



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 |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cable termination | | | PCB termination | | | Application standard | | | | |
| Han-Quick Lock® | IDC HARAX® | Crimp | THT | SMC | SMT | | | | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| Screw | Cage clamp | Axial screw | Press-in | | | Housing integration | | | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | Separate housing | | Integrated housing | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | | |

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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 60 352-4
IEC 61 076-2-101

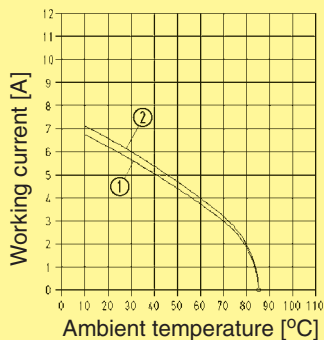
Approval

| Construction type | HARAX® M8-S/M12-S | HARAX® M12 angled | HARAX® M12-L 3 poles, 4 poles | HARAX® M12-L screened version, A-coded |
|---|--|---|--|--|
| Working voltage | 32 V | 32 V | 50 V | 50 V |
| Working current (see current carrying capacity) | 4 A | 4 A | 6 A | 4 A |
| Conductor cross section | 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 | ≥ 0.1 mm | ≥ 0.1 mm | ≥ 0.1 mm | ≥ 0.1 mm |
| Conductor insulation material | PVC / PP / TPE | PVC | PVC | PVC |
| Conductor diameter | 1.0 - 1.6 mm | 1.2 - 1.6 mm | 1.6 - 2.0 mm | 1.2 - 1.6 mm |
| Cable diameter | M8-S: 3.2 - 5.4 mm M12-S: 2.9 - 5.1 mm | 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 |
| Temperature during connection | - 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 67 |
| Termination cycles with the same cross section | 10 | 10 | 10 | 10 |

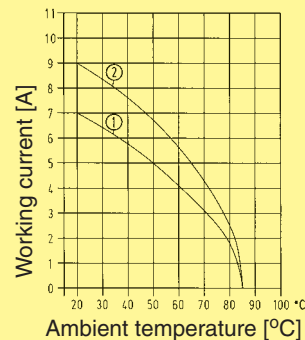
Current carrying capacity The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given,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

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

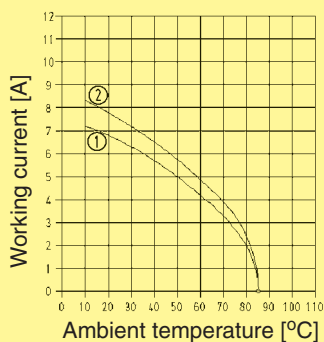
M8-S, 4 poles 1 = wire gauge 0.25 mm²
M12-S, 4 poles 2 = wire gauge 0.34 mm²



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

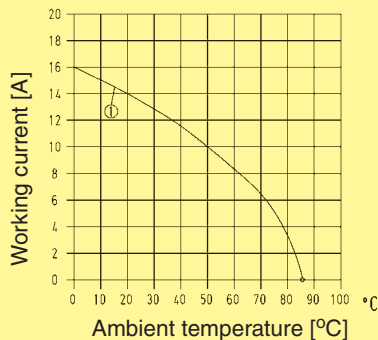
Specifications IEC 60352-4
IEC 61076-2-101

Approval

| Construction type | HARAX® M12-L screened version Ethernet | Profibus | Han® 7/8" | HARAX® M12-L 5 poles | Han® M12 Crimp |
|---|---|---|--|---|---|
| Working voltage | 50 V | 32 V | 230 V / 400 V | 50 V | 50 V |
| Working 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 (transp.) 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 | |

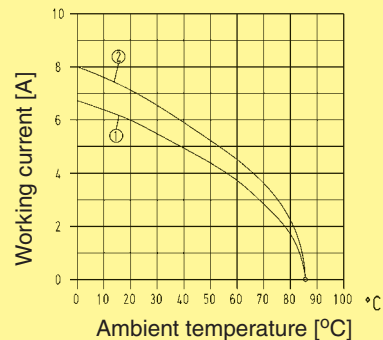
7/8"

1 = wire gauge 0.75 mm² / 1.5 mm²



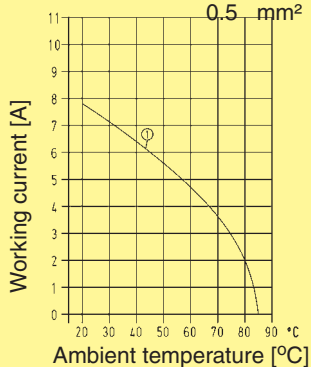
M12L, 5 poles

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



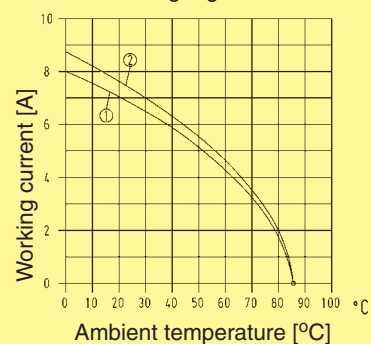
M12, Crimp

1 = wire gauge 0.34 mm² / 0.5 mm²

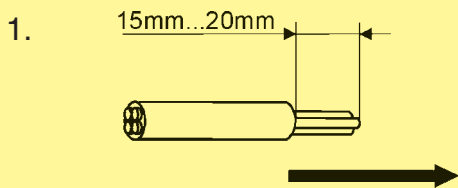


M12L, 5 poles

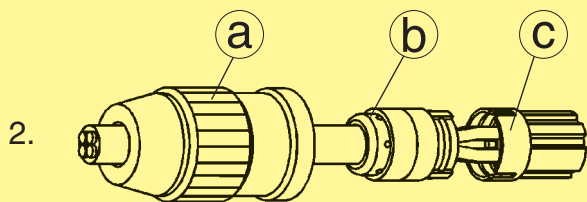
1 = wire gauge 0.34 mm²
2 = wire gauge 0.5 mm²



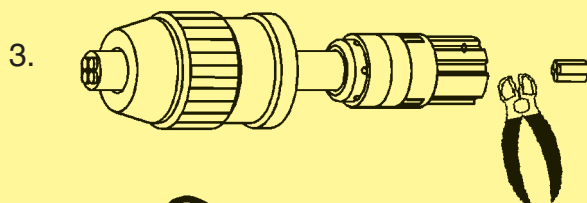
Assembly manual HARAX®



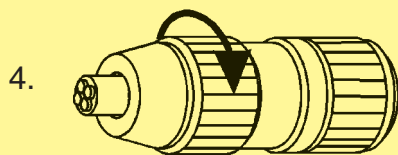
1. strip cable
2. assemble HARAX® elements
3. cut off cable ends
4. screw the connector



- Ⓐ Nut
- Ⓑ Strain relief
- Ⓒ Insert

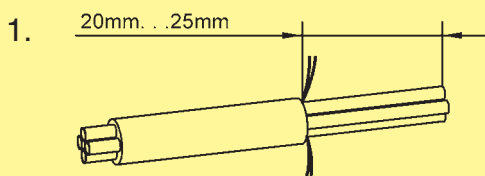


Screw the nut onto the insert until a stop is noticeable.

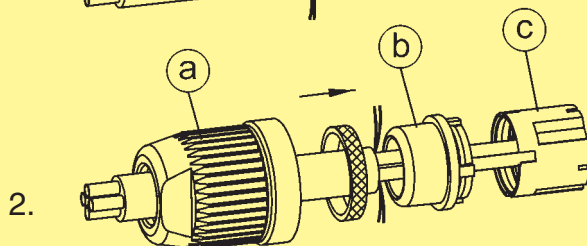


Note!
For reconnection cut off the used cable ends and repeat steps 1 to 4.

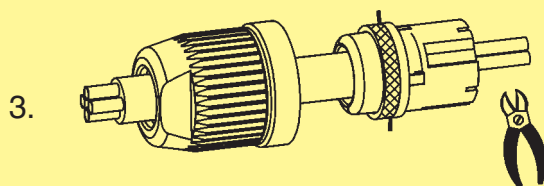
Assembly manual HARAX® shielded



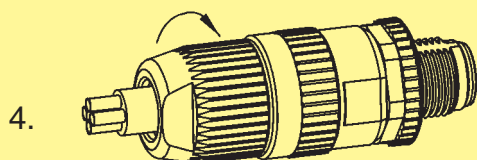
1. strip cable



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

- Ⓐ Nut
- Ⓑ Strain relief
- Ⓒ Insert

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

HARAX® Circular connector



Identification Part No. Male Female Drawing Dimensions in mm

HARAX® M8-S

straight version, 3 poles
straight version, 4 poles

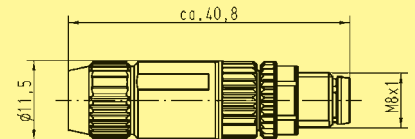


straight version, 3 poles
straight version, 4 poles



21 02 151 1305
21 02 151 1405

21 02 151 2305
21 02 151 2405



View mating side:
3 poles, male version

View mating side:
4 poles, male version



HARAX® M12-S

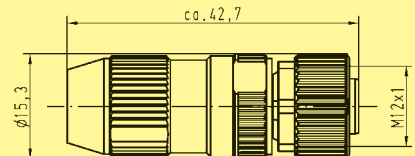
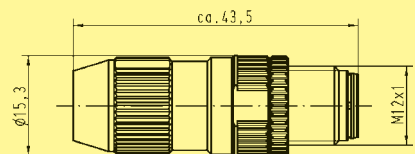
straight version, 4 poles



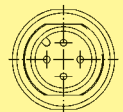
21 03 111 1405



21 03 111 2405



View mating side:
4 poles, male version



HARAX® M12

angled version, 4 poles

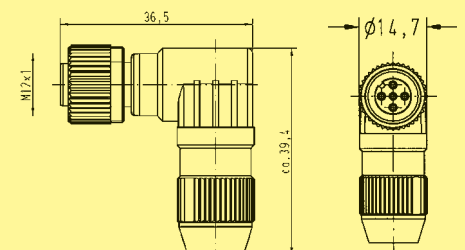
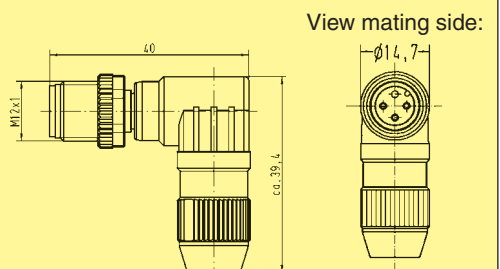


21 01 140 5081

angled version, 4 poles



21 01 140 5091



View mating side:



| Identification | Part No. | | Drawing | Dimensions in mm |
|----------------|----------|--------|---------|------------------|
| | Male | Female | | |

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

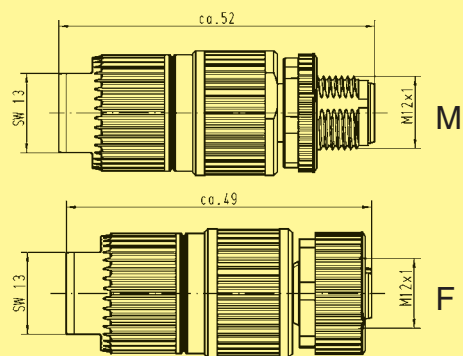


Female, A-coded, 50 cm conductors, 0.5 mm², 5 poles

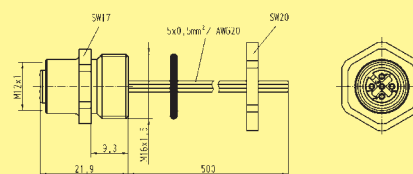
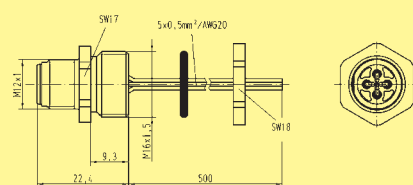
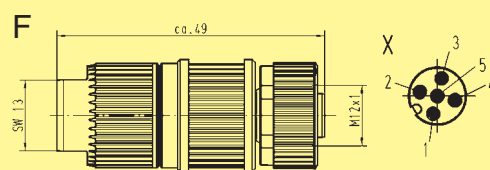
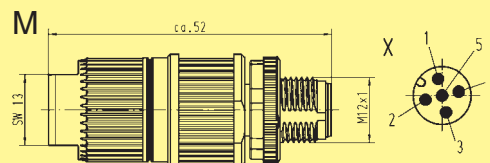
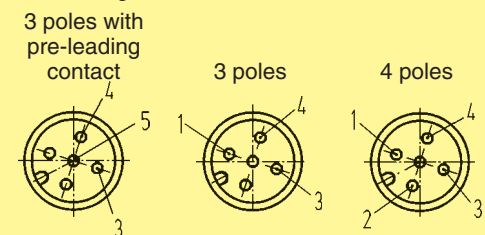


21 03 311 1501

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 3 poles, B-coded, Profibus version 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 1300 | | View mating side, male version: HARAX® M12-L, screened version 3 poles, Profibus B-coded 4 poles, Ethernet D-coded 4 poles A-coded | |
| | 21 03 281 1405 | | | |
| | 21 03 282 1405 | | | |
| | 21 03 221 1405 | | | |
| 3 poles, B-coded, Profibus version 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 2300 | | |
| | | 21 03 281 2405 | | |
| | | 21 03 282 2405 | | |
| | | 21 03 221 2405 | | |

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-RJ45 Gender Changer 4 poles, D-coded | 21 03 381 6405 | | |

Stock items in bold type

Han® M12 panel feed-through



Circular Connectors

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

21 03 321 2425

Male, A-coded

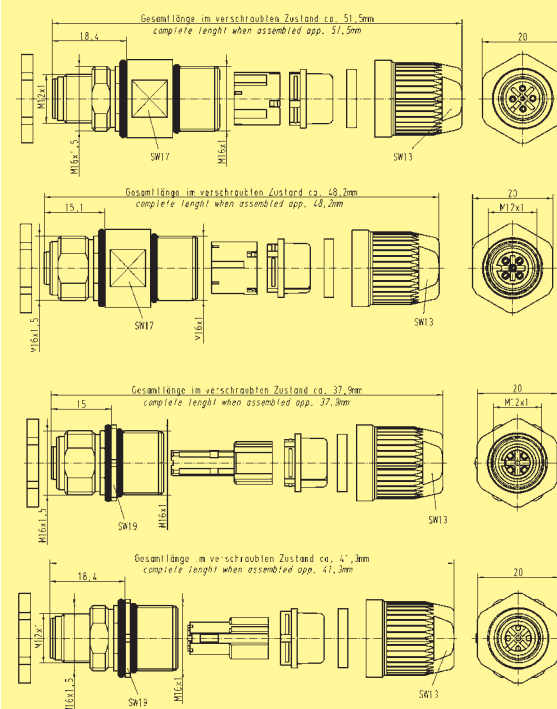
21 03 321 1425

Han® M12 panel feed-through Crimp
Female, A-coded


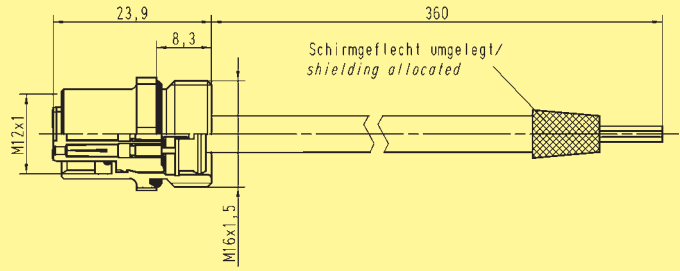

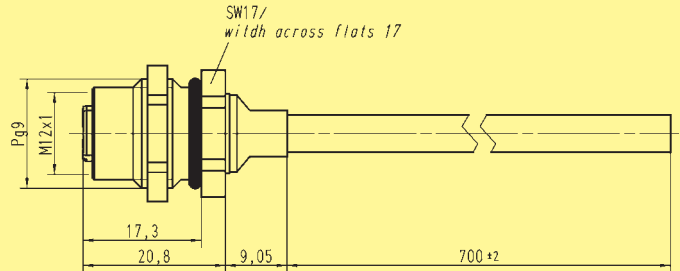

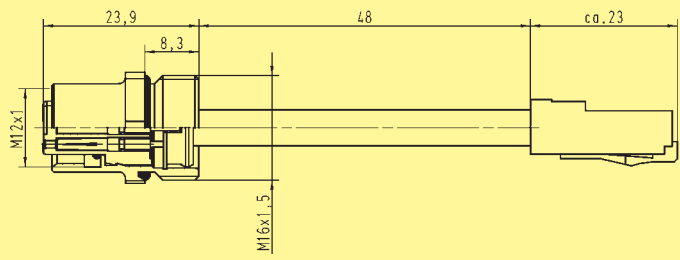

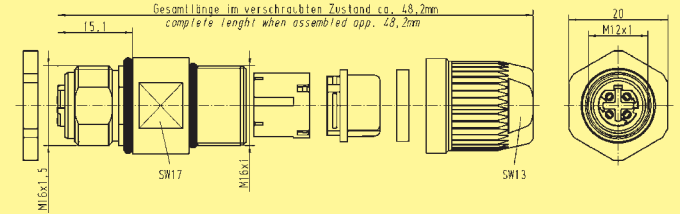

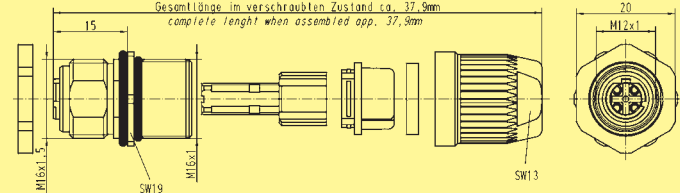
21 03 822 2425

Male, A-coded

21 03 822 1425



Stock items in bold type


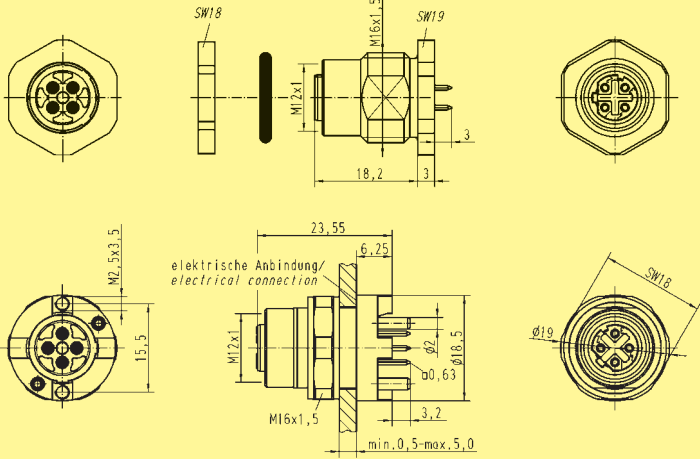
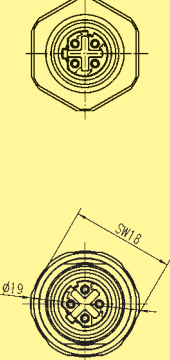

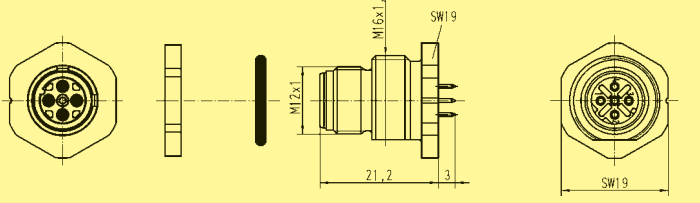
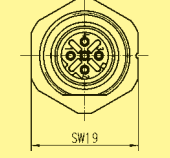

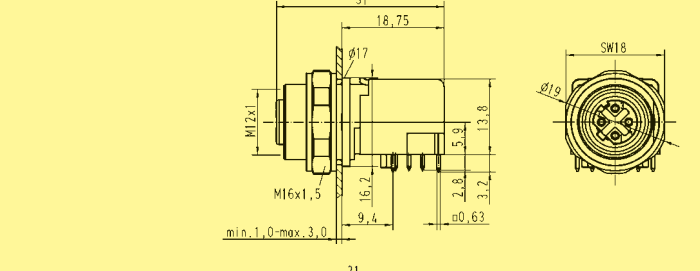
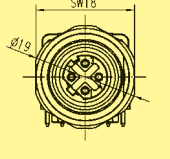

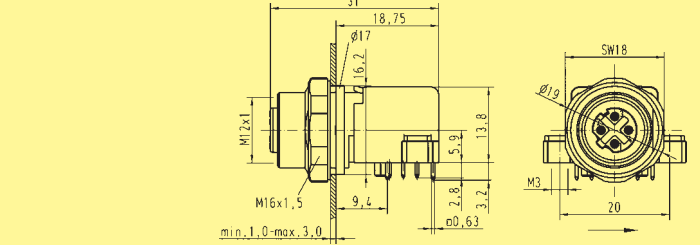
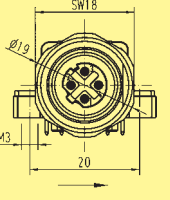
| Identification | Part No. | Drawing | Dimensions in mm |
|---|------------------------------|--|--|
| <p>Han® M12 panel feed-through for outer termination</p> <p>Female, D-coded, screened version, 360 mm cable¹⁾, AWG 26, 4 poles</p>  | <p>21 03 383 6407</p> |  <p>Schirmgeflecht umgelegt/ shielding allocated</p> | <p>23,9 8,3 360 M12x1 M16x1,5</p> |
| <p>Han® M12 panel feed-through for inner termination</p> <p>Female, D-coded, screened version, 700 mm cable¹⁾, AWG 20, 4 poles</p>  | <p>21 03 383 6405</p> |  <p>SW17/ width across flats 17</p> | <p>Pg9 M12x1 17,3 20,8 9,05 700 ±2</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>23,9 8,3 48 ca. 23 M12x1 M16x1,5</p> |
| <p>HARAX® panel feed-through</p> <p>Female, D-coded</p>  | <p>21 03 381 2425</p> |  <p>Gesamtlänge im verschraubten Zustand ca. 48,2mm complete length when assembled app. 48,2mm</p> | <p>15,1 M16x1,5 SW17 M16x1 SW13 20 M12x1</p> |
| <p>Han® M12 panel feed-through Crimp</p> <p>Female, D-coded</p>  | <p>21 03 882 2425</p> |  <p>Gesamtlänge im verschraubten Zustand ca. 37,9mm complete length when assembled app. 37,9mm</p> | <p>15 M16x1,5 SW19 M16x1 SW13 20 M12x1</p> |

¹⁾ Other length on request



Technical characteristics: Han® M12 pcb

| | |
|----------------------|------------------------------------|
| Degree of protection | IP 20 |
| Working current | max. 4 A (dependent on pcb layout) |
| Working voltage | 50 V |
| mating cycles | max. 100 |

| 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 |  |  |

Stock items in bold type



Identification

Part No.

Drawing

Dimensions in mm

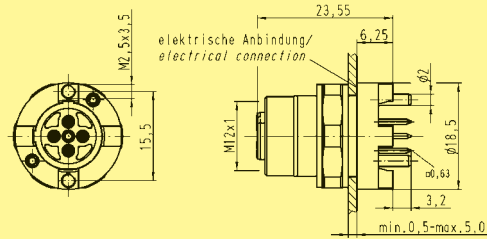
Han® M12

Female, A-coded, straight



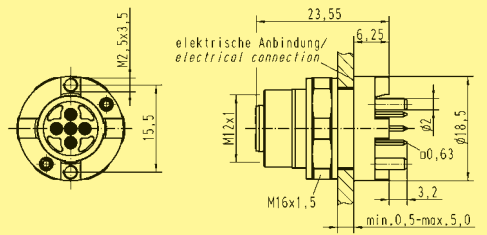
4 poles

21 03 321 6410



5 poles

21 03 321 6510



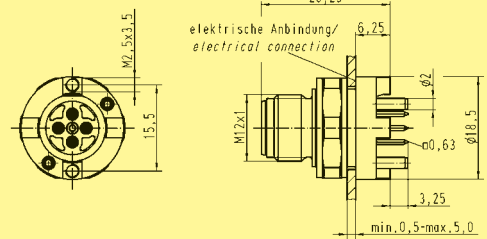
Han® M12

Male, A-coded, straight



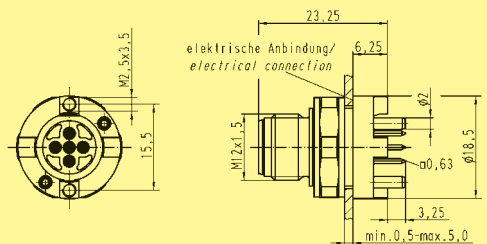
4 poles

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 100 Base FX; IEE 802.3u |

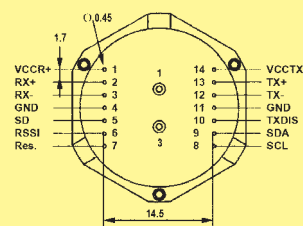
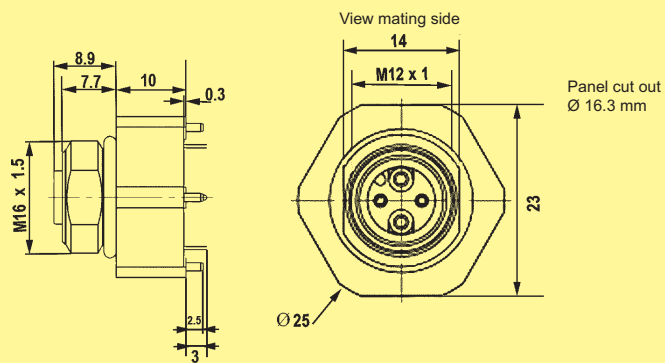
| | | | |
|----------------|----------|---------|------------------|
| Identification | Part No. | Drawing | Dimensions in mm |
|----------------|----------|---------|------------------|

Transceiver


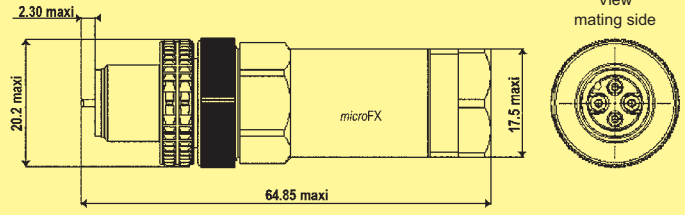
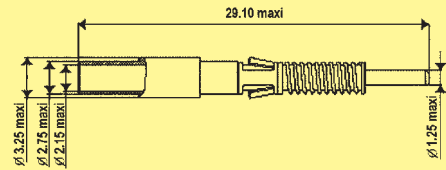
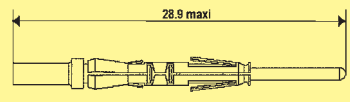
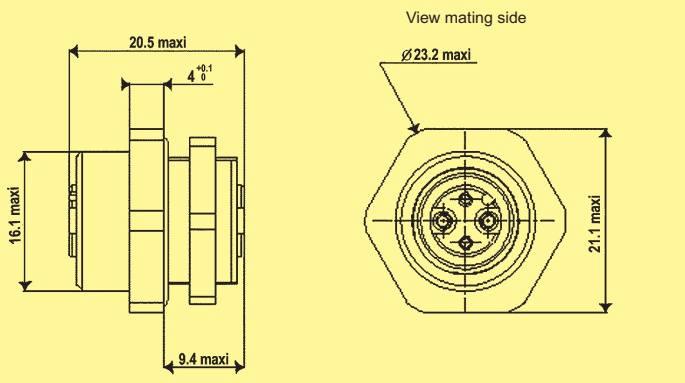
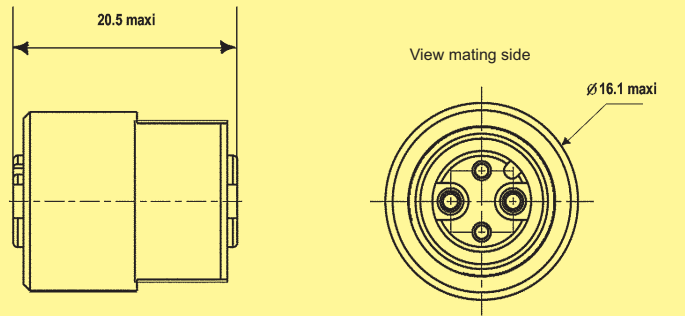
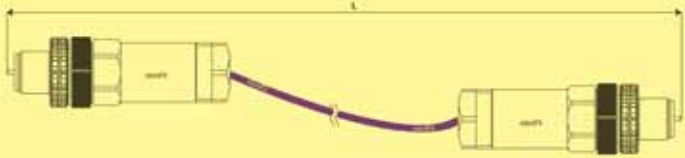
for multimode with glass fibres, 1300 nm



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>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>Coupling unit</p> | <p>20 80 004 3412</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> |  | |

Stock items in bold type

Han® 7/8" Circular connector



Identification

Part No.

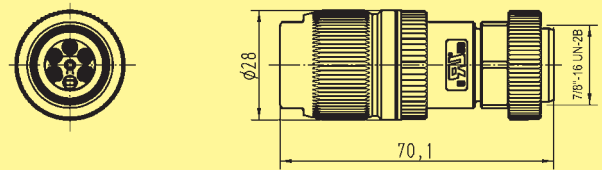
Drawing

Dimensions in mm

HARAX® 7/8" Male



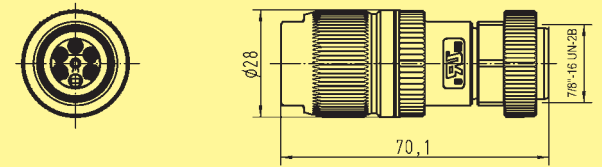
21 04 116 1505



HARAX® 7/8" Female



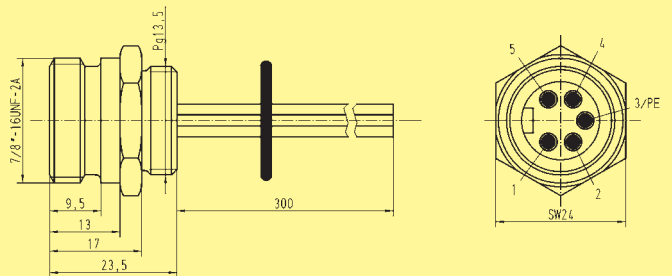
21 04 116 2505



Han® 7/8" panel feed-through

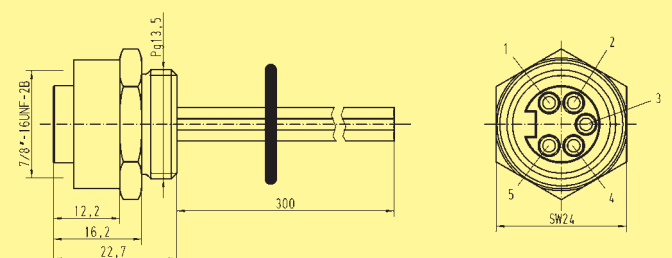
Male

21 04 316 1505



Female

21 04 316 2505



Stock items in bold type



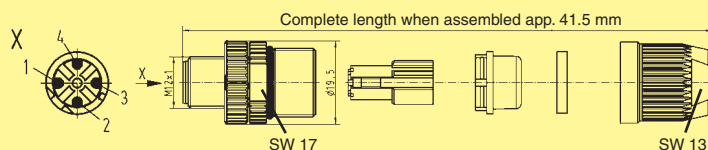
| Identification | Part No. | Drawing | Dimensions in mm |
|----------------|----------|---------|------------------|
|----------------|----------|---------|------------------|

Han® M12 Crimp

Male, D-coded

7 - 8.8 mm

21 03 882 1405



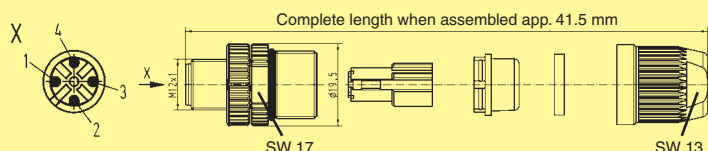
Male, A-coded

7 - 8.8 mm

21 03 812 1405

4.5 - 5.4 mm

21 03 812 1406



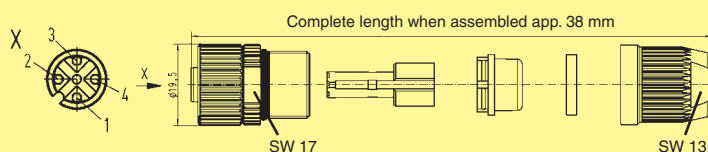
Female, A-coded

7 - 8.8 mm

21 03 812 2405

4.5 - 5.4 mm

21 03 812 2406



Order crimp contacts separately

Crimping tool

61 03 600 0022



locator

61 03 600 0023

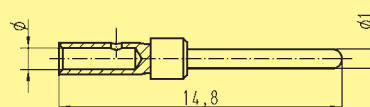


Single contacts

turned male contacts*

AWG 22-20
0.33-0.52

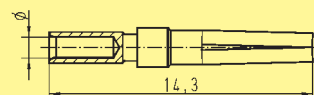
61 03 000 0073



turned female contacts*

AWG 22-20
0.33-0.52

61 03 000 0074



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

Stock items in bold type

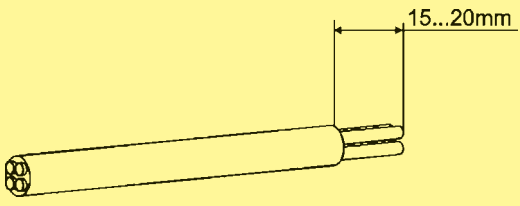
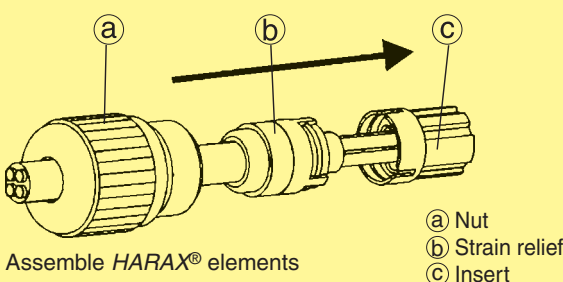
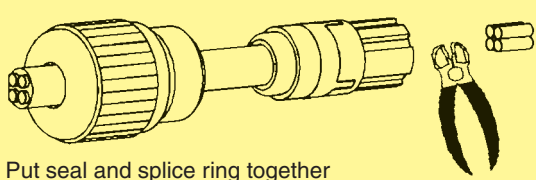
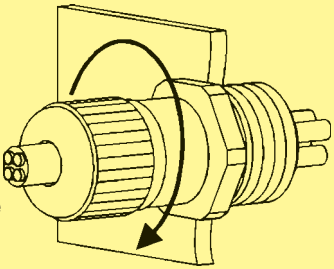
Features

- ❑ 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

| | |
|--|---|
| Working voltage | 32 V |
| Working 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

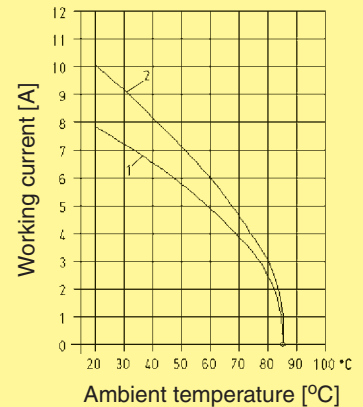
Current carrying capacity

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.

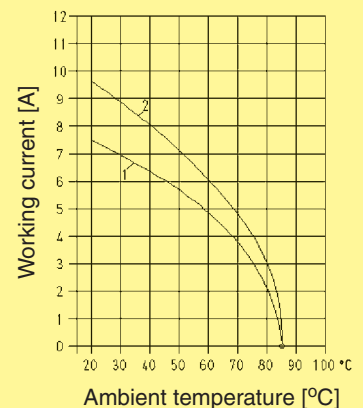
Pg 9, 3 contacts

- 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.

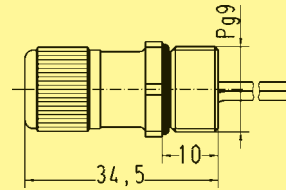
Drawing

Dimensions in mm

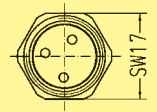
HARAX® Pg 9 panel feed-through
3 contacts, with pre-assembled
0.5 m / 0.5 mm² pigtail cable



21 01 130 4241



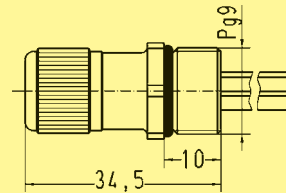
View:
Termination side



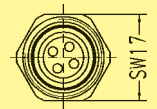
HARAX® Pg 9 panel feed-through
4 contacts, with pre-assembled
0.5 m / 0.5 mm² pigtail cable



21 01 140 4341



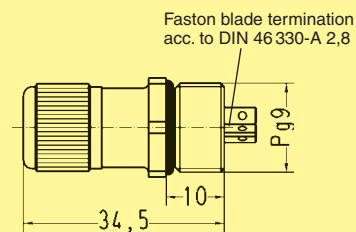
View:
Termination side



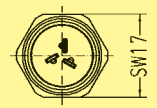
HARAX® Pg 9 panel feed-through
3 contacts
with faston blades



21 01 130 4011



View:
Termination side



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 600 V | 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

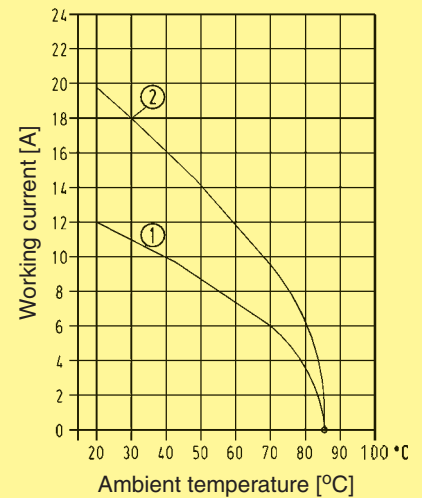
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the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

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

Pg 13,5 3 contacts

1 = wire gauge
0.75 mm²

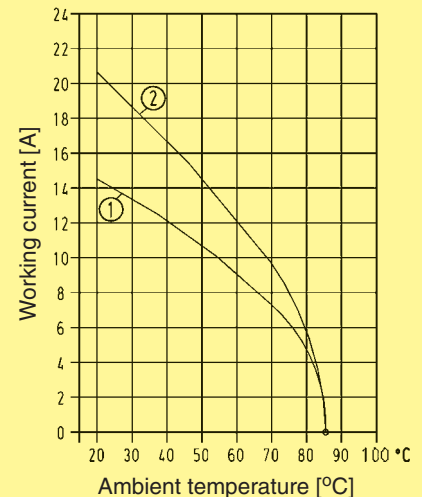
2 = wire gauge
1.5 mm²



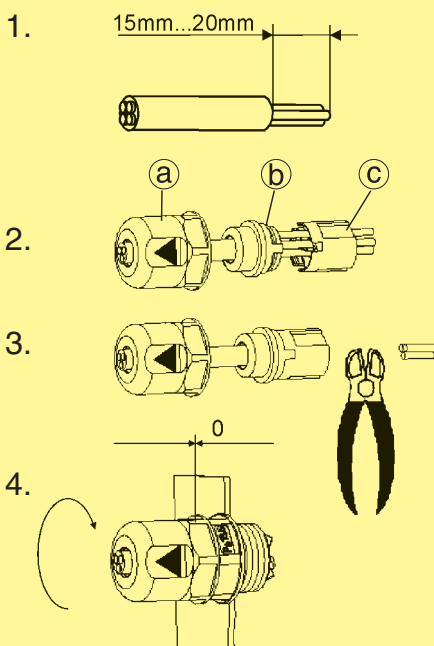
Pg 13,5 / M20 4 contacts

1 = wire gauge
0.75 mm²

2 = wire gauge
1.5 mm²



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

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 mm²

21 01 130 1223

HARAX® Pg 13.5 / 2 + PE
with faston blades

21 01 130 3013

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 mm²

21 01 130 3233

HARAX® Pg 13.5 / 4 contacts
with solder termination

21 01 140 1023

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 mm²

21 01 140 3333

HARAX® Pg 13.5 / 3 + PE
with pre-assembled strand, l = 500 mm, 1.5 mm²

21 01 140 3333

HARAX® M20 / 4 contacts
with solder termination

21 01 141 1023

HARAX® M20 / 3 + PE
with solder termination

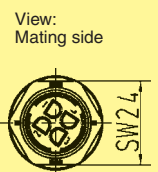
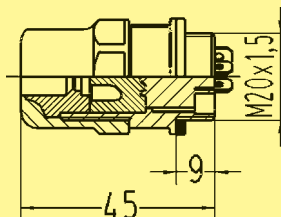
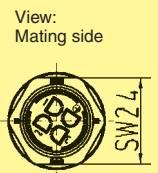
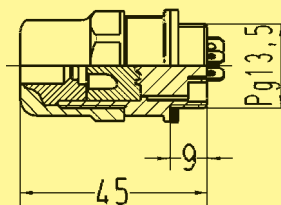
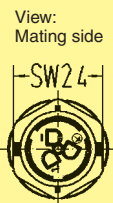
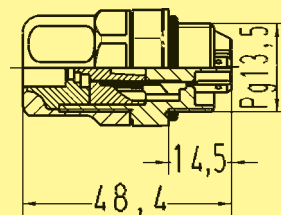
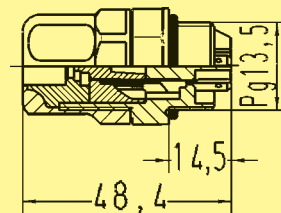
21 01 141 3023

HARAX® M20 / 4 contacts
with pre-assembled strand, l = 500 mm, 1.5 mm²

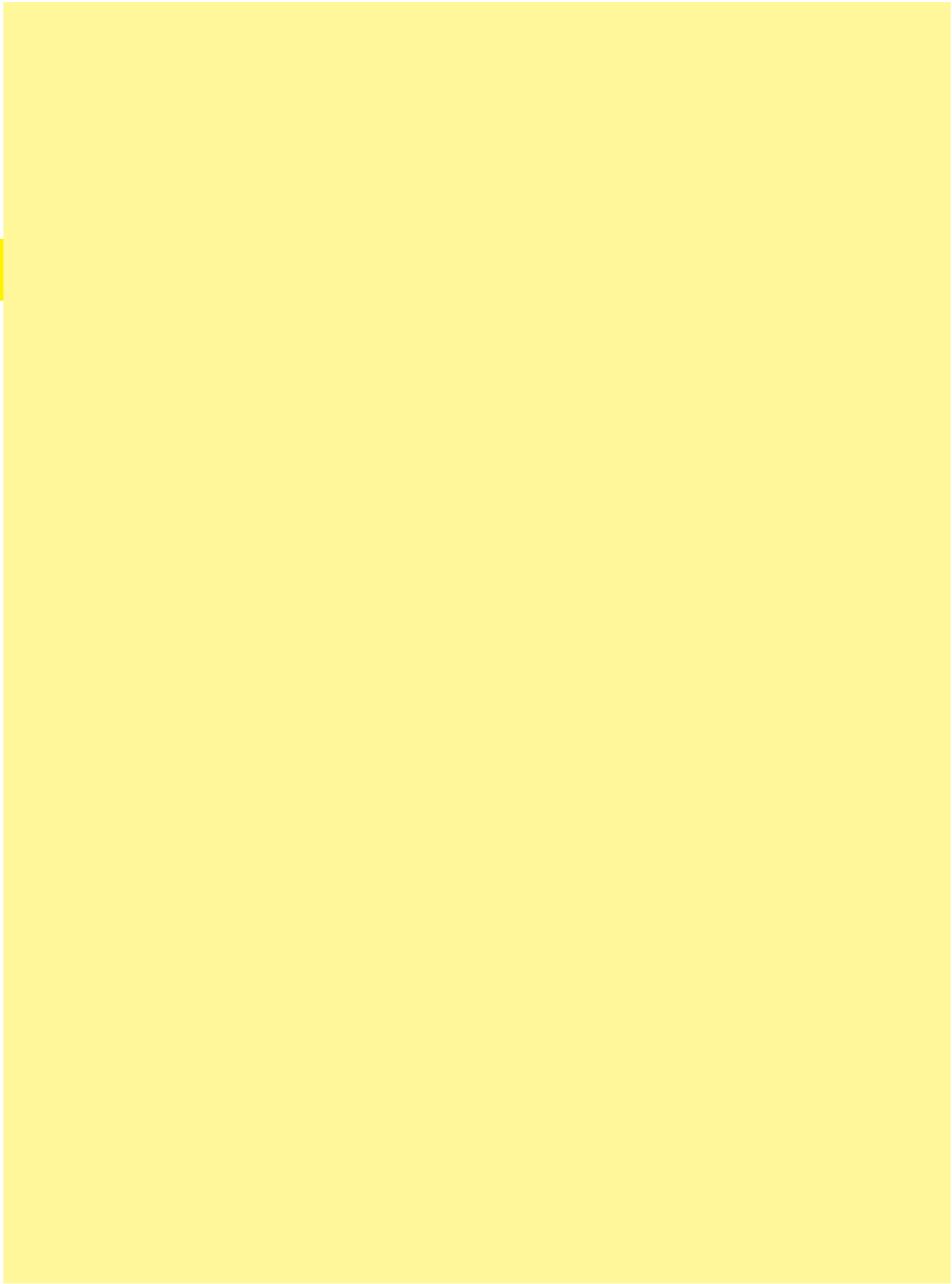
21 01 141 1323

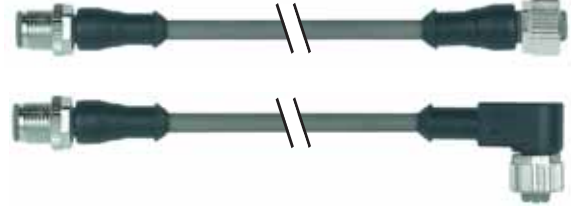
HARAX® M20 / 3 + PE
with pre-assembled strand, l = 500 mm, 1.5 mm²

21 01 141 3333



Circular
Connectors





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

Technical characteristics

Han® M12 Circular connector, without PE

| | |
|---|---|
| Working voltage | max. 250 V AC/DC, max. 30 V DC (with LED) |
| Working 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

| | |
|---|-----------------------------------|
| Working voltage | max. 60 V AC/DC |
| Working current/contact | max. 4 A |
| Locking | Screw locking M8x1, 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 | 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



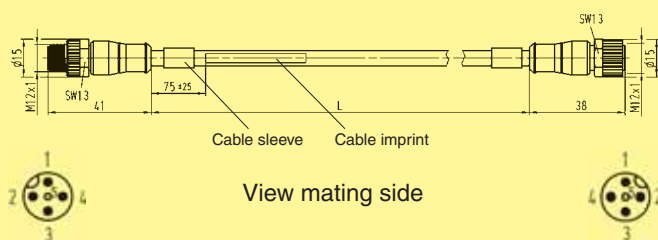
System cables with
Han® M12 Circular connector, A-coded

Identification Part No. Drawing Dimensions in mm

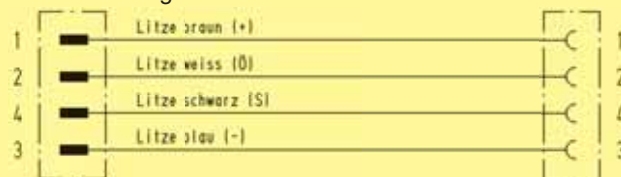
Han® M12 Circular connector
Female straight, Male straight

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



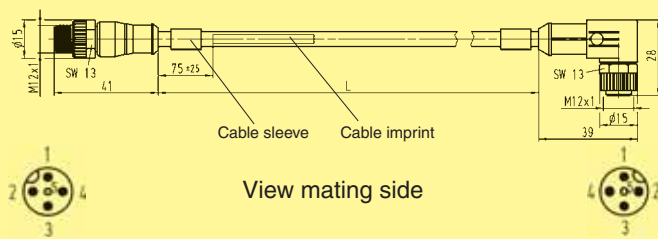
Schematic diagram



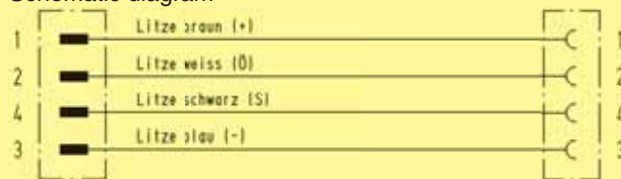
Han® M12 Circular connector
Female angled, Male straight

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



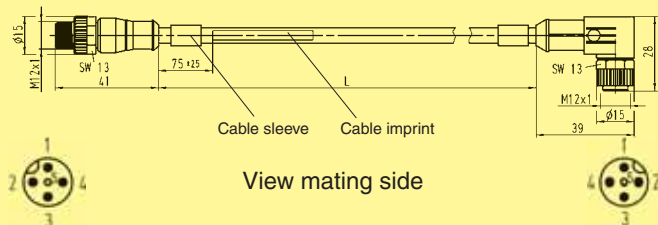
Schematic diagram



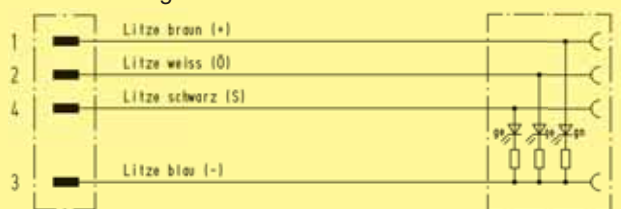
Han® M12 Circular connector
Female angled, with LED,
Male straight

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

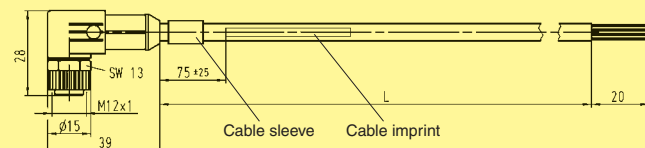
Dimensions in mm

Han® M12 Circular connector

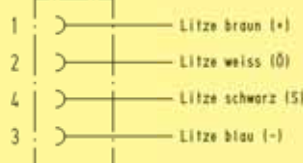
Female angled
pre-assembled on one end

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

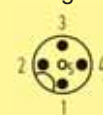
21 03 515 4401
21 03 515 4402
21 03 515 4403
21 03 515 4404
21 03 515 4405



Schematic diagram



View
mating side

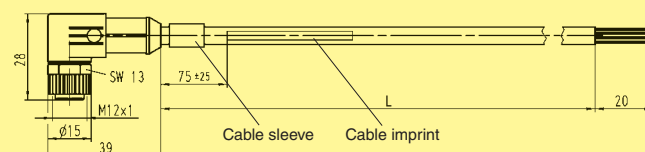


HARAX® M12 cable-Set

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

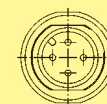
21 83 515 4401
21 83 515 4402
21 83 515 4403
21 83 515 4404
21 83 515 4405



HARAX® M12-S (21 03 111 1405)



View
mating side

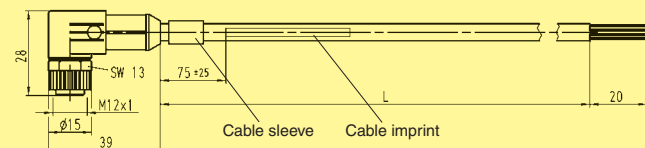


Han® M12 Circular connector

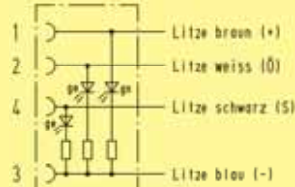
Female angled, with LED
pre-assembled on one end

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



View
mating side

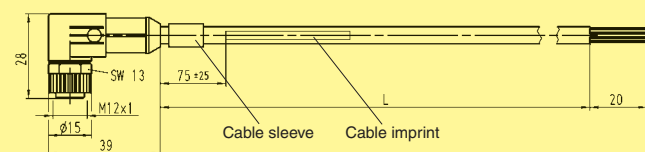


HARAX® M12 cable-Set

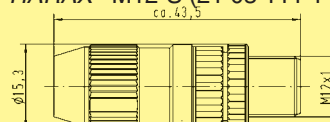
Delivery range: Han® M12 connector
with individually adaptable cable and
HARAX® M12-S

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

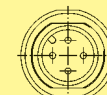
21 83 515 7401
21 83 515 7402
21 83 515 7403
21 83 515 7404
21 83 515 7405



HARAX® M12-S (21 03 111 1405)



View
mating side



Circular
Connectors

Han® M8 Circular connector

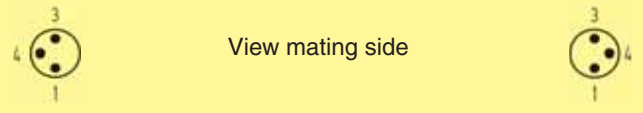
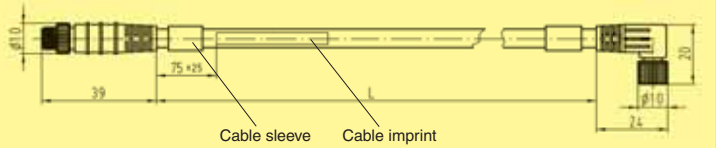


System cables with Han® M8 Circular connector

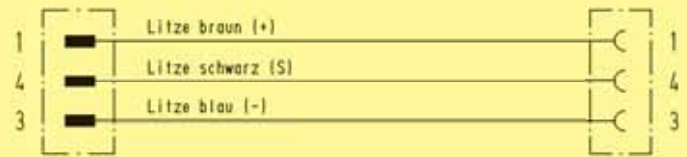
Identification Part No. Drawing Dimensions in mm

Han® M8 Circular connector
Female angled, Male straight

| | | |
|---------|-------|-----------------------|
| Length: | 0.3 m | 21 02 454 5301 |
| | 0.6 m | 21 02 454 5302 |
| | 1.0 m | 21 02 454 5303 |
| | 1.5 m | 21 02 454 5304 |
| | 2.0 m | 21 02 454 5305 |

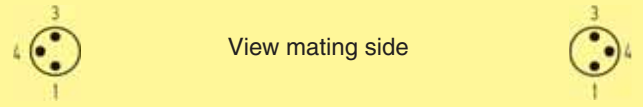
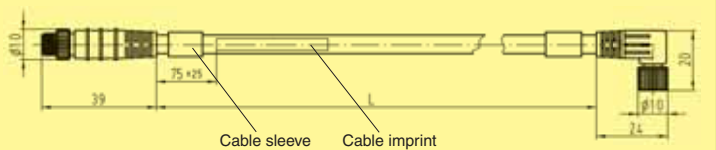


Schematic diagram

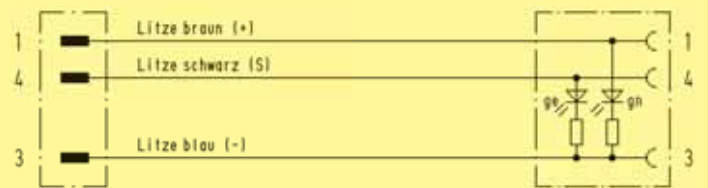


Han® M8 Circular connector
Female angled, with LED
Male straight

| | | |
|---------|-------|-----------------------|
| Length: | 0.3 m | 21 02 454 7301 |
| | 0.6 m | 21 02 454 7302 |
| | 1.0 m | 21 02 454 7303 |
| | 1.5 m | 21 02 454 7304 |
| | 2.0 m | 21 02 454 7305 |



Schematic diagram





System cables with Han® M8 Circular connector

| 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 (+) 4 — Litze schwarz (S) 3 — Litze blau (-) <p>View mating side</p> | |
| <p>HARAX® M8 cable-Set 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>Drawing see page 03.07</p> <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 (+) 4 — Litze schwarz (S) 3 — Litze blau (-) <p>View mating side</p> | |
| <p>HARAX® M8 cable-Set 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>Drawing see page 03.07</p> <p>View mating side</p> | |



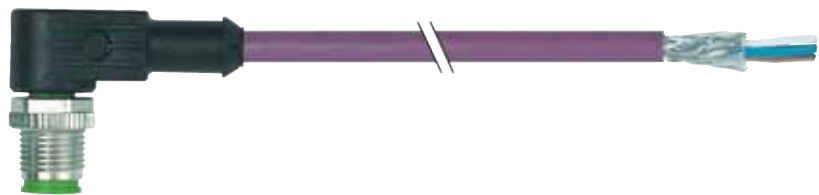
System cables with
Han® M12 Circular connector, B-coded

Technical characteristics

| | |
|---|---|
| Working voltage | max. 125 V AC/ DC |
| Working current/contact | max. 4A |
| 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>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> | | |

Han® M12 Circular connector



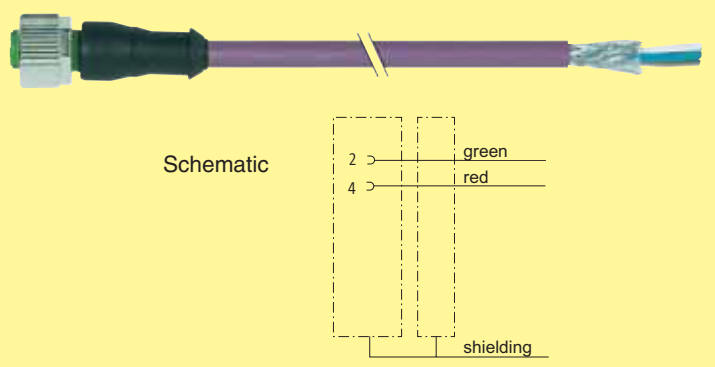
System cables with Han® M12 Circular connector, B-coded

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

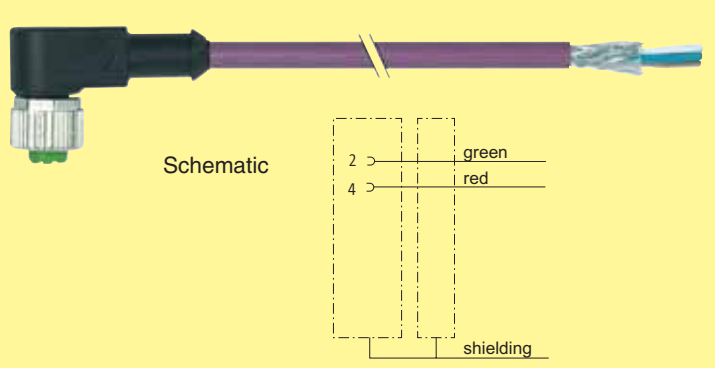
21 03 549 2301
21 03 549 2302
21 03 549 2303
21 03 549 2304
21 03 549 2305



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

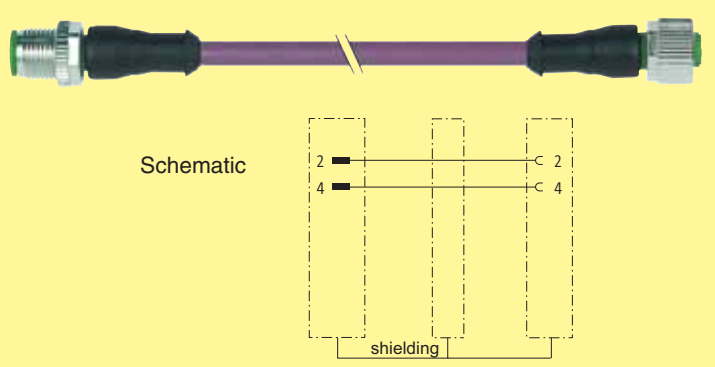
21 03 549 4301
21 03 549 4302
21 03 549 4303
21 03 549 4304
21 03 549 4305



Han® M12 Circular connector, Male, straight
Female, straight
pre-assembled on one end, useable as trailing cable

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

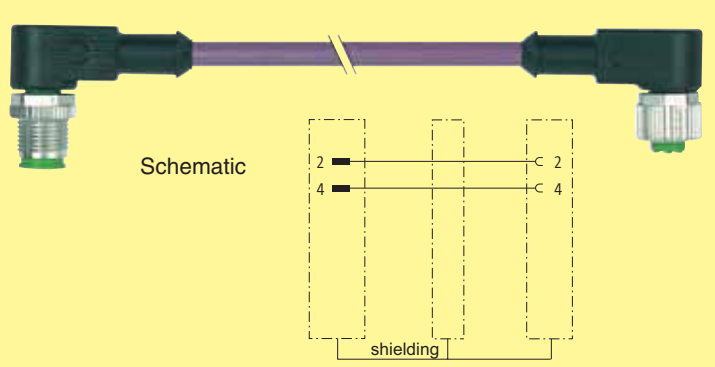
21 03 449 4301
21 03 449 4302
21 03 449 4303
21 03 449 4304
21 03 449 4305








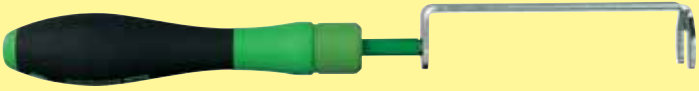
Han® M12 Circular connector, Male, angled
Female, angled
pre-assembled on one end, useable as trailing cable

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

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



Circular Connectors

| Identification | Part No. | Technical characteristics |
|---|-----------------------|---|
| <p>Han® M12-male moving load B-coded</p>  | 21 03 030 1300 | |
| <p>Han® M12-male/female panel feed-through B-coded</p>  | 21 03 330 1300 | <p>Working 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</p> |
| <p>Han® M12-panel feed-through Male, B-coded, 20 cm conductor</p>  | 21 03 339 1301 | <p>Working voltage 250 V AC/DC Voltage/contact max. 4A Termination solder, with pigtails (TPE insulation) assembled Conductor cross section 0.25 mm² Degree of protection IP 67 in locked position (EN 60529) Temperature range -25 °C ... + 85 °C</p> |
| <p>Han® M12-panel feed-through Female, B-coded, 20 cm conductor</p>  | 21 03 339 2301 | <p>Working voltage 250 V AC/DC Voltage/contact max. 4A Termination solder, with pigtails (TPE insulation) assembled Conductor cross section 0.25 mm² Degree of protection IP 67 in locked position (EN 60529) Temperature range -25 °C ... + 85 °C</p> |
| <p>PROFIBUS-cable 100 m raw, PUR cable, useable as trailing cable</p> | 21 01 000 0021 |  |
| <p>Han® M12 dynamometric screwdriver SW 18 or 13</p> | 09 99 000 0382 |  |



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

Technical characteristics

Han® M12 Circular connector – AWG 22/7

| | |
|----------------------------------|--|
| Working voltage | max. 50 V AC/DC |
| Working 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

| | |
|----------------------------------|--|
| Working voltage | max. 50V AC/DC |
| Working 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

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 |

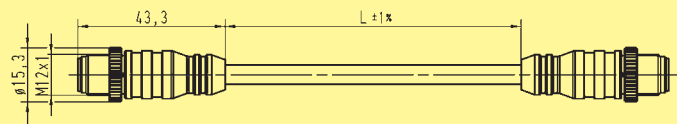
2 x Han® M12 Circular connector, D-coded, straight

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

21 03 483 1401
21 03 483 1403
21 03 483 1405
21 03 483 1410
21 03 483 1415
21 03 483 1425
21 03 483 1440

other length on request

cable: AWG 26 / 0.14 mm²



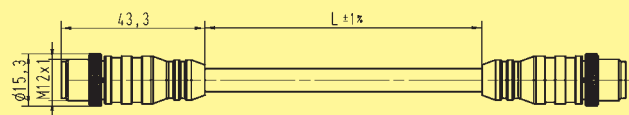
2 x Han® M12 Circular connector, D-coded, straight

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

21 03 485 1401
21 03 485 1403
21 03 485 1405
21 03 485 1410
21 03 485 1415
21 03 485 1425
21 03 485 1440

other length on request

cable: AWG 22 / 0.34 mm²





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

Identification Part No. Drawing Dimensions in mm

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

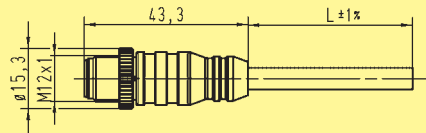
| Signal | Function | Conductor colour PROFInet® | Conductor colour EIA/TIA 568B | Contact assignment |
|--------|--------------------|----------------------------|-------------------------------|--------------------|
| TD+ | Transmission Data+ | Yellow | White/Orange | 1 |
| TD- | Transmission Data- | 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 **21 03 583 1401**
3 m **21 03 583 1403**
5 m **21 03 583 1405**
10 m 21 03 583 1410
25 m 21 03 583 1425
40 m 21 03 583 1440

other length on request

cable: AWG 26 / 0.14 mm²

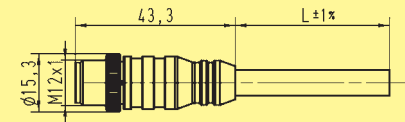



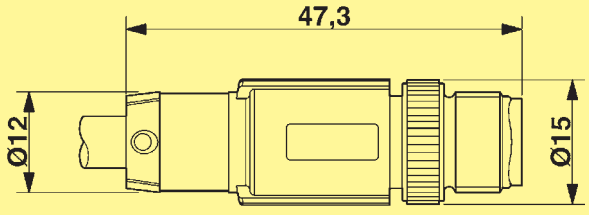

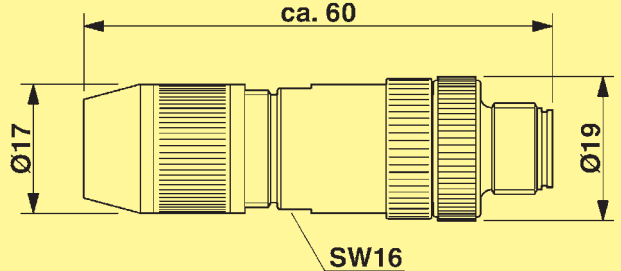

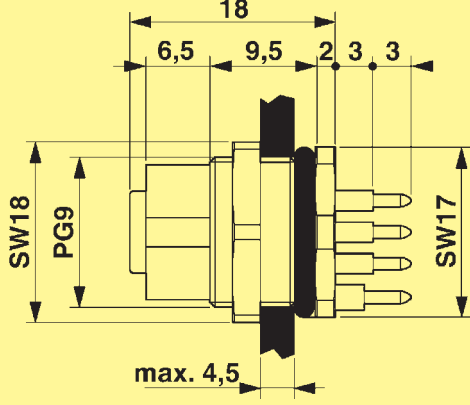
1 x Han® M12 Circular connector, D-coded, straight

Length: 1 m **21 03 585 1401**
3 m **21 03 585 1403**
5 m **21 03 585 1405**
10 m 21 03 585 1410
25 m 21 03 585 1425
40 m 21 03 585 1440

other length on request

cable: AWG 22 / 0.34 mm²



| Identification | Part No. | Drawing | Dimensions in mm |
|---|-----------------------|--|------------------|
| <p>1 x Han® M12 Circular connector, straight pre-assembled on one end, 8 poles</p> <p>Length: 1.0 m 21 03 514 1801 3.0 m 21 03 514 1803 5.0 m 21 03 514 1805</p>  | |  | |
| <p>Han® M12 Circular connector with IDC termination technology, 8 poles</p>  | <p>21 03 121 1801</p> |  | |
| <p>Han® M12 pcb 8 poles</p>  | <p>21 03 311 2801</p> |  | |

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



Cable side

Identification

Part No.

Drawing

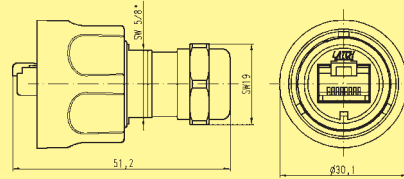
Dimensions in mm

Han-Max®
Cable side

UTP unscreened version

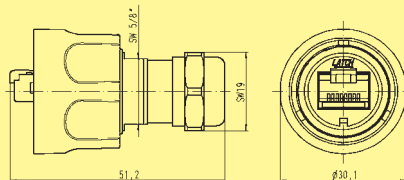


09 15 300 0401



ScTP screened version

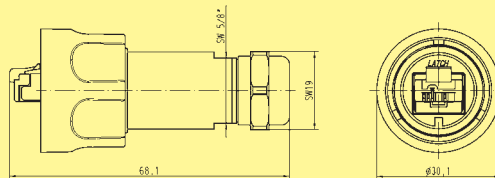
09 15 300 0402



Han-Max® RJ Industrial
Cable side



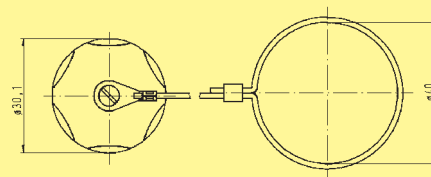
09 15 300 0412



Han-Max® Protection cover
Cable side



09 15 300 5401

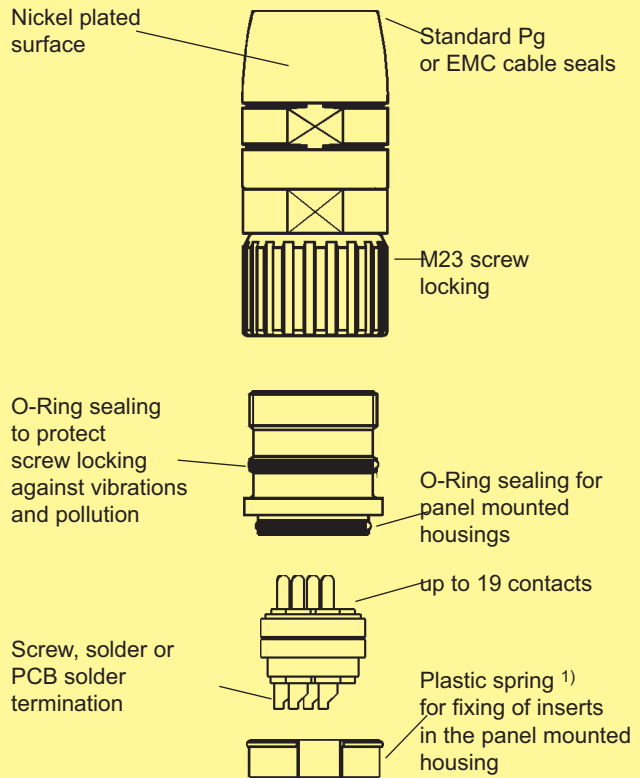




Features

- 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 | | | | |

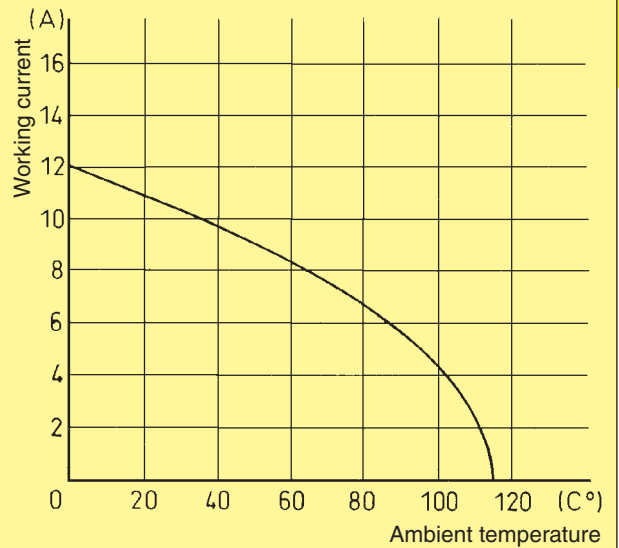
Contacts

| | |
|---|---|
| Material | Copper alloy |
| Surface | Gold plated |
| Contact resistance | $\leq 5 m\Omega$ |
| 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 | $\varnothing 1.5 mm$ |
| - signal contact | $\varnothing 0.6 mm$ |
| - reference to bulkhead mounted housing | 3.5 mm |



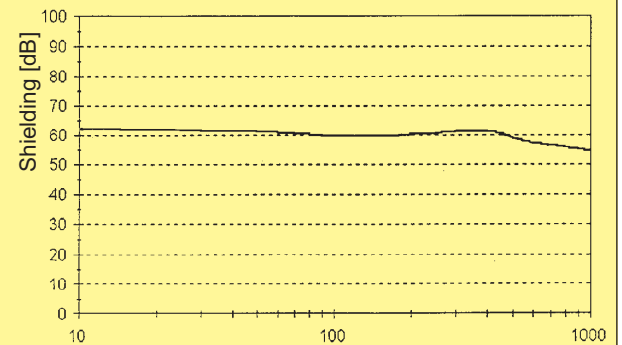
1) Accd. to DIN VDE 0627 metallic parts which may be touched by a person and may have voltages present under fault conditions, must have integral protection. Therefore this R 23 connector is limited for use up to 25 V~/60 V-.


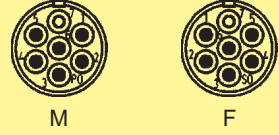


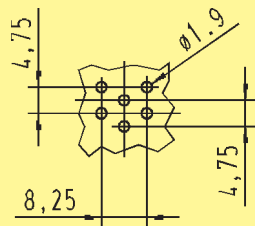



Derating Diagramm



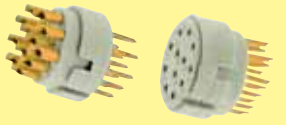
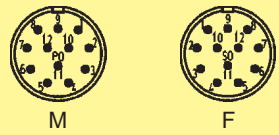

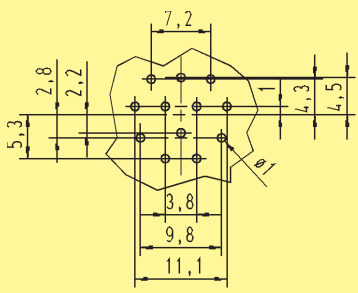

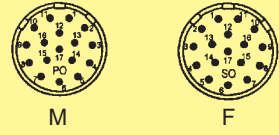

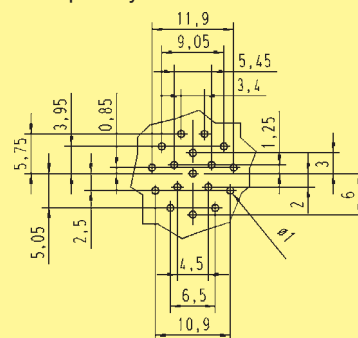
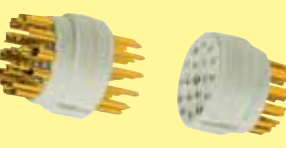
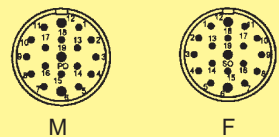
Insert: 12 poles
 Conductor cross section: 1 mm² (AWG 18)


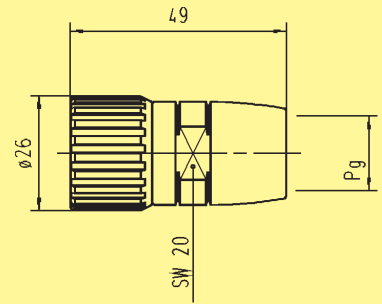

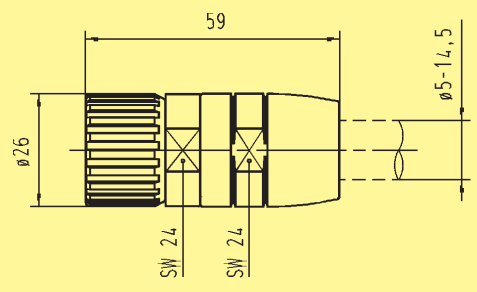

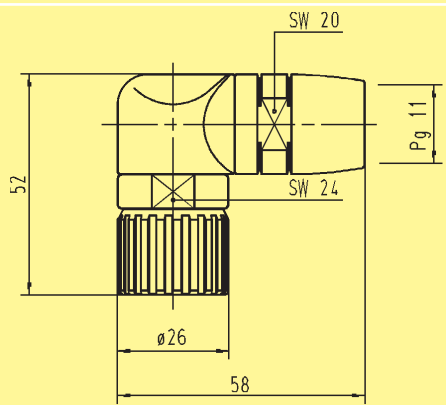

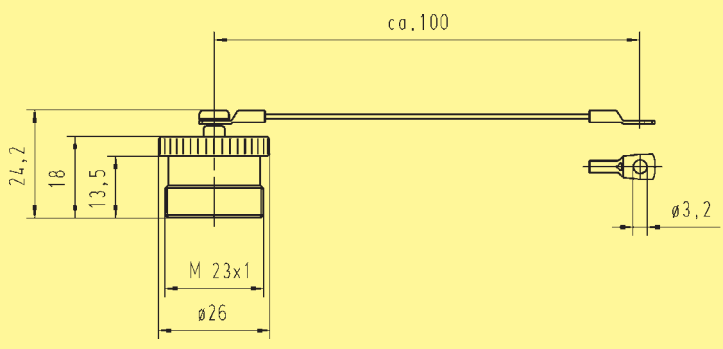
Shielding of the EMC housings


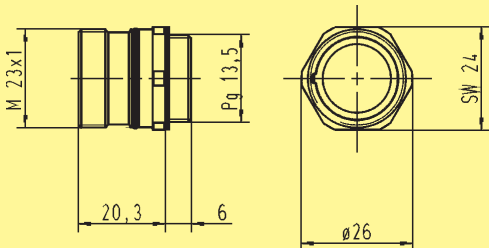

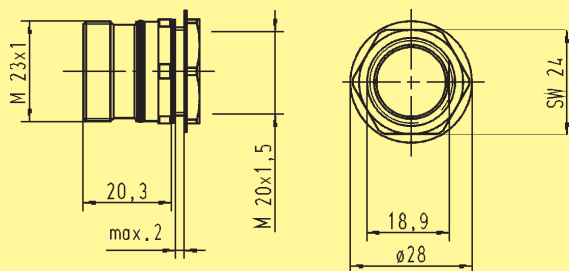

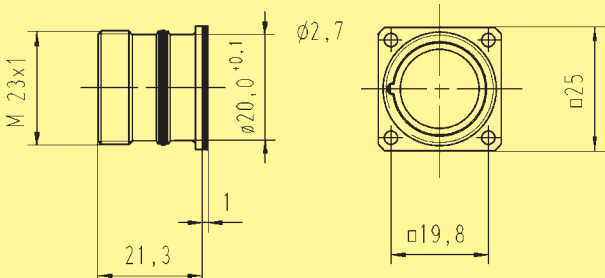

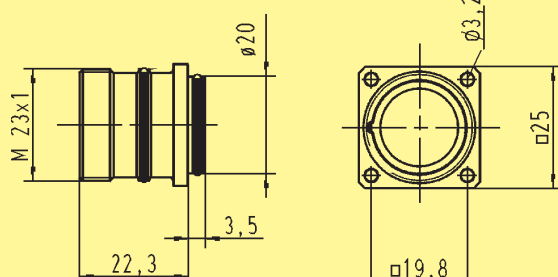

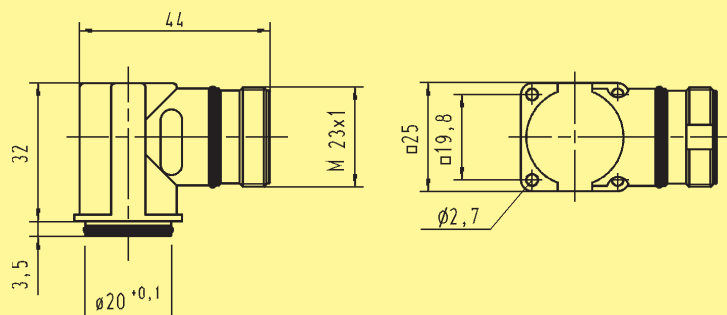



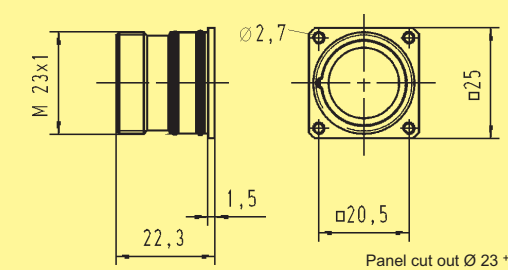

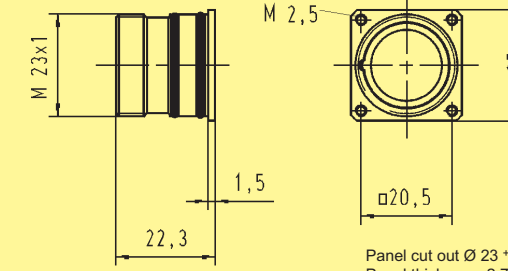

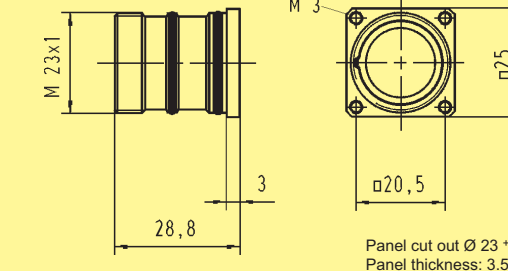

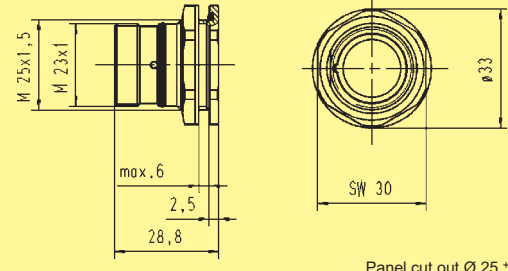

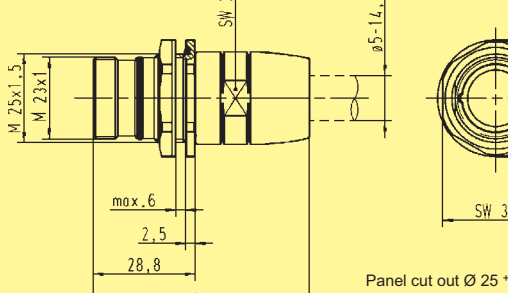
| Identification | Number of contacts | Male (M) | Female (F) | Drawing | Dimensions in mm |
|---|--------------------|----------------|----------------|---|------------------|
| Screw termination  | 6 | 09 15 206 2601 | 09 15 206 2701 | Contact arrangement: mating side  | |
| Solder termination  | 6 | 09 15 206 2603 | 09 15 206 2703 | | |
| pcb solder termination ²⁾  | 6 | 09 15 206 2604 | 09 15 206 2704 | pcb layout  | |
| 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>2) Suitable only for bulkhead mounted housings 09 15 200 0311, 09 15 200 0313 and 09 15 200 0301</p> |
| <p>Solder termination</p>  | 17 | 09 15 217 2601 | 09 15 217 2701 | <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 2603 | 09 15 217 2703 | | <p>2) Suitable only for bulkhead mounted housings 09 15 200 0311, 09 15 200 0313 and 09 15 200 0301</p> |
| <p>Solder termination</p>  | 19 | 09 15 219 2603 | 09 15 219 2703 | <p>Contact arrangement: mating side</p>  | |

| 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 | |
| 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 $\varnothing 20^{+0,1}$</p> | |
| <p>Housing bulkhead mounting front wall assembly with flat sealing</p>  | <p>09 15 200 0301</p> |  <p>Panel cut out $\varnothing 20^{+0,1}$</p> | |
| <p>Housing bulkhead mounting front wall assembly with O-ring sealing</p>  | <p>09 15 200 0305</p> |  <p>Panel cut out $\varnothing 20^{+0,1}$</p> | |
| <p>Housing bulkhead mounting front wall assembly with O-ring sealing</p>  | <p>09 15 200 0901</p> |  <p>Panel cut out $\varnothing 20^{+0,1}$</p> | |

| 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 | | | |

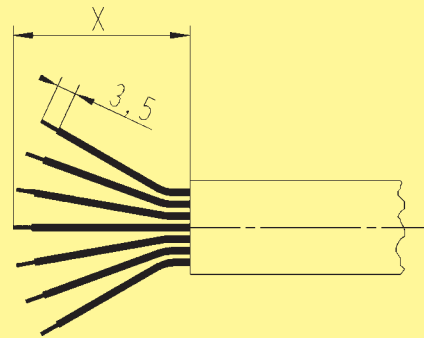
Order inserts separately see page 03.40 - 03.41

Corresponding hoods and housing see page 03.42

Stock items in bold type

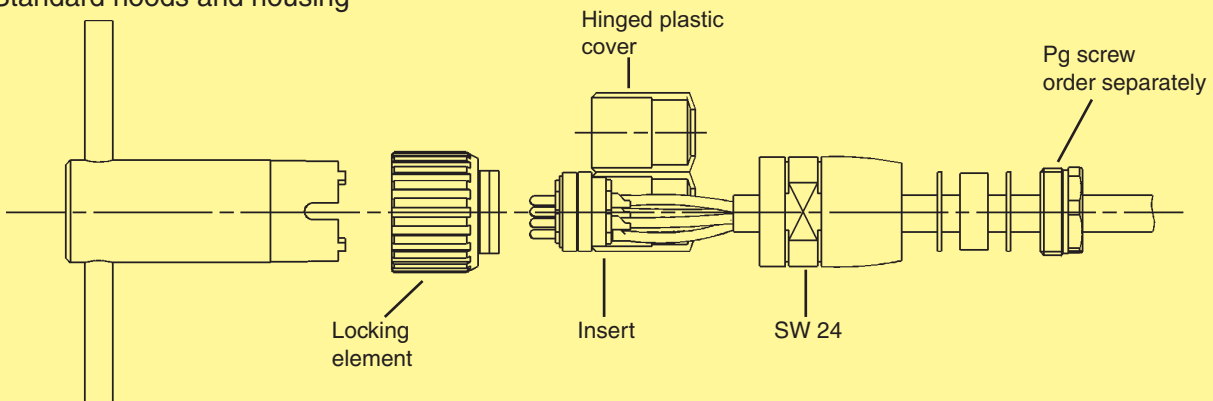
Assembly manuals

| 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 |

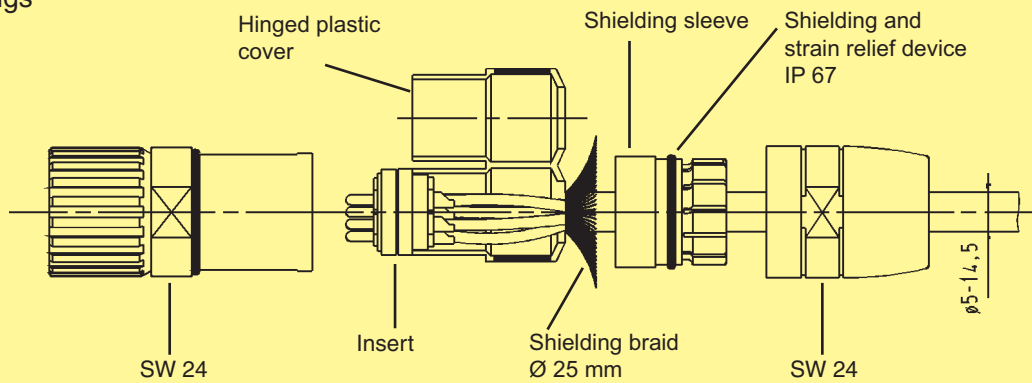


Circular Connectors

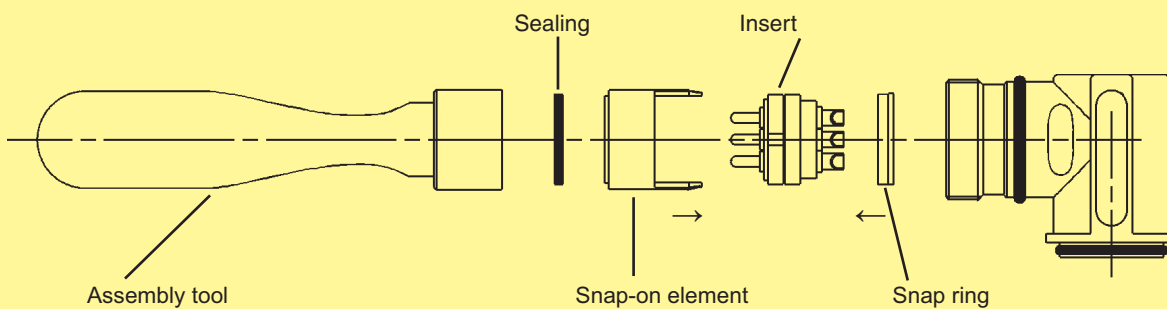
Standard hoods and housing


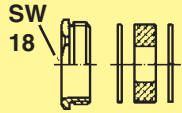

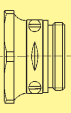





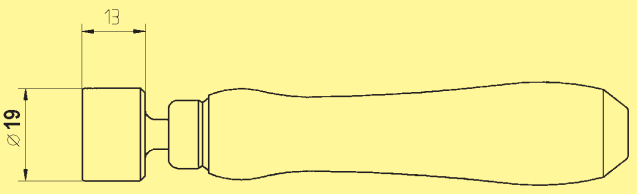
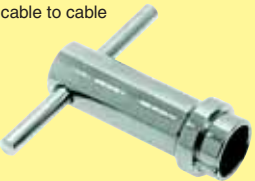
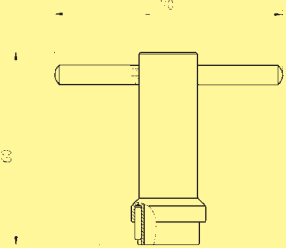

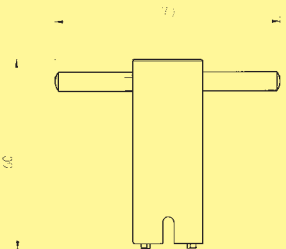
EMC housings



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 bell-mouth cable fitting and strain relief order separately  | 09 00 000 5027 | 11 | 6.5 - 12 |  |

| 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 4 - 5.1 mm | | 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 | | |
| Seal Pg 13.5 / M20 6 - 9 mm | | 21 01 010 2002 | | |
| Cap M12 | | 21 01 000 0003 | | |
| Lock nut Pg 9 nickel plated | | 21 01 000 0008 | | |
| 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 | | |

