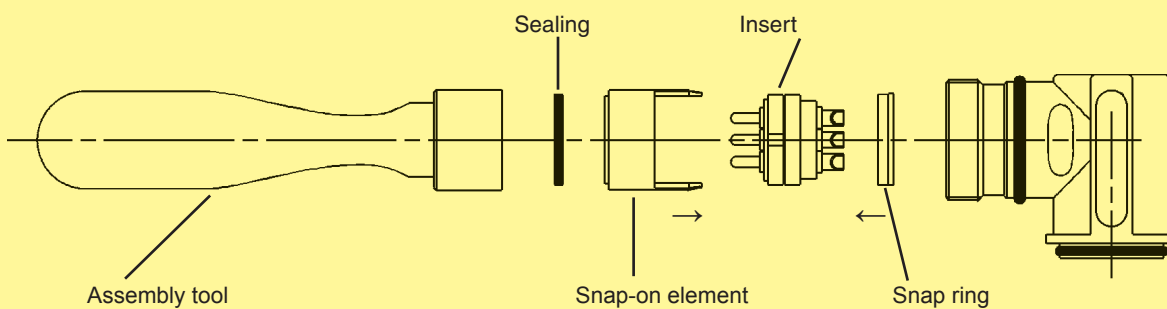
Standard hoods and housing


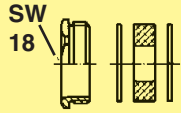


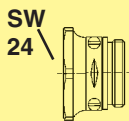



EMC housings


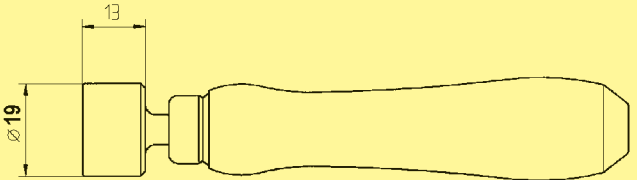
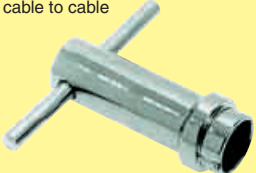
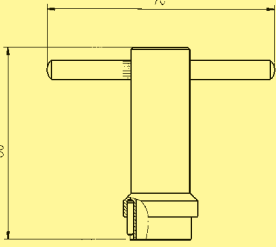

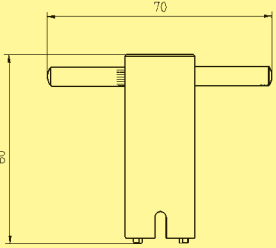


Housing bulkhead mounting right angled



Identification	Part No.	Pg	Drawing	Dimensions in mm
Cable seal metal (IP 65) with normal seal 	09 00 000 5113	11	Useable cable-Ø 10 - 12	
with multiple seal 	09 00 000 5013	11	6.5 - 12	
Special cable clamp metal (IP 65) with bell-mouth cable fitting and strain relief 	09 00 000 5191	11	Useable cable-Ø 8 - 12	
with multiple seal order separately 	09 00 000 5027	11	6.5 - 12	

Circular Connectors

Identification	Part No.	Drawing	Dimensions in mm
Tool for angled housings 	09 99 000 0324		
Tool for housings bulkhead mounting and hoods cable to cable 	09 99 000 0325		As an alternative a screw driver can be used.
Tool for hoods 	09 99 000 0326		Alternatively for the assembly of the EMC version a screw driver can be used.

Identification	Part No.	Drawing	Dimensions in mm
Seal M12 2.9 - 4.0 mm 4 - 5.1 mm	21 01 010 2011 21 01 010 2001		
Seal M12-L 3 poles: 5.5 - 7.2 mm 4 + 5 poles: 6 - 8 mm	21 01 010 2003 21 01 010 2007		
Seal M8 for 2.5 - 3.5 mm cable Ø for 3.2 - 4.4 mm cable Ø for 4.2 - 5.4 mm cable Ø	21 01 010 2008 21 01 010 2004 21 01 010 2005		
Set of 3 seals for HARAX® M8-S for 2.5 - 3.2 mm cable Ø for 3.2 - 4.0 mm cable Ø for 4.0 - 5.1 mm cable Ø	21 01 010 2013		
Seal Pg 13.5 / M20 6 - 9 mm	21 01 010 2002		
Cap M12	21 01 000 0003		

Identification	Part No.	Drawing	Dimensions in mm
Lock nut Pg 9 nickel plated	21 01 000 0008		
Lock nut M16 nickel plated	21 01 000 0010		
Lock nut 7/8" nickel plated	21 01 000 0023		
Lock nut Pg 13.5 nickel plated	21 01 000 0020		
Lock nut Pg 13.5	21 01 000 0007		
Lock nut M20	21 01 000 0009		
Socket wrench	21 01 000 0001		