



Pushing Performance



People | Power | Partnership

# HARTING

## M8 / M12 Circular Connectors

---

# Transforming customer wishes into concrete solutions



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

The HARTING Group currently comprises 37 subsidiary companies and worldwide distributors employing a total of more than 3.800 staff.



HARTING Subsidiary company



HARTING Representatives



### **We aspire to top performance.**

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

### **Always at hand, wherever our customers may be.**

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

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

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

### **Our claim: Pushing Performance.**

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

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

### **Quality creates reliability - and warrants trust.**

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

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



**HARTING technology creates added value for customers.**

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

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

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

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

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

**HARTING solutions extend across technology boundaries.**

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

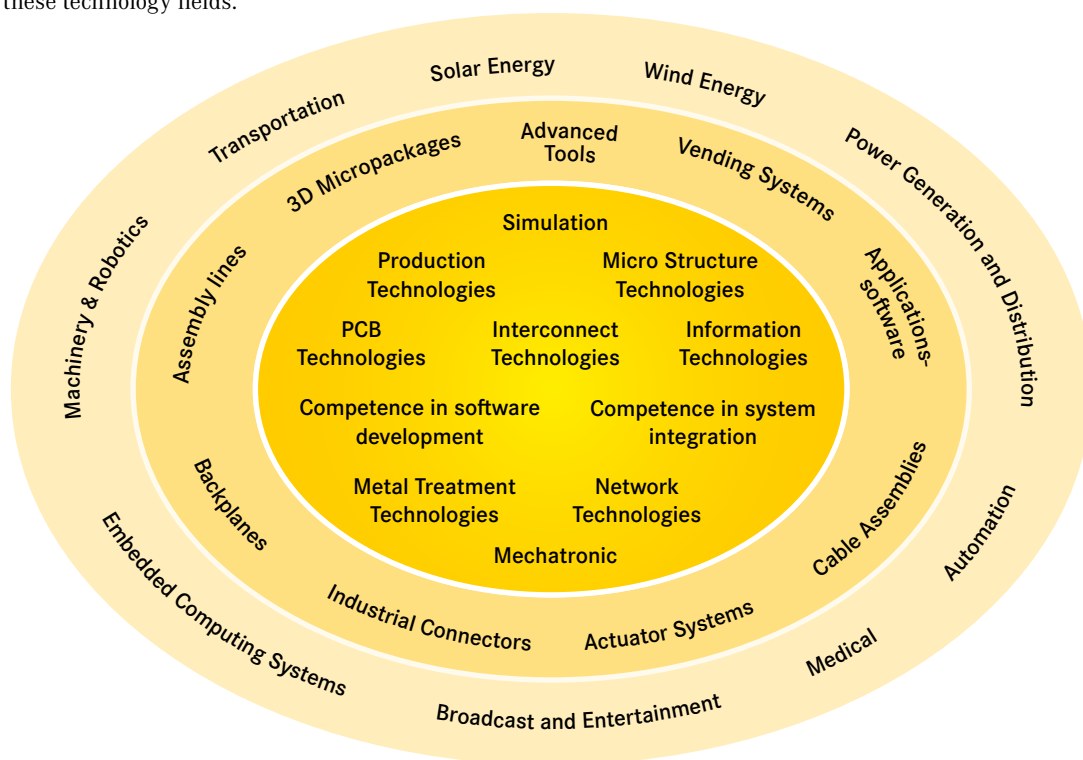
In order to ensure the future proof design of RF- and EMC-compatible interface solutions, the central HARTING laboratory (certified to EN 45001) provides simulation tools, as well as experimental, testing and diagnostics facilities all the way through to scanning electron microscopes. In the selection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



**HARTING knowledge is practical know-how generating synergy effects.**

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

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



The **HARTING eCatalogue** is an electronic catalogue with a part configuration and 3D components library.

Here you can choose a connector according to your requirements. Afterwards you are able to send your inquiry directly to a HARTING sales partner.

The drawings to every single part are available in PDF-format.

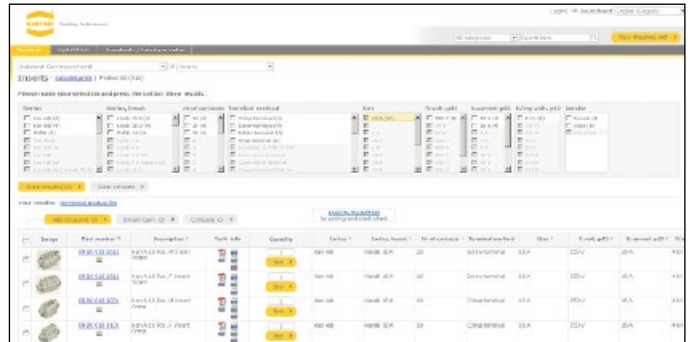
The parts are downloadable in 2D-format (DXF) and 3D-format (IGES, STEP).

The 3D-models can be viewed with a VRML-viewer.

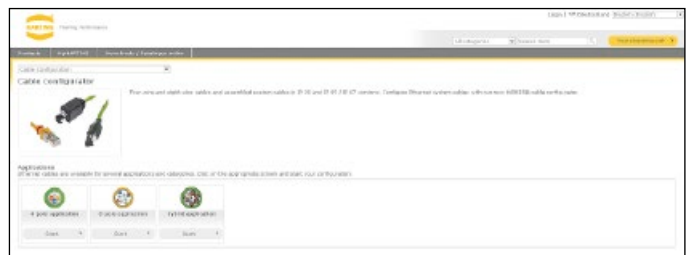
You can find the **HARTING eCatalogue** at [www.HARTING.com](http://www.HARTING.com).



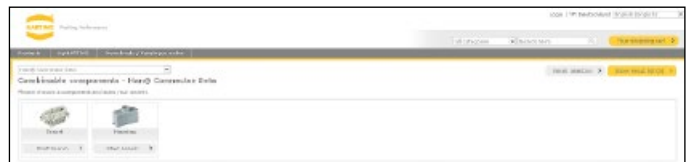
Product overview



Product selection



Product configuration



Product combination

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

The new free express sample service in the HARTING eCatalogue allows customers to order samples immediately, easily and completely free of charge. A broad selection from the device connectivity product portfolio is now available. If a product is unavailable, the system offers alternative products with similar features that can be requested at a mouse click.

The free samples are shipped within 24 hours at no cost to you. This service enables tremendous flexibility, especially in the design phase of projects.

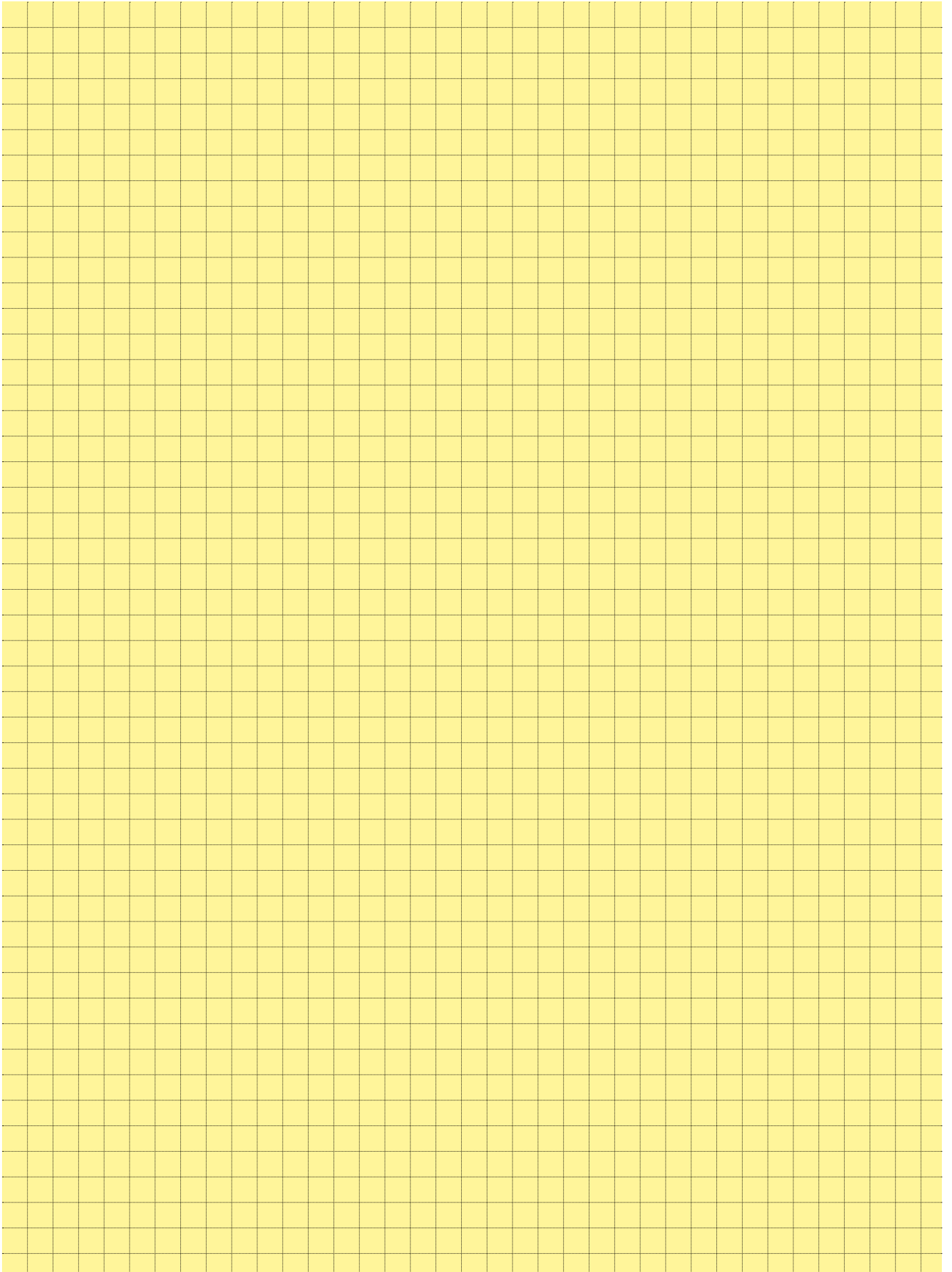
### General information

It is the customer's responsibility to check whether the components illustrated in this catalogue also comply with different regulations from those stated in special fields of applications.

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

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

Directory	Chapter	
General information .....	01	01
M8 .....	02	02
M12 .....	03	03
<i>har</i> -speed M12 data connectors .....	04	04
<i>7/8"</i> HARAX® .....	05	05
HARAX® panel feed-through .....	06	06
INOX – Solutions for extreme demands .....	07	07
List of part numbers .....	Be	Be
Addresses		





Directory

Page

**1. General information**

**01**

<b>1.1 Circular connectors</b> .....	<b>01.02</b>
<b>1.2 Special series features</b> .....	<b>01.03</b>
<b>1.3 Termination expertise</b> .....	<b>01.04</b>
<b>1.4 Specifications, approvals, mating faces and pin assignments</b> .....	<b>01.05</b>

Standardized circular connectors with M8, M12 and 7/8" thread are in widespread use in the installation of machines and systems. HARTING offers a portfolio of field-assembly angled and straight M8, M12 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 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 portfolio of circular connectors is rounded off by the *har-speed* M12 connector family. The *har-speed* connectors are optimized for machinery and system applications with high bandwidth as well as for the IP67 infrastructure. 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 IP65 / IP67, 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.



## ASSEMBLED SYSTEM CABLES:

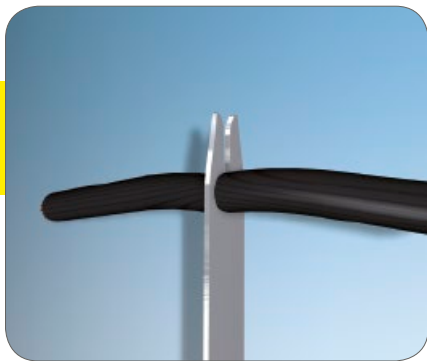
HARTING offers a comprehensive range of ready-to-use M8/M12 system cables for the quick wiring of sensors and actuators. HARTING also offers ready-to-use and tested system cables for special Ethernet communication such as PROFINET and Ethernet/IP. HARTING also provides custom patch cables which are also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



## 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.

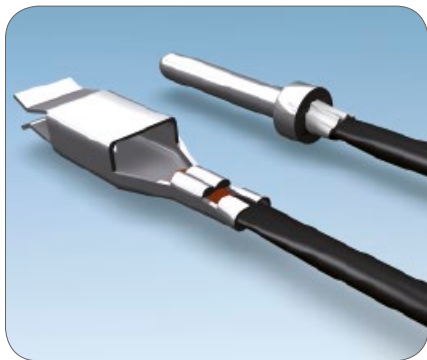




## WIRE TERMINATION EXPERTISE

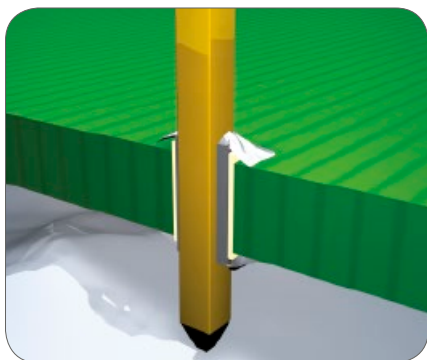
### 1. IDC INSULATION DISPLACEMENT TERMINALS

IDC (insulation displacement contact) technology facilitates the simple and safe termination of solid and flexible conductors. With IDC technology, a blade cuts through the wire insulation and produces an elastic termination in a single pass. This gas-proof connection provides maximum safety even for the lowest currents and voltages. *HARAX*<sup>®</sup> Fast termination technology is a special feature offered by HARTING which combines the insulation displacement connector with a wire guide element for conveniently producing on-site field installation without special tools. Technical requirements for IDC technology are standardized in IEC 60352-3.



### 2. CRIMP TERMINALS

Gas-proof and the miniaturized contact technology are synonymous with crimp technology. The flexible conductor is inserted into the crimp contact and is retained by controlled deformation. This technology is similar to a cold welding process and provides maximum aging resistance and mechanical resistance to shock and vibration. Crimp machines facilitate the efficient, streamlined production of system cable assemblies, and crimp technology can also be deployed for field assemblies using the corresponding hand crimp tools. The technical requirements for crimp technology are standardized in IEC 60352-2.

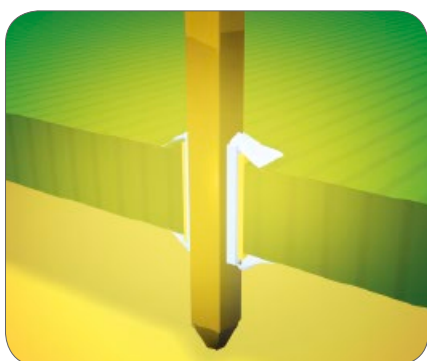


## PCB TERMINATION EXPERTISE

### 7. THT SOLDERING TECHNOLOGY

Proven over decades, standard soldering technologies deliver maximum stability and process reliability.

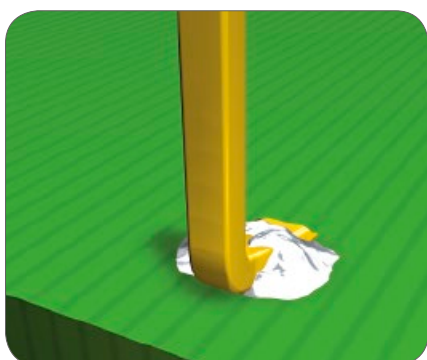
The soldering pins of the connectors are inserted into the through-plated PCB holes and can then be soldered simultaneously with other components in a wave soldering process.



### 8. SMC SOLDERING TECHNOLOGY

The connector is inserted into through-plated PCB holes similar to standard component assembly for processing with SMC (Surface Mount Compatible) soldering technology. Insertion of these SMT components can be automated by means of Pick & Place assembly in preparation for a reflow soldering process together with the surface-mounted component.

This connection technology is characterized by high mechanical strength and is facilitated by a design that is specially adapted to the reflow soldering process (high-temperature materials).



### 9. SMT SOLDERING TECHNOLOGY

By contrast to through-plated assembly, the SMT (Surface Mounted Technology) connectors are soldered directly onto the PCB surface by means of soldering pads.

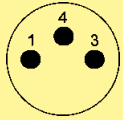
This process represents a uniform connection technology for PCB assembly and offers the advantage of SMT connectors that do not require separate wave soldering.

## Specifications

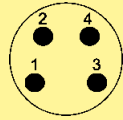
IEC 60 352-4, IEC 61076-2-104, IEC 61076-2-101, IEC 61076-2-109,



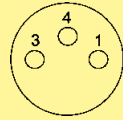
### M8 circular connectors, mating face acc. to IEC 61076-2-104



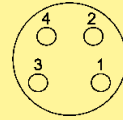
Male, 3 poles



Male, 4 poles



Female, 3 poles



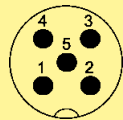
Female, 4 poles

### M12 circular connectors, mating face acc. to IEC 61076-2-101

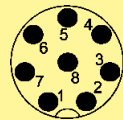
#### A-coding



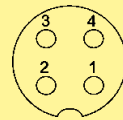
Male, 4 poles



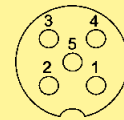
Male, 5 poles



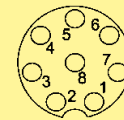
Male, 8 poles



Female, 4 poles

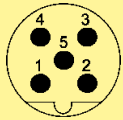


Female, 5 poles

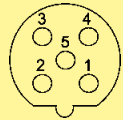


Female, 8 poles

#### B-coding

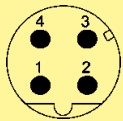


Male, 5 poles

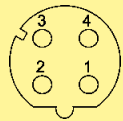


Female, 5 poles

#### D-coding

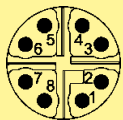


Male, 4 poles



Female, 4 poles

### X-coding, mating face acc. to IEC 61076-2-109

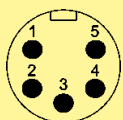


Male, 8 poles

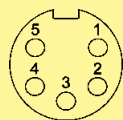


Female, 8 poles

### 7/8"

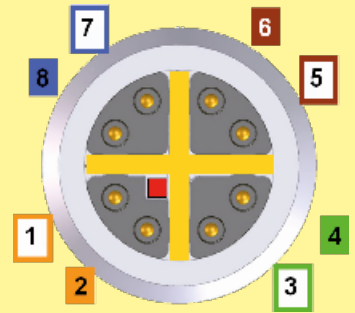


Male, 5 poles



Female, 5 poles

X-coding, mating face acc. to IEC 61076-2-109



8 poles pin assignment

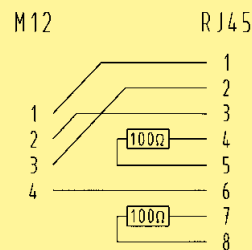
Signals		Pin assignment			Cable		
1/10Gbit	10/100 Mbit	RJ45	M12 D-coded	M12 X-coded	4-wire	568A	568B
BI_DA+	TxData+	1	1	1	yellow	white/green	white/orange
BI_DA-	TxData-	2	3	2	orange	green	orange
BI_DB+	RxData+	3	2	3	white	white/orange	white/green
BI_DC+	-	4	-	8		blue	blue
BI_DC-	-	5	-	7		white/blue	white/blue
BI_DB-	RxData-	6	4	4	blue	orange	green
BI_DD+	-	7	-	5		white/brown	white/brown
BI_DD-	-	8	-	6		brown	brown

## Adapter M12/RJ45

4 poles pin assignment

10/100 Mbit	RJ45	M12 D-coded	4-wire
TxData+	1	1	yellow
TxData-	2	3	orange
RxData+	3	2	white
RxData-	6	4	blue

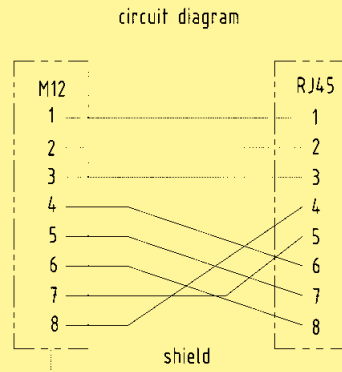
Stromlaufplan  
circuit diagram



## Adapter M12/RJ45

8 poles pin assignment

M12	RJ45
1	1
2	2
3	3
4	6
5	7
6	8
7	5
8	4

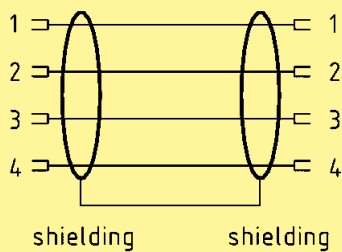


## Gender changer

4 poles



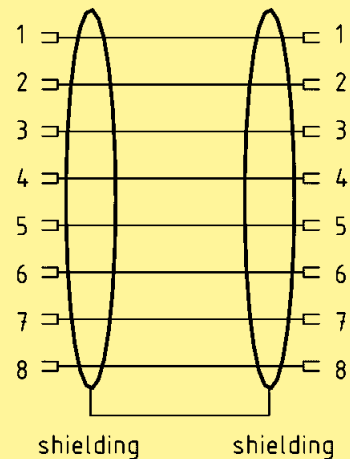
schematic diagram



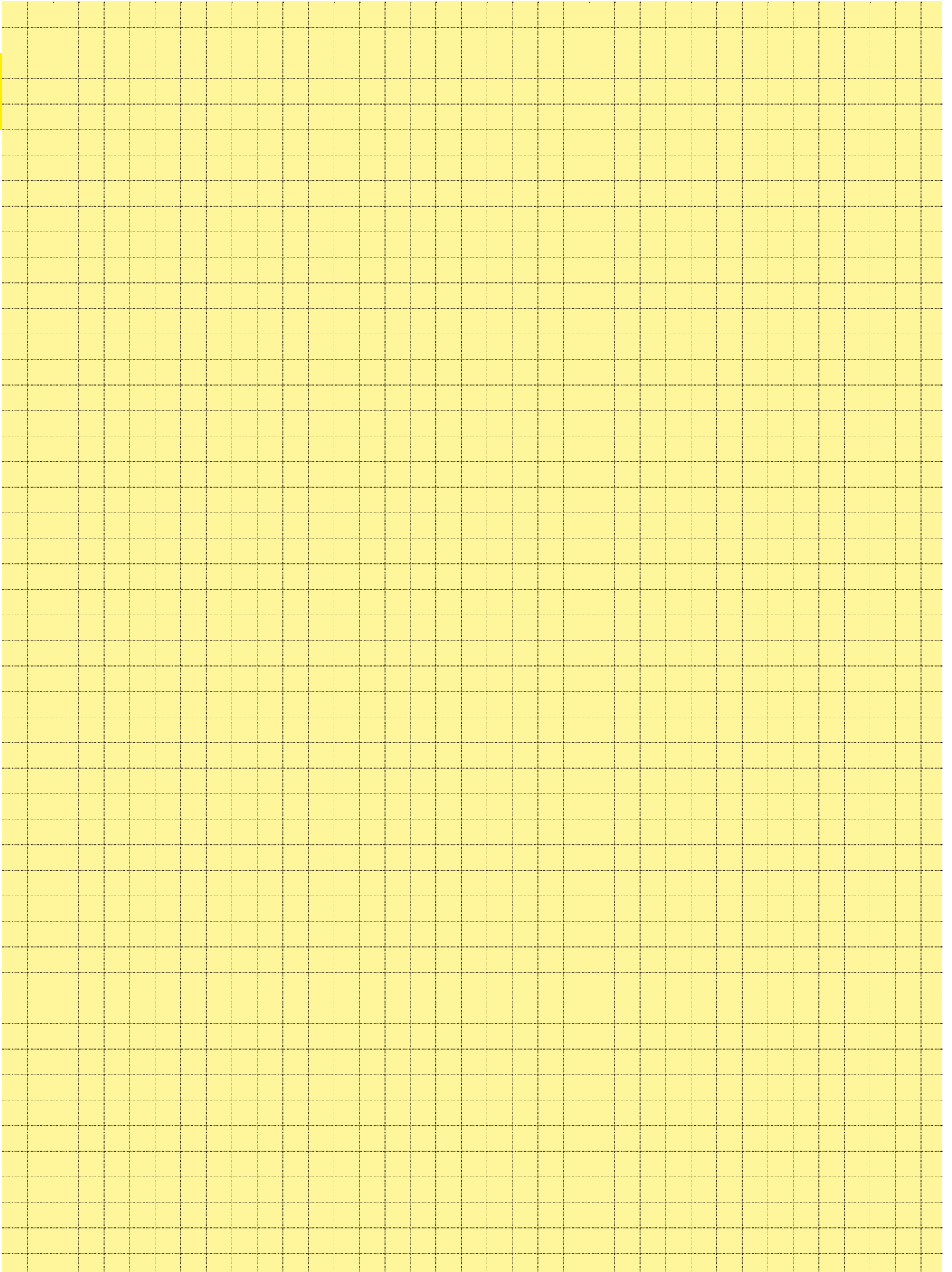
8 poles



schematic diagram



01





Directory

Page

2. **M8**

**2.1 A-coded – Solutions for actor and sensor applications**

o Technical characteristics .....	<b>02.02</b>
■ Cable connectors	
• HARAX® M8-XS .....	<b>02.05</b>
• HARAX® M8-S .....	<b>02.06</b>
• System cables .....	<b>02.08</b>
o Accessories .....	<b>02.12</b>

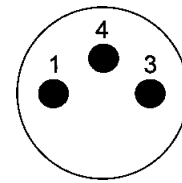
# M8 HARAX<sup>®</sup> cable connector



**Specifications** IEC 60 352-4

**Approval** 

Mating face



A-coding  
Mating face  
acc. to IEC 61 076-2-101



02

## Technical characteristics M8 HARAX<sup>®</sup>

Type M8	HARAX <sup>®</sup> M8-XS	HARAX <sup>®</sup> M8-S
---------	--------------------------	-------------------------

### General data

Conductor cross section	0.1 - 0.14 mm <sup>2</sup> AWG 27-26	0.14 - 0.34 mm <sup>2</sup> AWG 26-22
Diameter of individual strands	≥ 0.05 mm	≥ 0.1 mm
Conductor insulation material	PVC / PP / TPE	PVC / PP / TPE
Conductor diameter	0.6 - 1.0 mm	1.0 - 1.6 mm
Cable diameter	1.9 - 2.5 mm 2.5 - 3.5 mm	2.5 - 5.1 mm
Temperature range	-40 °C ... +85 °C	-40 °C ... +85 °C
Temperature during connection	-5 °C ... +50 °C	-5 °C ... +50 °C
Degree of protection	IP67	IP67
Mating cycles	100	100
Recommended tightening torque / Hexagonal wrench	0.4 Nm / SW 9	0.4 Nm / SW 9

### Electrical characteristics

Rated current	2 A	4 A
Rated voltage	32 V	32 V
Rated impulse voltage	1.5 kV	1.5 kV
Contact resistance	10 mΩ	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω
Pollution degree	3	3
Overvoltage category	3	3
Isolation group	1	1

### Materials

Contact material	Copper alloy	Copper alloy
Contact plating	Gold	Gold
Contact carrier material	PA	PA
Housing material	PA, zinc die-cast	PA, zinc die-cast

02  
02

## Technical characteristics – System cables

### M8 Circular connectors, without PE

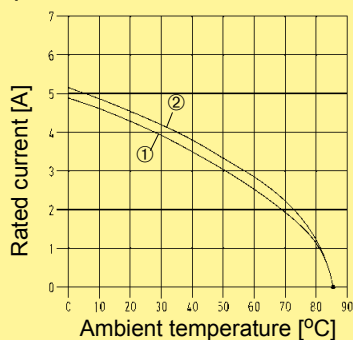
Rated voltage	max. 60 V AC/DC
Rated current / contact	max. 4 A
Locking	Screw locking M8x1, self securing
Recommended torque	0.4 Nm
Temperature range	-25 °C ... +85 °C (dependant on connected conductor)
Degree of protection	IP67
Number of wires / wire gauge	3 x 0.25 mm <sup>2</sup>
Conductor insulation	PP (bn, bu, bk)
Arrangement of insulated strands	32 x 0.1 mm
Sheath	PUR (UL, CSA)
Outer diameter	appr. 4.2 - 5.5 mm
Bending radius	10 x outer diameter
Temperature range (working and storage)	-5 °C ... + 80 °C

## Technical characteristics M8

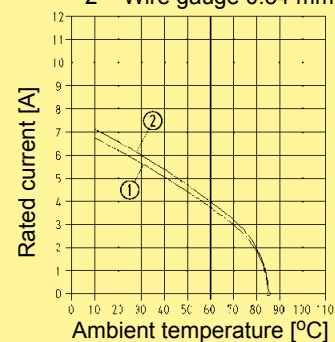
**Current carrying capacity** The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interruptet current-loaded contacts of connectors when simultaneous power on all contacts is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

Control and test procedures according to DIN IEC 60 512-5.

M8-XS, 3 poles 1 = Wire gauge 0.1 mm<sup>2</sup>  
 M8-S, 3 poles 2 = Wire gauge 0.14 mm<sup>2</sup>



M8-S, 4 poles 1 = Wire gauge 0.25 mm<sup>2</sup>  
 2 = Wire gauge 0.34 mm<sup>2</sup>

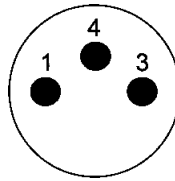


02

02  
04



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

- Actor and sensor applications
- Unshielded versions
- HARAX® rapid termination
- Overmoulded system cables in various lengths
- Robust design, quick assembly

Identification

Part No.

Drawing

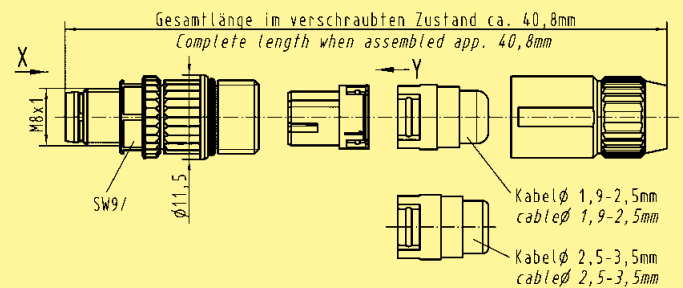
Dimensions in mm

HARAX® M8-XS



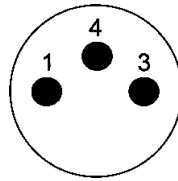
Male  
straight version, 3 poles  
for 0.1 - 0.14 mm<sup>2</sup>

21 02 159 1305





Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



02

Identification

Part No.

Drawing

Dimensions in mm

HARAX® M8-S



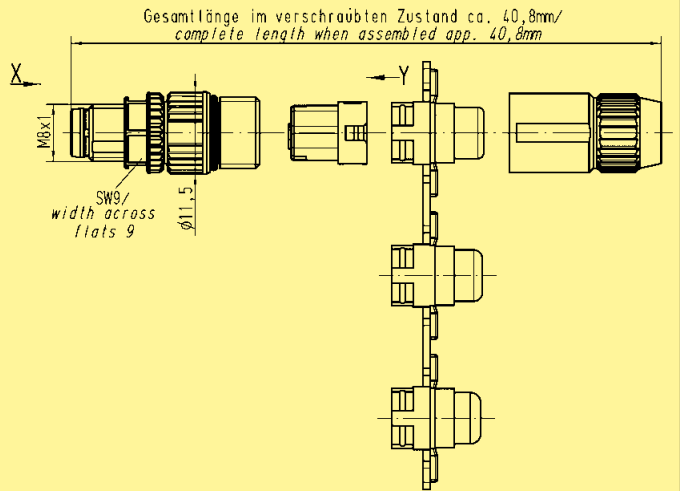
Male  
straight version, 3 poles  
for 0.14 - 0.34 mm<sup>2</sup>

21 02 151 1305

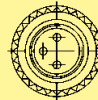


Male  
straight version, 4 poles  
for 0.14 - 0.34 mm<sup>2</sup>

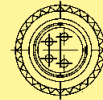
21 02 151 1405



View mating side:  
3 poles, male

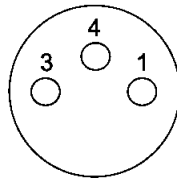


View mating side:  
4 poles, male





Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

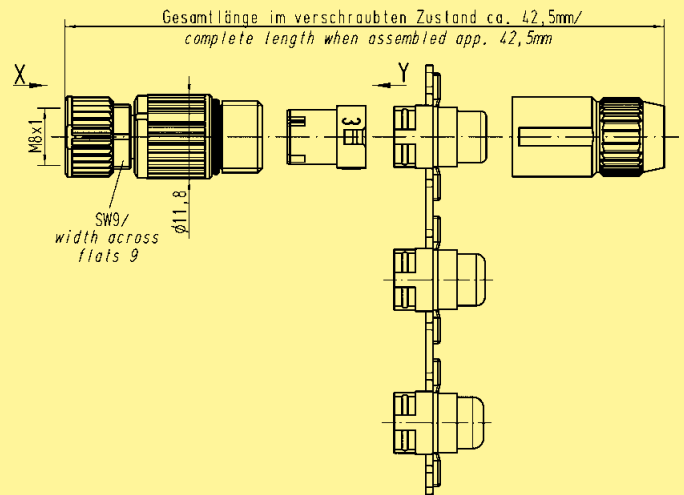
Dimensions in mm

**HARAX® M8-S**



Female  
straight version, 3 poles  
for 0.14 - 0.34 mm<sup>2</sup>

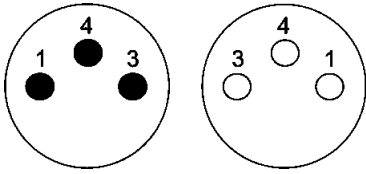
21 02 151 2305



Female  
straight version, 4 poles  
for 0.14 - 0.34 mm<sup>2</sup>

21 02 151 2405

Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



02

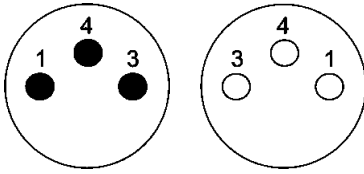
## Technical characteristics

### M8 Circular connector, without PE

Rated voltage	max. 60 V AC/DC
Rated current/contact	max. 4 A
Locking	Screw locking M8x1, self securing
Recommended torque	0.4 Nm
Temperature range (dependant on connected conductor)	-25 °C ... +85 °C
Degree of protection	IP67
Number of wires / wire gauge	3 x 0.25 mm <sup>2</sup>
Conductor insulation	PP (br, bl, sw)
Arrangement of insulated strands	32 x 0.1 mm
Sheath	PUR (UL, CSA)
Outer diameter	appr. 4.2 - 5.5 mm
Bending radius	10 x outer diameter
Temperature range (working and storage)	-5 °C ... + 80 °C



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



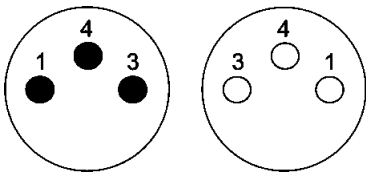
## Overview system cables M8

Number of contacts		Male M8 straight		Female M8 angled	
		Cable material PUR		Cable material PUR	
Female M8 angled		0.3 m	21 02 454 5301	xxx	
		0.6 m	21 02 454 5302	xxx	
		1.0 m	21 02 454 5303	xxx	
		1.5 m	21 02 454 5304	xxx	
		2.0 m	21 02 454 5305	xxx	
		0.3 m	21 02 454 7301 with LED	xxx	
		0.6 m	21 02 454 7302 with LED	xxx	
		1.0 m	21 02 454 7303 with LED	xxx	
		1.5 m	21 02 454 7304 with LED	xxx	
		2.0 m	21 02 454 7305 with LED	xxx	
Open end		xxx		1.5 m	21 02 554 4301
		xxx		3.0 m	21 02 554 4302
		xxx		5.0 m	21 02 554 4303
		xxx		7.5 m	21 02 554 4304
		xxx		10.0 m	21 02 554 4305
		xxx		1.5 m	21 02 554 7301 with LED
		xxx		3.0 m	21 02 554 7302 with LED
		xxx		5.0 m	21 02 554 7303 with LED
		xxx		7.5 m	21 02 554 7304 with LED
		xxx		10.0 m	21 02 554 7305 with LED

# M8 System cables



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



02

Identification

Part No.

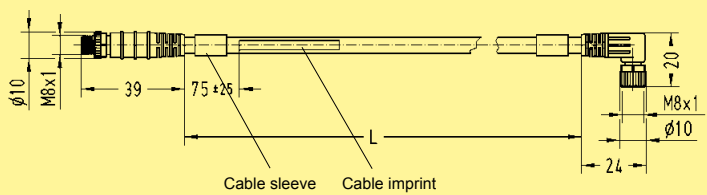
Drawing

Dimensions in mm

**M8 Circular connectors**  
Female angled, male straight

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

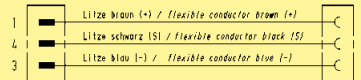
21 02 454 5301  
21 02 454 5302  
21 02 454 5303  
21 02 454 5304  
21 02 454 5305



View mating side



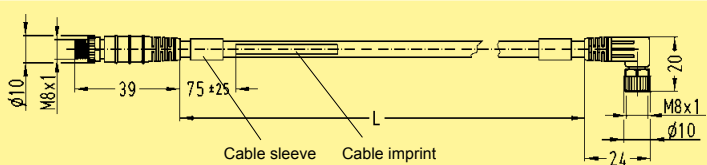
Schematic diagram



**M8 Circular connectors**  
Female angled, with LED  
Male straight

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

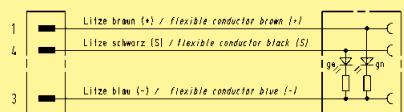
21 02 454 7301  
21 02 454 7302  
21 02 454 7303  
21 02 454 7304  
21 02 454 7305



View mating side



Schematic diagram

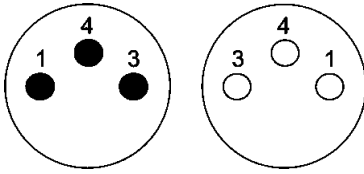


02  
10

# M8 System cables



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



02

Identification

Part No.

Drawing

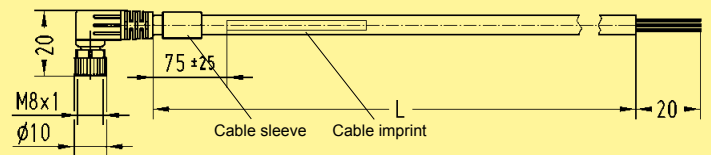
Dimensions in mm

## M8 Circular connectors

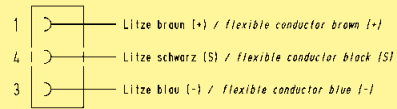
Female angled  
pre-assembled on one end

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

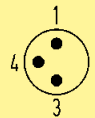
21 02 554 4301  
21 02 554 4302  
21 02 554 4303  
21 02 554 4304  
21 02 554 4305



Schematic diagram



View mating side

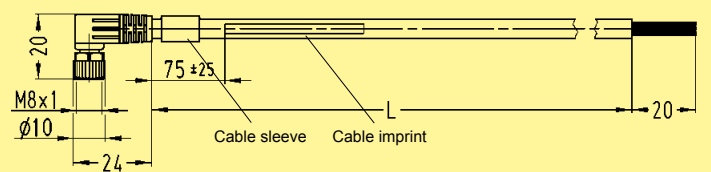


## M8 Circular connectors

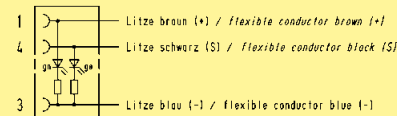
Female angled, with LED  
pre-assembled on one end

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

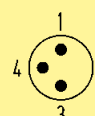
21 02 554 7301  
21 02 554 7302  
21 02 554 7303  
21 02 554 7304  
21 02 554 7305



Schematic diagram



View mating side



02

## Identification

## Part No.

## Drawing

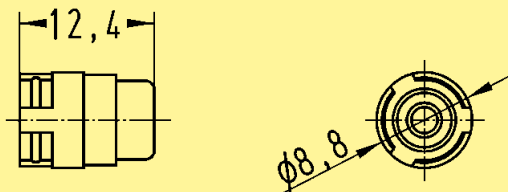
## Dimensions in mm

### Seal M8

for 1.9 - 2.5 mm cable Ø  
for 2.5 - 3.5 mm cable Ø  
for 4.2 - 5.4 mm cable Ø



21 01 010 2016  
21 01 010 2008  
21 01 010 2005

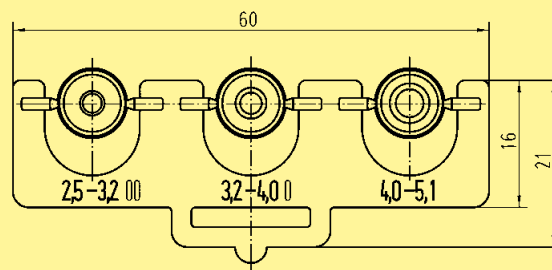


### Set of seals for HARAX® M8-S

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



### M8 dynamometric screwdriver

Tightening torque 0.4 Nm

SW 9

09 99 000 0380



02  
12

## Directory

Page

### 3. M12

#### 3.1 A-coded – Solutions for actor and sensor applications

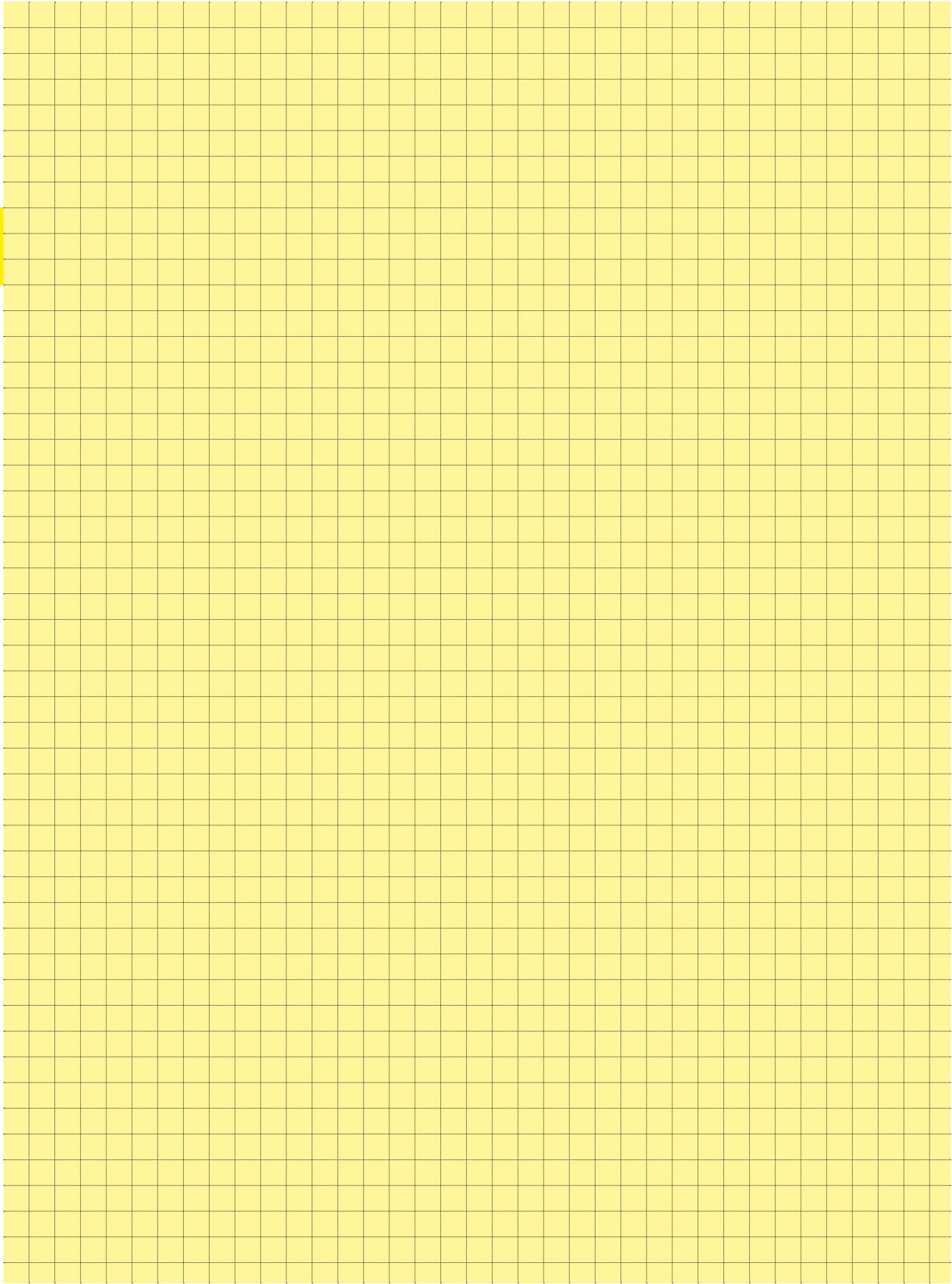
o Technical characteristics .....	03.04
■ Cable connectors	
• HARAX® M12-S .....	03.08
• HARAX® M12 angled .....	03.10
• HARAX® M12-L unshielded .....	03.12
• HARAX® M12-L shielded .....	03.14
• M12 Crimp .....	03.16
• System cables .....	03.20
■ Device connectors	
• Panel feed-through .....	03.26
• PCB adapter .....	03.32
o Accessories .....	03.36

#### 3.2 B-coded – Solutions for Profibus applications

o Technical characteristics .....	03.40
■ Cable connectors	
• HARAX® M12 L shielded .....	03.42
• M12 Crimp .....	03.44
• System cables .....	03.46
■ Device connectors	
• Panel feed-through .....	03.50
• PCB adapter .....	03.56
o Accessories .....	03.60

#### 3.3 D-coded – Solutions for Ethernet applications

o Technical characteristics .....	03.64
■ Cable connectors	
• HARAX® M12 L shielded .....	03.66
• M12 Crimp .....	03.68
• M12 preLink® .....	03.71
• System cables .....	03.73
■ Device connectors	
• Panel feed-through .....	03.78
• PCB adapter .....	03.86
o Accessories .....	03.91



## Directory

Page

### 3.1 A-coded – Solutions for actor and sensor applications

o Technical characteristics .....	<b>03.04</b>
■ Cable connectors	
• HARAX® M12-S .....	<b>03.08</b>
• HARAX® M12 angled .....	<b>03.10</b>
• HARAX® M12-L unshielded .....	<b>03.12</b>
• HARAX® M12-L shielded .....	<b>03.14</b>
• M12 Crimp .....	<b>03.16</b>
• System cables .....	<b>03.20</b>
■ Device connectors	
• Panel feed-through .....	<b>03.26</b>
• PCB adapter .....	<b>03.32</b>
o Accessories .....	<b>03.36</b>

# M12 A-coding

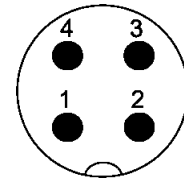


**Specifications** IEC 60 352-4

**Approval** 



Mating face



A-coding  
Mating face  
acc. to IEC 61 076-2-101

## Technical characteristics M12 – A-coding

03

Type M12 A-coded	HARAX® M12-S	HARAX® M12 angled	HARAX® M12 L 3 poles, 4 poles
------------------	--------------	-------------------	----------------------------------

### General data

Conductor cross section	0.14 - 0.34 mm <sup>2</sup> AWG 26-22	0.25 - 0.5 mm <sup>2</sup> AWG 24/7-20	0.34 - 0.75 mm <sup>2</sup> AWG 22-18
Diameter of individual strands	≥ 0.1 mm	≥ 0.1 mm	≥ 0.1 mm
Conductor insulation material	PVC / PP / TPE	PVC	PVC
Conductor diameter	1.0 - 1.6 mm	1.2 - 1.6 mm	1.6 - 2.0 mm 2.0 - 2.6 mm
Cable diameter	2.9 - 4.0 mm 4.0 - 5.1 mm	4 - 5.1 mm	6 - 8 mm
Temperature range	-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
Degree of protection	IP67	IP67	IP65 / IP67
Mating cycles	100	100	100
Tightening torque connector / hexagonal wrench	0.6 Nm / SW 13	0.6 Nm / SW 13	0.6 Nm / SW 17

### Electrical characteristics

Rated current	4 A	4 A	6 A
Rated voltage	32 V	32 V	50 V
Rated impulse voltage	1.5 kV	1.5 kV	1.5 kV
Contact resistance	10 mΩ	10 mΩ	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω
Pollution degree	3	3	3
Overvoltage category	3	3	3
Isolation group	1	1	1

### Materials

Contact material	Brass	Brass	Brass
Contact plating	Gold	Gold	Gold
Contact carrier material	PA reinforced	PA	PA unreinforced
Housing material	PA reinforced	PA	PA unreinforced

03  
04



# M12 A-coding

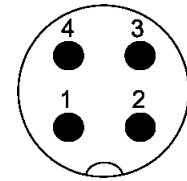


**Specifications** IEC 60 352-4

**Approval** 



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101

## Technical characteristics M12 – A-coding

03

Type M12 A-coded	HARAX® M12-L 5 poles	HARAX® M12 L shielded	M12 Crimp
------------------	-------------------------	--------------------------	-----------

### General data

Conductor cross section	0.34 - 0.5 mm <sup>2</sup> AWG 22-20	0.14 - 0.34 mm <sup>2</sup> AWG 26-22	0.14 - 0.75 mm <sup>2</sup> AWG 26-18
Diameter of individual strands	≥ 0.1 mm	≥ 0.1 mm	X
Conductor insulation material	PVC	PVC	X
Conductor diameter	1.2 - 2.0 mm	1.2 - 1.6 mm	2.0 - 2.3 mm
Cable diameter	6 - 8 mm	4.5 - 8.8 mm	4.5 - 8.8 mm
Temperature range	-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
Degree of protection	IP65 / IP67	IP65 / IP67	IP67
Mating cycles	100	100	500
Tightening torque connector / hexagonal wrench	0.6 Nm / SW 17	0.6 Nm / SW 17	0.5 Nm / SW 17

### Electrical characteristics

Rated current	4 A	4 A	4 A
Rated voltage	50 V	50 V	250 V
Rated impulse voltage	1.5 kV	1.5 kV	1.5 kV
Contact resistance	10 mΩ	10 mΩ	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω
Pollution degree	3	3	3
Overvoltage category	3	3	3
Isolation group	1	1	1

### Materials

Contact material	Brass	Brass	Brass
Contact plating	Gold	Gold	Gold
Contact carrier material	PA unreinforced	PA unreinforced	PA
Housing material	PA unreinforced	PA unreinforced	PA

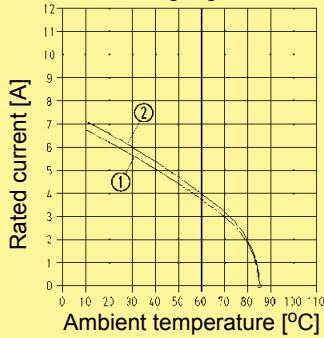
## Technical characteristics M12 – A-coding

**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.

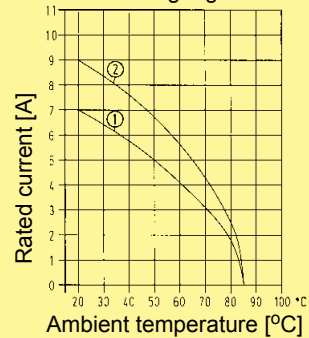
Control and test procedures according to DIN IEC 60 512-5.

03

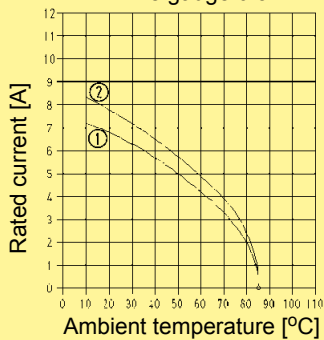
M12-S, 4 poles  
1 = Wire gauge 0.25 mm<sup>2</sup>  
2 = Wire gauge 0.34 mm<sup>2</sup>



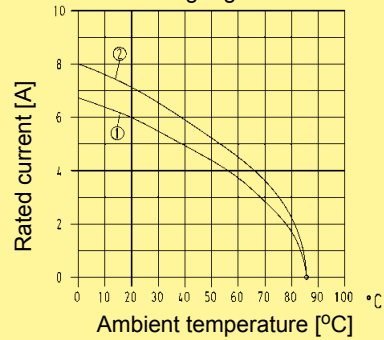
M12-L  
3 poles, 4 poles  
1 = Wire gauge 0.34 mm<sup>2</sup>  
2 = Wire gauge 0.75 mm<sup>2</sup>



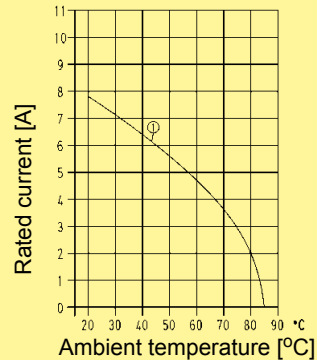
M12, 4 poles, angled  
1 = Wire gauge 0.25 mm<sup>2</sup>  
2 = Wire gauge 0.5 mm<sup>2</sup>



M12L, 5 poles  
1 = Wire gauge 0.25 mm<sup>2</sup>  
2 = Wire gauge 0.34 mm<sup>2</sup>

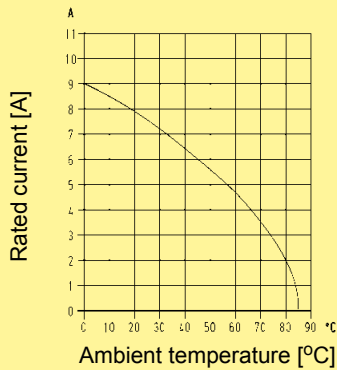


M12, Crimp  
1 = Wire gauge 0.34 mm<sup>2</sup> /  
0.5 mm<sup>2</sup>

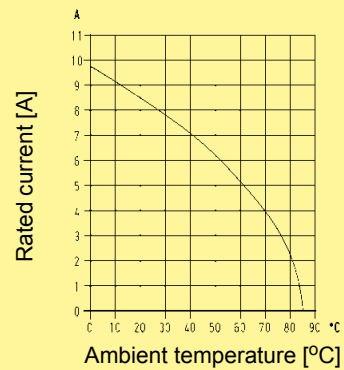


Technical characteristics M12 – A-coding, PCB adapter

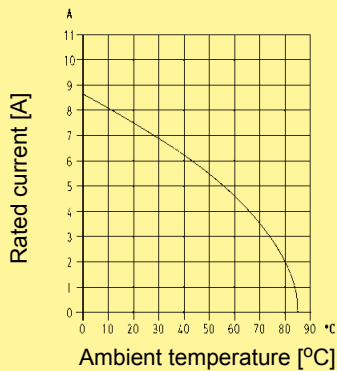
M12, A-coding, straight, male, 4 poles  
Wire gauge 0.5 mm<sup>2</sup>



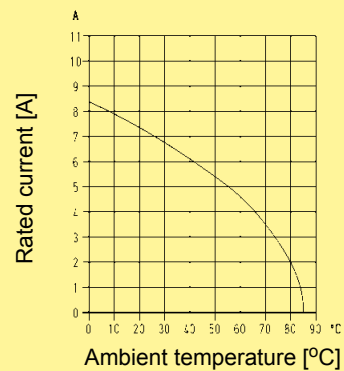
M12, A-coding, straight, female, 4 poles  
Wire gauge 0.75 mm<sup>2</sup>



M12, A-coding, straight, female, 5 poles  
Wire gauge 0.5 mm<sup>2</sup>

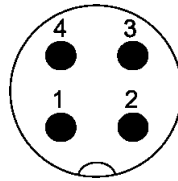


M12, A-coding, straight, male, 5 poles  
Wire gauge 0.5 mm<sup>2</sup>





Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



### Applications / Advantages

- Actor and sensor applications
- Shielded and unshielded versions
- Available with crimp resp. HARAX® rapid termination, or as overmoulded system cable in various lengths
- Robust design, quick assembly

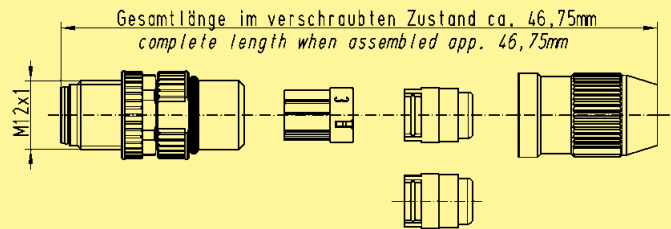
Identification	Part No.	Drawing	Dimensions in mm
----------------	----------	---------	------------------

HARAX® M12-S



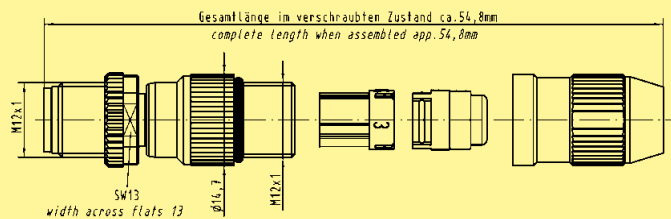
Male  
straight version  
4 poles, 0.14 - 0.34 mm<sup>2</sup>

21 03 111 1405



Male  
straight version  
4 poles, 0.25 - 0.5 mm<sup>2</sup>

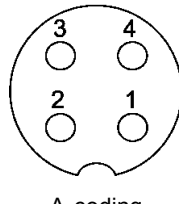
21 03 112 1405



# M12 HARAX® A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

**HARAX® M12-S**

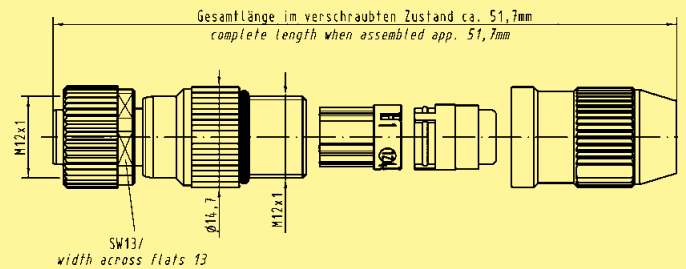
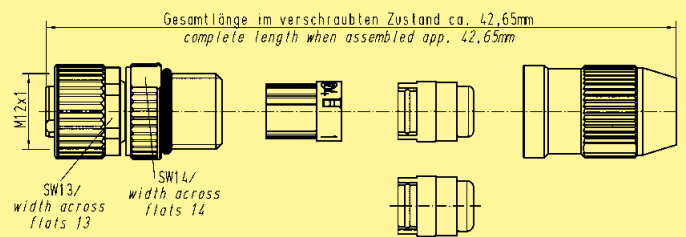


Female  
straight version  
4 poles, 0.14 - 0.34 mm<sup>2</sup>

Female  
straight version  
4 poles, 0.25 - 0.5 mm<sup>2</sup>

21 03 111 2405

21 03 112 2405



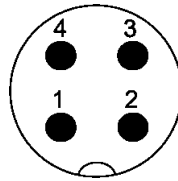
03

03  
09

# M12 HARAX® A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

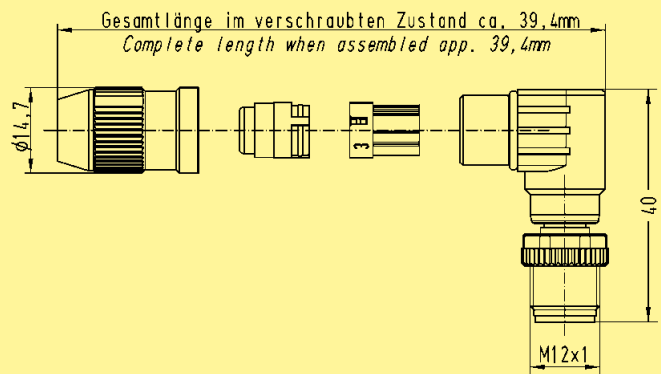
Dimensions in mm

HARAX® M12



Male  
angled version  
4 poles

21 01 140 5081

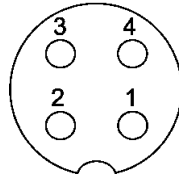


03  
10

# M12 HARAX® A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

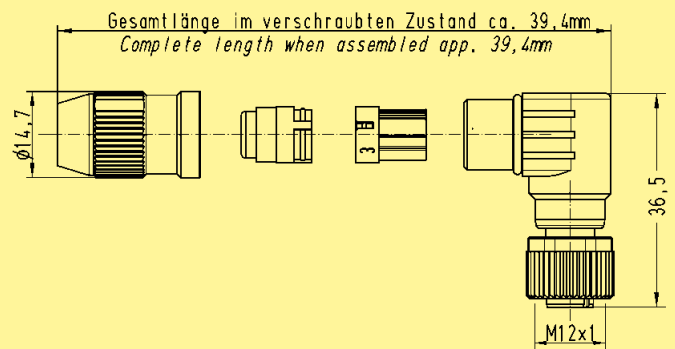
Dimensions in mm

HARAX® M12



Female  
angled version  
4 poles

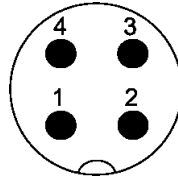
21 01 140 5091



03



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

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

**HARAX<sup>®</sup> M12-L, unshielded**

Male  
3 poles, A-coding,  
with pre-leading contact  
(assignment 3, 4, 5)

3 poles, A-coding  
(assignment 1, 3, 4)

4 poles, A-coding  
(assignment 1, 2, 3, 4)

4 poles, A-coding,  
to 2.6 mm core diameter  
(assignment 1, 2, 3, 4)

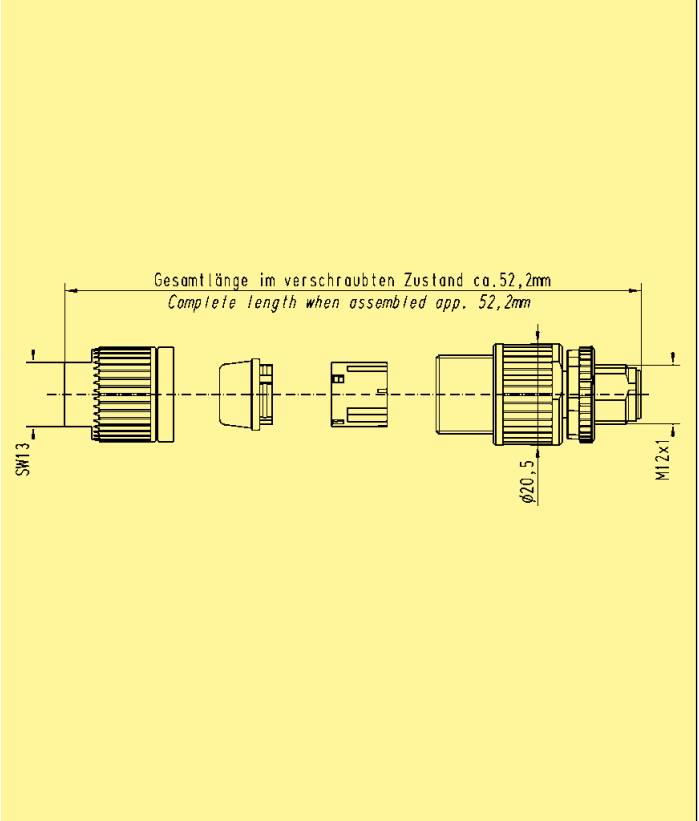
0.34 - 0.75 mm<sup>2</sup>  
AWG 22 - 18  
Cable diameter: 6 - 8 mm

21 03 212 1400

21 03 212 1306

21 03 212 1305

21 03 212 1407

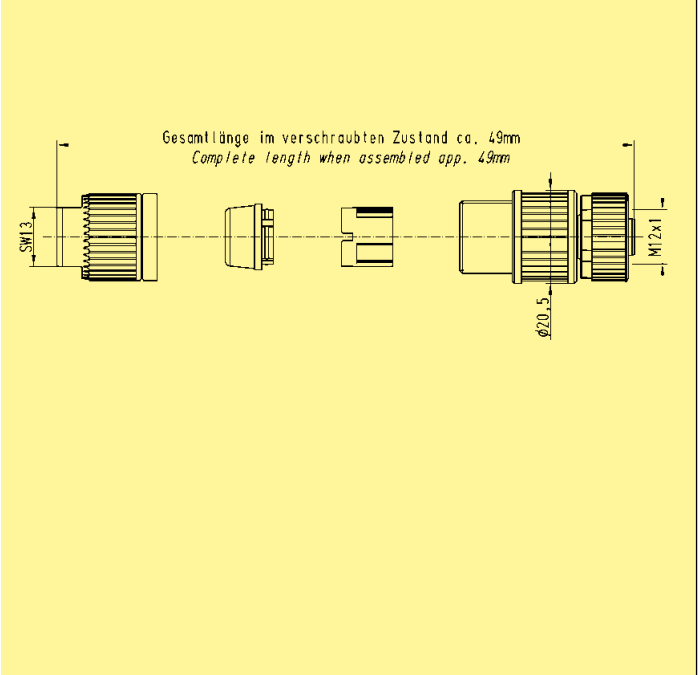


**HARAX<sup>®</sup> M12-L, unshielded**

Male  
5 poles, A-coding

0.34 - 0.5 mm<sup>2</sup>  
AWG 22 - 20  
Cable diameter: 6 - 8 mm

21 03 272 1505

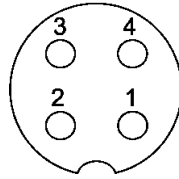




# M12 HARAX® A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



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

03

## HARAX® M12-L, unshielded



Female  
3 poles, A-coding  
(assignment 3, 4, 5)

21 03 212 2400

3 poles, A-coding  
(assignment 1, 3, 4)

21 03 212 2306

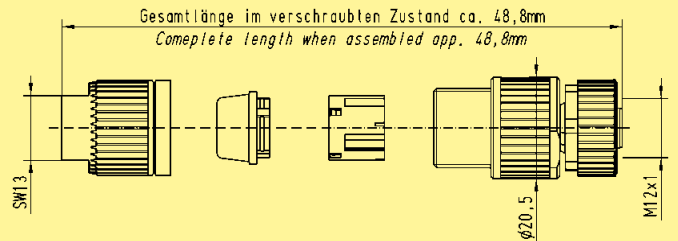
4 poles, A-coding  
(assignment 1, 2, 3, 4)

21 03 212 2305

4 poles, A-coding,  
to 2.6 mm core diameter  
(assignment 1, 2, 3, 4)

21 03 212 2407

0.34 - 0.75 mm<sup>2</sup>  
AWG 22 - 18  
Cable diameter: 6 - 8 mm



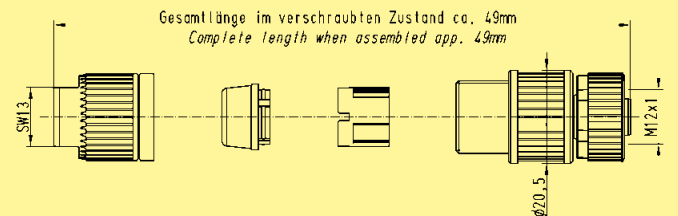
## HARAX® M12-L, unshielded



Female  
5 poles, A-coding

21 03 272 2505

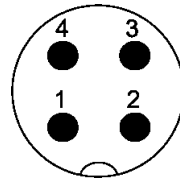
0.34 - 0.5 mm<sup>2</sup>  
AWG 22 - 20  
Cable diameter: 6 - 8 mm



# M12 HARAX® A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

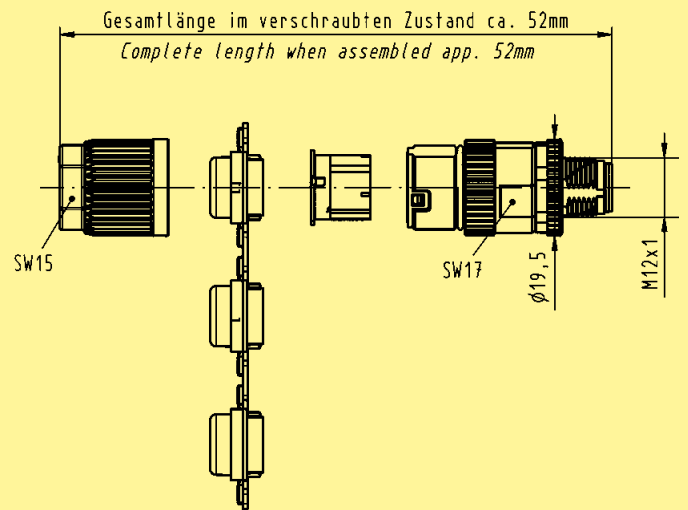
Dimensions in mm

HARAX® M12-L, shielded



Male  
4 poles, A-coding  
0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22

21 03 221 1405

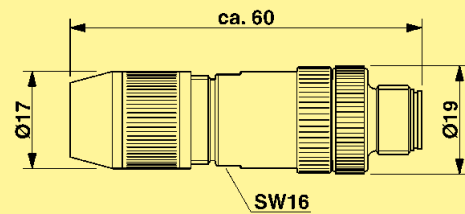


M12 Circular connector



Male  
with IDC termination,  
8 poles  
0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22

21 03 121 1801

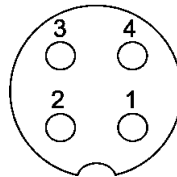


03  
14

# M12 HARAX® A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

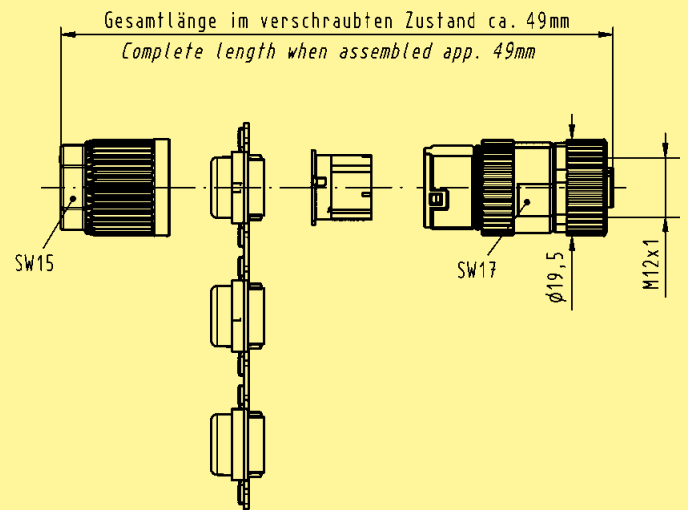
03

**HARAX® M12-L, shielded**



Female  
4 poles, A-coding  
0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22

21 03 221 2405

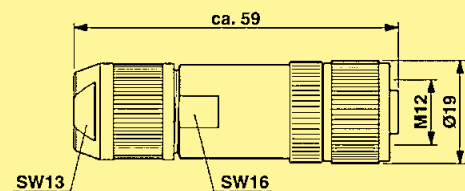


**M12 Circular connectors**



Female  
with IDC termination technology,  
8 poles  
0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22

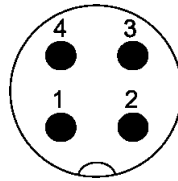
21 03 121 2801



# M12 Crimp A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

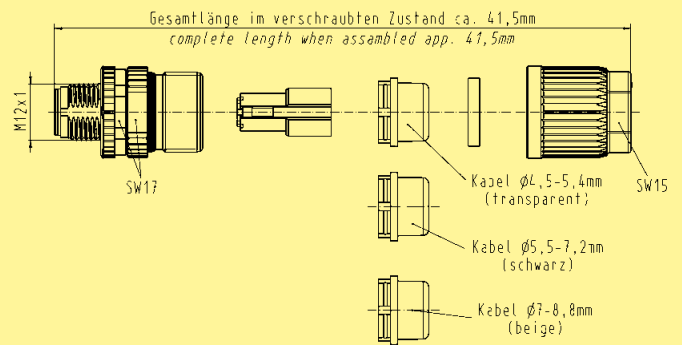
Dimensions in mm

M12 Crimp



Male  
4 poles, A-coding

21 03 812 1405

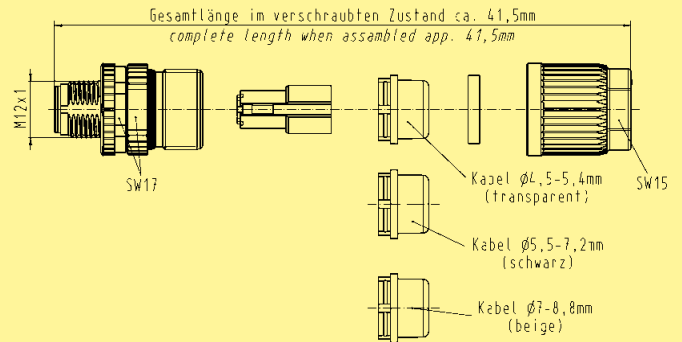


M12 Crimp



Male  
5 poles, A-coding

21 03 812 1505\*

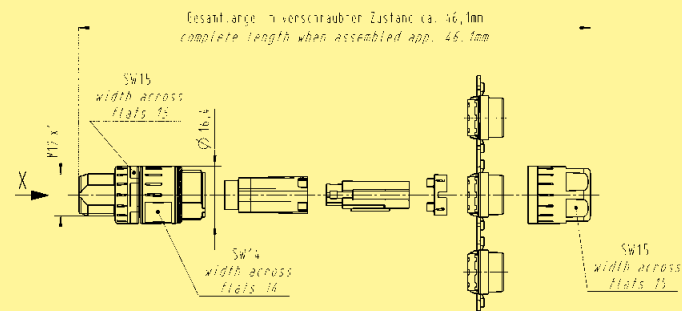


M12 Crimp Slim design



Male  
5 poles, A-coding  
Cable diameter: 4.5 - 8.8 mm

21 03 821 1505\*

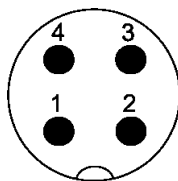


03  
16

# M12 Crimp A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

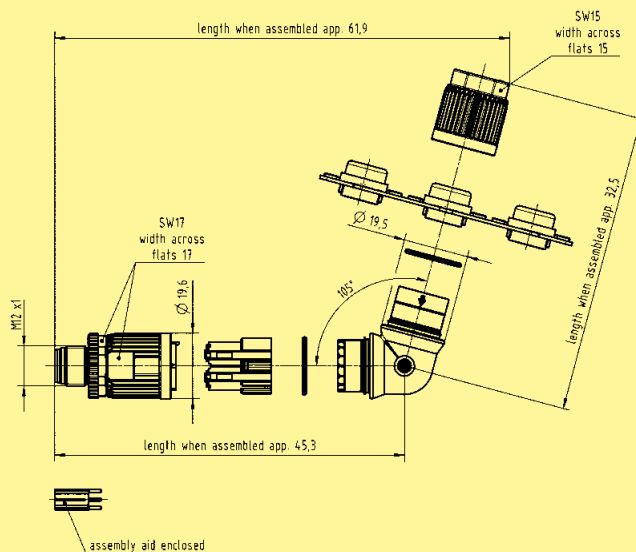
Dimensions in mm

M12 Crimp, angled



Male  
5 poles, A-coding

21 03 822 3505\*

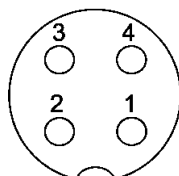


03

# M12 Crimp A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

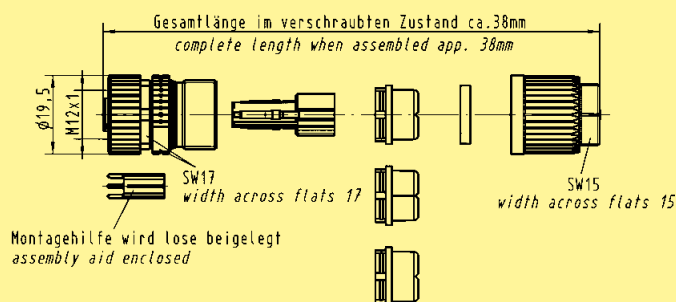
Dimensions in mm

M12 Crimp



Female  
4 poles, A-coding

21 03 812 2405

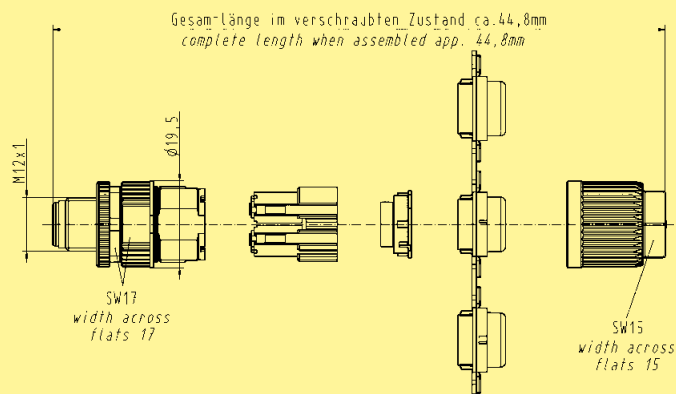


M12 Crimp



Female  
5 poles, A-coding

21 03 812 2505\*

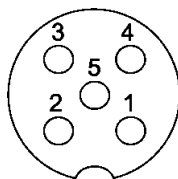


03  
18

# M12 Crimp A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

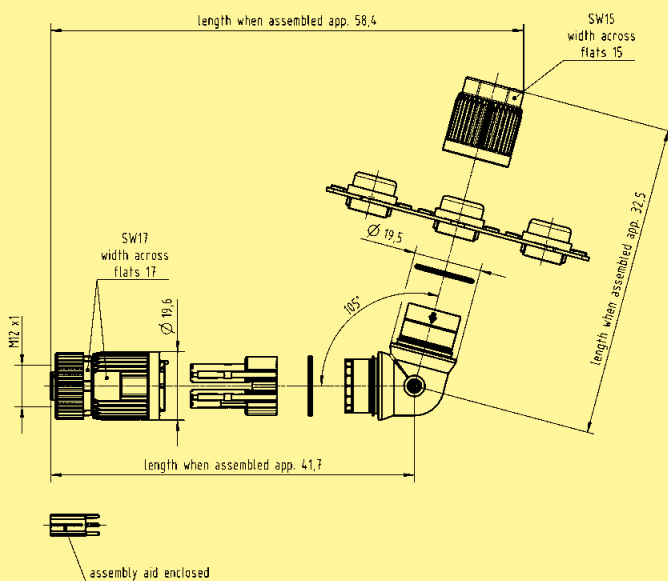
Dimensions in mm

M12 Crimp, angled



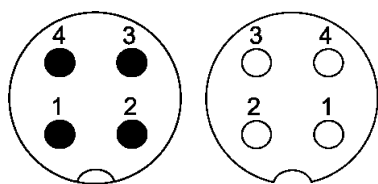
Female  
5 poles, A-coding

21 03 822 4505\*

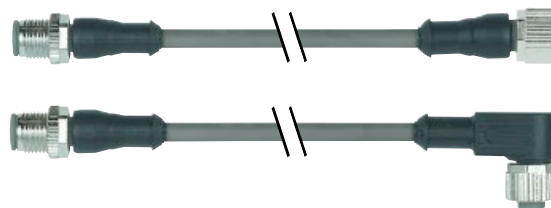


03

Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



## Technical characteristics

### M12 Circular connectors, without PE

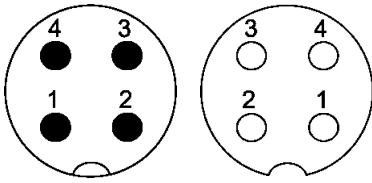
Rated voltage	max. 250 V AC/DC, max. 30 V DC (with LED)
Rated current / contact	max. 4 A
Locking	Screw locking M12x1, self securing
Recommended torque	0.6 Nm
Temperature range	-25 °C ... +85 °C (dependant on connected conductor)
Degree of protection	IP67
Number of wires / wire gauge	4 x 0.34 mm <sup>2</sup>
Conductor insulation	PP (bn, wh, bu, bk)
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



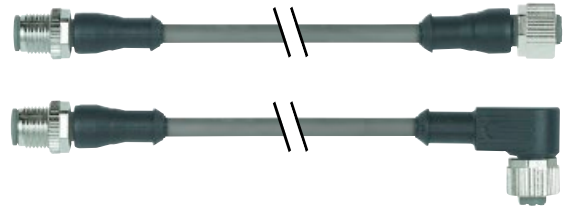
# M12 System cables, A-coded



Mating face


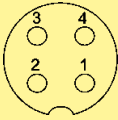
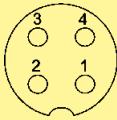
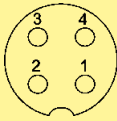






A-coding  
Mating face  
acc. to IEC 61076-2-101



## Overview system cables M12

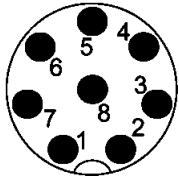
03

		Male M12 A-coding, straight		Female M12 A-coding, angled		
Number of contacts		 Cable material: PUR		 Cable material: PUR		
Female M12	straight		0.3 m	21 03 415 2401	xxx	xxx
			0.6 m	21 03 415 2402	xxx	xxx
			1.0 m	21 03 415 2403	xxx	xxx
			1.5 m	21 03 415 2404	xxx	xxx
			2.0 m	21 03 415 2405	xxx	xxx
	angled		0.3 m	21 03 415 5401	xxx	xxx
			0.6 m	21 03 415 5402	xxx	xxx
			1.0 m	21 03 415 5403	xxx	xxx
			1.5 m	21 03 415 5404	xxx	xxx
			2.0 m	21 03 415 5405	xxx	xxx
Open end		xxx	xxx	1.5 m	21 03 515 4401	
		xxx	xxx	3.0 m	21 03 515 4402	
		xxx	xxx	5.0 m	21 03 515 4403	
		xxx	xxx	7.5 m	21 03 515 4404	
		xxx	xxx	10.0 m	21 03 515 4405	
		xxx	21 03 415 7401 with LED	1.5 m	21 03 515 7401 with LED	
		xxx	21 03 415 7402 with LED	3.0 m	21 03 515 7402 with LED	
		xxx	21 03 415 7403 with LED	5.0 m	21 03 515 7403 with LED	
		xxx	21 03 415 7404 with LED	7.5 m	21 03 515 7404 with LED	
		xxx	21 03 415 7405 with LED	10.0 m	21 03 515 7405 with LED	
M12 cable set for individual assembly incl. HARAX® M12 Male		xxx	xxx	1.5 m	21 83 515 4401	
		xxx	xxx	3.0 m	21 83 515 4402	
		xxx	xxx	5.0 m	21 83 515 4403	
		xxx	xxx	7.5 m	21 83 515 4404	
		xxx	xxx	10.0 m	21 83 515 4405	
		xxx	21 83 515 7401 with LED	1.5 m	21 83 515 7401 with LED	
		xxx	21 83 515 7402 with LED	3.0 m	21 83 515 7402 with LED	
		xxx	21 83 515 7403 with LED	5.0 m	21 83 515 7403 with LED	
		xxx	21 83 515 7404 with LED	7.5 m	21 83 515 7404 with LED	
		xxx	21 83 515 7405 with LED	10.0 m	21 83 515 7405 with LED	

# M12 System cables, A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



## Overview system cables M12

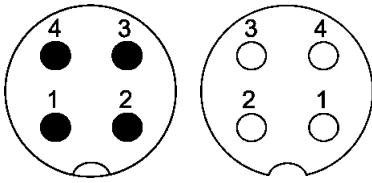
03

Number of contacts		Male M12 A-coding, straight	
		 Cable material: PUR	
Open end		1.0 m	21 03 514 1801
		2.0 m	21 03 514 1803
		5.0 m	21 03 514 1805

# M12 System cables, A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

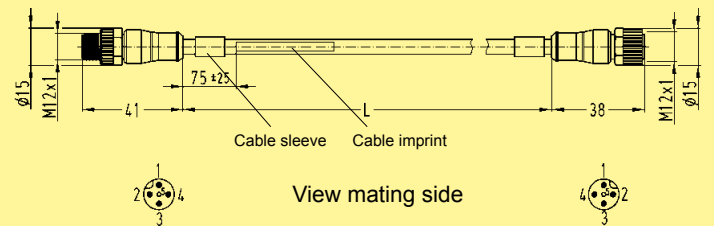
Drawing

Dimensions in mm

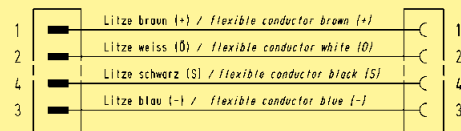
**M12 Circular connectors**  
Female straight, male straight

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



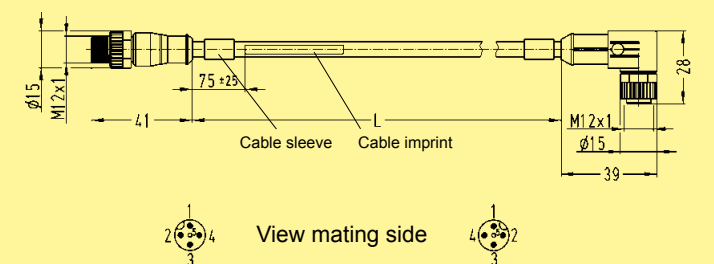
Schematic diagram



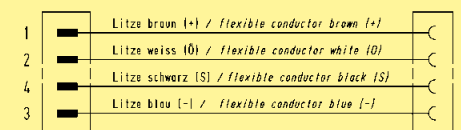
**M12 Circular connectors**  
Female angled, male straight

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



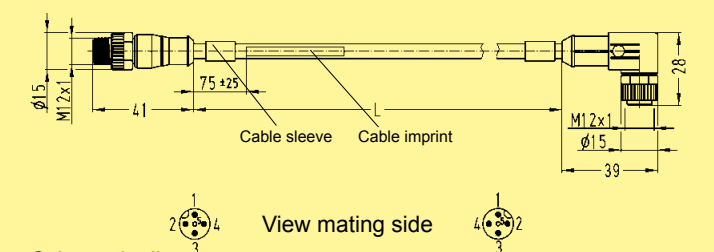
Schematic diagram



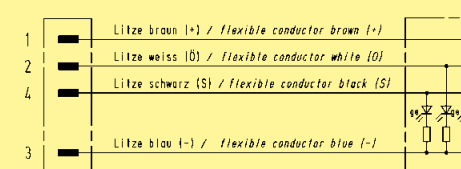
**M12 Circular connectors**  
Female angled, with LED,  
Male straight

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



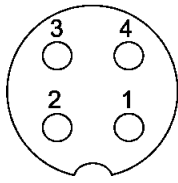
03

03  
23

# M12 System cables, A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

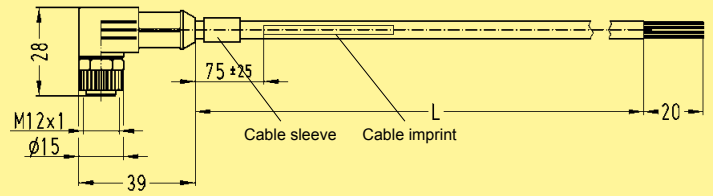
Dimensions in mm

## M12 Circular connectors

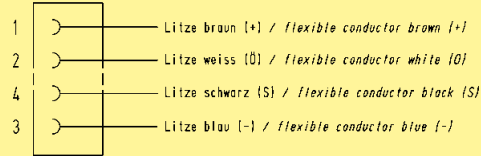
Female angled  
pre-assembled on one end

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

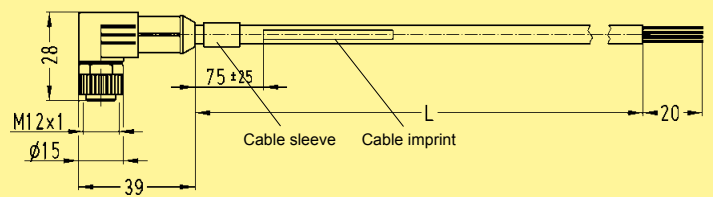


## M12 Circular connectors

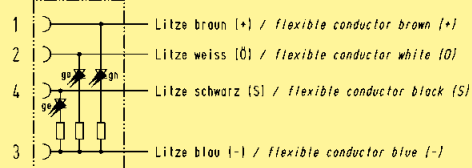
Female angled, with LED  
pre-assembled on one end

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

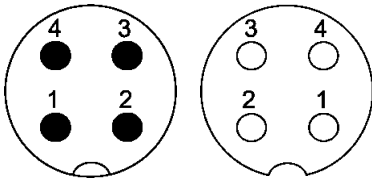


03  
24

# M12 System cables, A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

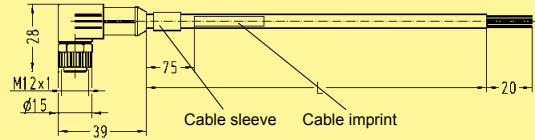
Dimensions in mm

## HARAX® M12 Cable set without LED

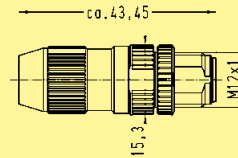
Delivery range: M12 connector with individually adaptable cable and HARAX® M12-S

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)

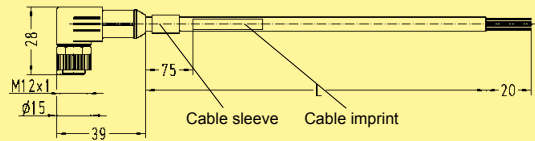


## HARAX® M12 Cable set with LED

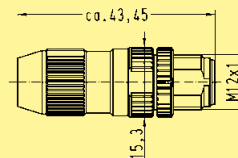
Delivery range: M12 connector with individually adaptable cable and HARAX® M12-S

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)

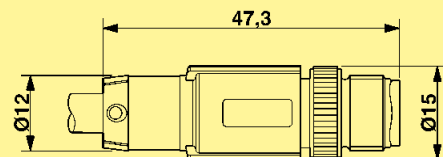


## 1 x M12 Circular connectors, straight

pre-assembled on one end, 8 poles

Length: 1.0 m  
3.0 m  
5.0 m

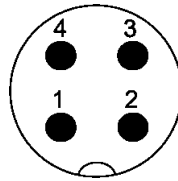
21 03 514 1801  
21 03 514 1803  
21 03 514 1805



# M12 Panel feed-through HARAX® A-coded



Mating face




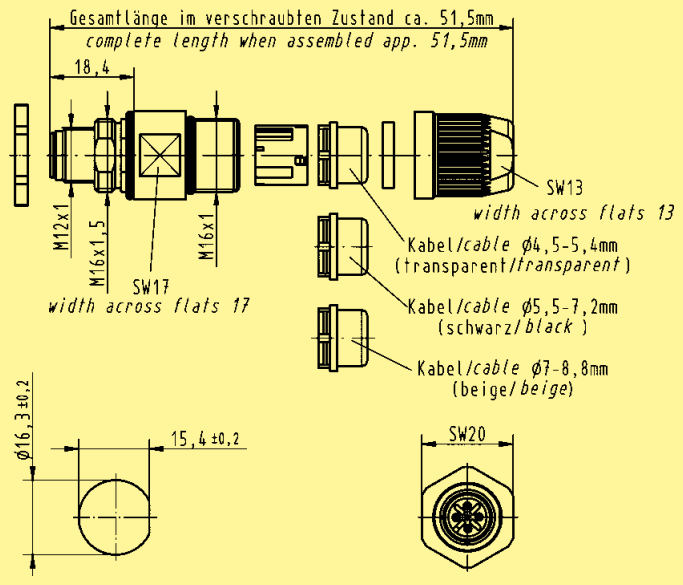
A-coding  
Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

03

- Actor and sensor applications
- For panel feed-through or PCB, straight version in IP20 or IP67, with or without assembled pigtail
- Available with crimp resp. HARAX® rapid termination
- Quick and easy assembly

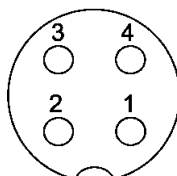
Identification	Part No.	Drawing	Dimensions in mm
<p><b>HARAX® Panel feed-through</b></p>  <p>Male 4 poles, A-coding 0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22</p> <p>Panel thickness min. 2.5 mm max. 4.5 mm</p>	<p>21 03 321 1425</p>	 <p>Gesamtlänge im verschraubten Zustand ca. 51,5mm complete length when assembled app. 51,5mm</p> <p>18,4</p> <p>M12x1 M16x1,5 M16x1</p> <p>SW17 width across flats 17</p> <p>SW13 width across flats 13</p> <p>Kabel/cable <math>\phi</math>4,5-5,4mm (transparent/transparent)</p> <p>Kabel/cable <math>\phi</math>5,5-7,2mm (schwarz/black)</p> <p>Kabel/cable <math>\phi</math>7-8,8mm (beige/beige)</p> <p><math>\phi</math>16,3 <math>\pm</math>0,2</p> <p>15,4 <math>\pm</math>0,2</p> <p>SW20</p>	

03  
26

# M12 Panel feed-through HARAX® A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

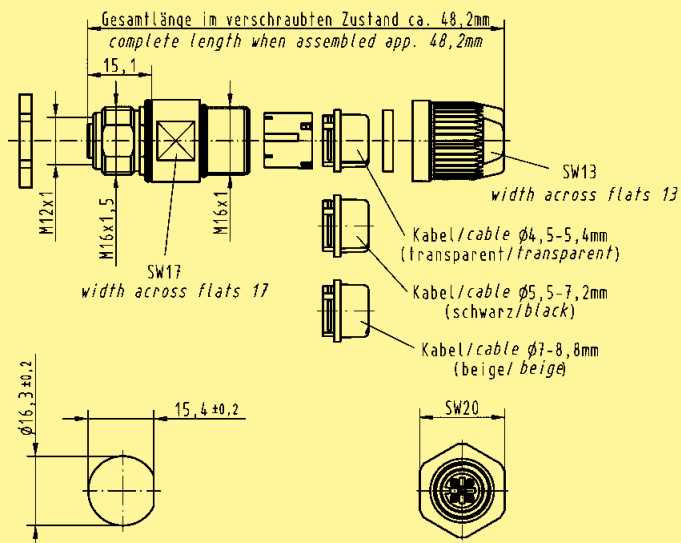
HARAX® Panel feed-through



21 03 321 2425

Female  
4 poles, A-coding  
0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22

Panel thickness  
min. 2.5 mm  
max. 4.5 mm



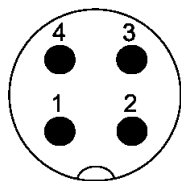
03

03  
27

# M12 Panel feed-through Crimp A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

Dimensions in mm

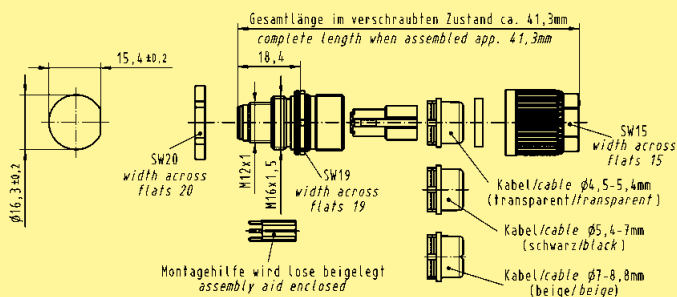
M12 Panel feed-through Crimp



Male  
4 poles, A-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

21 03 822 1425



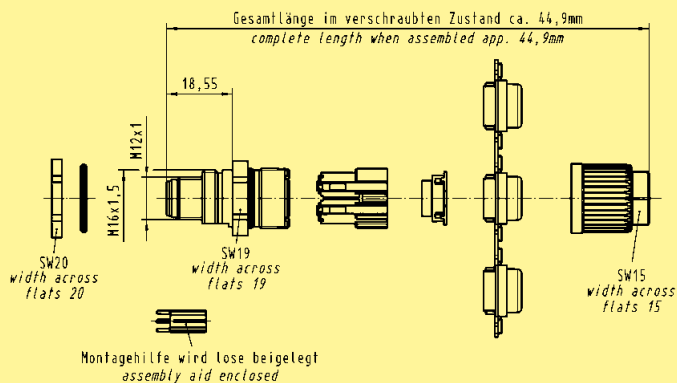
M12 Panel feed-through Crimp



Male  
5 poles, A-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

21 03 822 1525\*



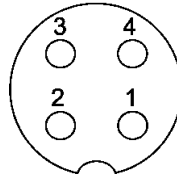
03  
28



# M12 Panel feed-through Crimp A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

03

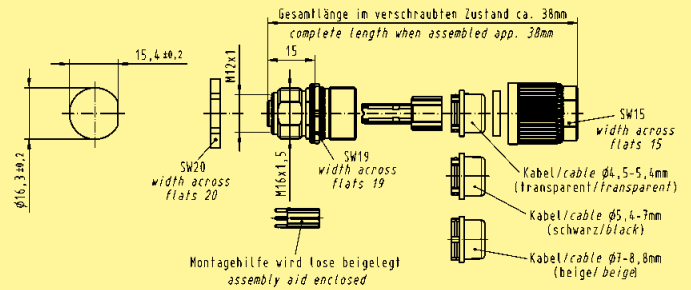
## M12 Panel feed-through Crimp



Female  
4 poles, A-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

21 03 822 2425



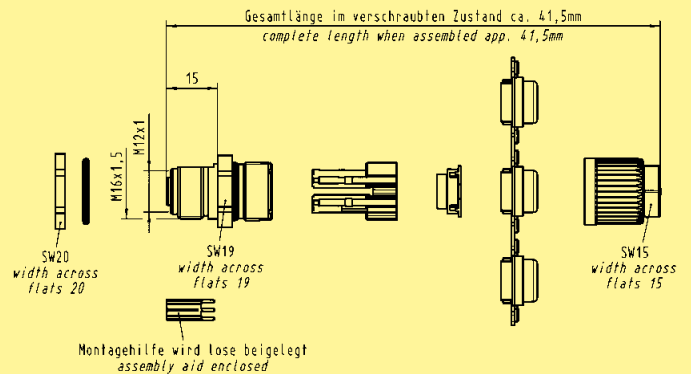
## M12 Panel feed-through Crimp



Female  
5 poles, A-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

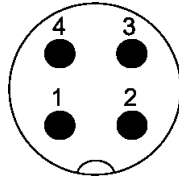
21 03 822 2525\*



# M12 Panel feed-through A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

Dimensions in mm

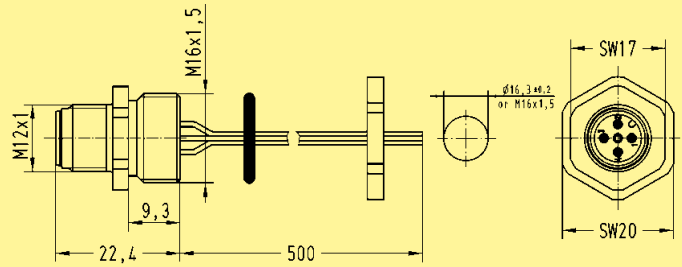
## M12 Panel feed-through



Male  
A-coding,  
50 cm conductors, 0.5 mm<sup>2</sup>, 4 poles

Panel thickness  
min. 2.0 mm  
max. 5.0 mm

21 03 311 1402



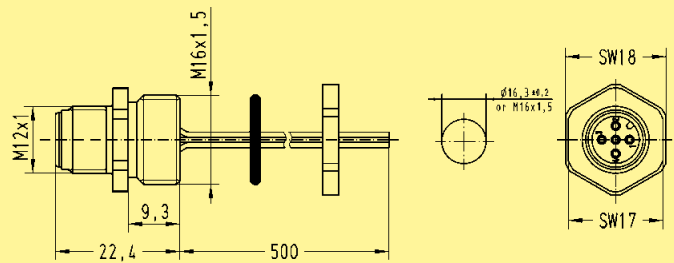
## M12 Panel feed-through



Male  
A-coding,  
50 cm conductors, 0.5 mm<sup>2</sup>, 5 poles

Panel thickness  
min. 2.0 mm  
max. 5.0 mm

21 03 311 1501

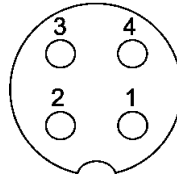


03  
30

# M12 Panel feed-through A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

03

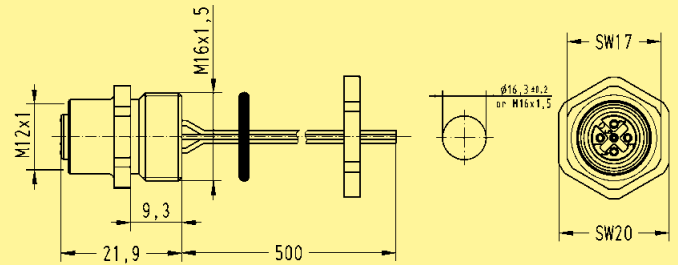
## M12 Panel feed-through



Female  
A-coding,  
50 cm conductors, 0.5 mm<sup>2</sup>, 4 poles

Panel thickness  
min. 2.0 mm  
max. 5.0 mm

21 03 311 2400



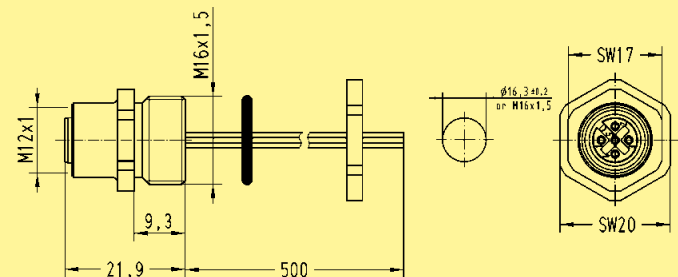
## M12 Panel feed-through



Female  
A-coding,  
50 cm conductors, 0.5 mm<sup>2</sup>, 5 poles

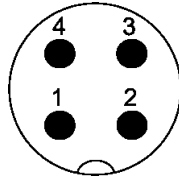
Panel thickness  
min. 2.0 mm  
max. 5.0 mm

21 03 311 2501





Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



## Technical characteristics: M12 PCB adapter

Degree of protection	IP20, IP67 (mated and locked)	Temperature during connection	-5 °C ... +50 °C
Rated current	max. 4 A (dependant on PCB layout)	Termination	PIH
Rated voltage	50 V	Contact material	Copper alloy
Mating cycles	max. 100	Contact plating (mating side)	Au over Ni
Limiting temperature	-40 °C ... +85 °C	Insulator material	PA

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

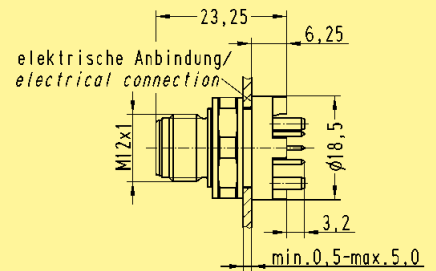
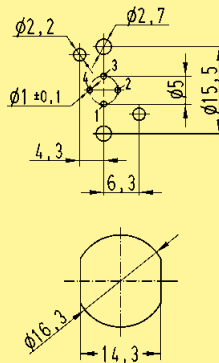
### M12 PCB adapter

Male, A-coding, straight



4 poles, IP20  
4 poles, IP67

21 03 321 1410  
21 03 321 1420



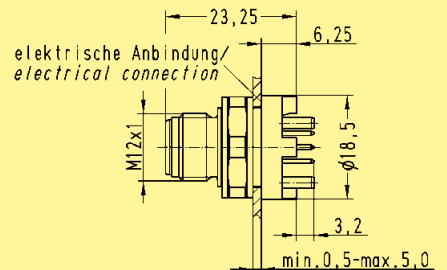
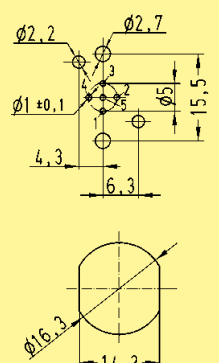
### M12 PCB adapter

Male, A-coding, straight



5 poles, IP20  
5 poles, IP67

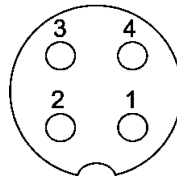
21 03 321 1510  
21 03 321 1520



# M12 PCB adapter A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

03

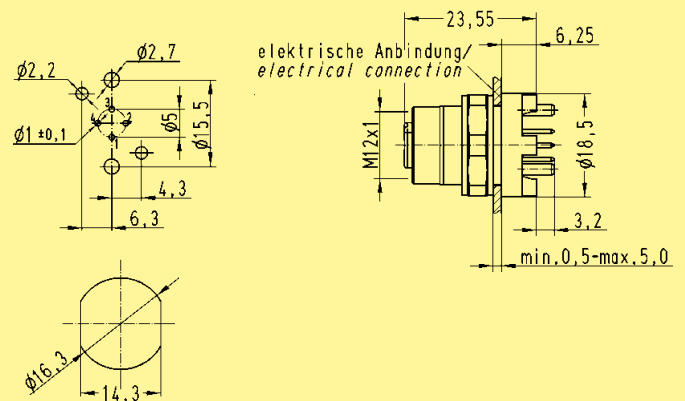
## M12 PCB adapter

Female, A-coding,  
straight



4 poles, IP20  
4 poles, IP67

21 03 321 6410  
21 03 321 6420\*



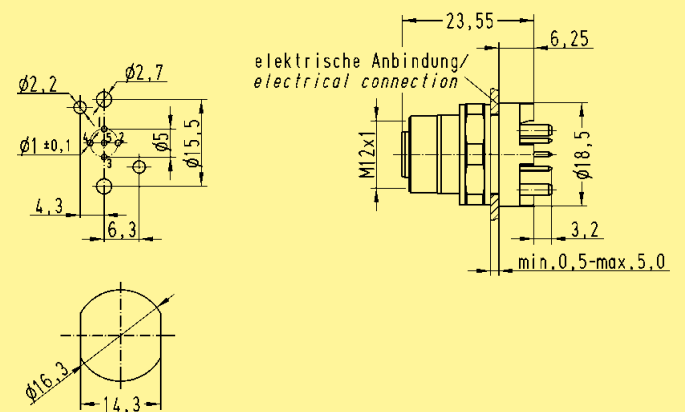
## M12 PCB adapter

Female, A-coding,  
straight



5 poles, IP20  
5 poles, IP67

21 03 321 6510  
21 03 321 6520



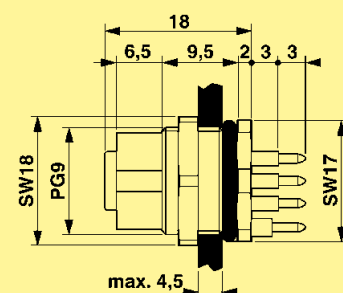
## M12 PCB adapter

Female, A-coding,  
straight



8 poles, IP67

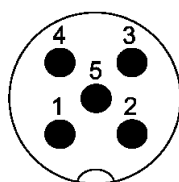
21 03 311 2801



# M12 PCB adapter shielded A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



**03**

Identification

Part No.

Drawing

Dimensions in mm

M12 PCB adapter, shielded

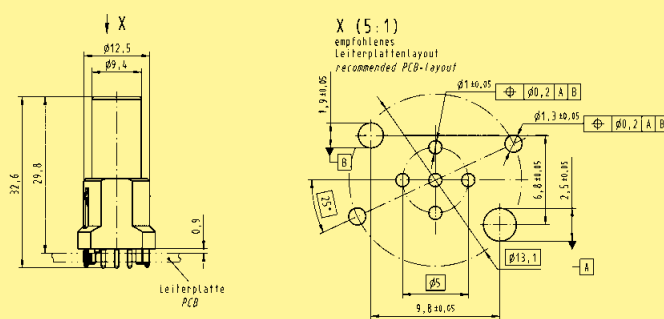


Male  
5 poles, A-coding

21 03 321 1518\*

8 poles, A-coding

21 03 321 1818\*



Housing

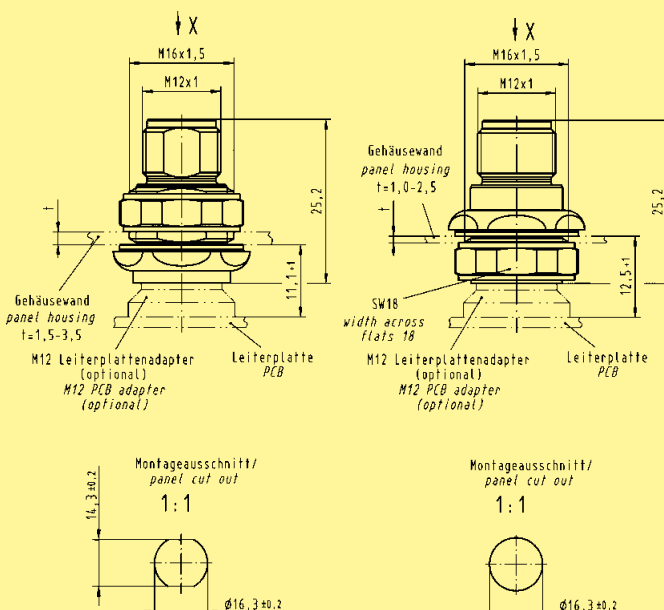


for rear mounting

21 03 301 1000

for front mounting

21 03 301 1001



**03**  
**34**

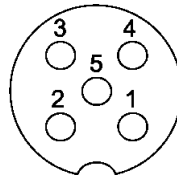
Further information and data sheets see [www.HARTING.com](http://www.HARTING.com)

\* UL approval is in preparation

# M12 PCB adapter shielded A-coded



Mating face



A-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

M12 PCB adapter, shielded

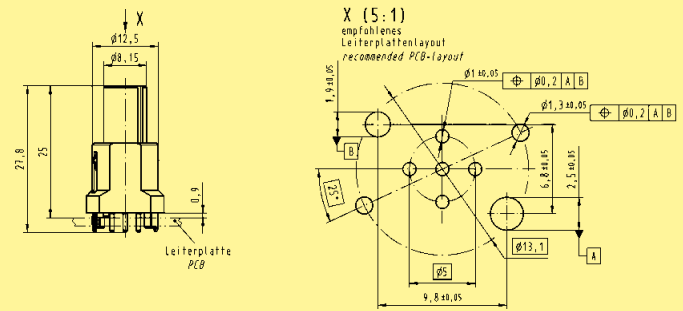


Female  
5 poles, A-coding

8 poles, A-coding

21 03 321 2518\*

21 03 321 2818\*



Housing

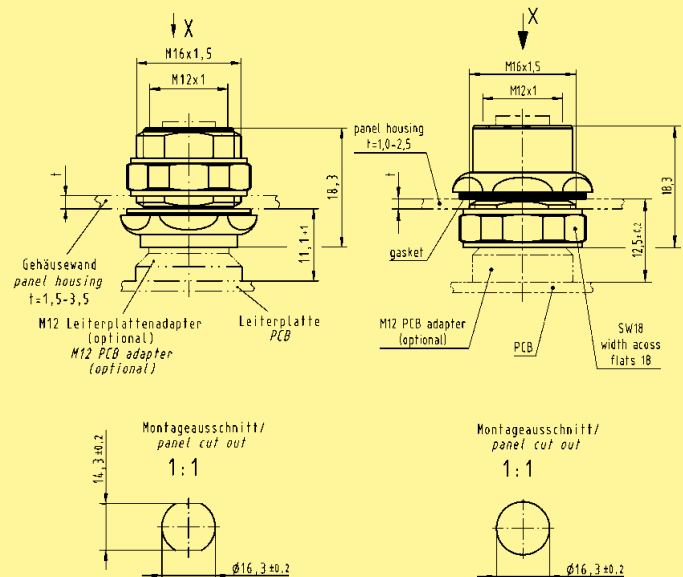


for rear mounting

for front mounting

21 03 301 2000

21 03 301 2001



03

## Identification

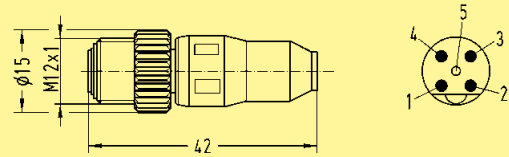
## Part No.

## Drawing

M12-male moving load  
A-coding



21 03 030 1400



HARTING M12 T-Coupler

21 03 321 9400



Crimping tool  
for M12 Crimp

09 99 000 0501



Accessories M12 Crimp

Locator

09 99 000 0531



### D-Sub contacts

Part number	AWG	Tool settings
09 67 000 3x76	18	6
	20	6
	22	5
09 67 000 8x76	20, 22, 24	6
09 67 000 5x76	22, 24, 26	6

D-Sub single contacts  
(500 mating cycles)

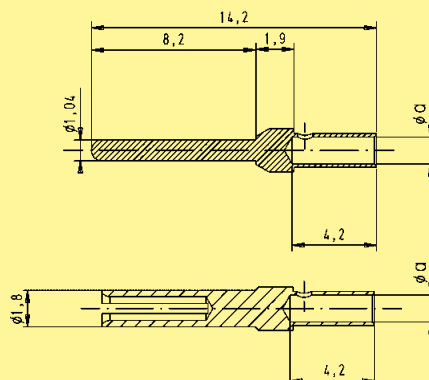
turned male contacts

AWG 22 - 18 / 0.33 - 0.82 mm<sup>2</sup> 09 67 000 3576  
 AWG 24 - 20 / 0.25 - 0.52 mm<sup>2</sup> 09 67 000 8576  
 AWG 26 - 22 / 0.13 - 0.33 mm<sup>2</sup> 09 67 000 5576



turned female contacts

AWG 22 - 18 / 0.33 - 0.82 mm<sup>2</sup> 09 67 000 3476  
 AWG 24 - 20 / 0.25 - 0.52 mm<sup>2</sup> 09 67 000 8476  
 AWG 26 - 22 / 0.13 - 0.33 mm<sup>2</sup> 09 67 000 5476



	a
AWG 22 - 18	1.34
AWG 24 - 20	1.13
AWG 26 - 22	0.88

M12 dynamometric screwdriver

Tightening torque 0.6 Nm

for M12-S SW 13 09 99 000 0382






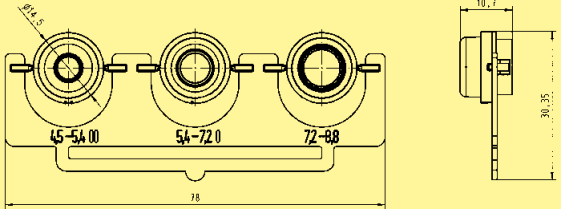

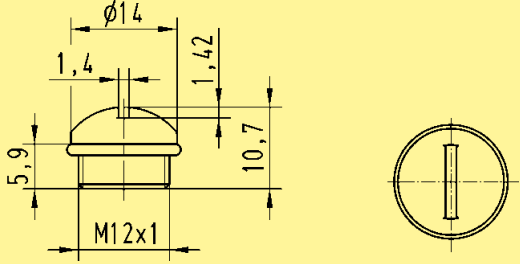

for M12 Slim design SW 15 09 99 000 0646

for M12-L SW 17 09 99 000 0384



03  
36



Identification	Part No.	Drawing	Dimensions in mm
<p><b>Seal M12-S</b> for 2.9 - 4.0 mm cable Ø for 4 - 5.1 mm cable Ø</p> 	<p>21 01 010 2011 21 01 010 2001</p>		
<p><b>Seal M12-L unshielded</b> for 4.7 - 6 mm cable Ø for 6 - 8 mm cable Ø</p> 	<p>21 01 010 2015 21 01 010 2007</p>		
<p><b>Set of seals M12-L shielded</b> for 4.5 - 5.4 mm cable Ø for 5.4 - 7.2 mm cable Ø for 7.2 - 8.8 mm cable Ø</p> 	<p>21 01 010 2017</p>		
<p><b>Cap M12</b> for IP65 / IP67 Seals material Viton Plastic cap for female</p> 	<p>21 01 000 0003</p>		
<p><b>Accessories M12</b></p> <p><b>Lock nut</b></p>	<p>21 01 000 0018</p>		

Identification

Part No.

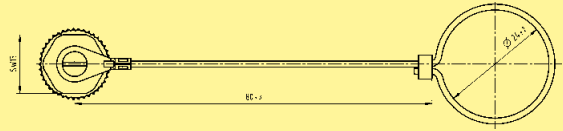
Drawing

Dimensions in mm

## Cap metal M12

for IP65 / IP67  
M12 metal cap for male side  
with cord

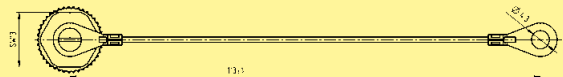
21 01 000 0033



## Cap metal M12

for IP65 / IP67  
M12 metal cap for male side  
with cable clip

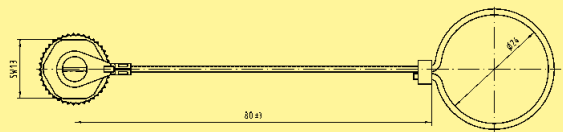
21 01 000 0038



## Cap metal M12

for IP65 / IP67  
M12 metal cap for female side  
with cord

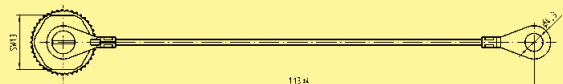
21 01 000 0030



## Cap metal M12

for IP65 / IP67  
M12 metal cap for female side  
with cable clip

21 01 000 0031



03

03  
38

Directory

Page

**3.2 B-coded – Solutions for Profibus applications**

o Technical characteristics .....	<b>03.40</b>
■ Cable connectors	
• HARAX® M12 L shielded .....	<b>03.42</b>
• M12 Crimp .....	<b>03.44</b>
• System cables .....	<b>03.46</b>
■ Device connectors	
• Panel feed-through .....	<b>03.50</b>
• PCB adapter .....	<b>03.56</b>
o Accessories .....	<b>03.60</b>

# M12 B-coding

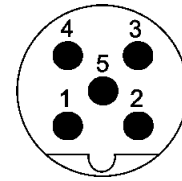


**Specifications** IEC 60 352-4

**Approval** 



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101

## Technical characteristics M12 – B-coding

03

Type M12 B-coded	HARAX® M12 L shielded	M12 Crimp
------------------	-----------------------	-----------

### General data

Conductor cross section	0.25 - 0.34 mm <sup>2</sup> AWG 24-22	0.13 - 0.75 mm <sup>2</sup> AWG 26-18
Diameter of individual strands	≥ 0.1 mm	X
Conductor insulation material	PVC, Zell-PE	X
Conductor diameter	2 - 2.6 mm	2.0 - 2.3 mm
Cable diameter	7.0 - 8.8 mm	4 poles: 4.5 - 8.8 mm 5 poles: 4.5 - 8.8 mm
Temperature range	-40 °C ... +85 °C	-40 °C ... +85 °C
Temperature during connection	-5 °C ... +50 °C	-5 °C ... +50 °C
Degree of protection	IP65 / IP67	IP67
Mating cycles	100	500
Tightening torque connector / hexagonal wrench	0.6 Nm / SW 17	0.5 Nm / SW 17

### Electrical characteristics

Rated current	4 A	4 A
Rated voltage	32 V	250 V
Rated impulse voltage	1.5 kV	1.5 kV
Contact resistance	10 mΩ	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω
Pollution degree	3	3
Overvoltage category	3	3
Isolation group	1	1

### Materials

Contact material	Brass	Brass
Contact plating	Gold	Gold
Contact carrier material	PA unreinforced	PA
Housing material	PA unreinforced	PA

03  
40

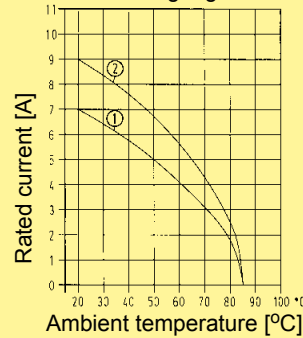
## Technical characteristics M12 – B-coding

**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 interruptet current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

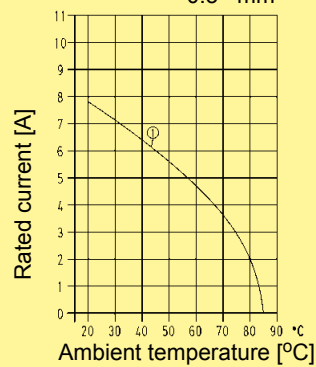
Control and test procedures according to DIN IEC 60 512-5.

M12-L  
3 poles, 4 poles

1 = Wire gauge 0.34 mm<sup>2</sup>  
2 = Wire gauge 0.75 mm<sup>2</sup>

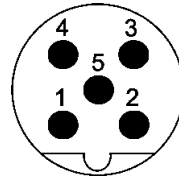


M12, Crimp 1 = Wire gauge 0.34 mm<sup>2</sup> / 0.5 mm<sup>2</sup>





Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

03

- B-coding for field bus systems e.g. Profibus, DeviceNet or CANopen
- Available with crimp resp. HARAX® rapid termination, or as overmoulded system cable in various lengths
- Shielding by the hood
- Easy handling, quick assembly

Identification

Part No.

Drawing

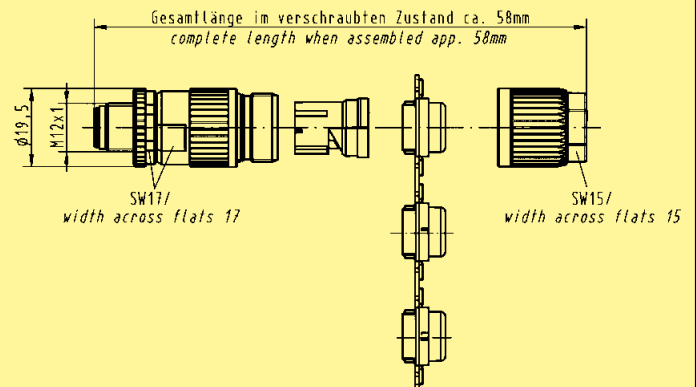
Dimensions in mm

HARAX® M12-L, shielded



Male  
2 poles, B-coding  
0.25 - 0.34 mm<sup>2</sup> / AWG 24 - 22

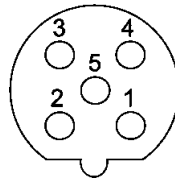
21 03 241 1301



# M12 HARAX® B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

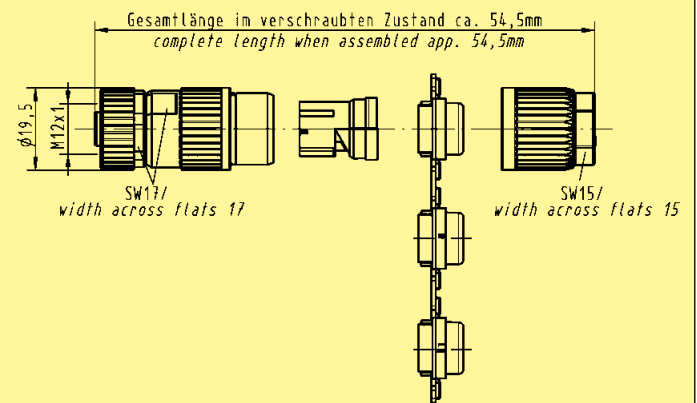
Drawing

Dimensions in mm

HARAX® M12-L, shielded



21 03 241 2301



Female  
2 poles, B-coding  
0.25 - 0.34 mm<sup>2</sup> / AWG 24 - 22

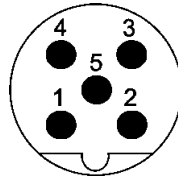
03

03  
43

# M12 Crimp B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



03

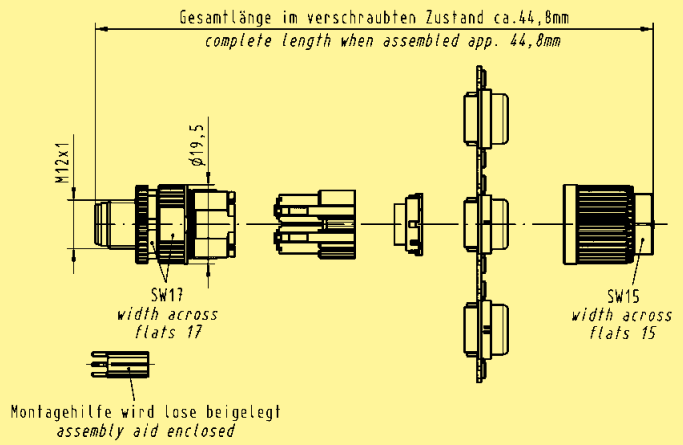
Identification                      Part No.                      Drawing                      Dimensions in mm

M12 Crimp



Male  
5 poles, B-coding

21 03 841 1505



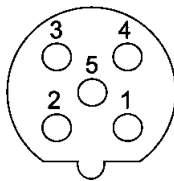
03  
44



# M12 Crimp B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

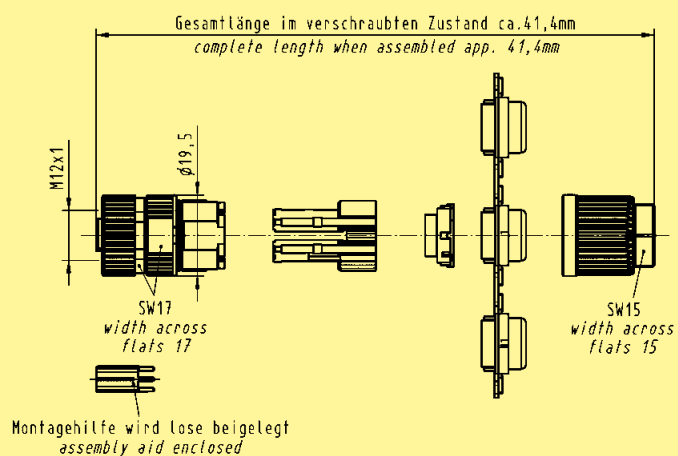
Dimensions in mm

M12 Crimp



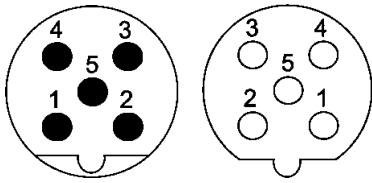
Female  
5 poles, B-coding

21 03 841 2505

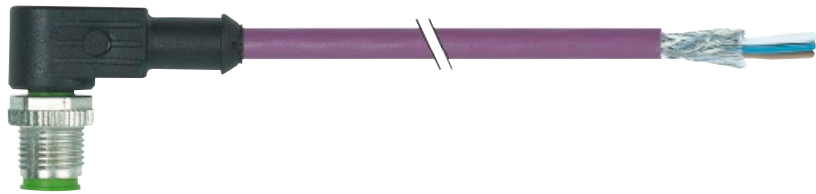


03

Mating face



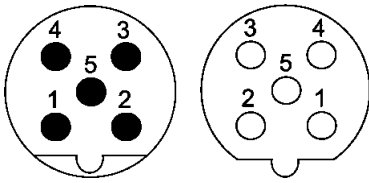
B-coding  
Mating face  
acc. to IEC 61076-2-101



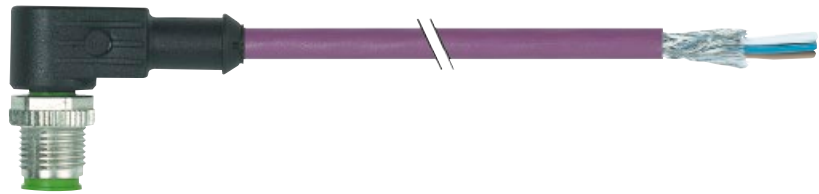
## Technical characteristics

Rated voltage	max. 125 V AC/ DC
Rated current / contact	max. 4 A
Locking	Screw locking M12 x 1 mm, self securing
Recommended tightening torque	0.6 Nm
Temperature range (male) °C	-25 °C ... +85 °C, dependant on connected conductor
Degree of protection	IP67
Number of wires / wire gauge	1 x 2 x diameter 0.64 mm
Conductor insulation	PUR (rd, gn)
Arrangement of insulated strands	19 x 0.13 mm
Sheath	PUR (UL/CSA)
Outer diameter	appr. 7.8 mm
Bending radius bewegt	15 x outer diameter
Temperature range °C (applicate with fixed cable)	-30 °C ... + 80 °C

Mating face

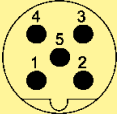
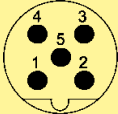


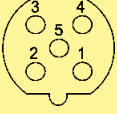
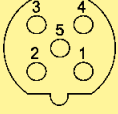


B-coding  
Mating face  
acc. to IEC 61076-2-101



## Overview system cables M12

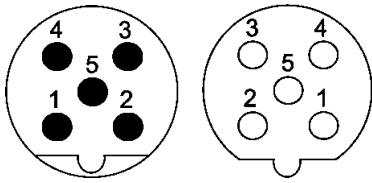
03

Number of contacts		Male M12 B-coding			
		straight		angled	
		 Cable material: PUR		 Cable material: PUR	
Female M12	straight	0.3 m	21 03 449 4301	xxx	xxx
		0.6 m	21 03 449 4302	xxx	xxx
		1.0 m	21 03 449 4303	xxx	xxx
		1.5 m	21 03 449 4304	xxx	xxx
		2.0 m	21 03 449 4305	xxx	xxx
	angled	xxx	xxx	0.3 m	21 03 449 6301
		xxx	xxx	0.6 m	21 03 449 6302
		xxx	xxx	1.0 m	21 03 449 6303
		xxx	xxx	1.5 m	21 03 449 6304
		xxx	xxx	2.0 m	21 03 449 6305
Open end		1.5 m	21 03 549 1301	1.5 m	21 03 549 3301
		3.0 m	21 03 549 1302	3.0 m	21 03 549 3302
		5.0 m	21 03 549 1303	5.0 m	21 03 549 3303
		7.5 m	21 03 549 1304	7.5 m	21 03 549 3304
		10.0 m	21 03 549 1305	10.0 m	21 03 549 3305
		Female M12 B-coding			
		straight		angled	
		 Cable material: PUR		 Cable material: PUR	
		1.5 m	21 03 549 2301	1.5 m	21 03 549 4301
		3.0 m	21 03 549 2302	3.0 m	21 03 549 4302
5.0 m	21 03 549 2303	5.0 m	21 03 549 4303		
7.5 m	21 03 549 2304	7.5 m	21 03 549 4304		
10.0 m	21 03 549 2305	10.0 m	21 03 549 4305		

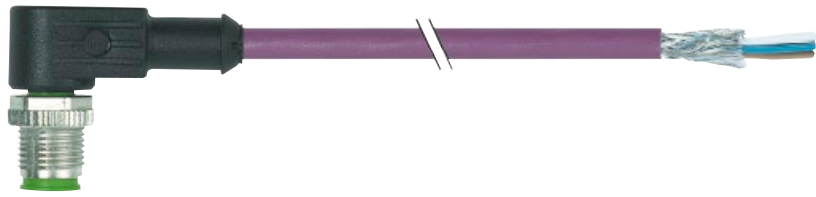
# M12 System cables, B-coding



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Darstellung

**M12 Circular connectors,  
Male, straight**

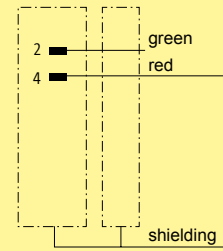
pre-assembled on one end,  
useable as trailing cable

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

21 03 549 1301  
21 03 549 1302  
21 03 549 1303  
21 03 549 1304  
21 03 549 1305



Schematic diagram

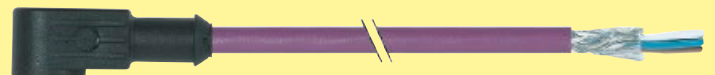


**M12 Circular connectors,  
Male, angled**

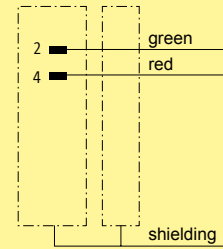
pre-assembled on one end,  
useable as trailing cable

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

21 03 549 3301  
21 03 549 3302  
21 03 549 3303  
21 03 549 3304  
21 03 549 3305



Schematic diagram

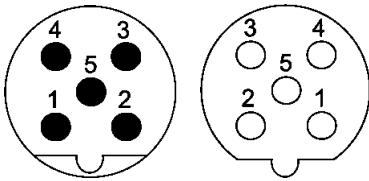


03  
48

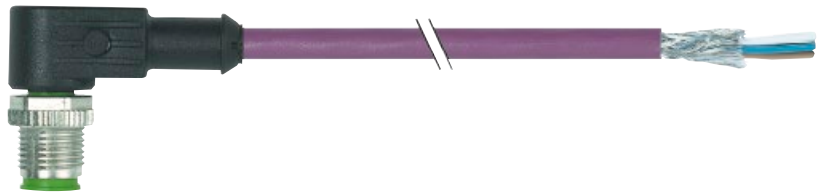
# M12 System cables, B-coding



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Darstellung

## M12 Circular connectors, Female, straight

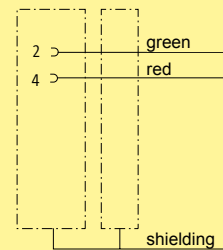
pre-assembled on one end,  
useable as trailing cable

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



Schematic diagram



## M12 Circular connectors, Female, angled

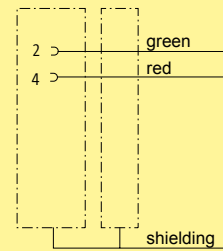
pre-assembled on one end,  
useable as trailing cable

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



Schematic diagram



## M12 Circular connectors, Male, straight Female, straight

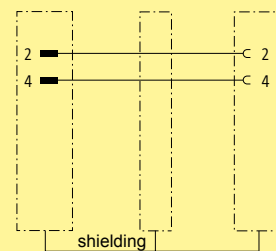
pre-assembled on one end,  
useable as trailing cable

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



Schematic diagram



## M12 Circular connectors, Male, angled Female, angled

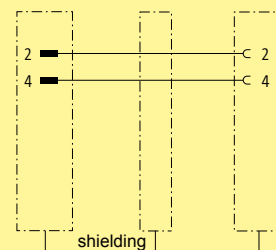
pre-assembled on one end,  
useable as trailing cable

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



Schematic diagram



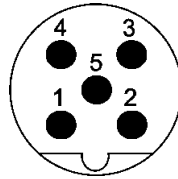
03

03  
49

# M12 Panel feed-through HARAX® B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

03

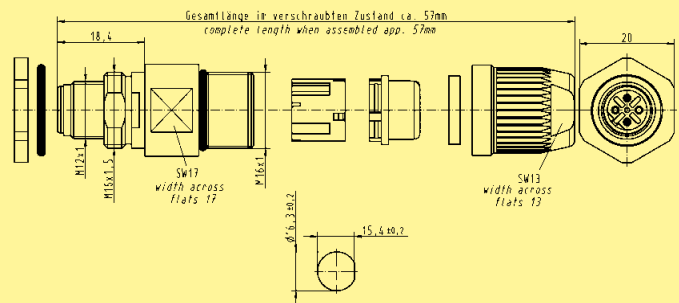
- B-coding for field bus systems e.g. Profibus, DeviceNet or CANopen
- For panel feed-through or PCB, straight version in IP20 or IP67, with or without assembled pigtail
- Available with crimp resp. HARAX® rapid termination
- Quick and easy assembly

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

HARAX® Panel feed-through



21 03 341 1425



Male  
2 poles and shielding, B-coding  
0.25 - 0.34 mm<sup>2</sup> / AWG 24 - 22

Cable diameter: 7 - 8.8 mm

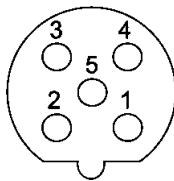
Panel thickness  
min. 2.5 mm  
max. 4.5 mm

03  
50

# M12 Panel feed-through HARAX® B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

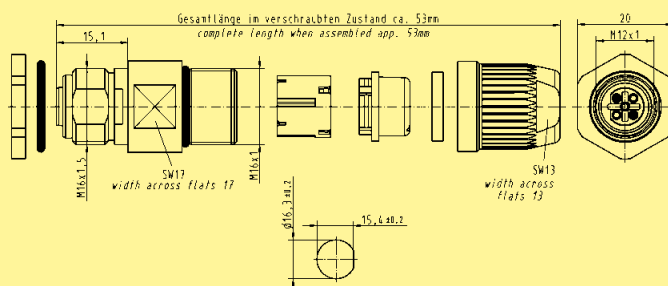
Drawing

Dimensions in mm

HARAX® Panel feed-through



21 03 341 2425



Female  
2 poles and shielding, B-coding  
0.25 - 0.34 mm<sup>2</sup> / AWG 24 - 22

Cable diameter: 7 - 8.8 mm

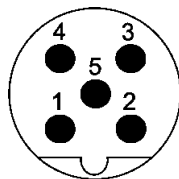
Panel thickness  
min. 2.5 mm  
max. 4.5 mm

03

# M12 Panel feed-through Crimp B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



03

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

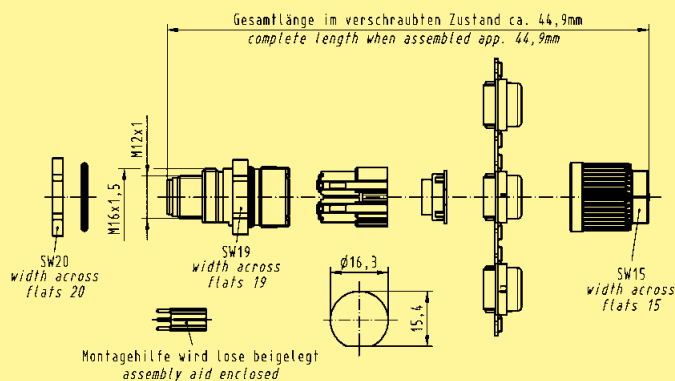
M12 Panel feed-through Crimp



Male  
5 poles, B-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

21 03 841 1525



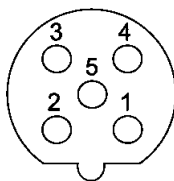
03  
52



# M12 Panel feed-through Crimp B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

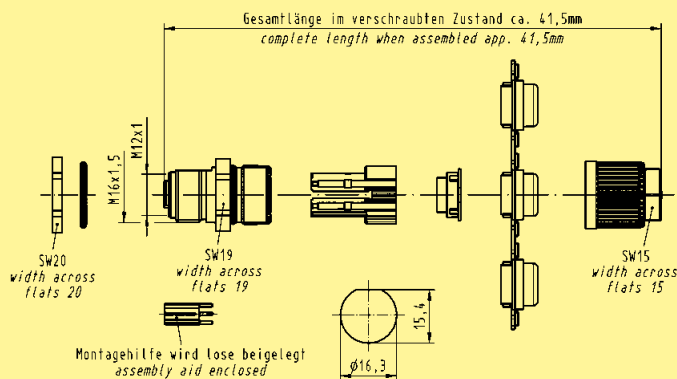
M12 Panel feed-through Crimp



Female  
5 poles, B-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

21 03 841 2525



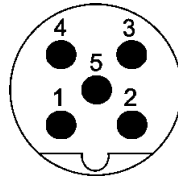
03

03  
53

# M12 Panel feed-through B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

Dimensions in mm

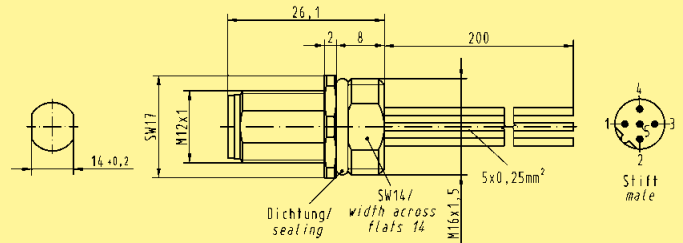
M12 Panel feed-through



Male  
B-coding, 20 cm conductors,  
0.25 mm<sup>2</sup>

Panel thickness  
min. 2.0 mm  
max. 5.0 mm

21 03 339 1301



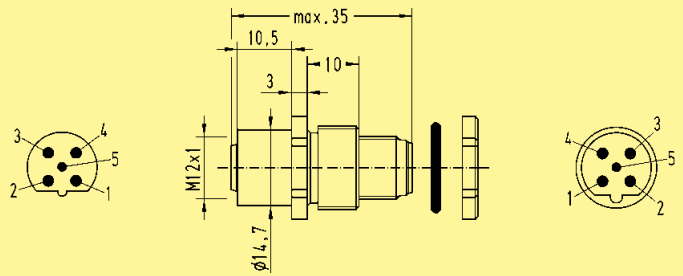
M12-male/female  
panel feed-through

B-coding



Panel thickness  
min. 2.0 mm  
max. 5.0 mm

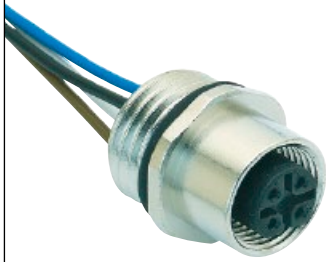
21 03 330 1300



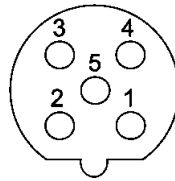
Rated voltage 24 V AC/DC  
Thread M16 x 1.5

03  
54

# M12 Panel feed-through B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

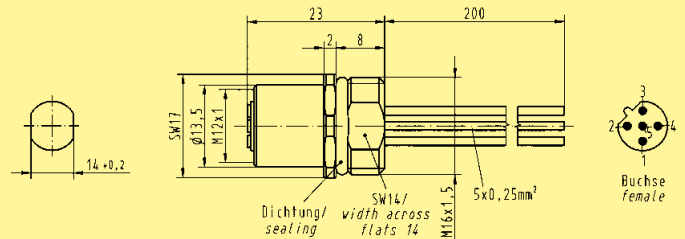
M12 Panel feed-through



Female  
B-coding, 20 cm conductors,  
0.25 mm<sup>2</sup>

Panel thickness  
min. 2.0 mm  
max. 5.0 mm

21 03 339 2301



03

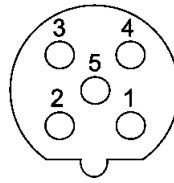
03  
55



# M12 PCB adapter B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

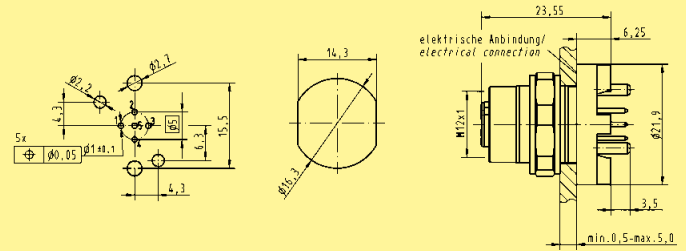
M12 PCB adapter

Female, B-coding,  
straight



5 poles, IP20

21 03 341 2505



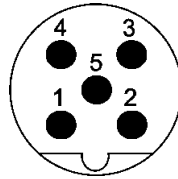
03

03  
57

# M12 PCB adapter shielded B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

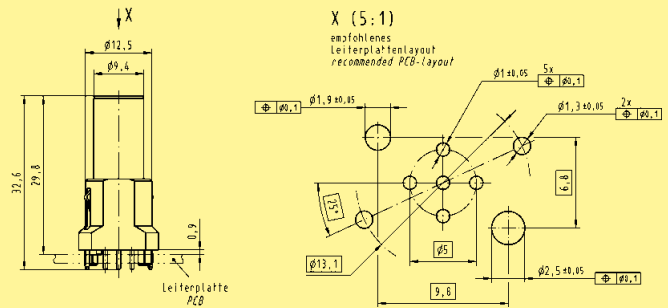
Dimensions in mm

M12 PCB adapter, shielded



Male  
5 poles, B-coding

21 03 341 1518\*



Housing

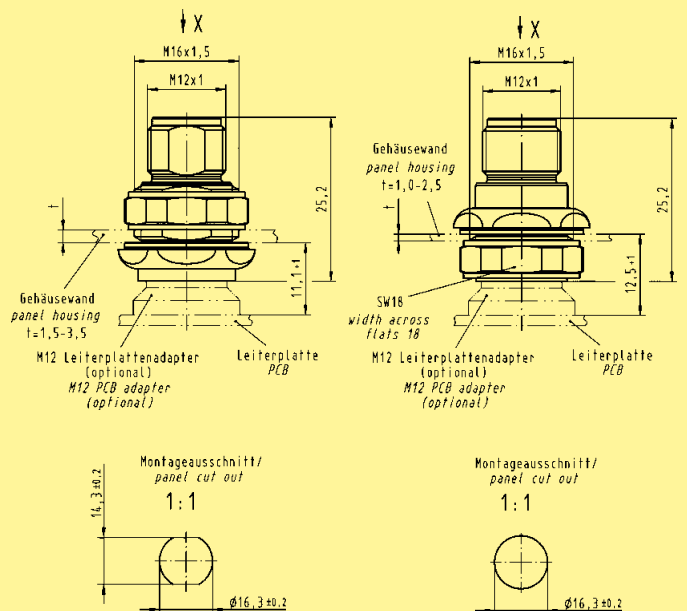


for rear mounting

21 03 301 1000

for front mounting

21 03 301 1001

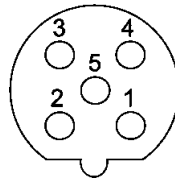


03  
58

# M12 PCB adapter shielded B-coded



Mating face



B-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

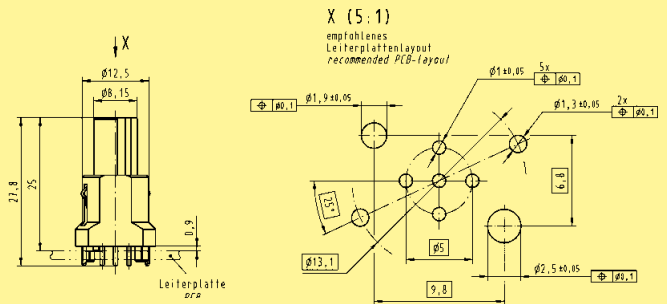
Dimensions in mm

M12 PCB adapter,  
shielded



Female  
5 poles, B-coding

21 03 341 2518\*



Housing

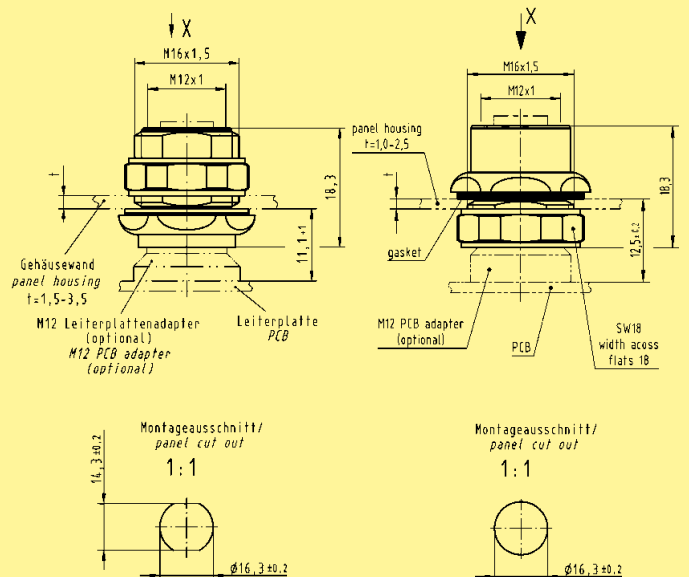


for rear mounting

21 03 301 2000

for front mounting

21 03 301 2001



03

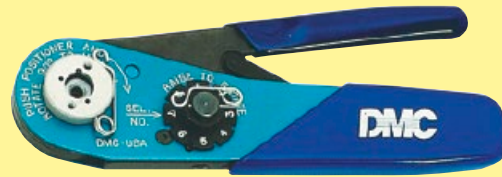
Identification

Part No.

Drawing

Crimping tool  
for M12 Crimp

09 99 000 0501



Accessories M12 Crimp

Locator

09 99 000 0531



D-Sub contacts

Part number	AWG	Tool settings
09 67 000 3x76	18	6
	20	6
	22	5
09 67 000 8x76	20, 22, 24	6
09 67 000 5x76	22, 24, 26	6

D-Sub single contacts  
(500 mating cycles)

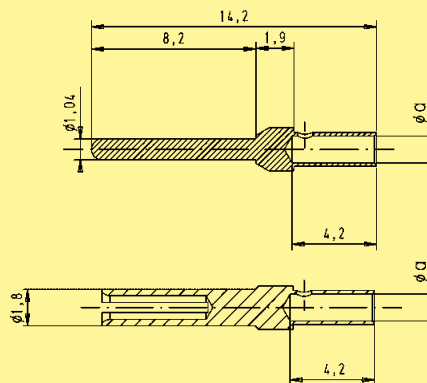
turned male contacts

- AWG 22-18 / 0.33-0.82 mm<sup>2</sup> 09 67 000 3576
- AWG 24-20 / 0.25-0.52 mm<sup>2</sup> 09 67 000 8576
- AWG 26-22 / 0.13-0.33 mm<sup>2</sup> 09 67 000 5576



turned female contacts

- AWG 22-18 / 0.33-0.82 mm<sup>2</sup> 09 67 000 3476
- AWG 24-20 / 0.25-0.52 mm<sup>2</sup> 09 67 000 8476
- AWG 26-22 / 0.13-0.33 mm<sup>2</sup> 09 67 000 5476



	a
AWG 22-18	1.34
AWG 24-20	1.13
AWG 26-22	0.88

M12  
dynamometric screwdriver

Tightening torque 0.6 Nm

for M12-S SW 13 09 99 000 0382

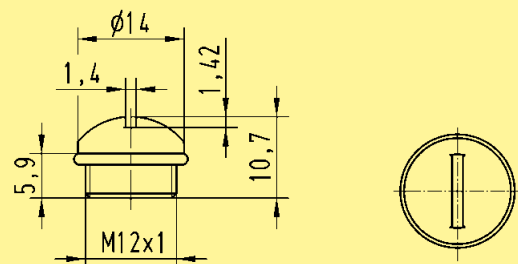
for M12-L SW 17 09 99 000 0384



Cap M12


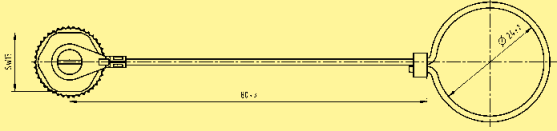



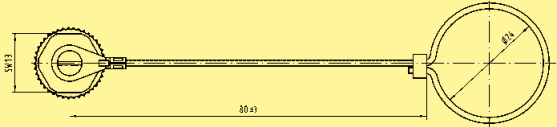

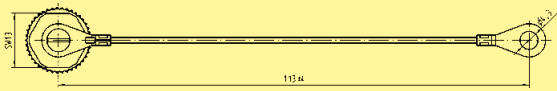
for IP65 / IP67  
Seals material Viton  
Plastic cap for female

21 01 000 0003



03  
60



Identification	Part No.	Drawing	Dimensions in mm
<p><b>Cap metal M12</b> for IP65 / IP67 M12 metal cap for male side with cord</p> 	<p>21 01 000 0033</p>		<p>03</p>
<p><b>Cap metal M12</b> for IP65 / IP67 M12 metal cap for male side with cable clip</p> 	<p>21 01 000 0038</p>		
<p><b>Cap metal M12</b> for IP65 / IP67 M12 metal cap for female side with cord</p> 	<p>21 01 000 0030</p>		
<p><b>Cap metal M12</b> for IP65 / IP67 M12 metal cap for female side with cable clip</p> 	<p>21 01 000 0031</p>		<p>03 61</p>

Identification

Part No.

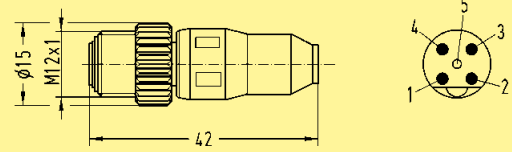
Drawing

Dimensions in mm

M12-male moving load  
B-coding



21 03 030 1300



HARTING M12 T-Coupler

21 03 341 6401



Seal M12-L unshielded  
for 4.7 - 6 mm cable Ø  
for 6 - 8 mm cable Ø



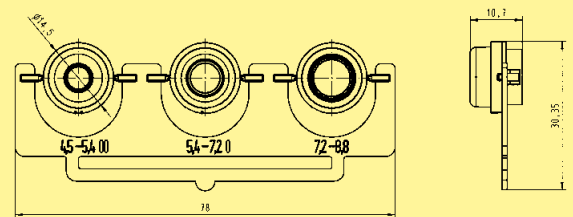
21 01 010 2015  
21 01 010 2007



Set of seals M12-L shielded  
for 4.5 - 5.4 mm cable Ø  
for 5.4 - 7.2 mm cable Ø  
for 7.2 - 8.8 mm cable Ø



21 01 010 2017



Accessories M12

Lock nut

21 01 000 0018



Directory

Page

**3.3 D-coded – Solutions for Ethernet applications**

o Technical characteristics .....	<b>03.64</b>
■ Cable connectors	
• HARAX® M12 L shielded .....	<b>03.66</b>
• M12 Crimp .....	<b>03.68</b>
• M12 preLink® .....	<b>03.71</b>
• System cables .....	<b>03.73</b>
■ Device connectors	
• Panel feed-through .....	<b>03.78</b>
• PCB adapter .....	<b>03.86</b>
o Accessories .....	<b>03.91</b>

# M12 D-coding

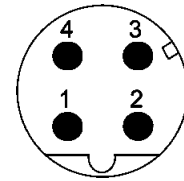


**Specifications** IEC 60 352-4

**Approval** 



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101

## Technical characteristics M12 – D-coding

03

Type M12 D-coded	HARAX® M12 L shielded	M12 Crimp	M12 preLink®
------------------	-----------------------	-----------	--------------

### General data

Conductor cross section	0.14 - 0.34 mm <sup>2</sup> AWG 26-22 0.34 - 0.5 mm <sup>2</sup> AWG 22-20	0.13 - 0.75 mm <sup>2</sup> AWG 26-18	0.10 - 0.34 mm <sup>2</sup> AWG 27-22
Diameter of individual strands	≥ 0.1 mm	X	≥ 0.1 mm
Conductor insulation material	PVC/PE	X	PVC/PE
Conductor diameter	1.2 - 2.0 mm	2.0 - 2.3 mm	0.8 - 1.6 mm
Cable diameter	4.5 - 8.8 mm	4 poles: 4.5 - 8.8 mm 5 poles: 4.5 - 8.8 mm	6.3 - 6.7 mm
Temperature range	-40 °C ... +85 °C	-40 °C ... +85 °C	-40 °C ... +85 °C
Temperature during connection	-5 °C ... +50 °C	-5 °C ... +50 °C	–
Degree of protection	IP65 / IP67	IP67	IP65
Mating cycles	100	500	250
Tightening torque connector / Hexagonal wrench	0.6 Nm / SW 17	0.6 Nm / SW 17	0.6 Nm / SW 17

### Electrical characteristics

Rated current	4 A	4 A	1 A
Rated voltage	50 V	250 V	48 V
Rated impulse voltage	1.5 kV	1.5 kV	1.5 kV
Contact resistance	10 mΩ	10 mΩ	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω
Pollution degree	3	3	3
Overvoltage category	3	3	3
Isolation group	1	1	–
Transmission performance (Category)	Cat. 5	Cat. 5	Cat. 5

### Materials

Contact material	Brass	Brass	Brass
Contact plating	Gold	Gold	Gold
Contact carrier material	PA unreinforced	PA	–
Housing material	PA unreinforced	PA	Zinc die-cast

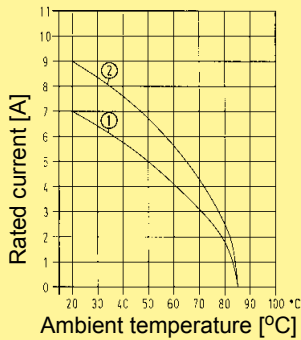
03  
64

## Technical characteristics M12 – D-coding

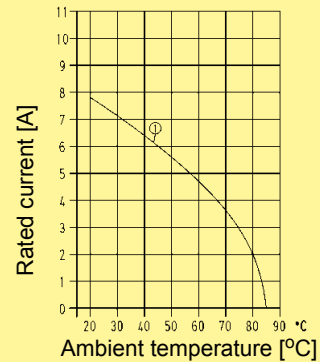
**Current carrying capacity** The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is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

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

**M12-L**  
3 poles, 4 poles  
1 = Wire gauge 0.34 mm<sup>2</sup>  
2 = Wire gauge 0.75 mm<sup>2</sup>

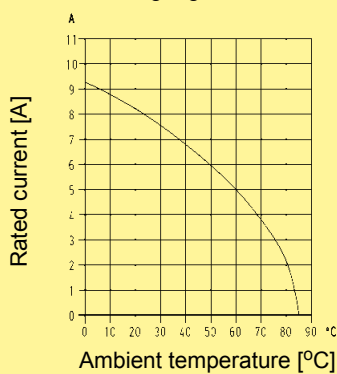


**M12, Crimp** 1 = Wire gauge 0.34 mm<sup>2</sup> / 0.5 mm<sup>2</sup>

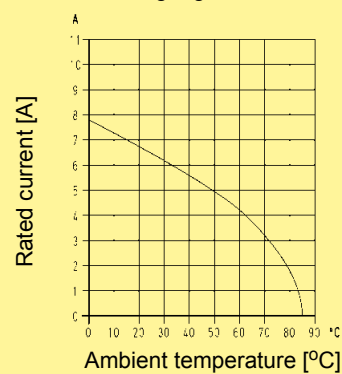


## Technical characteristics M12 – D-coding, PCB adapter

**M12, D-coding, straight, female, 4 poles**  
Wire gauge 0.5 mm<sup>2</sup>

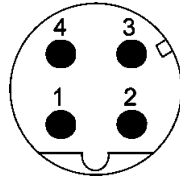


**M12, D-coding, angled, female, 4 poles**  
Wire gauge AWG 22





Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

03

- D-coding for Ethernet/Profinet applications
- Robust design
- 360° shielding termination
- Transmission performance Cat. 5

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

HARAX® M12-L, shielded

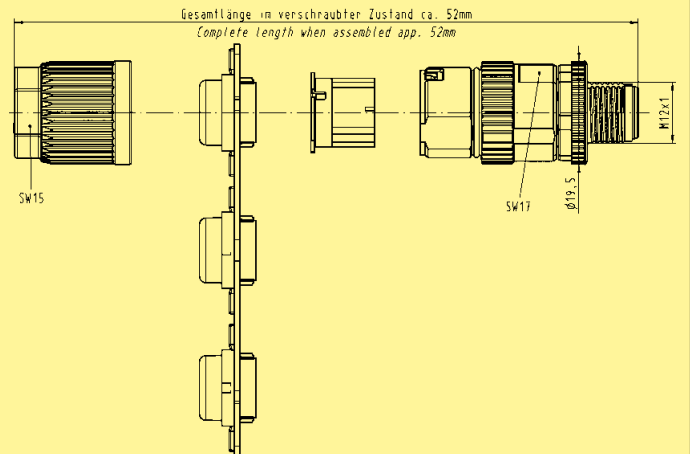


Male  
4 poles, D-coding  
0.14 - 0.34 mm<sup>2</sup>, AWG 26 - 22

21 03 281 1405

Male  
4 poles, D-coding  
0.34 - 0.5 mm<sup>2</sup>, AWG 22 - 20

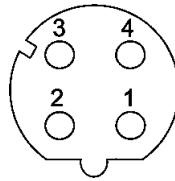
21 03 282 1405



# M12 HARAX® D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

**HARAX® M12-L, shielded**

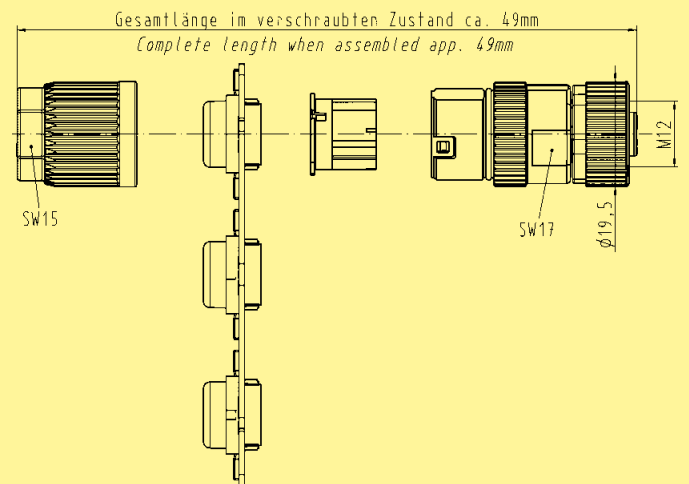


Female  
4 poles, D-coding  
0.14 - 0.34 mm<sup>2</sup>, AWG 26 - 22

21 03 281 2405

Female  
4 poles, D-coding  
0.34 - 0.5 mm<sup>2</sup>, AWG 22 - 20

21 03 282 2405

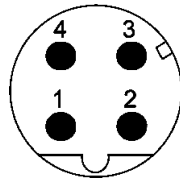


03

# M12 Crimp D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

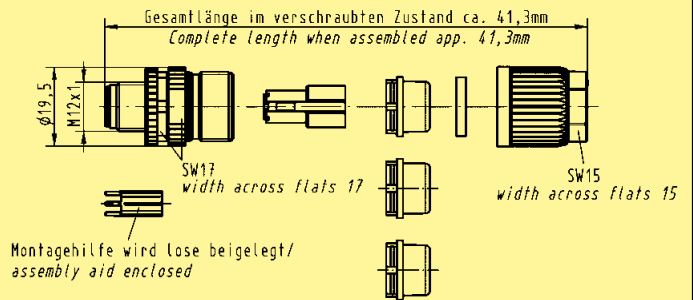
Dimensions in mm

M12 Crimp, shielded



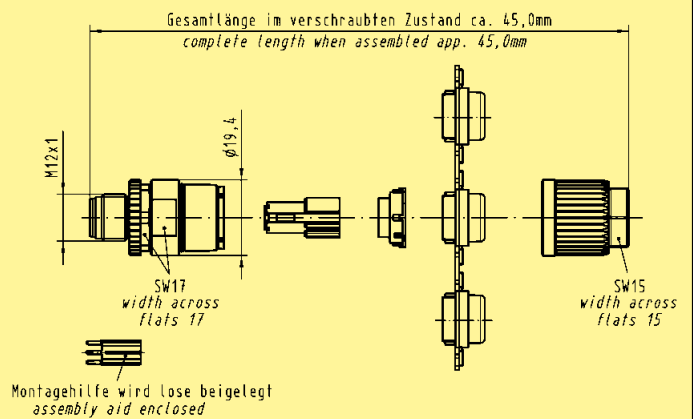
Male  
4 poles, D-coding

21 03 882 1405



Male  
4 poles, D-coding

21 03 882 1415

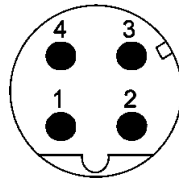




# M12 Crimp D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

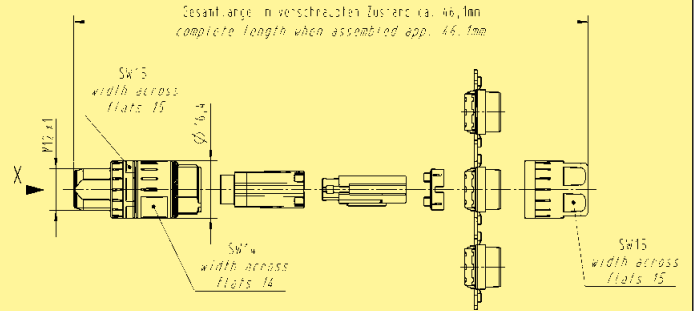
Dimensions in mm

M12 Crimp Slim design, shielded



Male  
4 poles, D-coding  
Cable: 4.4 - 8.8 mm  
outer diameter

21 03 881 1405\*

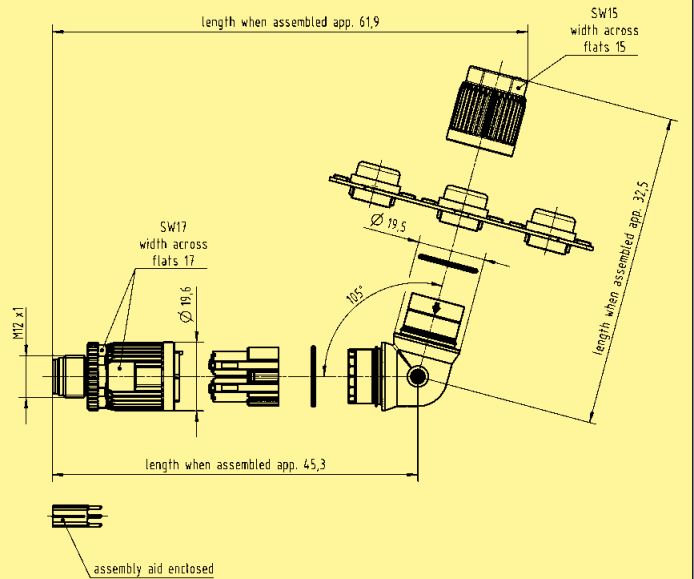


M12 Crimp, shielded



Male  
4 poles, D-coding  
angled

21 03 882 3405\*



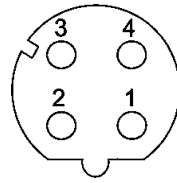
03

03  
69

# M12 Crimp D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

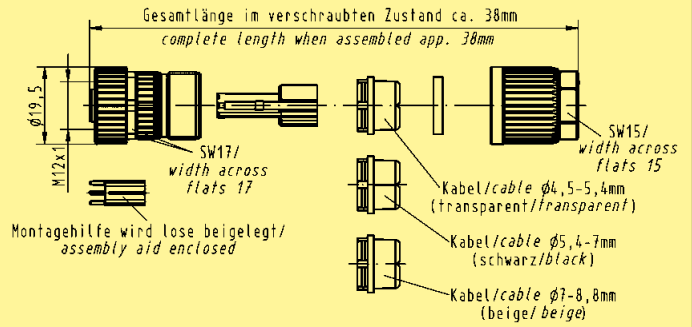
Dimensions in mm

M12 Crimp, shielded



Female  
4 poles, D-coding

21 03 882 2405

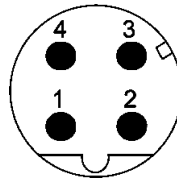


03  
70

# M12 preLink® D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

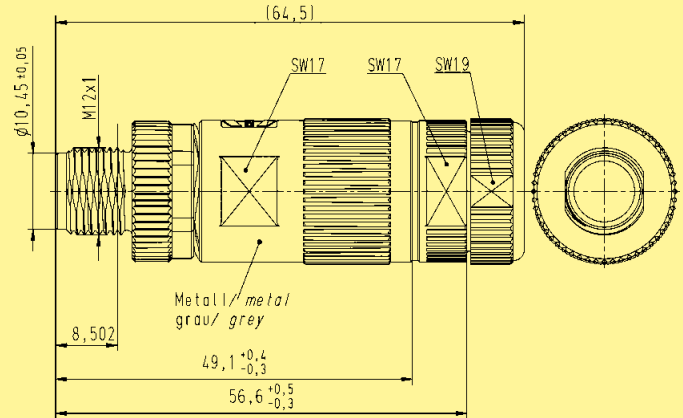
Part No.

Drawing

Dimensions in mm

preLink® M12 housing

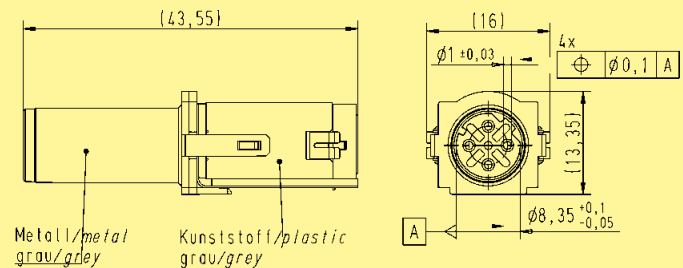
20 82 000 1210



preLink® M12 male module

20 82 005 1214

Male  
4 poles, D-coding



preLink® terminal module  
(Pack with 10 pieces)  
terminal block with IDC termination

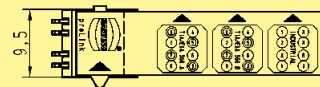
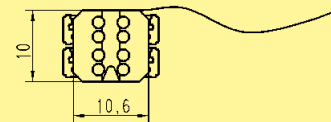
Number of contacts: 8

Conductor cross section: AWG 22/23 (24)  
solid and  
stranded  
Conductor diameter:  $\phi$  1.3 - 1.6 mm  
Colour: yellow

20 82 000 0001

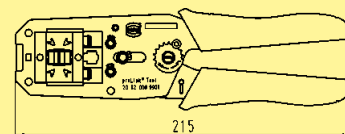
Conductor cross section: AWG 26/27  
solid and  
stranded  
Conductor diameter:  $\phi$  0.8 - 1.1 mm  
Colour: white

20 82 000 0003



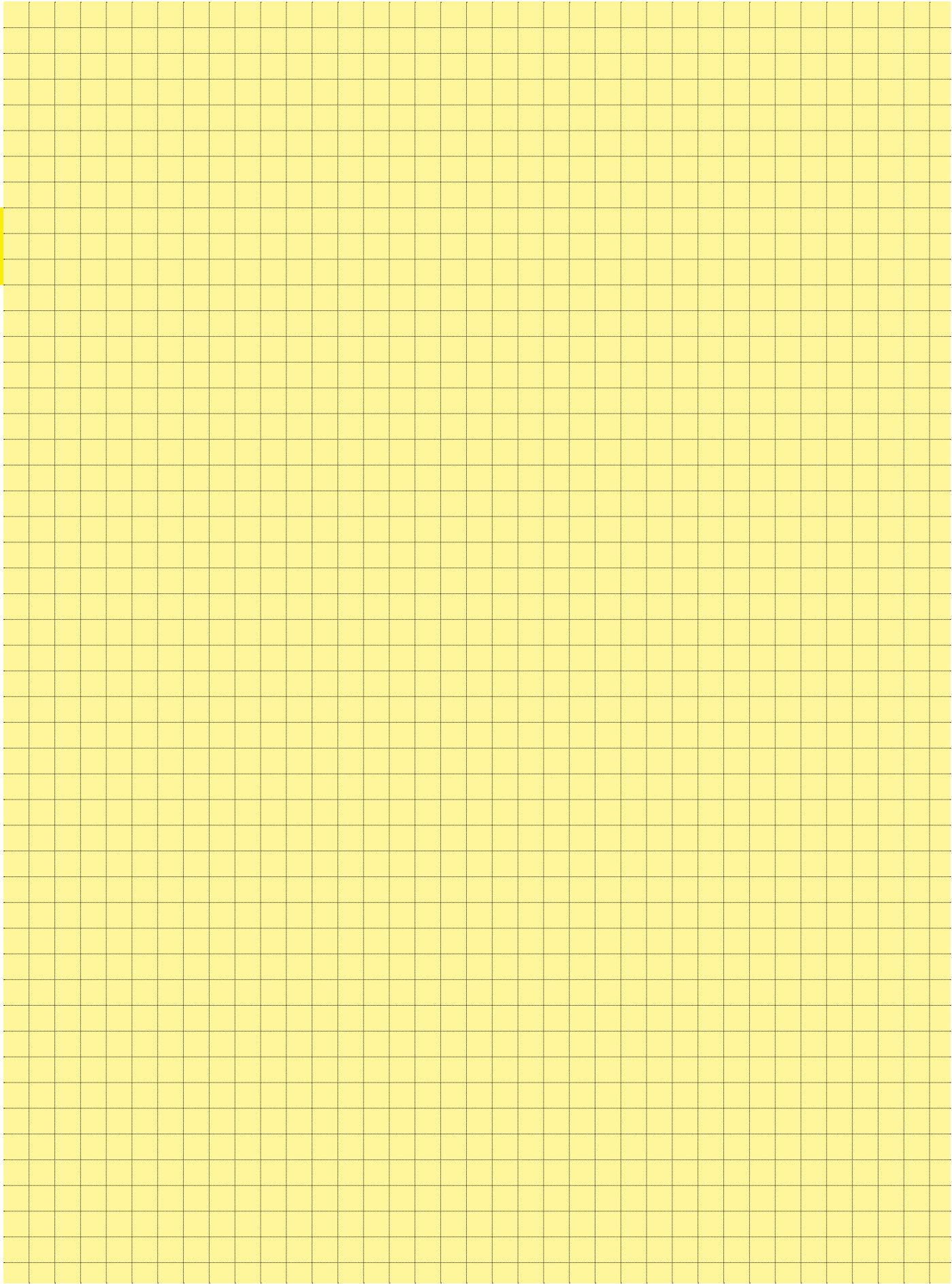
Assembly tool

20 82 000 9901

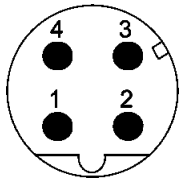


03

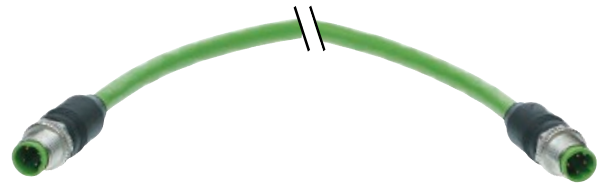
03  
71



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



## Technical characteristics

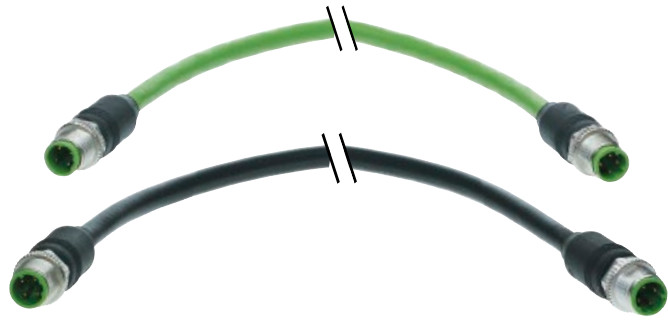
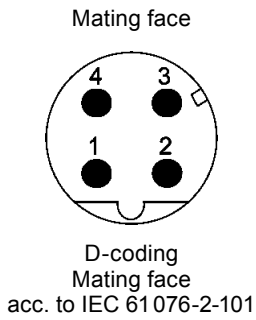
### Pre-assembled and tested system cables

for structured cabling of industrial Ethernet networks, based on 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	IP65 / IP67 (when mated)

### Pin assignment

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

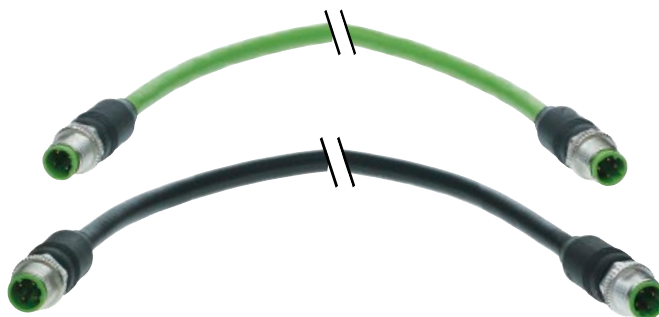
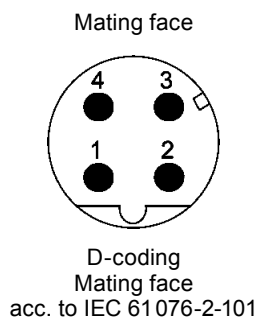


## Overview system cables M12

03

		Male M12 D-coding straight				
Number of contacts		 Cable material: PUR		 Cable material: PVC		
Male M12	straight		1.0 m	21 03 485 1401 09 48 222 2004 010*	1.0 m	09 47 222 2002 09 48 222 2003 010*
			1.5 m	21 03 485 1451 09 48 222 2004 015*	1.5 m	09 47 222 2003 09 48 222 2003 015*
			3.0 m	21 03 485 1403 09 48 222 2004 030*	3.0 m	09 47 222 2005 09 48 222 2003 030*
			5.0 m	21 03 485 1405 09 48 222 2004 050*	5.0 m	09 47 222 2006 09 48 222 2003 050*
			7.5 m	21 03 485 1457 09 48 222 2004 075*	7.5 m	09 47 222 2022 09 48 222 2003 075*
			10.0 m	21 03 485 1410 09 48 222 2004 100*	10.0 m	09 47 222 2011 09 48 222 2003 100*
			20.0 m	21 03 485 1420 09 48 222 2004 200*	20.0 m	09 47 222 2013 09 48 222 2003 200*
Open end		1.0 m	21 03 585 1401 09 48 220 0004 010*	1.0 m	09 47 220 0002 09 48 220 0003 010*	
		1.5 m	21 03 585 1451 09 48 220 0004 015*	1.5 m	09 47 220 0003 09 48 220 0003 015*	
		3.0 m	21 03 585 1403 09 48 220 0004 030*	3.0 m	09 47 220 0005 09 48 220 0003 030*	
		5.0 m	21 03 585 1405 09 48 220 0004 050*	5.0 m	09 47 220 0006 09 48 220 0003 050*	
		7.5 m	21 03 585 1457 09 48 220 0004 075*	7.5 m	09 47 220 0022 09 48 220 0003 075*	
		10.0 m	21 03 585 1410 09 48 220 0004 100*	10.0 m	09 47 220 0011 09 48 220 0003 100*	
		20.0 m	21 03 585 1420 09 48 220 0004 200*	20.0 m	09 47 220 0013 09 48 220 0003 200*	

\* Mid 2014 the part numbers beginning with 21 03 ... or 09 47 ... will be replaced by the part numbers beginning with 09 48 ... The former part numbers will be set to status inactive. Please use only the part numbers beginning with 09 48 ... for your order.



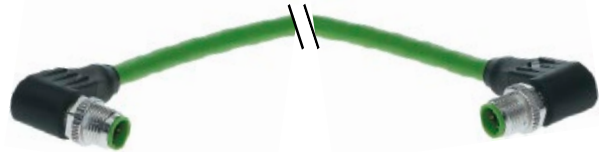
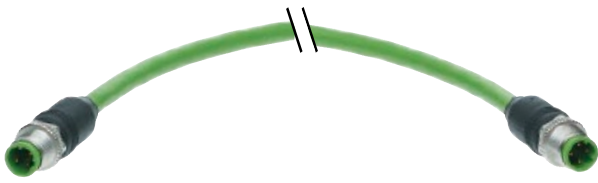
## Overview system cables M12

03

		Number of contacts		Male M12 D-coding angled			
				Cable material: PUR		Cable material: PVC	
Male M12	angled		1.0 m	21 03 485 3401 09 48 808 0004 010*	1.0 m	09 47 808 0002 09 48 808 0003 010*	
			1.5 m	21 03 485 3451 09 48 808 0004 015*	1.5 m	09 47 808 0003 09 48 808 0003 015*	
			3.0 m	21 03 485 3403 09 48 808 0004 030*	3.0 m	09 47 808 0005 09 48 808 0003 030*	
			5.0 m	21 03 485 3405 09 48 808 0004 050*	5.0 m	09 47 808 0006 09 48 808 0003 050*	
			7.5 m	21 03 485 3457 09 48 808 0004 075*	7.5 m	09 47 808 0022 09 48 808 0003 075*	
			10.0 m	21 03 485 3410 09 48 808 0004 100*	10.0 m	09 47 808 0011 09 48 808 0003 100*	
			20.0 m	21 03 485 3420 09 48 808 0004 200*	20.0 m	09 47 808 0013 09 48 808 0003 200*	
Open end		1.0 m	21 03 585 3401 09 48 800 0004 010*	1.0 m	09 47 800 0002 09 48 800 0003 010*		
		1.5 m	21 03 585 3451 09 48 800 0004 015*	1.5 m	09 47 800 0003 09 48 800 0003 015*		
		3.0 m	21 03 585 3403 09 48 800 0004 030*	3.0 m	09 47 800 0005 09 48 800 0003 030*		
		5.0 m	21 03 585 3405 09 48 800 0004 050*	5.0 m	09 47 800 0006 09 48 800 0003 050*		
		7.5 m	21 03 585 3457 09 48 800 0004 075*	7.5 m	09 47 800 0022 09 48 800 0003 075*		
		10.0 m	21 03 585 3410 09 48 800 0004 100*	10.0 m	09 47 800 0011 09 48 800 0003 100*		
		20.0 m	21 03 585 3420 09 48 800 0004 200*	20.0 m	09 47 800 0013 09 48 800 0003 200*		

\* Mid 2014 the part numbers beginning with 21 03 ... or 09 47 ... will be replaced by the part numbers beginning with 09 48 ...  
The former part numbers will be set to status inactive.  
Please use only the part numbers beginning with 09 48 ... for your order.

# M12 System cables, D-coding

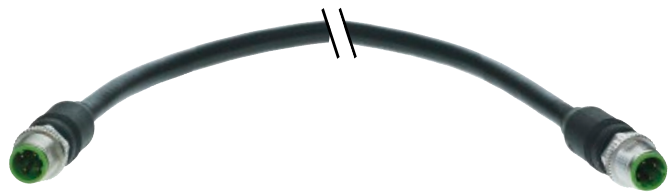


03

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

03  
76

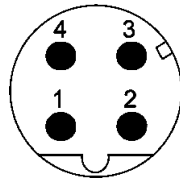




Identification	Part No.	Drawing	Dimensions in mm
<p>2 x M12 Circular connectors, D-coding, PVC, straight</p> <p>Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m</p>	<p>09 47 222 2002 09 47 222 2003 09 47 222 2005 09 47 222 2006 09 47 222 2022 09 47 222 2011 09 47 222 2013</p>		
<p>1 x M12 Circular connectors, D-coding, PVC, straight</p> <p>Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m</p>	<p>09 47 220 0002 09 47 220 0003 09 47 220 0005 09 47 220 0006 09 47 220 0022 09 47 220 0011 09 47 220 0013</p>		
<p>2 x M12 Circular connectors, D-coding, PVC, angled</p> <p>Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m</p>	<p>09 47 808 0002 09 47 808 0003 09 47 808 0005 09 47 808 0006 09 47 808 0022 09 47 808 0011 09 47 808 0013</p>		
<p>1 x M12 Circular connectors, D-coding, PVC, angled</p> <p>Length*: 1.0 m 1.5 m 3.0 m 5.0 m 7.5 m 10.0 m 20.0 m</p>	<p>09 47 800 0002 09 47 800 0003 09 47 800 0005 09 47 800 0006 09 47 800 0022 09 47 800 0011 09 47 800 0013</p>		



Mating face


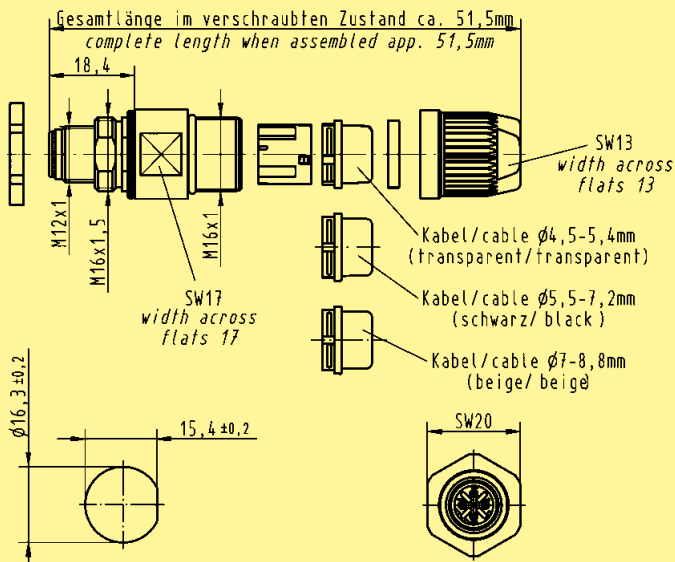


D-coding  
Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

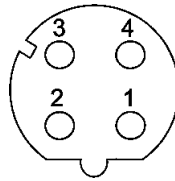
- D-coding for Ethernet/Profinet applications
- Patent HARAX® fast termination
- Robust design
- 360° shielding termination
- Transmission performance Cat. 5

Identification	Part No.	Drawing	Dimensions in mm
<p><b>HARAX® Panel feed-through</b></p>  <p>Male 4 poles, D-coding 0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22</p> <p>Panel thickness min. 2.5 mm max. 4.5 mm</p>	<p>21 03 381 1425</p>	 <p>Gesamtlänge im verschraubten Zustand ca. 51,5mm complete length when assembled app. 51,5mm</p> <p>18,4</p> <p>M12x1</p> <p>M16x1,5</p> <p>M16x1</p> <p>SW17 width across flats 17</p> <p>SW13 width across flats 13</p> <p>Kabel/cable ø4,5-5,4mm (transparent/transparent)</p> <p>Kabel/cable ø5,5-7,2mm (schwarz/black)</p> <p>Kabel/cable ø7-8,8mm (beige/beige)</p> <p>SW20</p> <p>ø16,3±0,2</p> <p>15,4±0,2</p>	

# M12 Panel feed-through HARAX® D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

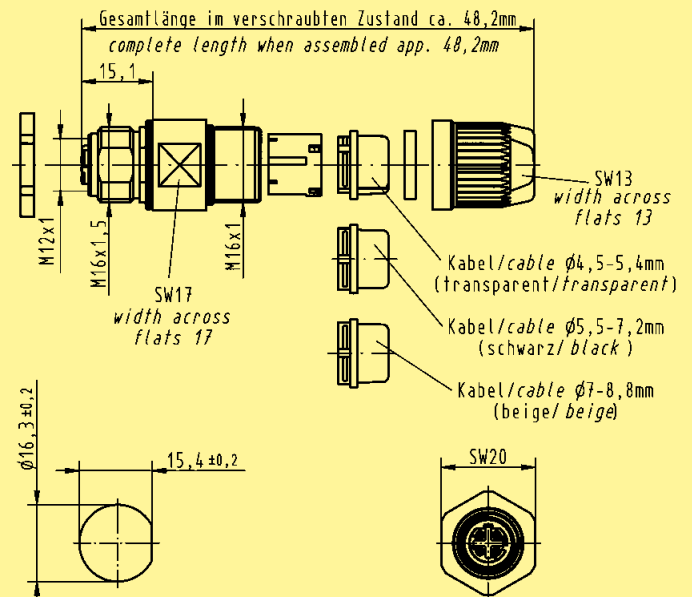
HARAX® Panel feed-through



21 03 381 2425

Female  
4 poles, D-coding  
0.14 - 0.34 mm<sup>2</sup> / AWG 26 - 22

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

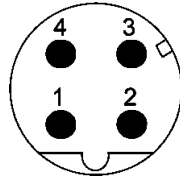


03

# M12 Panel feed-through Crimp D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

Dimensions in mm

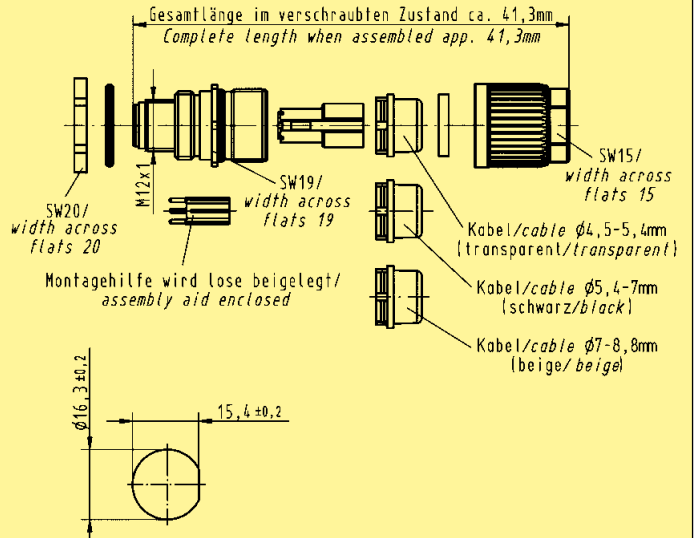
M12 Panel feed-through Crimp



Male  
4 poles, D-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

21 03 882 1425

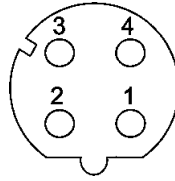


03  
80

# M12 Panel feed-through Crimp D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

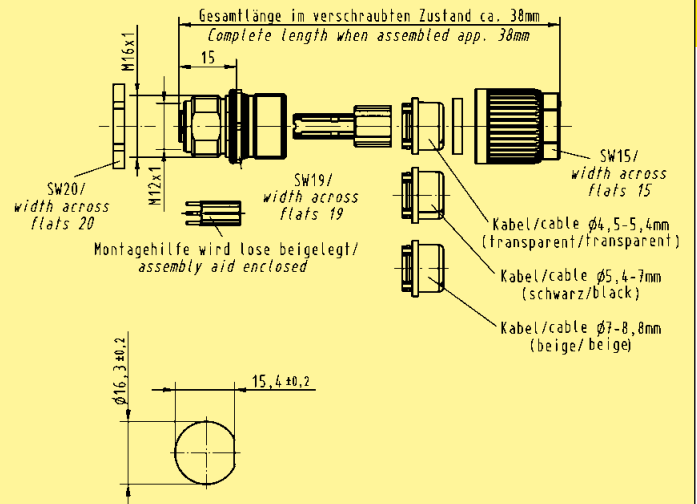
M12 Panel feed-through Crimp



Female  
4 poles, D-coding

Panel thickness  
min. 2.5 mm  
max. 4.5 mm

21 03 882 2425

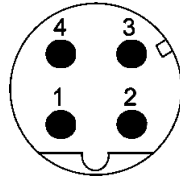


03

# M12 Panel feed-through D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

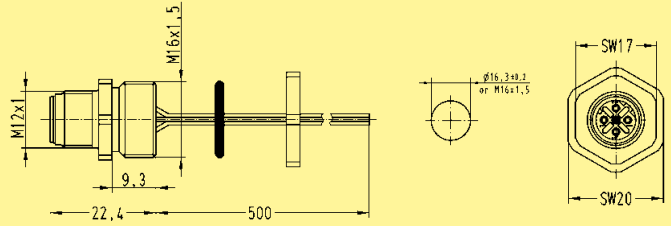
Drawing

Dimensions in mm

M12 Panel feed-through



21 03 371 1403



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

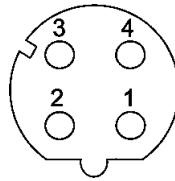
Panel thickness  
min. 2.0 mm  
max. 5.0 mm

03  
82

# M12 Panel feed-through D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



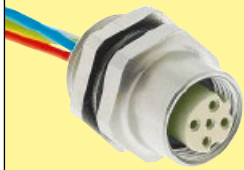
Identification

Part No.

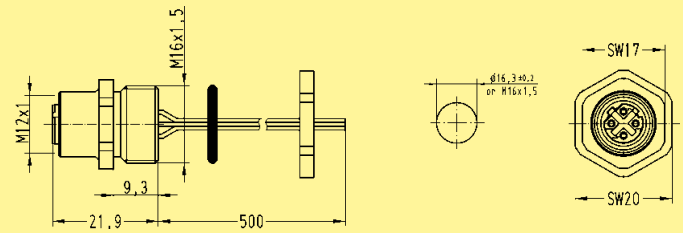
Drawing

Dimensions in mm

M12 Panel feed-through



21 03 371 2403



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

Panel thickness  
min. 2.0 mm  
max. 5.0 mm

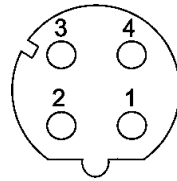
03

03  
83

# M12 Panel feed-through D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification                      Part No.                      Drawing                      Dimensions in mm

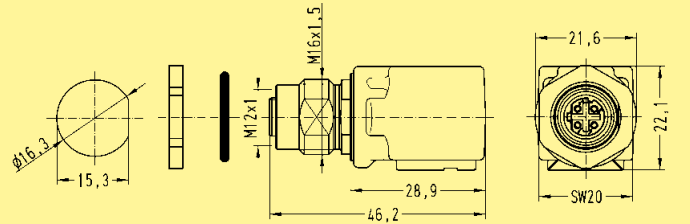
**M12 Female-RJ45  
Panel feed-through**



4 poles, D-coding  
angled

Panel thickness  
min. 2.1 mm  
max. 4.5 mm

21 03 381 4400



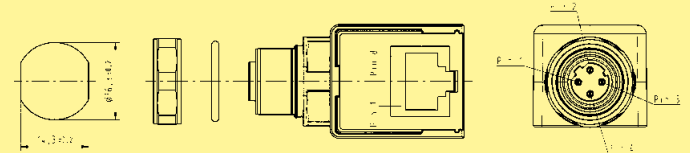
**M12 Female-RJ45  
Panel feed-through**



4 poles, D-coding  
straight

Panel thickness  
min. 2.1 mm  
max. 4.5 mm

21 03 381 2400

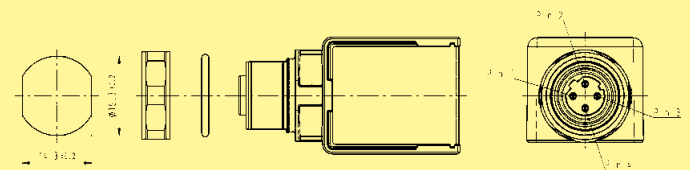


**M12 Male-RJ45 Adapter**



4 poles, D-coding  
straight  
(coupler, without thread in the  
termination area)

21 03 371 1420



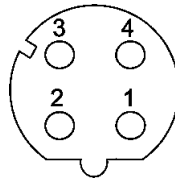
03  
84



# M12 Panel feed-through D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

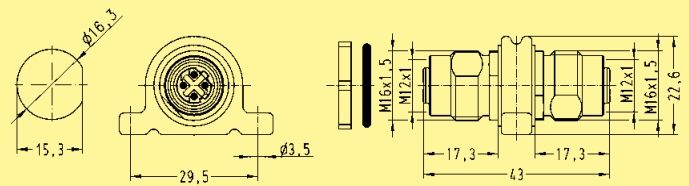
Dimensions in mm

M12 Gender Changer  
Female-Female



4 poles, D-coding  
Cat. 5

21 03 381 6405

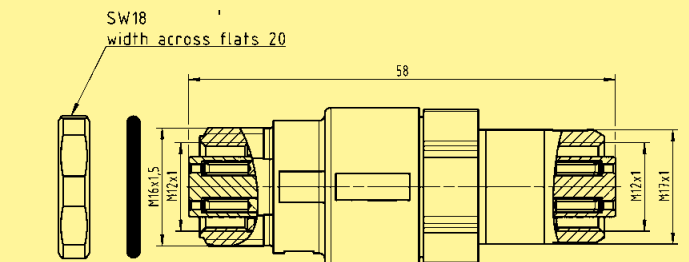


M12 Gender Changer  
Female-Female

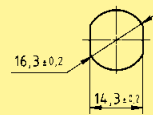


4 poles, D-coding  
Cat. 5

21 03 381 6401\*



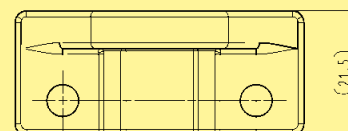
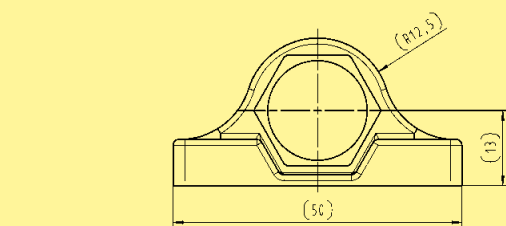
Panel cut out  
(1:1)



Wall bracket



21 01 000 0036

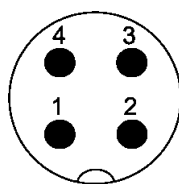


03

03  
85



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



## Technical characteristics: M12 PCB adapter D-coded angled

Degree of protection	IP20, IP67 (mated and locked)	Temperature during connection	-5 °C ... +50 °C
Rated current	max. 4 A (dependant on PCB layout)	Termination	Reflow
Rated voltage	50 V	Contact material	Copper alloy
Mating cycles	max. 100	Contact plating (mating side)	Au over Ni
Limiting temperature	-40 °C ... +85 °C	Insulator material	LCP

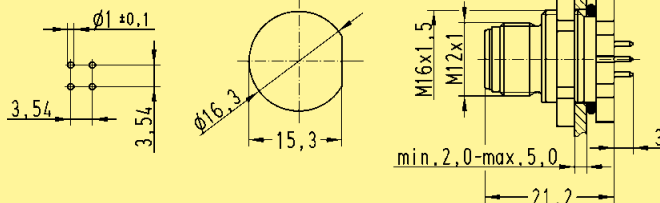
Identification	Part No.	Drawing	Dimensions in mm
----------------	----------	---------	------------------

M12 PCB adapter  
Male, D-coding,  
straight



4 poles, IP67

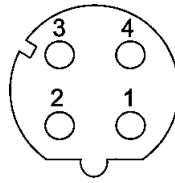
21 03 371 1400



# M12 PCB adapter D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

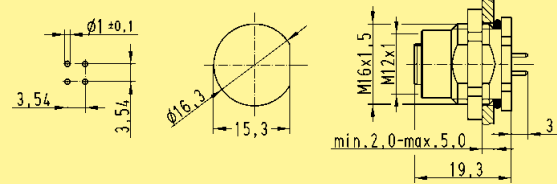
## M12 PCB adapter

Female, D-coding,  
straight



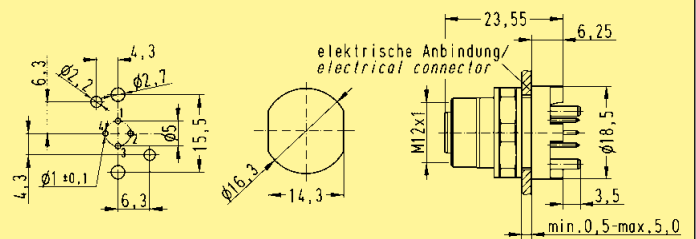
4 poles, IP67

21 03 371 2415



4 poles, IP20  
4 poles, IP67

21 03 381 6410  
21 03 381 6420



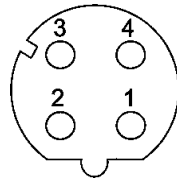
03

03  
87

# M12 PCB adapter D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



03

Identification

Part No.

Drawing

Dimensions in mm

## M12 PCB adapter

Female, D-coding,  
angled, 4 poles

without fixing hole

IP20

21 03 381 4410<sup>1)</sup>

IP20

21 03 381 4411<sup>2)</sup>

IP67

21 03 381 4430<sup>1)</sup>



with fixing hole

IP20

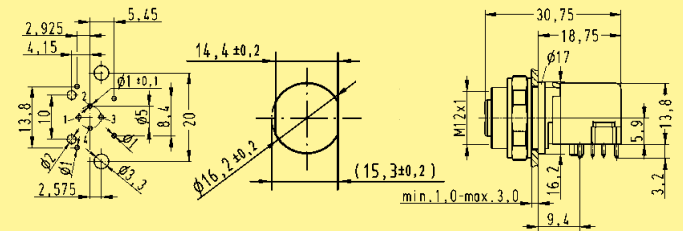
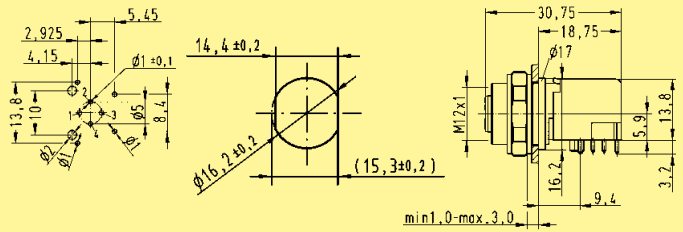
21 03 381 4412<sup>1)</sup>

IP20

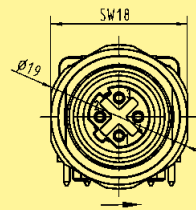
21 03 381 4413<sup>2)</sup>

IP67

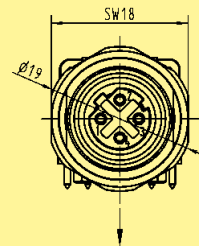
21 03 381 4432<sup>1)</sup>



1) Cable direction  
to the right



2) Cable direction  
to the bottom

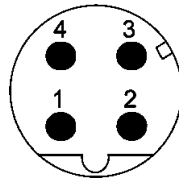


03  
88

# M12 PCB adapter shielded D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

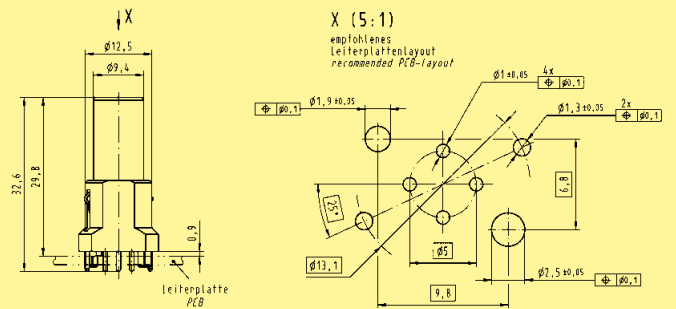
Dimensions in mm

M12 PCB adapter, shielded



Male  
4 poles, D-coding

21 03 381 1418\*



03

Housing

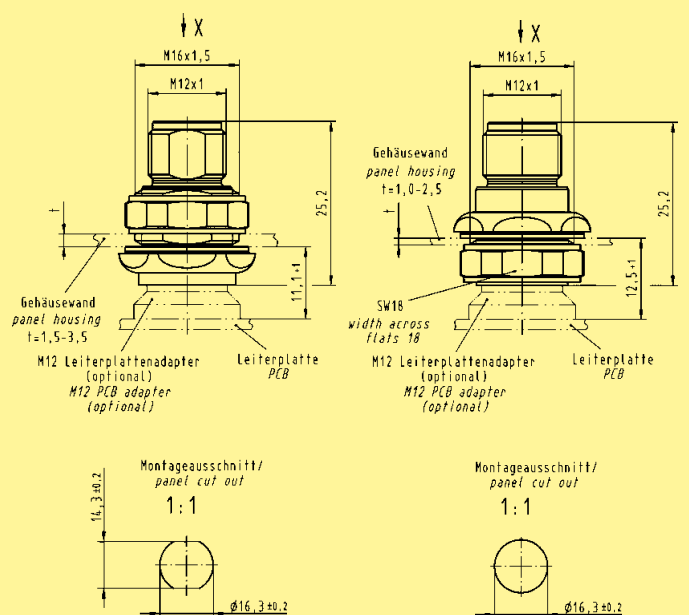


for rear mounting

21 03 301 1000

for front mounting

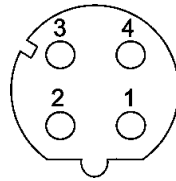
21 03 301 1001



# M12 PCB adapter shielded D-coded



Mating face



D-coding  
Mating face  
acc. to IEC 61076-2-101



03

## Identification

## Part No.

## Drawing

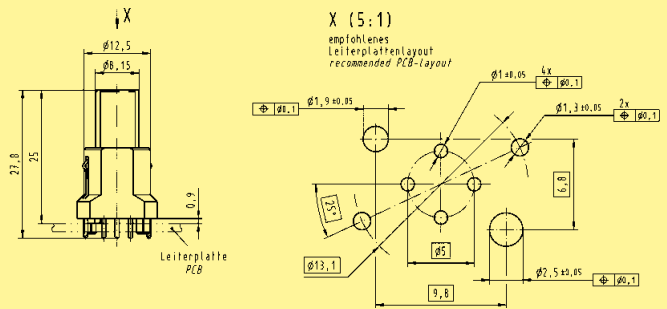
## Dimensions in mm

M12 PCB adapter, shielded



Female  
4 poles, D-coding

21 03 381 2418\*



## Housing

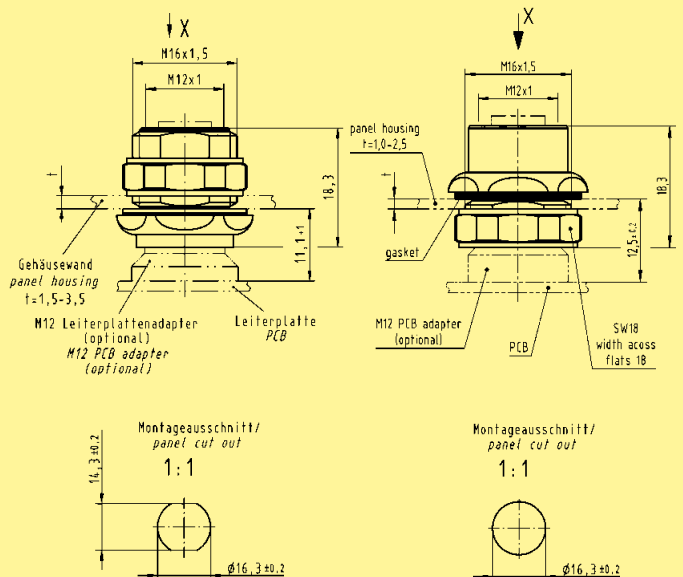


for rear mounting

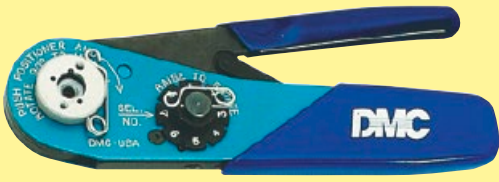





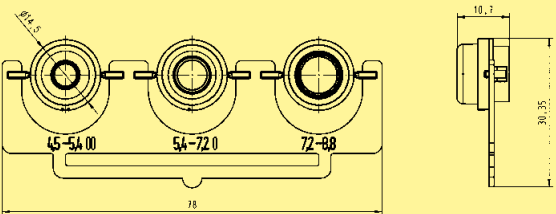

for front mounting

21 03 301 2000

21 03 301 2001



03  
90

Identification	Part No.	Drawing																
<b>Crimping tool</b> for M12 Crimp	09 99 000 0501																	
<b>Accessories M12 Crimp</b>  <b>Locator</b>	09 99 000 0531																	
<b>D-Sub single contacts</b> (500 mating cycles)		<b>D-Sub contacts</b> <table border="1"> <thead> <tr> <th>Part number</th> <th>AWG</th> <th>Tool settings</th> </tr> </thead> <tbody> <tr> <td rowspan="3">09 67 000 3x76</td> <td>18</td> <td>6</td> </tr> <tr> <td>20</td> <td>6</td> </tr> <tr> <td>22</td> <td>5</td> </tr> <tr> <td>09 67 000 8x76</td> <td>20, 22, 24</td> <td>6</td> </tr> <tr> <td>09 67 000 5x76</td> <td>22, 24, 26</td> <td>6</td> </tr> </tbody> </table>	Part number	AWG	Tool settings	09 67 000 3x76	18	6	20	6	22	5	09 67 000 8x76	20, 22, 24	6	09 67 000 5x76	22, 24, 26	6
Part number	AWG	Tool settings																
09 67 000 3x76	18	6																
	20	6																
	22	5																
09 67 000 8x76	20, 22, 24	6																
09 67 000 5x76	22, 24, 26	6																
turned male contacts AWG 22-18 / 0.33-0.82 mm <sup>2</sup> AWG 24-20 / 0.25-0.52 mm <sup>2</sup> AWG 26-22 / 0.13-0.33 mm <sup>2</sup>	09 67 000 3576 09 67 000 8576 09 67 000 5576																	
turned female contacts AWG 22-18 / 0.33-0.82 mm <sup>2</sup> AWG 24-20 / 0.25-0.52 mm <sup>2</sup> AWG 26-22 / 0.13-0.33 mm <sup>2</sup>	09 67 000 3476 09 67 000 8476 09 67 000 5476																	
<b>M12 dynamometric screwdriver</b> Tightening torque 0.6 Nm																		
for M12 Slim design SW 15	09 99 000 0646																	
for M12-L SW 17	09 99 000 0384																	
<b>Set of seals M12-L shielded</b> for 4.5 - 5.4 mm cable Ø for 5.4 - 7.2 mm cable Ø for 7.2 - 8.8 mm cable Ø	21 01 010 2017	 																
<b>Accessories M12</b>  <b>Lock nut</b>	21 01 000 0018																	

03

Identification

Part No.

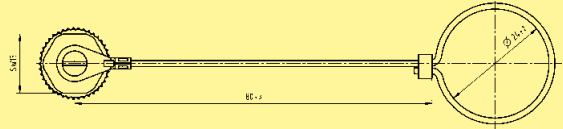
Drawing

Dimensions in mm

### Cap metal M12

for IP65 / IP67  
M12 metal cap for male side  
with cord

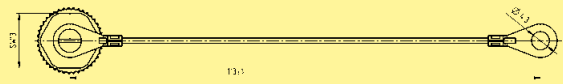
21 01 000 0033



### Cap metal M12

for IP65 / IP67  
M12 metal cap for male side  
with cable clip

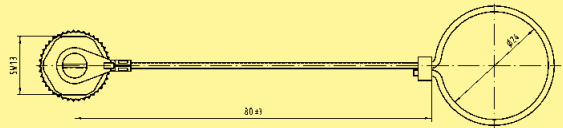
21 01 000 0038



### Cap metal M12

for IP65 / IP67  
M12 metal cap for female side  
with cord

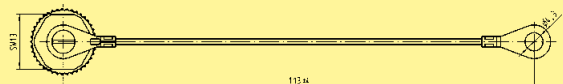
21 01 000 0030



### Cap metal M12

for IP65 / IP67  
M12 metal cap for female side  
with cable clip

21 01 000 0031

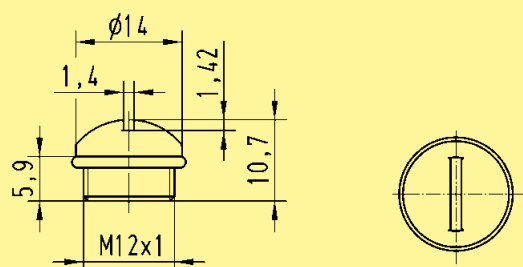


### Cap M12

for IP65 / IP67  
Seals material Viton  
Plastic cap for female



21 01 000 0003



03  
92



Directory

Page

**4. *har*-speed M12 data connectors**

**4.1 X-coded – Solutions for high-speed applications**

o Technical characteristics .....	<b>04.02</b>
■ Cable connectors	
• <i>har</i> -speed M12 connector .....	<b>04.05</b>
• System cables .....	<b>04.06</b>
■ Device connectors	
• <i>har</i> -speed M12 Panel feed-through .....	<b>04.07</b>
• <i>har</i> -speed PCB connector .....	<b>04.09</b>
o Accessories .....	<b>04.13</b>

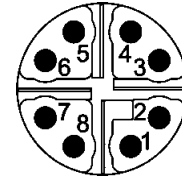
# M12 X-coding



**Specifications** IEC 60 352-4

**Approval** 

Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



## Technical characteristics M12 – X-coding

Type M12 X-coded	<i>har-speed M12</i> <i>har-speed M12 Slim design</i>
------------------	--

### General data

Conductor cross section	0.08 - 0.25 mm <sup>2</sup> AWG 28-23
Diameter of individual strands	–
Conductor insulation material	–
Conductor diameter	0.33 - 0.61 mm
Cable diameter	4.5 - 8.8 mm
Temperature range	-40 °C ... +85 °C
Temperature during connection	-5 °C ... +50 °C
Degree of protection	IP65 / IP67
Mating cycles	500
Tightening torque connector / hexagonal wrench	0.6 Nm / SW 15

### Electrical characteristics

Rated current	0.5 A
Rated voltage	48 V
Rated impulse voltage	1.5 kV
Contact resistance	15 mΩ
Insulation resistance	10 <sup>8</sup> Ω
Pollution degree	3
Overvoltage category	3
Isolation group	1
Transmission performance (Category)	Cat. 6 <sub>A</sub>

### Materials

Contact material	Brass
Contact plating	Gold
Contact carrier material	LCP
Housing material	ZP410

04

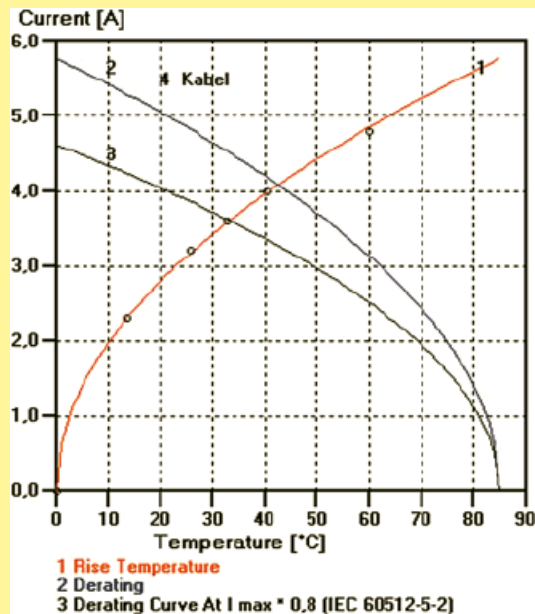
04  
02

## Technical characteristics M12 – X-coding

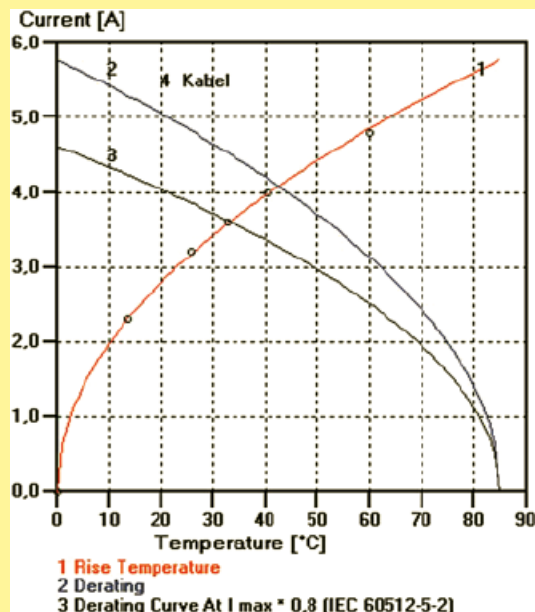
**Current carrying capacity** The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is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

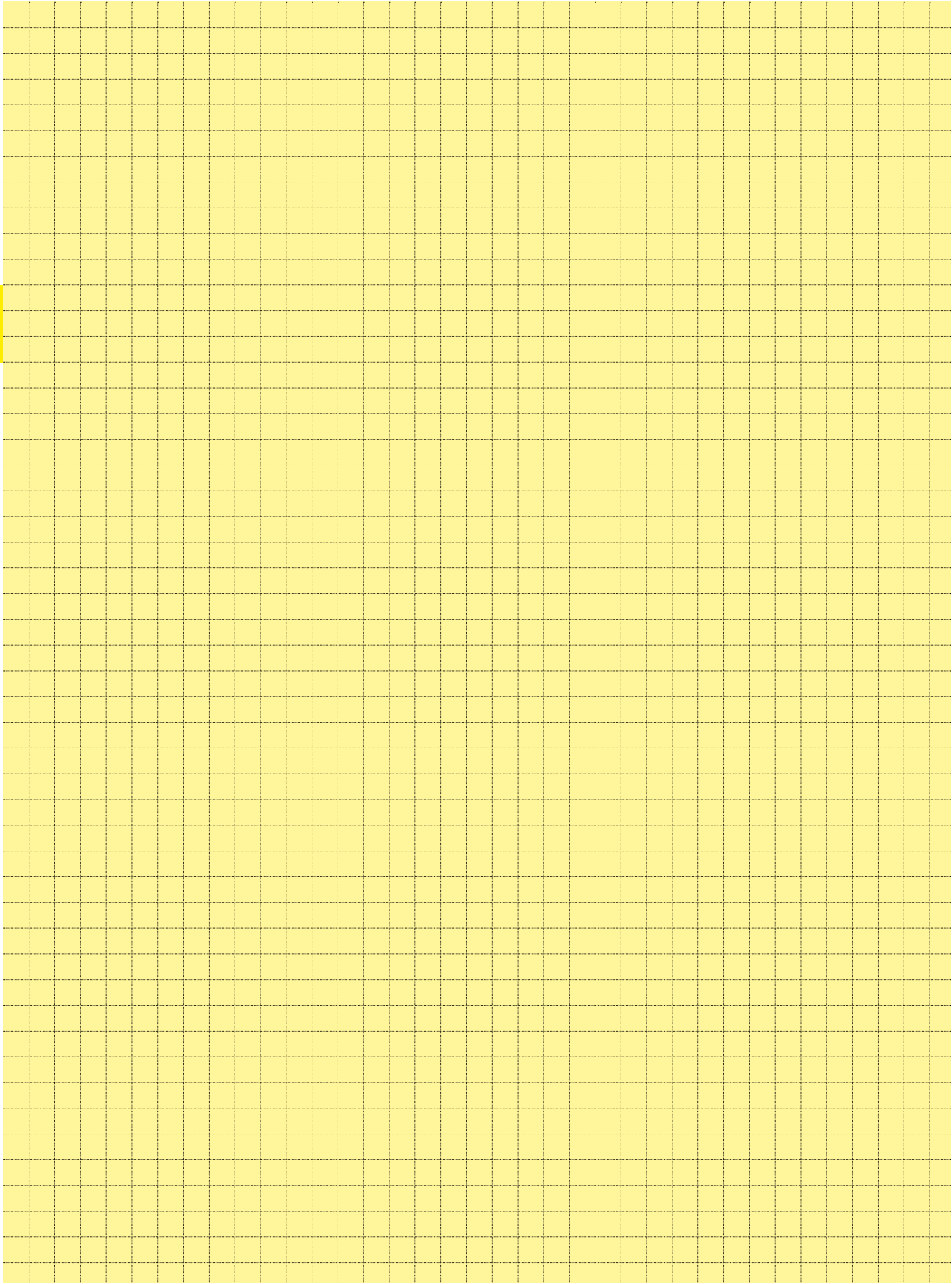
Control and test procedures according to DIN IEC 60512-5.

*har-speed M12*  
8 poles



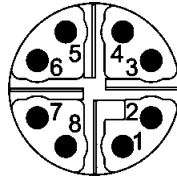
*har-speed M12*  
PCB adapter







Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

- High-Speed Ethernet applications for process automatization, e.g. camera system for process control in the production
- Maximum data rates through the configuration of the contacts in conformance with Ethernet technology. Transfer class E<sub>A</sub> for 1 and 10 Gigabit
- Perfect shielding through paired shielding of the contacts
- Overmoulded system cables in various lengths

04

### Identification

### Part No.

### Drawing

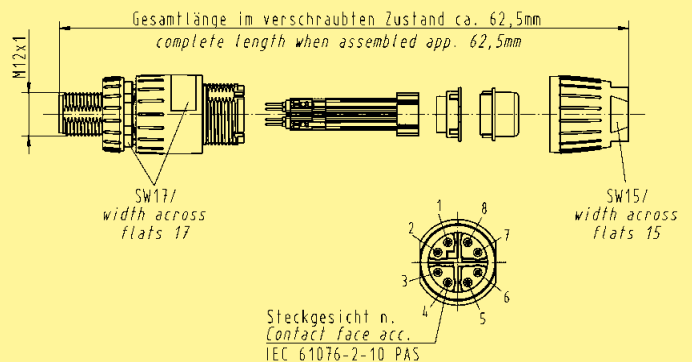
### Dimensions in mm

#### har-speed M12



Male  
straight version  
8 poles, Cat. 6<sub>A</sub>  
Cable diameter: 4.5 - 8.8 mm

21 03 881 5805

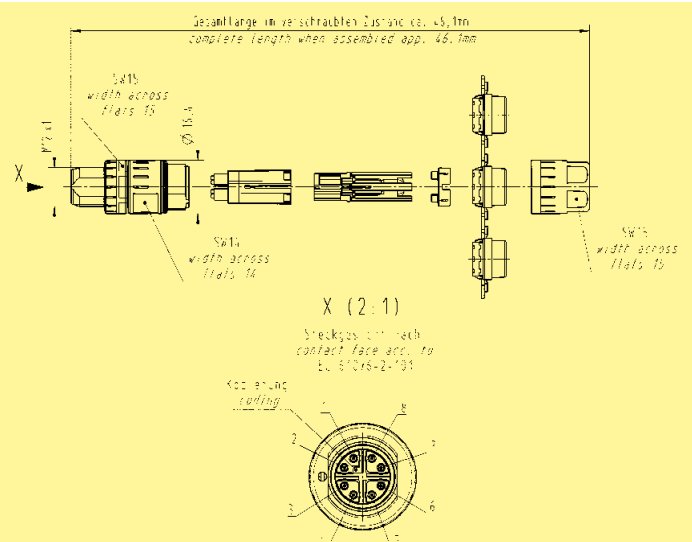


#### har-speed M12 Slim design



Male  
straight version  
8 poles, Cat. 6<sub>A</sub>  
Cable diameter: 4.5 - 8.8 mm

21 03 881 1805

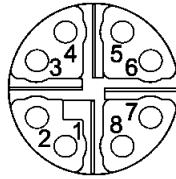




# har-speed M12 Panel feed-through X-coded



Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

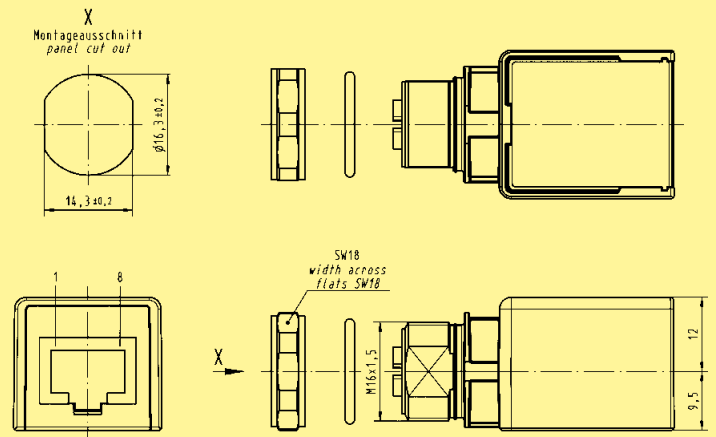
**har-speed M12  
Adapter M12-RJ45**



straight, Cat. 6A

Panel thickness  
min. 2.1 mm  
max. 4.5 mm

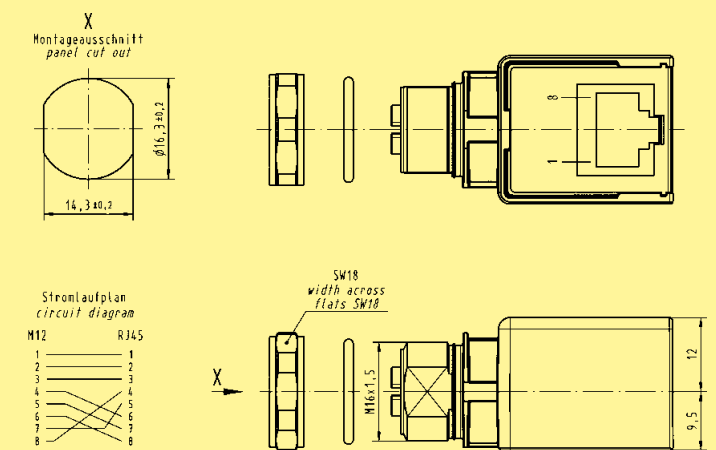
21 03 381 2800



angled, Cat. 6A

Panel thickness  
min. 2.1 mm  
max. 4.5 mm

21 03 381 4800



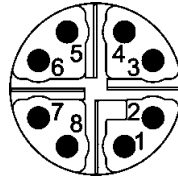
04

04  
07

# har-speed M12 Panel feed-through X-coded



Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

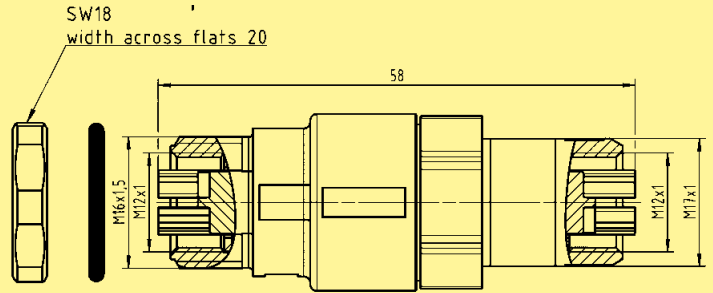
Drawing

Dimensions in mm

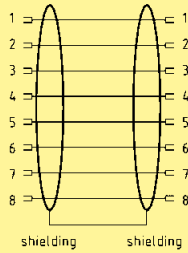
Gender changer, Cat. 6A



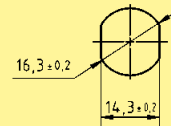
21 03 381 6815



schematic diagram



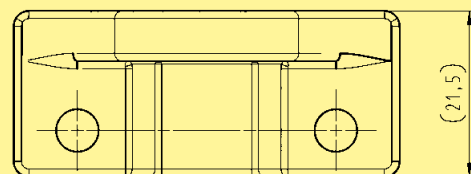
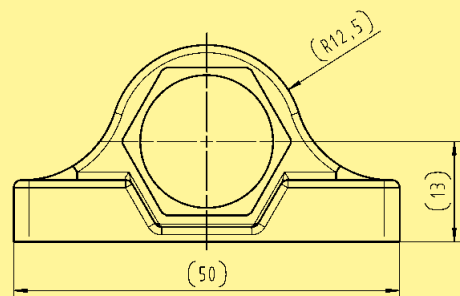
Panel cut out  
(1:1)



Wall bracket



21 01 000 0036



04

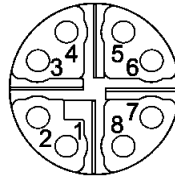
04  
08



# har-speed M12 PCB adapter X-coded



Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

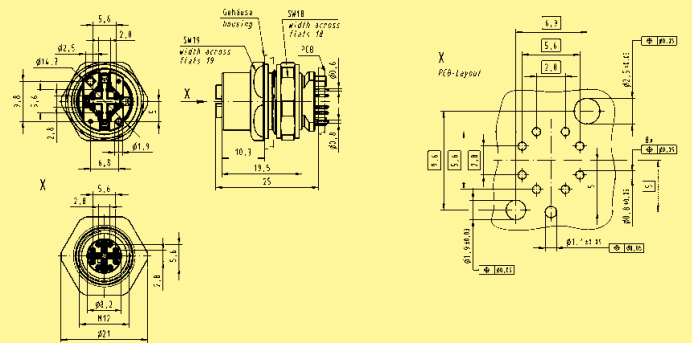
Dimensions in mm

## har-speed M12 PCB adapter

Female, X-coding, straight, Cat. 6<sub>A</sub> for front mounting



21 03 381 2802

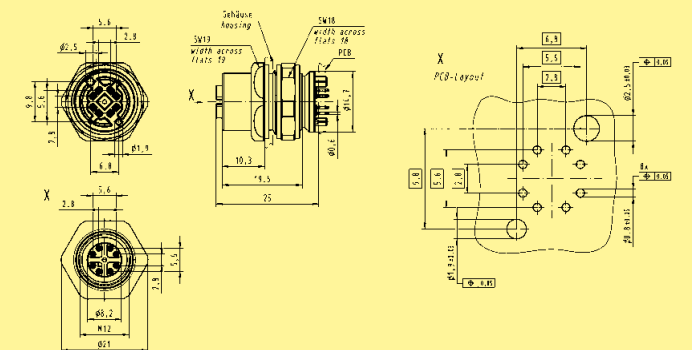


## har-speed M12 PCB adapter

Female, X-coding, straight, Cat. 5 for front mounting



21 03 381 2803

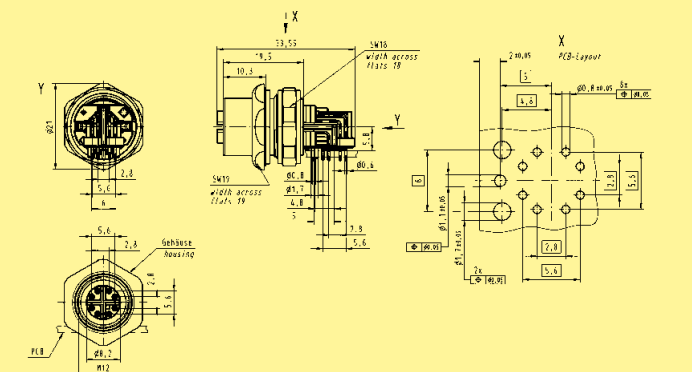


## har-speed M12 PCB adapter

Female, X-coding, angled, Cat. 6<sub>A</sub> for front mounting



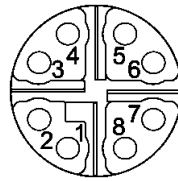
21 03 381 4802



# har-speed M12 PCB adapter X-coded



Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

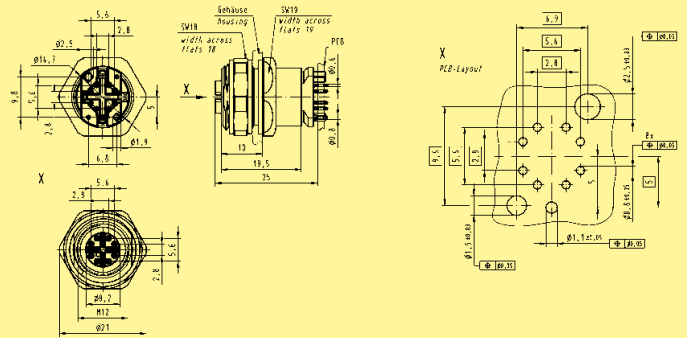
Dimensions in mm

## har-speed M12 PCB adapter

Female, X-coding, straight, Cat. 6<sub>A</sub> for rear mounting



21 03 381 2804

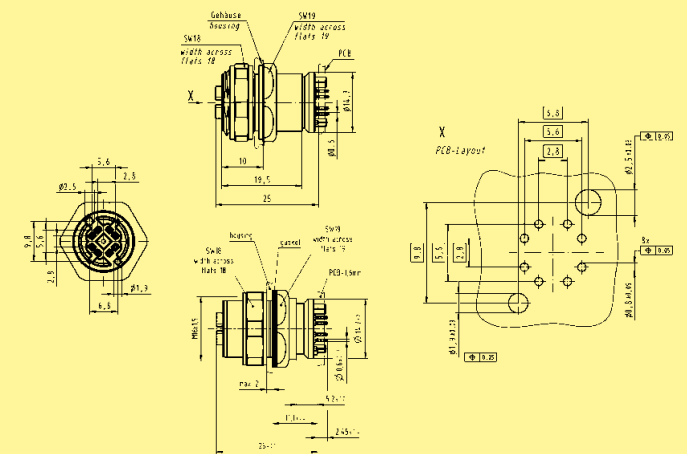


## har-speed M12 PCB adapter

Female, X-coding, straight, Cat. 5 for rear mounting



21 03 381 2805



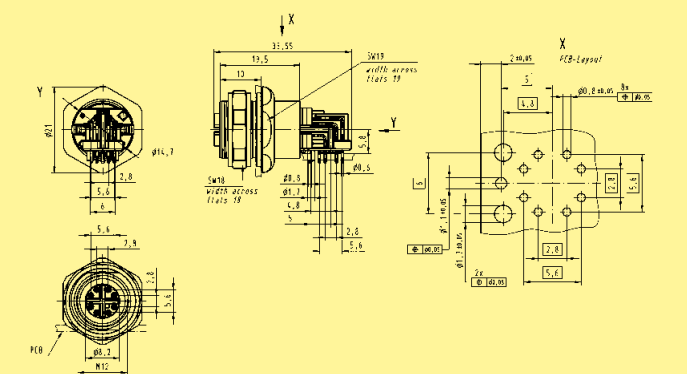
21 03 381 2809

## har-speed M12 PCB adapter

Female, X-coding, angled, Cat. 6<sub>A</sub> for rear mounting



21 03 381 4804



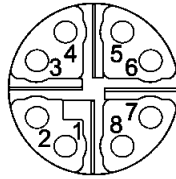
04

04  
10

# har-speed M12 PCB adapter X-coded



Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

Dimensions in mm

har-speed M12  
PCB adapter

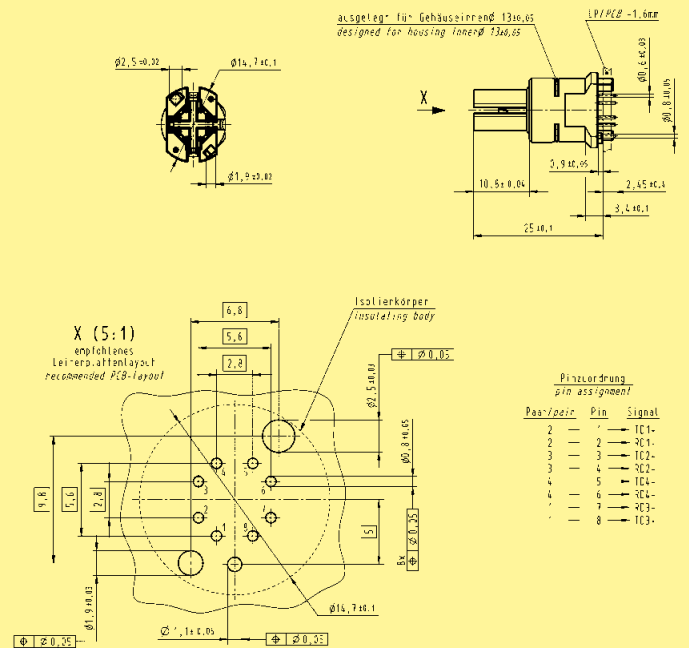


Female  
8 poles, X-coding  
Cat. 6A

21 03 381 2806

Female  
8 poles, X-coding  
Cat. 5

21 03 381 2807



04

Housing

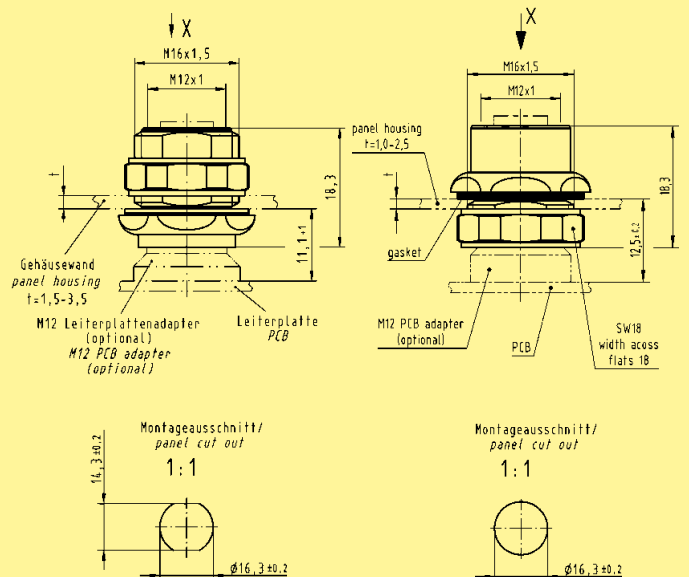


for rear mounting

21 03 301 2000

for front mounting

21 03 301 2001

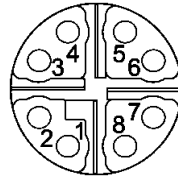


04  
11

# har-speed M12 PCB adapter X-coded



Mating face



X-coding  
Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

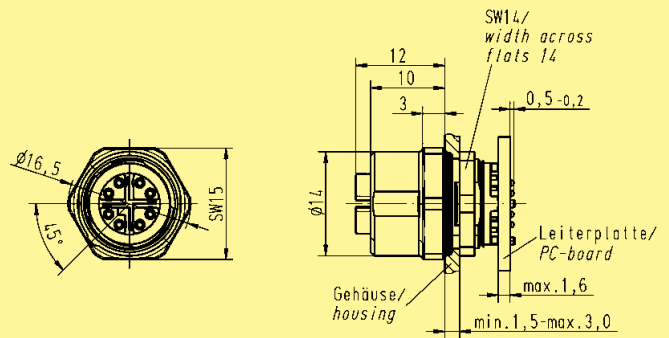
Dimensions in mm

## har-speed M12 PCB adapter

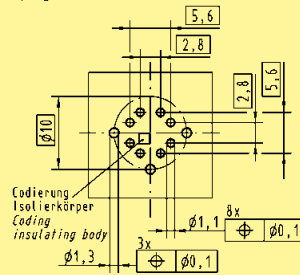
Female, X-coding,  
straight, Cat. 6<sub>A</sub>  
for front mounting



21 03 381 2801



Bohrplan/drilling plan  
Bestückungsseite (Frontansicht)  
plug-in side (front view)



04

04  
12

Identification

Part No.

Drawing

Crimping tool  
for *har-speed* M12

09 99 000 0501



Accessories *har-speed* M12

Locator

09 99 000 0525



Single contacts  
(500 mating cycles)

*har-speed* M12 contacts  
AWG 28-24 / 0.08-0.22 mm<sup>2</sup>



*har-speed* M12 contacts  
AWG 26-23 / 0.13-0.25 mm<sup>2</sup>

21 01 100 9014

21 01 100 9019

*har-speed* contacts

Part number	AWG	Tool settings
21 01 100 9014	28	3
	26	4
	24	5
21 01 100 9019	26	4
	24	5
	23	5

Accessories M12

Lock nut

21 01 000 0018



M12  
dynamometric screwdriver  
Tightening torque 0.6 Nm

for M12 Slim design SW 15

09 99 000 0646





Directory

Page

5. 7/8" HARAX®

5.1 7/8" HARAX®-Power-Circular connectors

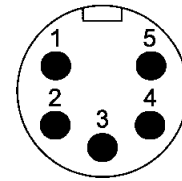
o Technical characteristics .....	05.02
■ Cable connectors	
• 7/8" HARAX® Male .....	05.04
• 7/8" HARAX® Female .....	05.05
• System cables .....	05.06
■ Device connectors	
• Panel feed-through .....	05.10
o Accessories .....	05.12

**Specifications** IEC 60 352-4  
DIN 61984

**Approval** , VDE



Mating face



Mating face  
acc. to IEC 61076-2-101

## Technical characteristics 7/8" HARAX®

Type	7/8" HARAX®
------	-------------

### General data

Conductor cross section	0.75 - 1.5 mm <sup>2</sup> AWG 18-16
Diameter of individual strands	≥ 0.15 mm
Conductor insulation material	PVC, PP, TPE
Conductor diameter	≤ 2.8 mm
Cable diameter	6.8 - 9.5 mm (black) 9 - 12.5 mm (grey)
Temperature range	-40 °C ... +85 °C
Temperature during connection	-5 °C ... +50 °C
Degree of protection	IP65 / IP67
Mating cycles	100
Recommended tightening torque / Hexagonal wrench	1.5 Nm / SW 22

### Electrical characteristics

Rated current	10 A
Rated voltage	230 V / 400 V
Rated impulse voltage	4.8 kV
Contact resistance	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω
Pollution degree	3
Overvoltage category	3
Isolation group	1

### Materials

Contact material	Copper alloy
Contact plating	Gold
Contact carrier material	TPU, PA
Housing material	TPU, zinc die-cast, PA



## Technical characteristics – System cables, 7/8" HARAX®

Degree of protection	IP67
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 <sup>2</sup>
Standards	UL / CSA

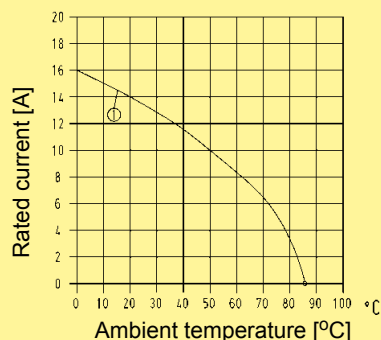
## Technical characteristics 7/8" HARAX®

**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.

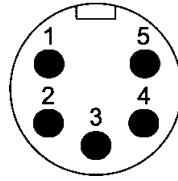
7/8"

1 = Wire gauge 0.75 mm<sup>2</sup> /  
1.5 mm<sup>2</sup>





Mating face



Mating face  
acc. to IEC 61076-2-101



## Applications / Advantages

- The reliable connector for power applications
- Patent HARAX® fast termination
- Overmoulded system cables in various lengths
- Robust design, quick assembly

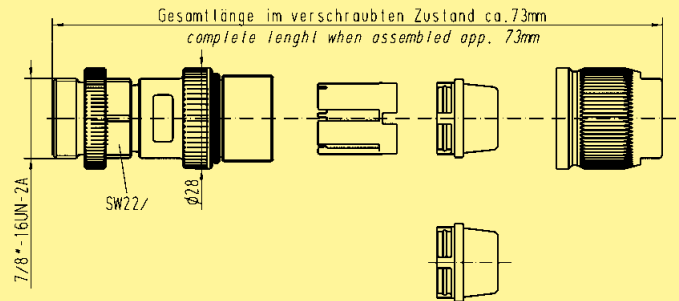
05

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

7/8" HARAX® Male



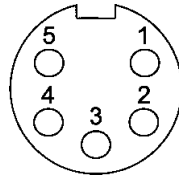
21 04 116 1505



05  
04



Mating face



Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

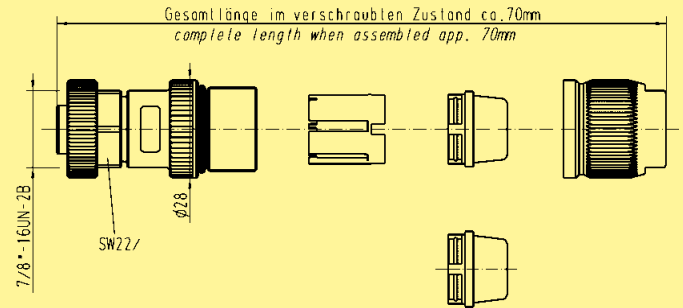
Drawing

Dimensions in mm

7/8" HARAX® Female



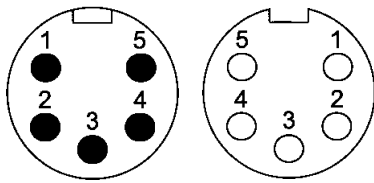
21 04 116 2505



05

05  
05

Mating face



Mating face  
acc. to IEC 61076-2-101



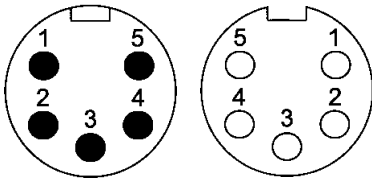
## Technical characteristics

Degree of protection	IP67
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
<b>Cable data</b>	
Jacket material	PUR
Jacket colour	grey
Wire isolation	TPM
Wire colours	brown, white, blue, black, green/yellow
Wire gauge	5 x 1.5 mm <sup>2</sup>
Standards	UL / CSA

# 7/8" System cables

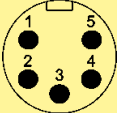
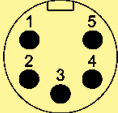

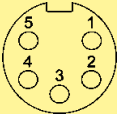
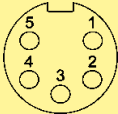


Mating face



Mating face  
acc. to IEC 61076-2-101

## Overview system cables 7/8"

Number of contacts		Male 7/8"			
		straight		angled	
		 Cable material: PUR		 Cable material: PUR	
Female 7/8"	straight	0.3 m	21 04 416 1501	xxx	xxx
		0.6 m	21 04 416 1502	xxx	xxx
		1.0 m	21 04 416 1503	xxx	xxx
		1.5 m	21 04 416 1504	xxx	xxx
		2.0 m	21 04 416 1505	xxx	xxx
	angled	xxx	xxx	0.3 m	21 04 416 3501
		xxx	xxx	0.6 m	21 04 416 3502
		xxx	xxx	1.0 m	21 04 416 3503
		xxx	xxx	1.5 m	21 04 416 3504
		xxx	xxx	2.0 m	21 04 416 3505
Open end		Female 7/8"			
		straight		angled	
		 Cable material: PUR		 Cable material: PUR	
		1.5 m	21 04 516 2501	1.5 m	21 04 516 4501
		3.0 m	21 04 516 2502	3.0 m	21 04 516 4502
		5.0 m	21 04 516 2503	5.0 m	21 04 516 4503
		7.5 m	21 04 516 2504	7.5 m	21 04 516 4504
		10.0 m	21 04 516 2505	10.0 m	21 04 516 4505

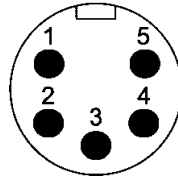




# 7/8" Panel feed-through



Mating face



Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

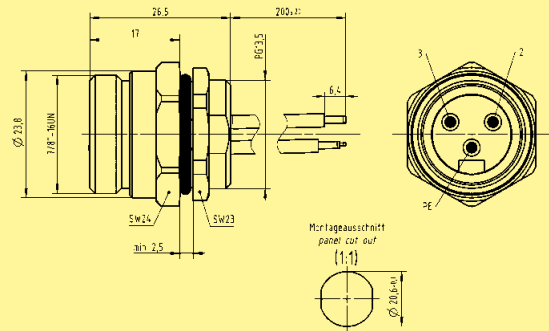
Dimensions in mm

## 7/8" Panel feed-through

20 cm conductors, AWG 18, 1 mm<sup>2</sup>, 3 poles

Male

21 04 316 1305

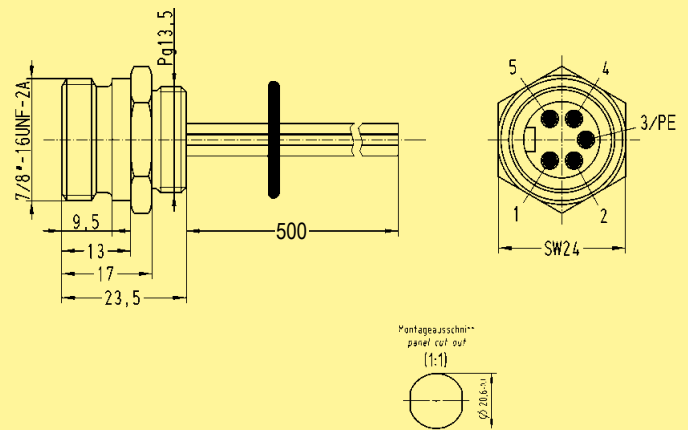


## 7/8" Panel feed-through

50 cm conductors, AWG 18, 1 mm<sup>2</sup>, 5 poles

Male

21 04 316 1505



05

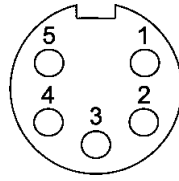
05  
10



# 7/8" Panel feed-through



Mating face



Mating face  
acc. to IEC 61076-2-101



Identification

Part No.

Drawing

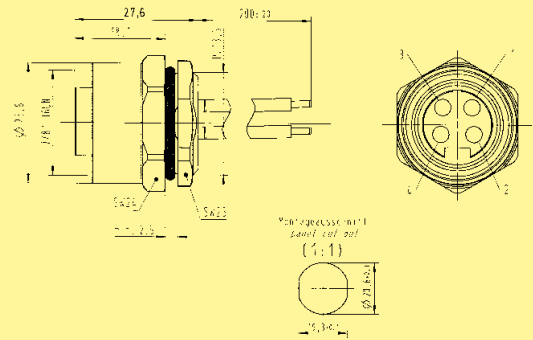
Dimensions in mm

## 7/8" Panel feed-through

20 cm conductors, AWG 18, 1 mm<sup>2</sup>, 4 poles

Female

21 04 316 2400



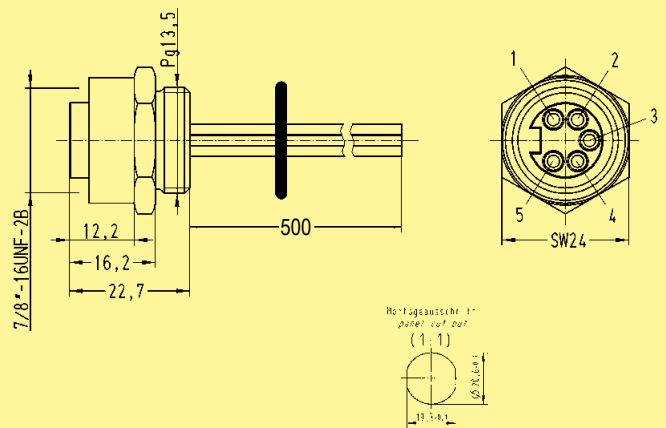
05

## 7/8" Panel feed-through

50 cm conductors, AWG 18, 1 mm<sup>2</sup>, 5 poles

Female

21 04 316 2505



Identification

Part No.

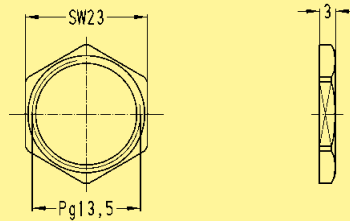
Drawing

Dimensions in mm

Lock nut Pg 13.5  
nickel plated



21 01 000 0020



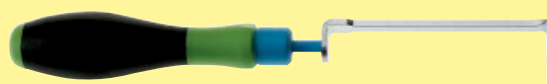
05

7/8"  
dynamometric screwdriver  
Tightening torque 1.5 Nm

for 7/8"

SW 23

09 99 000 0395



05  
12

Directory

Page

6. **HARAX® Panel feed-through**

6.1 **HARAX® Panel feed-through**

o Technical characteristics .....	<b>06.02</b>
■ Cable connectors	
• HARAX® Pg 13.5 / M20 Panel feed-through .....	<b>06.04</b>
o Accessories .....	<b>06.05</b>

# HARAX® Panel feed-through



**Specifications** IEC 60 352-4  
DIN 61984

**Approval** , VDE



## Technical characteristics Panel feed-through

Type	HARAX® Pg 13.5/M20 Panel feed-through
------	---------------------------------------

### General data

Conductor cross section	0.75 - 1.5 mm <sup>2</sup> AWG 18 - 16
Diameter of individual strands	≥ 0.2 mm
Conductor insulation material	PVC, PP, TPE
Conductor diameter	≤ 2.8 mm
Cable diameter	6 - 9 mm
Temperature range	-25 °C ... +85 °C
Temperature during connection	-5 °C ... +50 °C
Degree of protection	IP67
Mating cycles	100
Recommended tightening torque	8 Nm

### Electrical characteristics

Rated current	16 A
Rated voltage	230 V / 400 V
Rated impulse voltage	4 KV
Contact resistance	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω
Pollution degree	3
Overvoltage category	3
Isolation group	1

### Materials

Contact material	Copper alloy
Contact plating	Gold
Contact carrier material	TPU, PA
Housing material	TPU, PA

06

06  
02

## Technical characteristics Panel feed-through

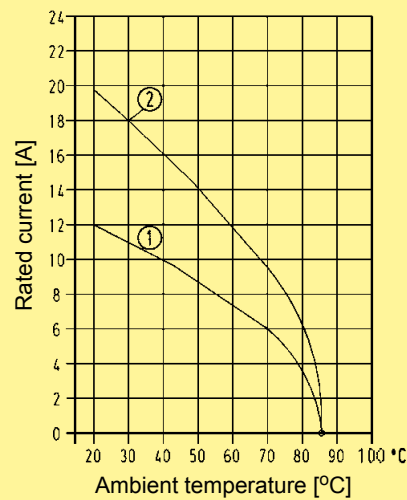
**Current carrying capacity** The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is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

Control and test procedures according to DIN IEC 60 512-5.

Pg 13.5  
3 poles

1 = Wire gauge  
0.75 mm<sup>2</sup>

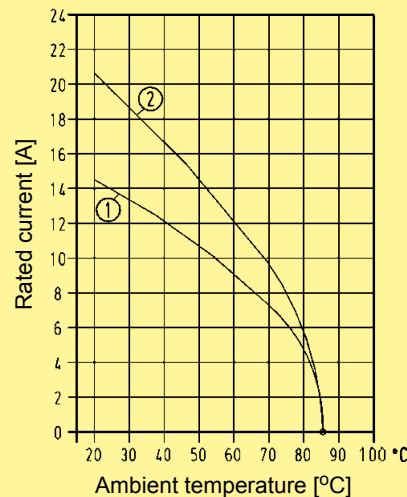
2 = Wire gauge  
1.5 mm<sup>2</sup>



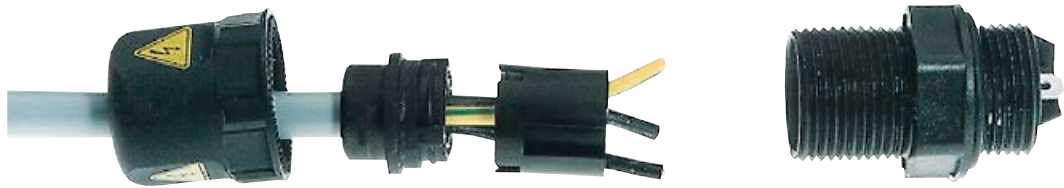
Pg 13.5 / M20  
4 poles

1 = Wire gauge  
0.75 mm<sup>2</sup>

2 = Wire gauge  
1.5 mm<sup>2</sup>



# HARAX® Pg 13.5 / M20 Panel feed-through



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

06

06  
04

Identification	Part No.	Drawing	Dimensions in mm
<p>Termination element M12 HARAX® Pg 9 3 contacts Screw cap, splice ring, seal</p>	<p>21 01 010 0001</p>		
<p>Termination element M12 HARAX® Pg 9 4 contacts Screw cap, splice ring, seal</p>	<p>21 01 010 0006</p>		
<p>Lock nut Pg 9</p> <p>Lock nut Pg 13.5, SW 27</p> <p>Lock nut Pg 13.5, SW 24</p>	<p>21 01 000 0008</p> <p>21 01 000 0007</p> <p>21 01 000 0039</p>		





Directory

Page

**7. INOX – Solutions for extreme demands**

**7.1 M12 INOX**

o Technical characteristics .....	<b>07.02</b>
■ Cable connectors	
• M12-L INOX .....	<b>07.04</b>

# M12 INOX



**Specifications** IEC 60 352-4  
IEC 60 068-2-52:1996, severity level 4



## Technical characteristics M12 INOX

Type M12 INOX V4A	HARAX® M12-L 4 poles	M12 Crimp
-------------------	-------------------------	-----------

### General data

Conductor cross section	0.34 - 0.75 mm <sup>2</sup> AWG 22 - 18	0.14 - 0.75 mm <sup>2</sup> AWG 26 - 18
Diameter of individual strands	≥ 0.1 mm	X
Conductor insulation material	PVC	X
Conductor diameter	1.6 - 2.0 mm 2.0 - 2.6 mm	2.0 - 2.3 mm
Cable diameter	6 - 8 mm	4.5 - 8.8 mm
Temperature range	-40 °C ... +85 °C	-40 °C ... +85 °C
Temperature during connection	-5 °C ... +50 °C	-5 °C ... +50 °C
Degree of protection	IP65 / IP67	IP67
Mating cycles	100	500
Tightening torque connector / hexagonal wrench	0.6 Nm / SW 17	0.6 Nm / SW 17

### Electrical characteristics

Rated current	6 A	4 A
Rated voltage	50 V	250 V
Rated impulse voltage	1.5 kV	1.5 kV
Contact resistance	10 mΩ	10 mΩ
Insulation resistance	10 <sup>8</sup> Ω	10 <sup>8</sup> Ω
Pollution degree	3	3
Overvoltage category	3	3
Isolation group	1	1

### Materials

Contact material	Brass	Brass
Contact plating	Gold	Gold
Contact carrier material	PA unreinforced	PA
Housing material	V4A	V4A

07

07  
02

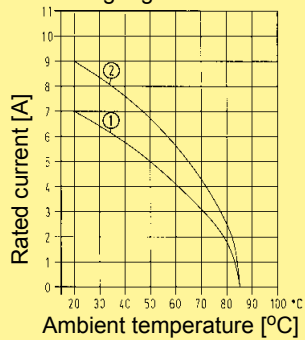
## Technical characteristics M12 INOX

**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.

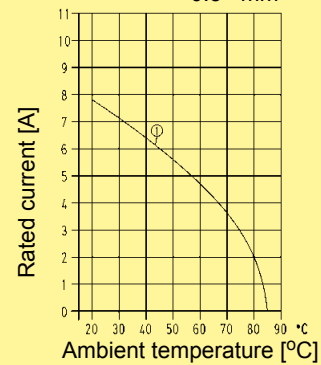
Control and test procedures according to DIN IEC 60 512-5.

M12-L  
4 poles

1 = Wire gauge 0.34 mm<sup>2</sup>  
2 = Wire gauge 0.75 mm<sup>2</sup>

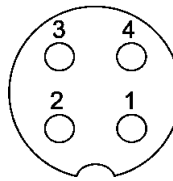


M12, Crimp 1 = Wire gauge 0.34 mm<sup>2</sup> /  
0.5 mm<sup>2</sup>

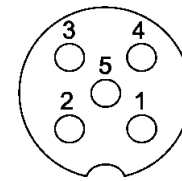




Mating faces



A-coding  
4 poles  
Mating faces acc. to IEC 61076-2-101




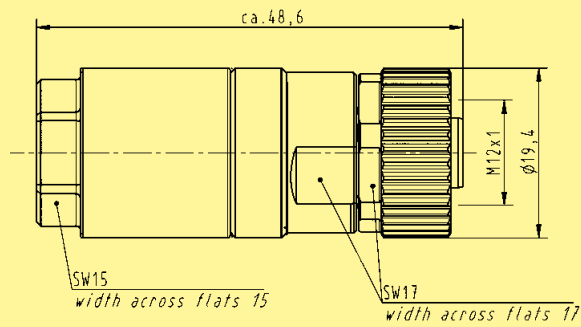

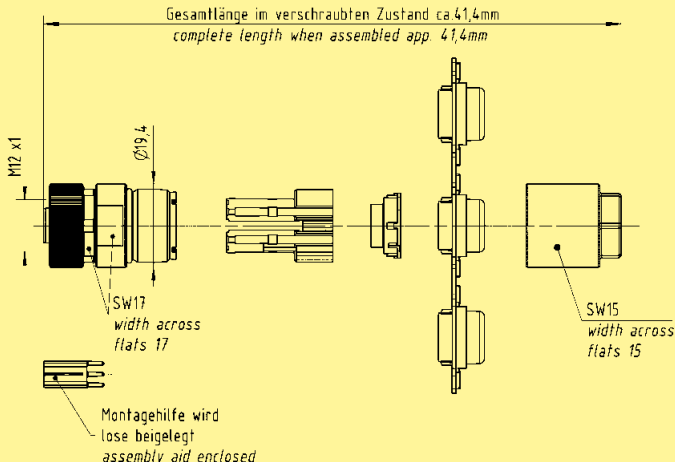
A-coding  
5 poles  
Mating faces acc. to IEC 61076-2-101



## Applications / Advantages

- Designed for rough outdoor applications in harsh environments
- Material V4A
- Available with crimp resp. **HARAX**<sup>®</sup> rapid termination
- Extreme robust design, quick assembly

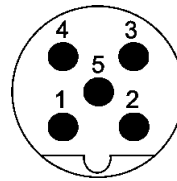
07

Identification	Part No.	Drawing	Dimensions in mm
<p><b>HARAX<sup>®</sup> M12-L INOX</b></p>  <p>Female, A-coding, straight version 4 poles</p>	21 03 222 2435		
<p><b>M12-L Crimp INOX</b></p>  <p>Female, A-coding, straight version 5 poles</p>	21 03 822 2535		

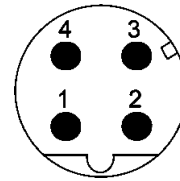
07  
04



### Mating faces



B-coding



D-coding

Mating faces acc. to IEC 61076-2-101



### Identification

### Part No.

### Drawing

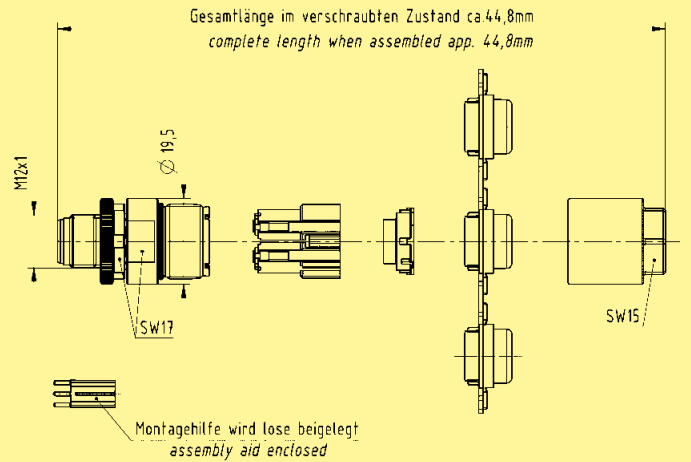
### Dimensions in mm

#### M12-L Crimp INOX



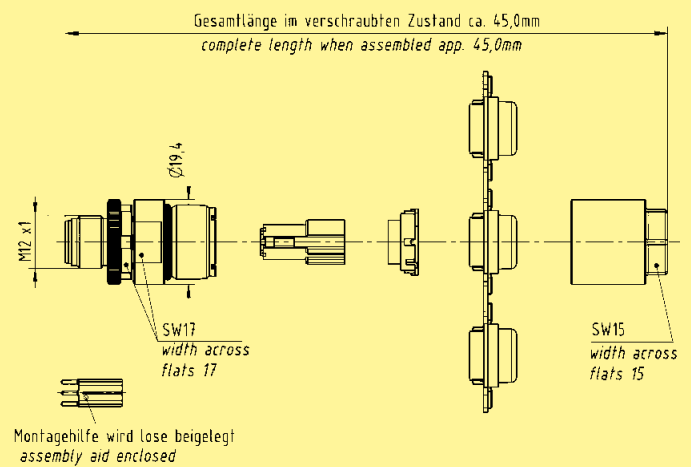
Male, B-coding,  
straight version  
5 poles

21 03 841 1535



Male, D-coding,  
straight version  
4 poles

21 03 882 1435



# List of part numbers



Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
09 47 220 0002	03.74	09 48 220 0004 075	03.74	09 99 000 0382	03.60	21 01 010 2017	03.62	21 02 554 7305	02.09
09 47 220 0002	03.77	09 48 220 0004 100	03.74	09 99 000 0384	03.36	21 01 010 2017	03.91	21 02 554 7305	02.11
09 47 220 0003	03.74	09 48 220 0004 200	03.74	09 99 000 0384	03.60				
09 47 220 0003	03.77			09 99 000 0384	03.91	21 01 100 9014	04.13		
09 47 220 0005	03.74	09 48 222 2003 010	03.74	09 99 000 0395	05.12	21 01 100 9019	04.13	21 03 030 1300	03.62
09 47 220 0005	03.77	09 48 222 2003 015	03.74	09 99 000 0501	03.36			21 03 030 1400	03.36
09 47 220 0006	03.74	09 48 222 2003 030	03.74	09 99 000 0501	03.60				
09 47 220 0006	03.77	09 48 222 2003 050	03.74	09 99 000 0501	03.91	21 01 130 1013	06.04		
09 47 220 0011	03.74	09 48 222 2003 075	03.74	09 99 000 0501	04.13	21 01 130 1023	06.04	21 03 111 1405	03.08
09 47 220 0011	03.77	09 48 222 2003 100	03.74	09 99 000 0525	04.13	21 01 130 1223	06.04	21 03 111 2405	03.09
09 47 220 0013	03.74	09 48 222 2003 200	03.74	09 99 000 0531	03.36	21 01 130 3013	06.04		
09 47 220 0013	03.77	09 48 222 2004 010	03.74	09 99 000 0531	03.60	21 01 130 3023	06.04	21 03 112 1405	03.08
09 47 220 0022	03.74	09 48 222 2004 015	03.74	09 99 000 0531	03.91	21 01 130 3233	06.04	21 03 112 2405	03.09
09 47 220 0022	03.77	09 48 222 2004 030	03.74	09 99 000 0646	03.36				
		09 48 222 2004 050	03.74	09 99 000 0646	03.91	21 01 140 1023	06.04	21 03 121 1801	03.14
09 47 222 2002	03.74	09 48 222 2004 075	03.74	09 99 000 0646	04.13	21 01 140 1323	06.04	21 03 121 2801	03.15
09 47 222 2002	03.77	09 48 222 2004 100	03.74			21 01 140 3023	06.04		
09 47 222 2003	03.74	09 48 222 2004 200	03.74			21 01 140 3333	06.04		
09 47 222 2003	03.77					21 01 140 5081	03.10	21 03 212 1305	03.12
09 47 222 2005	03.74	09 48 800 0003 010	03.75	20 82 000 0001	03.71	21 01 140 5091	03.11	21 03 212 1306	03.12
09 47 222 2005	03.77	09 48 800 0003 015	03.75	20 82 000 0003	03.71			21 03 212 1400	03.12
09 47 222 2006	03.74	09 48 800 0003 030	03.75	20 82 000 1210	03.71	21 01 141 1023	06.04	21 03 212 1407	03.12
09 47 222 2006	03.77	09 48 800 0003 050	03.75	20 82 000 9901	03.71	21 01 141 1323	06.04	21 03 212 2305	03.13
09 47 222 2011	03.74	09 48 800 0003 075	03.75			21 01 141 3023	06.04	21 03 212 2306	03.13
09 47 222 2011	03.77	09 48 800 0003 100	03.75	20 82 005 1214	03.71	21 01 141 3333	06.04	21 03 212 2400	03.13
09 47 222 2013	03.74	09 48 800 0003 200	03.75					21 03 212 2407	03.13
09 47 222 2013	03.77	09 48 800 0004 010	03.75			21 02 151 1305	02.06	21 03 221 1405	03.14
09 47 222 2022	03.74	09 48 800 0004 015	03.75			21 02 151 1405	02.06	21 03 221 2405	03.15
09 47 222 2022	03.77	09 48 800 0004 030	03.75			21 02 151 2305	02.07		
		09 48 800 0004 050	03.75	21 01 000 0003	03.37	21 02 151 2405	02.07		
09 47 800 0002	03.75	09 48 800 0004 075	03.75	21 01 000 0003	03.60			21 03 222 2435	07.04
09 47 800 0002	03.77	09 48 800 0004 100	03.75	21 01 000 0003	03.92	21 02 159 1305	02.05		
09 47 800 0003	03.75	09 48 800 0004 200	03.75	21 01 000 0003	04.14			21 03 241 1301	03.42
09 47 800 0003	03.77			21 01 000 0007	06.05			21 03 241 2301	03.43
09 47 800 0005	03.75	09 48 808 0003 010	03.75	21 01 000 0008	06.05	21 02 454 5301	02.09		
09 47 800 0005	03.77	09 48 808 0003 015	03.75	21 01 000 0018	03.37	21 02 454 5301	02.10		
09 47 800 0006	03.75	09 48 808 0003 030	03.75	21 01 000 0018	03.62	21 02 454 5302	02.09	21 03 272 1505	03.12
09 47 800 0006	03.77	09 48 808 0003 050	03.75	21 01 000 0018	03.91	21 02 454 5302	02.10	21 03 272 2505	03.13
09 47 800 0011	03.75	09 48 808 0003 075	03.75	21 01 000 0018	04.13	21 02 454 5303	02.09		
09 47 800 0011	03.77	09 48 808 0003 100	03.75	21 01 000 0020	05.12	21 02 454 5303	02.10	21 03 281 1405	03.66
09 47 800 0013	03.75	09 48 808 0003 200	03.75	21 01 000 0030	03.38	21 02 454 5304	02.09	21 03 281 2405	03.67
09 47 800 0013	03.77	09 48 808 0004 010	03.75	21 01 000 0030	03.61	21 02 454 5304	02.10		
09 47 800 0022	03.75	09 48 808 0004 015	03.75	21 01 000 0030	03.92	21 02 454 5305	02.09	21 03 282 1405	03.66
09 47 800 0022	03.77	09 48 808 0004 030	03.75	21 01 000 0030	04.14	21 02 454 5305	02.10	21 03 282 2405	03.67
		09 48 808 0004 050	03.75	21 01 000 0031	03.38	21 02 454 7301	02.09		
09 47 808 0002	03.75	09 48 808 0004 075	03.75	21 01 000 0031	03.61	21 02 454 7301	02.10		
09 47 808 0002	03.77	09 48 808 0004 100	03.75	21 01 000 0031	03.92	21 02 454 7302	02.09	21 03 301 1000	03.34
09 47 808 0003	03.75	09 48 808 0004 200	03.75	21 01 000 0031	04.14	21 02 454 7302	02.10	21 03 301 1000	03.58
09 47 808 0003	03.77			21 01 000 0033	03.38	21 02 454 7303	02.09	21 03 301 1000	03.89
09 47 808 0005	03.75			21 01 000 0033	03.61	21 02 454 7303	02.10	21 03 301 1001	03.34
09 47 808 0005	03.77	09 67 000 3476	03.36	21 01 000 0033	03.92	21 02 454 7304	02.09	21 03 301 1001	03.58
09 47 808 0006	03.75	09 67 000 3476	03.60	21 01 000 0033	04.14	21 02 454 7304	02.10	21 03 301 1001	03.89
09 47 808 0006	03.77	09 67 000 3476	03.91	21 01 000 0036	03.85	21 02 454 7305	02.09	21 03 301 2000	03.35
09 47 808 0011	03.75	09 67 000 3576	03.36	21 01 000 0036	04.08	21 02 454 7305	02.10	21 03 301 2000	03.59
09 47 808 0011	03.77	09 67 000 3576	03.60	21 01 000 0038	03.38			21 03 301 2000	03.90
09 47 808 0013	03.75	09 67 000 3576	03.91	21 01 000 0038	03.61	21 02 554 4301	02.09	21 03 301 2000	04.11
09 47 808 0013	03.77	09 67 000 3576	03.91	21 01 000 0038	03.92	21 02 554 4301	02.11	21 03 301 2001	03.35
09 47 808 0022	03.75	09 67 000 5476	03.36	21 01 000 0038	04.14	21 02 554 4302	02.09	21 03 301 2001	03.59
09 47 808 0022	03.77	09 67 000 5476	03.60	21 01 000 0039	06.05	21 02 554 4302	02.11	21 03 301 2001	03.90
		09 67 000 5576	03.91			21 02 554 4302	02.11	21 03 301 2001	04.11
		09 67 000 5576	03.36			21 02 554 4303	02.09		
		09 67 000 5576	03.60	21 01 010 0001	06.05	21 02 554 4303	02.11	21 03 311 1402	03.30
09 48 220 0003 010	03.74	09 67 000 5576	03.91	21 01 010 0006	06.05	21 02 554 4304	02.09	21 03 311 1501	03.30
09 48 220 0003 015	03.74	09 67 000 8476	03.36	21 01 010 2001	03.37	21 02 554 4304	02.11	21 03 311 2400	03.31
09 48 220 0003 030	03.74	09 67 000 8476	03.60	21 01 010 2005	02.12	21 02 554 4305	02.09	21 03 311 2501	03.31
09 48 220 0003 050	03.74	09 67 000 8476	03.91	21 01 010 2007	03.37	21 02 554 4305	02.11	21 03 311 2801	03.33
09 48 220 0003 075	03.74	09 67 000 8576	03.36	21 01 010 2007	03.62	21 02 554 7301	02.09		
09 48 220 0003 100	03.74	09 67 000 8576	03.60	21 01 010 2008	02.12	21 02 554 7301	02.11		
09 48 220 0003 200	03.74	09 67 000 8576	03.91	21 01 010 2011	03.37	21 02 554 7302	02.09	21 03 321 1410	03.32
09 48 220 0004 010	03.74			21 01 010 2013	02.12	21 02 554 7302	02.11	21 03 321 1420	03.32
09 48 220 0004 015	03.74			21 01 010 2015	03.37	21 02 554 7303	02.09	21 03 321 1425	03.26
09 48 220 0004 030	03.74			21 01 010 2015	03.62	21 02 554 7303	02.11	21 03 321 1510	03.32
09 48 220 0004 050	03.74	09 99 000 0380	02.12	21 01 010 2016	02.12	21 02 554 7304	02.09	21 03 321 1518	03.34
		09 99 000 0382	03.36	21 01 010 2017	03.37	21 02 554 7304	02.11	21 03 321 1520	03.32

Be



Please send me further information:



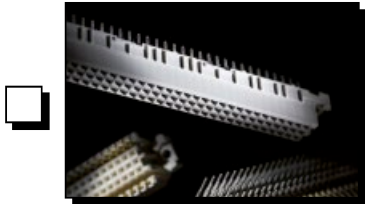
**Interface Connectors**



**Device Connectivity**



**Industrial Connectors Han®**



**Connectors  
DIN 41 612**



**Intelligent Network  
Solutions**



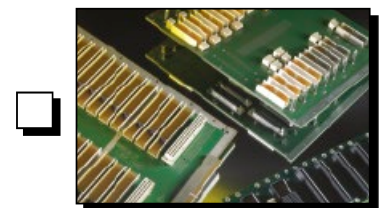
**Coaxial and Metric  
Connectors**



**Application  
brochure**



**TCA Connectors**



**High Speed  
Backplanes**

Sender:

Company: \_\_\_\_\_

Street: \_\_\_\_\_

Department: \_\_\_\_\_

Postcode/Town: \_\_\_\_\_

Name: \_\_\_\_\_

Country: \_\_\_\_\_

Prenome: \_\_\_\_\_

Phone: \_\_\_\_\_

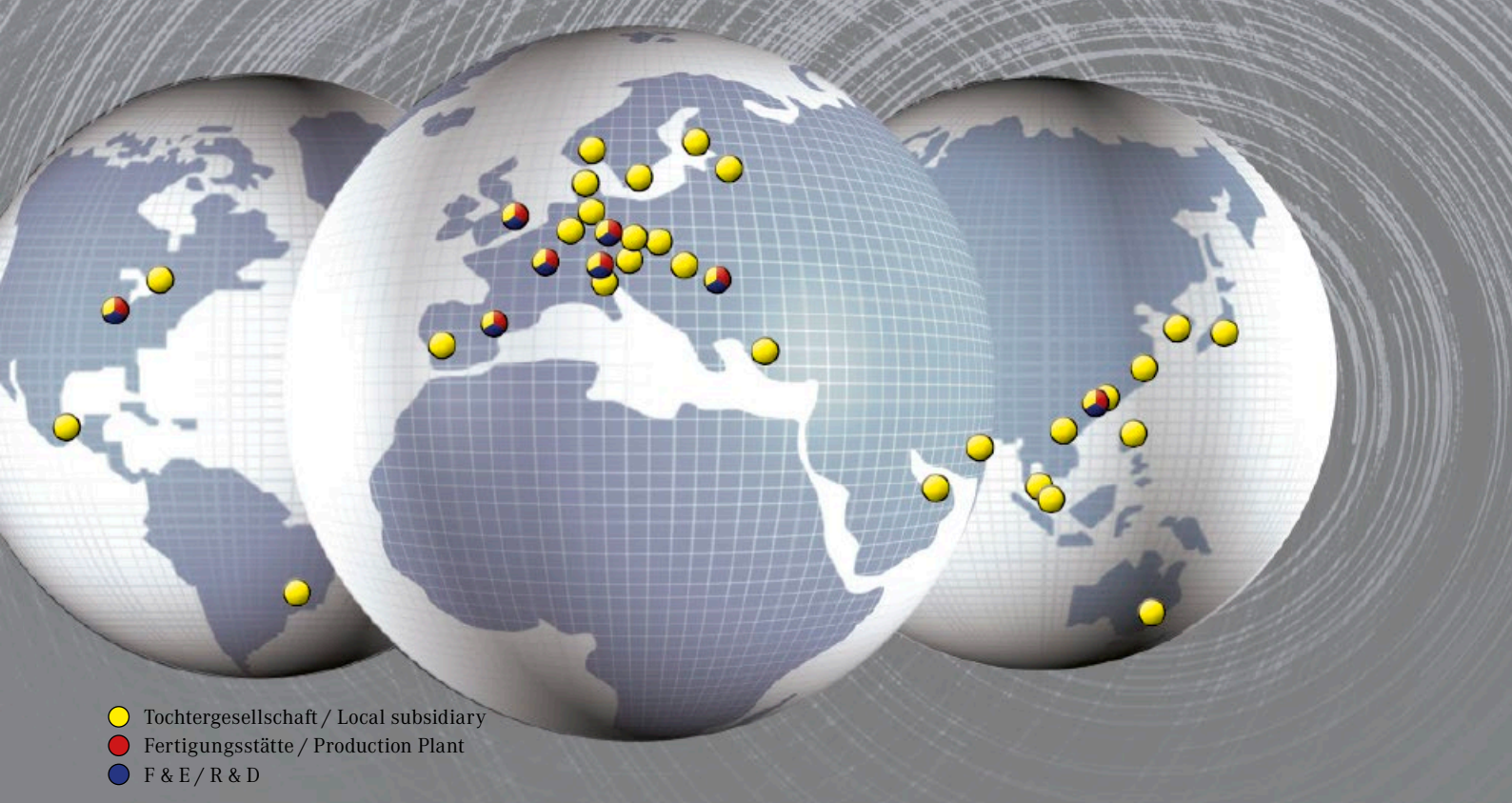
Function: \_\_\_\_\_

Fax: \_\_\_\_\_

E-Mail: \_\_\_\_\_

***Please send it by post or fax to your local HARTING representatives (see page addresses) or visit us under [www.HARTING.com](http://www.HARTING.com).***





- Tochtergesellschaft / Local subsidiary
- Fertigungsstätte / Production Plant
- F & E / R & D

## Sales Network – worldwide



### **Afghanistan**

see United Arab Emirates

### **Albania**

see Eastern Europe

### **Argentina**

Condelectric S.A.  
Hipólito Yrigoyen 2591, 1640 - Martínez  
Buenos Aires – Argentina  
Phone +54 11 4836 1053  
Fax +54 11 4836 1053  
comercial@condelectric.com.ar

### **Armenia**

see Eastern Europe

### **Australia**

HARTING Pty Ltd  
Suite 11 / 2 Enterprise Drive  
Bundoora 3083, AUS-Victoria  
Phone +61 3 9466 7088  
Fax +61 3 9466 7099  
au@HARTING.com  
www.HARTING.com.au

### **Austria**

HARTING Ges.m.b.H.  
Deutschstraße 19, A-1230 Wien  
Phone +431 6162121  
Fax +431 6162121-21  
at@HARTING.com  
www.HARTING.at

### **Azerbaijan**

see Eastern Europe

### **Bahrain**

see United Arab Emirates

### **Belgium**

HARTING N.V./S.A.  
Z.3 Doornveld 23, B-1731 Zellik  
Phone +32 2 466 0190  
Fax +32 2 466 7855  
be@HARTING.com  
www.HARTING.be

### **Bosnia and Herzegovina**

see Eastern Europe

### **Brazil**

HARTING Ltda.  
Rua Major Paladino 128 –  
Prédio 11  
CEP 05307-000 – São Paulo –  
SP – Brasil  
Phone +55 11 5035 0073  
Fax +55 11 5034 4743  
br@HARTING.com  
www.HARTING.com.br

### **Brunei**

see Singapore

### **Bulgaria**

see Eastern Europe

### **Canada**

HARTING Canada Inc.  
8455 Trans-Canada Hwy., Suite 202  
St. Laurent, QC, H4S1Z1, Canada  
Phone 855-659-6653  
Fax 855-659-6654  
info.ca@HARTING.com  
www.HARTING.ca

### **China**

HARTING (Zhuhai)  
Manufacturing Co., Ltd.  
Shanghai Branch, Room 3501- 3503,  
No. 1, Hong Qiao Road, Grand Gateway I  
Xu Hui District, Shanghai 200030, China  
Phone +86 21 6386 2200  
Fax +86 21 6386 8636  
cn@HARTING.com  
www.HARTING.com.cn

### **Croatia**

see Eastern Europe

### **Czech Republic**

HARTING s.r.o.  
Mlýnská 2, CZ-160 00 Praha 6  
Phone +420 220 380 460  
Fax +420 220 380 461  
cz@HARTING.com  
www.HARTING.cz

### **Denmark**

HARTING ApS  
Hjulgagervej 4a  
DK - 7100 Vejle  
Phone +45 70 25 00 32  
Fax +45 75 80 64 99  
dk@HARTING.com  
www.HARTING.dk

## Eastern Europe

HARTING Eastern Europe GmbH  
Bamberger Straße 7  
D-01187 Dresden  
Phone +49 351 4361 760  
Fax +49 351 436 1770  
Eastern.Europe@HARTING.com  
www.HARTING.com

## Egypt

see United Arab Emirates

## Estonia

see Eastern Europe

## Finland

HARTING Oy  
Teknobulevardi 3-5  
FI-01530 Vantaa  
Phone +358 207 291 510  
Fax +358 207 291 511  
fi@HARTING.com  
www.HARTING.fi

## France

HARTING France  
181 avenue des Nations, Paris Nord 2  
BP 66058 Tremblay en France  
F-95972 Roissy Charles de Gaulle Cédex  
Phone +33 1 4938 3400  
Fax +33 1 4863 2306  
fr@HARTING.com  
www.HARTING.fr

## Germany

HARTING Deutschland GmbH & Co. KG  
P.O. Box 2451, D-32381 Minden  
Simeons carré 1, D-32427 Minden  
Phone +49 571 8896 0  
Fax +49 571 8896 282  
de@HARTING.com  
www.HARTING.de

## Georgia

see Eastern Europe

## Great Britain

HARTING Ltd., Caswell Road  
Brackmills Industrial Estate  
GB-Northampton, NN4 7PW  
Phone +44 1604 827 500  
Fax +44 1604 706 777  
gb@HARTING.com  
www.HARTING.co.uk

## Hong Kong

HARTING (HK) Limited  
Regional Office Asia Pacific  
3512 Metroplaza Tower 1  
223 Hing Fong Road  
Kwai Fong, N. T., Hong Kong  
Phone +852 2423 7338  
Fax +852 2480 4378  
ap@HARTING.com  
www.HARTING.com.hk

## Hungary

HARTING Magyarország Kft.  
Fehérvári út 89-95, H-1119 Budapest  
Phone +36 1 205 34 64  
Fax +36 1 205 34 65  
hu@HARTING.com  
www.HARTING.hu

## India

HARTING India Pvt Ltd  
7th Floor (West Wing), Central Square II  
Unit No.B-19 Part, B 20&21  
TVK Industrial Estate  
Guindy, Chennai - 600032  
Phone +91-44-43560415  
+91-44-43456262  
Fax +91-44-43560417  
in@HARTING.com  
http://www.HARTING.in

## Indonesia

see Malaysia

## Iran

see United Arab Emirates

## Iraq

see United Arab Emirates

## Israel

COMTEL  
Israel Electronic Solutions Ltd.  
Bet Hapamon, 20 Hataas st.  
P.O.Box 66  
Kefar-Saba 44425  
Phone +972-9-7677240  
Fax +972-9-7677243  
sales@comtel.co.il  
www.comtel.co.il

## Italy

HARTING SpA  
Via Dell' Industria 7  
I-20090 Vimodrone (Milano)  
Phone +39 02 250801  
Fax +39 02 2650 597  
it@HARTING.com  
www.HARTING.it

## Japan

HARTING K. K.  
Yusen Shin-Yokohama 1 Chome Bldg., 2F  
1-7-9, Shin-Yokohama, Kohoku  
Yokohama 222-0033 Japan  
Phone +81 45 476 3456  
Fax +81 45 476 3466  
jp@HARTING.com  
www.HARTING.co.jp

## Jemen

see United Arab Emirates

## Jordan

see United Arab Emirates

## Kazakhstan

see Eastern Europe

## Kirghizia

see Eastern Europe

## Korea (South)

HARTING Korea Limited  
#308 Yatap Leaders Building  
342-1, Yatap-dong, Bundang-gu  
Sungnam-City, Kyunggi-do  
463-828, Republic of Korea  
Phone +82 31 781 4615  
Fax +82 31 781 4616  
kr@HARTING.com  
www.HARTING.co.kr

## Kosovo

see Eastern Europe

## Kuwait

see United Arab Emirates

## Latvia

see Eastern Europe

## Lebanon

see United Arab Emirates

## Lithuania

see Eastern Europe

## Macedonia

see Eastern Europe

## Malaysia (Office)

HARTING Singapore Pte Ltd  
Malaysia Branch  
11-02 Menara Amcorp  
Jln. Persiaran Barat  
46200 PJ, Sel. D. E., Malaysia  
Phone +60 3 / 7955 6173  
Fax +60 3 / 7955 5126  
sg@HARTING.com

## Montenegro

see Eastern Europe

## Netherlands

HARTING B.V.  
Larenweg 44  
NL-5234 KA ,s-Hertogenbosch  
Postbus 3526  
NL-5203 DM ,s-Hertogenbosch  
Phone +31 736 410 404  
Fax +31 736 440 699  
nl@HARTING.com  
www.HARTINGbv.nl

## New Zealand

see Australia

## Norway

HARTING A/S  
Østensjøveien 36, N-0667 Oslo  
Phone +47 22 700 555  
Fax +47 22 700 570  
no@HARTING.com  
www.HARTING.no

## Oman

see United Arab Emirates

## Pakistan

see United Arab Emirates

## Philippines

see Malaysia

## Poland

HARTING Polska Sp. z o. o.  
ul. Duńska 9  
PL- 54-427 Wrocław  
Phone +48 71 352 81 71  
Fax +48 71 350 42 13  
pl@HARTING.com  
www.HARTING.pl

## Portugal

HARTING Iberia, S. A.  
Avda. Josep Tarradellas 20-30 4º 6a  
E-08029 Barcelona  
Phone +351 219 673 177  
Fax +351 219 678 457  
es@HARTING.com  
www.HARTING.es/pt

## Qatar

see United Arab Emirates

## Republic of Moldova

see Eastern Europe

## Romania

HARTING Romania SCS  
Europa Unita str. 21  
550018-Sibiu, Romania  
Phone +40 369-102 671  
Fax +40 369-102 622  
ro@HARTING.com  
www.HARTING.com

## Russia

HARTING ZAO  
Maliy Sampsoniyevsky prospect 2A  
194044 Saint Petersburg, Russia  
Phone +7 812 327 6477  
Fax +7 812 327 6478  
ru@HARTING.com  
www.HARTING.ru

## Saudi Arabia

see United Arab Emirates

## Serbia

see Eastern Europe

## Singapore

HARTING Singapore Pte Ltd.  
25 International Business Park  
#04-108 German Centre  
Singapore 609916  
Phone +65 6225 5285  
Fax +65 6225 9947  
sg@HARTING.com  
www.HARTING.sg

## Slovakia

HARTING s.r.o.  
Sales office Slovakia  
J. Simora 5, SK - 940 52 Nové Zámky  
Phone +421 356-493 993  
Fax +421 356-402 114  
sk@HARTING.com  
www.HARTING.sk

## Slovenia

see Eastern Europe

## South Africa

HARTING South Africa (Pty) Ltd  
Ground Floor, Twickenham Building  
PO Box 67302  
Johannesburg (Bryanston)  
2021, South Africa  
Phone +27 (0) 11 575 0017  
Fax +27 (0) 11 576 6000  
za@HARTING.com  
www.HARTING.co.za

## Spain

HARTING Iberia S.A.  
Avda. Josep Tarradellas 20-30 4º 6a  
E-08029 Barcelona  
Phone +34 93 363 84 75  
Fax +34 93 419 95 85  
es@HARTING.com  
www.HARTING.es

## Sweden

HARTING AB  
Gustavslundsvägen 141 B 4tr  
S-167 51 Bromma  
Phone +46 8 445 7171  
Fax +46 8 445 7170  
se@HARTING.com  
www.HARTING.se

## Switzerland

HARTING AG  
Industriestrasse 26  
CH-8604 Volketswil  
Phone +41 44 908 20 60  
Fax +41 44 908 20 69  
ch@HARTING.com  
www.HARTING.ch

## Syria

see United Arab Emirates

## Taiwan

HARTING Taiwan Ltd.  
Room 1, 5/F  
495 GuangFu South Road  
RC-110 Taipei, Taiwan  
Phone +886 2 2758 6177  
Fax +886 2 2758 7177  
tw@HARTING.com  
www.HARTING.com.tw

## Tajikistan

see Eastern Europe

## Thailand

see Malaysia

## Turkey

HARTING TURKEI Elektronik Ltd. Şti.  
Barbaros Mah. Dereboyu Cad.  
Fesleğen Sok.  
Uphill Towers, A-1b Kat:8 D:45  
34746 Ataşehir, İstanbul  
Phone +90 216 688 81 00  
Fax +90 216 688 81 01  
tr@HARTING.com  
www.HARTING.com.tr

## Turkmenistan

see Eastern Europe

## Ukraine

see Eastern Europe

## United Arab Emirates

HARTING Middle East FZ-LLC  
Knowledge Village, Block 2A, Office F72  
P.O. Box 454372, Dubai  
United Arab Emirates  
Phone +971 4 453 9737  
Fax +971 4 439 0339  
uae@HARTING.com  
www.HARTING.ae

## USA

HARTING Inc. of North America  
1370 Bowes Road  
USA-Elgin, Illinois 60123  
Phone +1 (877) 741-1500 (toll free)  
Fax +1 (866) 278-0307 (Inside Sales)  
us@HARTING.com  
www.HARTING-USA.com

## Uzbekistan

see Eastern Europe

## Vietnam

see Singapore

## Distributors – worldwide



Digi-Key Corporation:  
www.digikey.com

Farnell:  
www.farnell.com

FUTURE Electronics:  
www.futureelectronics.com

Mouser Electronics:  
www.mouser.com

RS Components:  
www.rs-components.com

## Other countries and general contact



HARTING Electronics GmbH  
P.O. Box 1433  
32328 Espelkamp - Germany  
Phone +49 5772/47-97200  
Fax +49 5772/47-777  
electronics@HARTING.com



**Pushing Performance**

**HARTING.com** –  
the gateway to your  
country website.

---

[www.HARTING.ae](http://www.HARTING.ae)  
[www.HARTING.at](http://www.HARTING.at)  
[www.HARTING.com.au](http://www.HARTING.com.au)  
[www.HARTING.be](http://www.HARTING.be)  
[www.HARTING.com.br](http://www.HARTING.com.br)  
[www.HARTING.ca](http://www.HARTING.ca)  
[www.HARTING.ch](http://www.HARTING.ch)  
[www.HARTING.com.cn](http://www.HARTING.com.cn)  
[www.HARTING.cz](http://www.HARTING.cz)  
[www.HARTING.de](http://www.HARTING.de)  
[www.HARTING.dk](http://www.HARTING.dk)  
[www.HARTING.es](http://www.HARTING.es)  
[www.HARTING-easterneurope.com](http://www.HARTING-easterneurope.com)  
[www.HARTING.fi](http://www.HARTING.fi)  
[www.HARTING.fr](http://www.HARTING.fr)  
[www.HARTING.co.uk](http://www.HARTING.co.uk)  
[www.HARTING.com.hk](http://www.HARTING.com.hk)  
[www.HARTING.hu](http://www.HARTING.hu)  
[www.HARTING.co.in](http://www.HARTING.co.in)  
[www.HARTING.it](http://www.HARTING.it)  
[www.HARTING.co.jp](http://www.HARTING.co.jp)  
[www.HARTING.co.kr](http://www.HARTING.co.kr)  
[www.HARTINGbv.nl](http://www.HARTINGbv.nl)  
[www.HARTING.no](http://www.HARTING.no)  
[www.HARTING.pl](http://www.HARTING.pl)  
[www.HARTING.pt](http://www.HARTING.pt)  
[www.HARTING.ro](http://www.HARTING.ro)  
[www.HARTING.ru](http://www.HARTING.ru)  
[www.HARTING.se](http://www.HARTING.se)  
[www.HARTING.sg](http://www.HARTING.sg)  
[www.HARTING.sk](http://www.HARTING.sk)  
[www.HARTING.com.tr](http://www.HARTING.com.tr)  
[www.HARTING.com.tw](http://www.HARTING.com.tw)  
[www.HARTING-USA.com](http://www.HARTING-USA.com)  
[www.HARTING.co.za](http://www.HARTING.co.za)