



Pushing Performance



People | Power | Partnership

## HARTING News 2020

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The **HARTING eCatalogue / eShop** can be found on our homepage at [www.HARTING.com](http://www.HARTING.com) or at the direct link [www.eCatalogue.HARTING.com](http://www.eCatalogue.HARTING.com).

The HARTING e-Catalogue is your platform for conveniently selecting individual products as well as configuring complete solutions. Our comprehensive product pages provide you with all necessary technical information and CAD files in various formats for downloading. You may also contact our technical sales department directly.

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## 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 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.

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# Transforming customer wishes into concrete solutions



The HARTING Technology Group is skilled in the fields of electrical, electronic and optical connection, transmission and networking technology, 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/data-networking 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 housing technology and shop systems.

The HARTING Group currently comprises 58 sales companies and production plants worldwide employing a total of about 5,300 staff.



#### We aspire to top performance.

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

#### Wherever our customers are, we're there.

Increasing industrialization is creating growing markets that are characterized by widely diverging demands and requirements. What these markets all share in common is the quest for perfection, increasingly efficient processes and reliable technologies. **HARTING** is providing these technologies – in Europe, the Americas and Asia. In order to implement customer requirements in the best possible manner, the **HARTING** professionals at our international subsidiaries engage in up-close, partnership-based interaction with our customers, right from the very early product development phase.

Our on-site staff 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 offer our customers the best possible solutions, on request **HARTING** contributes a great deal more and is tightly integrated into the value-creation process.

From ready-assembled cables through to control racks or ready-to-go control desks. Our aim is to generate maximum benefit for our customers – with no compromises!

#### 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 towards new requirements, which is why **HARTING** is the first company 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 sophisticated network systems. Over the course of many years of close, trust-based cooperation with its customers, the **HARTING** Technology Group has become one of the leading specialists globally for connector technology. We offer individual customers specific and innovative solutions that go beyond the basic standard functionalities. These tailored solutions deliver sustained results, ensure investment security and enable customers to achieve significant added value.

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

In order to develop and produce connectivity and network solutions serving an exceptionally wide range of connector applications in a professional and cost-effective manner, **HARTING** not only commands the full array of conventional tools and basic technologies. Above and beyond these capabilities, **HARTING** is constantly harnessing and refining its broad base of knowledge and experience to create new solutions that also ensure continuity. To secure its lead in know-how, **HARTING** draws on a wealth of sources from its in-house research and applications.

Salient examples of these sources of innovative knowledge include microstructure technologies, 3D design and connection technolo-

gy, high-temperature and ultrahigh-frequency applications that are finding use in telecommunications and 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 and stainless steel.

**HARTING overcomes technological limitations.**

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 not only components, but comprehensive solutions attuned to individual customer requirements and preferences. The range of cost-effective solutions covers ready-to-use cable configurations, completely assembled backplanes and board system carriers, as well as fully wired and tested control panels.

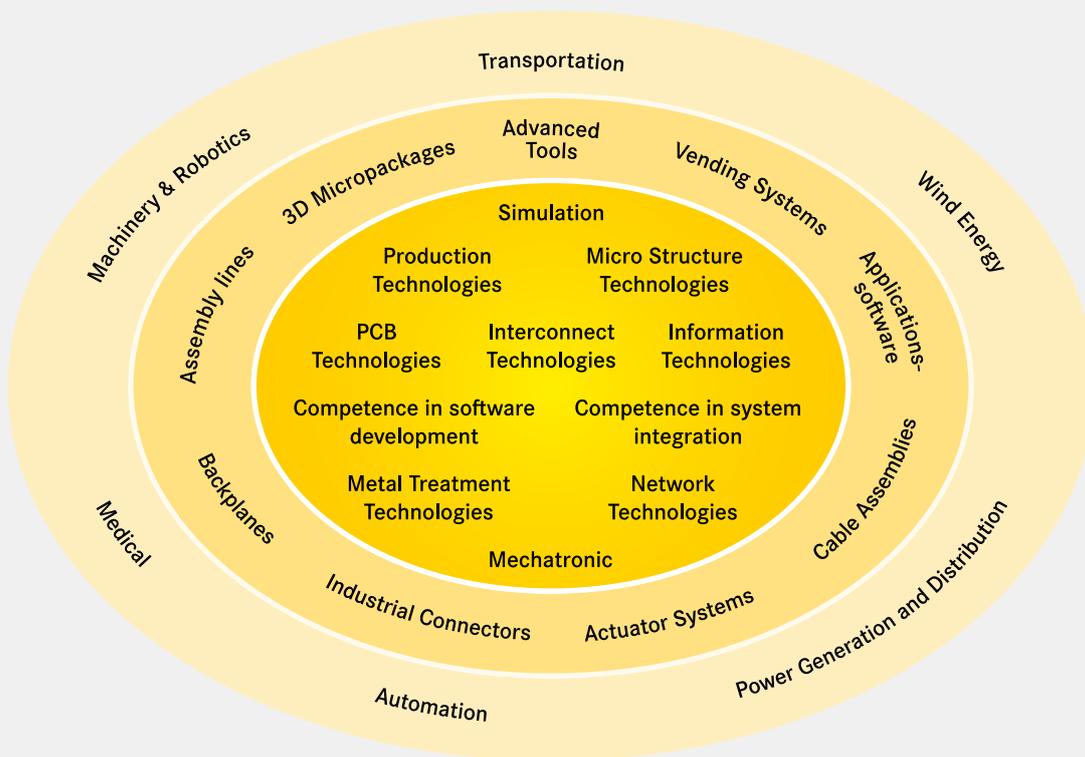
In order to ensure the future-proof design of RF and EMC-compatible interface solutions, the central **HARTING** laboratory (certified to EN 45001) employs simulation tools, as well as experimental, testing and diagnostics facilities all the way to scanning electron microscopes. In addition to product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



HARTING's knowledge is practical know-how that generates synergy effects.

HARTING commands decades of experience with regard to the applications conditions involved in connections in telecommunications, computer, network and medical technologies, as well as industrial automation technologies, e.g. in the mechanical engineering and plant engineering areas, in addition to the power generation industry and the transportation sector. HARTING is highly

conversant with the specific application areas in all of these technology fields. In every solution approach, the key focus is on the application. In this context, uncompromising, superior quality is our hallmark. Every new solution found invariably flows 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. HARTING is synergy in action.



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## Features

- Full flexibility to place cable entries on three sides of the hood
- Positioning of cable entries from diameter M12 x 1.5 to M40 x 1.5
- Configurations of both complete cable glands as well as single threads are possible
- Eight positions available for laser inscription identifying the component as well as for cable designation
- Direct download option for drawings and 3D models created with the configurator

## Benefits

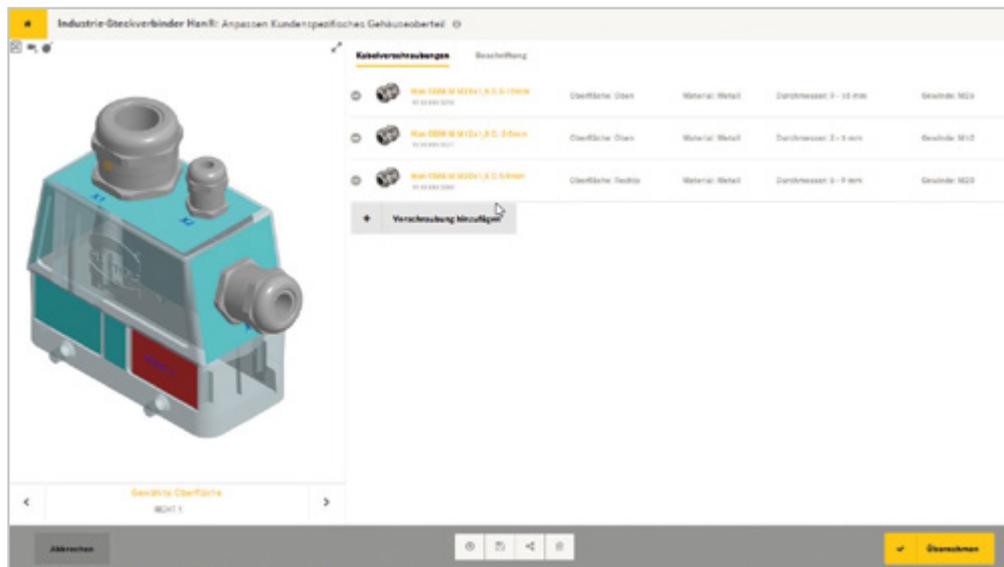
- Perfect fit solutions without compromise due to new customising functions
- Time savings by downloading 3D data of the complete interface, with data available immediately after configuration
- Short delivery time due to fully automated manufacturing of your connector configuration
- Efficient collaboration due to myHARTING dashboard management with save and share functions

## Perfect fit interfaces

The Han® Configurator is an online tool for the design of industrial connectors. It enables users to quickly and easily design the optimal interface for their application.

With the new customising function of the Han® Configurator, we are again expanding the scope for tailor-made products based on the Han® portfolio.

The user can define the number, size and position of cable entries. They can also apply individual laser markings to identify cables and equipment. Immediately after completion, the design data is available for download and the user can order the custom-fit solution. Engineering processes will not be interrupted as small quantities, even down to batches of one, are possible.



Learn more:  
[www.HARTING.com/configurator](http://www.HARTING.com/configurator)

## Automated manufacturing of customised connectors

The Han® Configurator represents a continuous process, ranging from design and product development right up to the production environment for the manufacture of the connectors. For the customer, design support shortens the time between design and delivery of the component. HARTING benefits from the “digital twins” of the interfaces that manage their manufacturing processes.

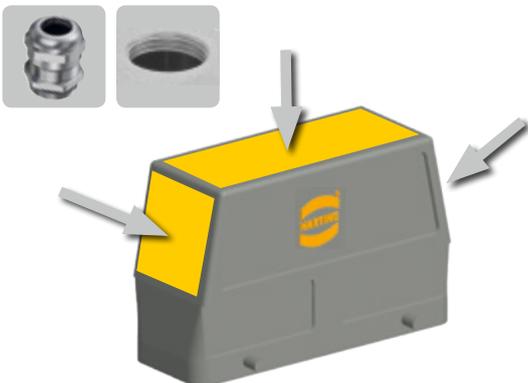
Once the design has been completed, the user receives the 3D data, type sheets and parts lists that make up the created solution, allowing them to transfer it to their own engineering environment.

From a customer's perspective, the Han® Configurator expands the variety of available solutions. The user can be sure that they will receive the best possible product for their task.

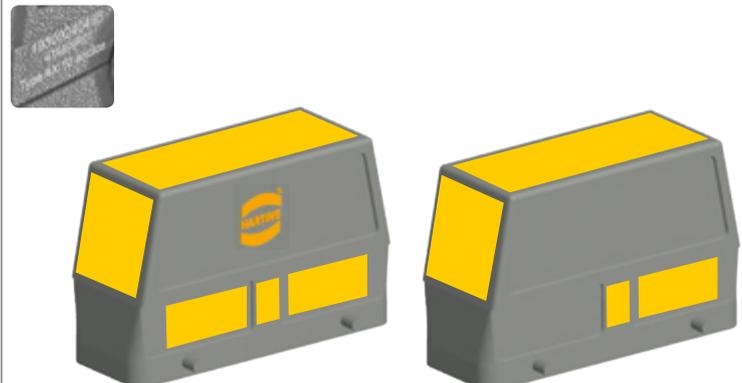


## Description of possibilities

Cable glands M12 - M40  
3 sides of the hood



Laser printing on 8 sides of the hood



Number of contacts

# 1

200 A 1.500 V 8 kV 2  
Connectors for battery storage market  
Single locking lever



## Features

- Fulfils requirements according to the newest standards of the battery storage market
- Finger safe male and female contacts
- Compact construction type
- Housing 360° rotatable even when mounted

## Technical characteristics

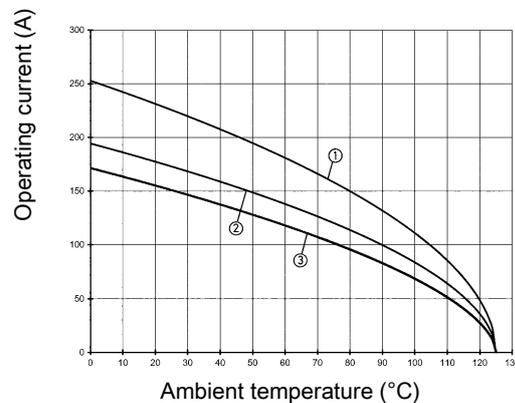
Number of contacts	1
Rated current	200 A
Rated voltage	1500 V
Rated impulse voltage	8 kV
Pollution degree	2
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤0.3 mΩ
Limiting temperature	-40 ... +125 °C
Number of relockings	≥500
Degree of protection acc. to IEC 60529	IP20
Material (hood/housing)	Polyamide (PA)
Colour (hood/housing)	RAL 9005 (jet black), RAL 3001 (signal red)
Material (contacts)	Copper alloy
Material (accessories)	Thermoplastic polyurethane (TPU)
Material flammability class acc. to UL 94	V-0

## Derating

### Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.

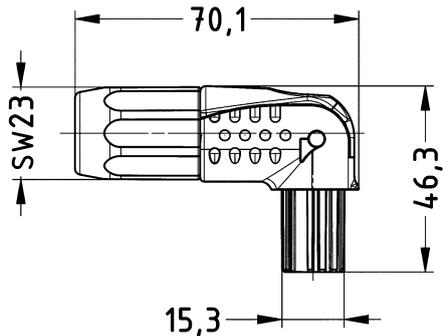
Measuring and testing techniques acc. to IEC 60512-5-2

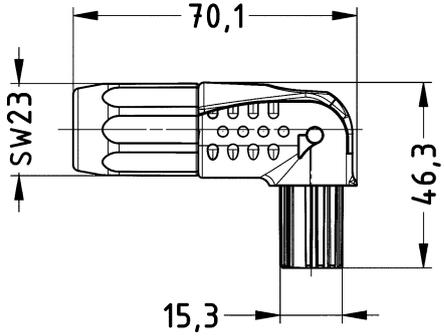
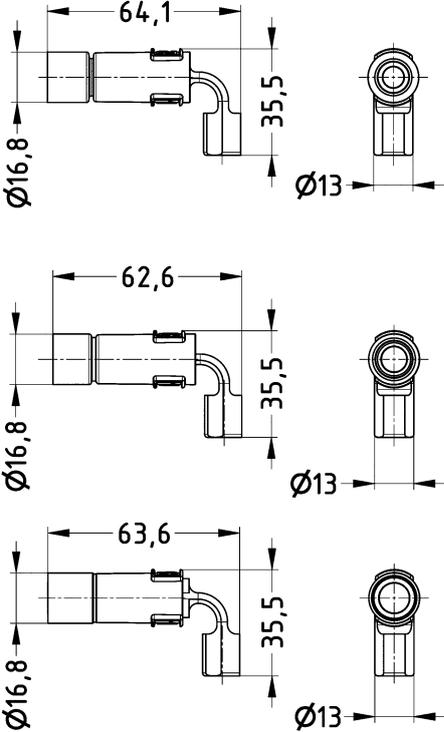


- ① Han® S 50 mm<sup>2</sup>
- ② Han® S 35 mm<sup>2</sup>
- ③ Han® S 25 mm<sup>2</sup>

## Specifications and approvals

EN 60664-1  
IEC 61984  
UL 1973  
UL 4128  
UL 9540

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	Drawing (dimensions in mm)
Han® S, Hood, Angled, Black    Please order crimp contacts separately.	25 ... 50	09 93 001 0501	

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	Drawing (dimensions in mm)
<p>Han® S, Hood, Angled, Red</p>  <p>Please order crimp contacts separately.</p>	<p>25 ... 50</p>	<p>09 93 001 0502</p>	
<p>Han® S, Crimp contact, Female contact, incl. sealing, Contact surface: Silver plated</p> 	<p>25 35 50</p>	<p>09 93 000 6262 09 93 000 6263 09 93 000 6264</p>	

Number of contacts

1

200 A 1.500 V 8 kV 2  
Connectors for battery storage market  
Single locking lever

### Technical characteristics

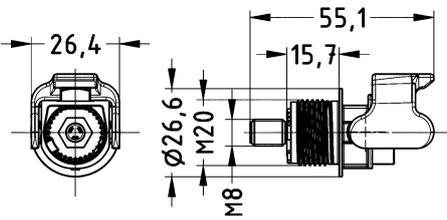
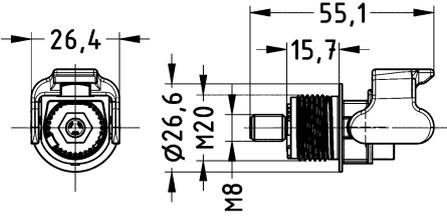
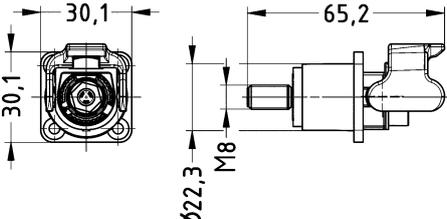
Number of contacts	1
Rated current	200 A
Rated voltage	1500 V
Rated impulse voltage	8 kV
Pollution degree	2
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤0.3 mΩ
Limiting temperature	-40 ... +125 °C
Number of relockings	≥500
Degree of protection acc. to IEC 60529	IP20
Material (hood/housing)	Polyamide (PA)
Colour (hood/housing)	RAL 9005 (jet black), RAL 3001 (signal red)

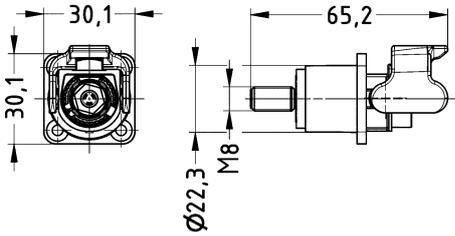
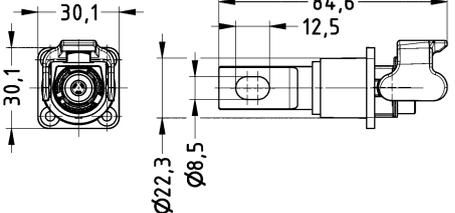
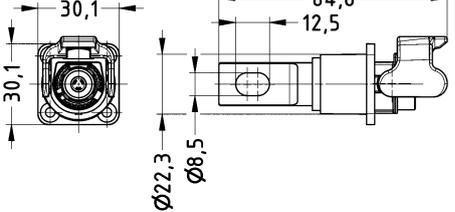
### Technical characteristics

Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

### Specifications and approvals

EN 60664-1  
IEC 61984  
UL 1973  
UL 4128  
UL 9540

Identification	Part number	Drawing (dimensions in mm)
<p>Han® S, Screw mounted housing, incl. male contact M8, Black</p> <p>Contact surface: Silver plated</p> 	09 93 001 0101	
<p>Han® S, Screw mounted housing, incl. male contact M8, Red</p> <p>Contact surface: Silver plated</p> 	09 93 001 0102	
<p>Han® S, Bulkhead mounted housing, incl. male contact M8, Black</p> <p>Contact surface: Silver plated</p> 	09 93 001 0301	

Identification	Part number	Drawing (dimensions in mm)
<p>Han® S, Bulkhead mounted housing, incl. male contact M8, Red Contact surface: Silver plated</p> 	<p>09 93 001 0302</p>	
<p>Han® S, Bulkhead mounted housing, incl. male contact busbar, Black Contact surface: Silver plated</p> 	<p>09 93 001 0303</p>	
<p>Han® S, Bulkhead mounted housing, incl. male contact busbar, Red Contact surface: Silver plated</p> 	<p>09 93 001 0304</p>	

Han

## Features

- High density of contacts
- For requirements up to 250 V / 10 A
- Time saving rapid termination by use of crimping contacts
- Gold and silver contacts available

## Technical characteristics

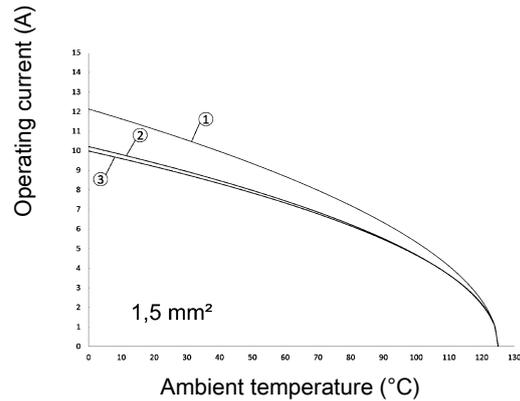
Number of contacts	55, 75, 107
Rated current	10 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3
Insulation resistance	$>10^{10} \Omega$
Limiting temperature	-40 ... +125 °C
Mating cycles	$\geq 500$
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material flammability class acc. to UL 94	V-0

## Derating

### Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.

Measuring and testing techniques acc. to IEC 60512-5-2



- ① Han® 55 DDD
- ② Han® 75 DDD
- ③ Han® 107 DDD

## Specifications and approvals

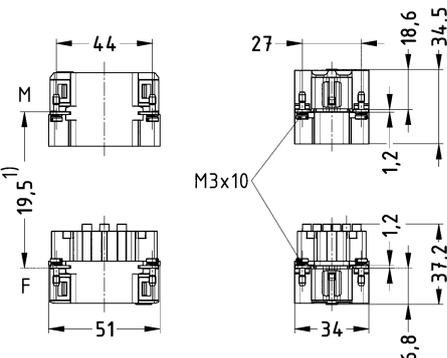
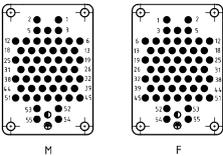
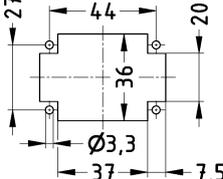
IEC 61984

Number of contacts

**55+**

10 A 250 V 4 kV 3

Han

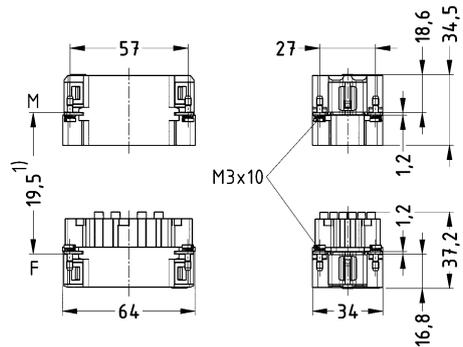
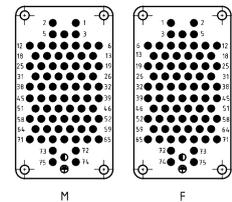
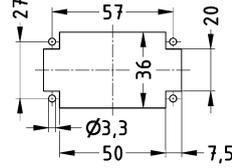
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Han® DDD, Crimp termination</p>  <p>PE connection with a Han D® crimp contact Please order crimp contacts separately.</p>	0.14 ... 2.5	09 16 055 2001	09 16 055 2101	 <p>1) distance for contact max. 21 mm</p>  <p>Contact arrangement (view from termination side)</p>  <p>Panel cut out for use without Hoods/Housings</p>

Number of contacts

**75+**

10 A 250 V 4 kV 3

Han

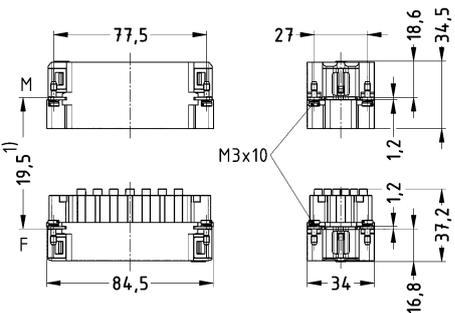
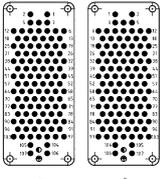
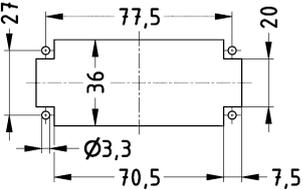
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Han® DDD, Crimp termination</p>  <p>PE connection with a Han D® crimp contact Please order crimp contacts separately.</p>	0.14 ... 2.5	09 16 075 2001	09 16 075 2101	 <p>1) distance for contact max. 21 mm</p>  <p>Contact arrangement (view from termination side)</p>  <p>Panel cut out for use without Hoods/Housings</p>

Number of contacts

**107+**

10 A 250 V 4 kV 3

Han

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Han® DDD, Crimp termination</p>  <p>PE connection with a Han D® crimp contact Please order crimp contacts separately.</p>	0.14 ... 2.5	09 16 107 2001	09 16 107 2101	 <p>1) distance for contact max. 21 mm</p>  <p>Contact arrangement (view from termination side)</p>  <p>Panel cut out for use without Hoods/Housings</p>

Han

### Technical characteristics

Contact resistance	≤3 mΩ
Material (contacts)	Copper alloy
RoHS	compliant with exemption

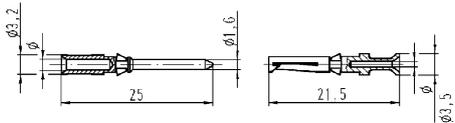
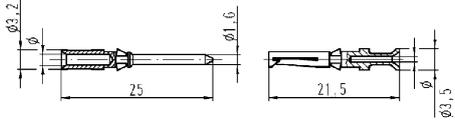
### Specifications and approvals

EN 60664-1  
IEC 61984

### Details

#### Remarks on the crimp technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)																					
		Male	Female																						
Han D®, Crimp contact, Contact surface: Silver plated  	0.14 ... 0.37	09 15 000 6104	09 15 000 6204	 <table border="1"> <thead> <tr> <th>Wire gauge</th> <th>∅</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup> AWG 26-22</td> <td>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup> AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup> AWG 18</td> <td>1.3 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup> AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup> AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup> AWG 14</td> <td>2.25 mm</td> <td>6 mm</td> </tr> </tbody> </table>	Wire gauge	∅	Stripping length	0.14-0.37 mm <sup>2</sup> AWG 26-22	0.9 mm	8 mm	0.5 mm <sup>2</sup> AWG 20	1.1 mm	8 mm	0.75 mm <sup>2</sup> AWG 18	1.3 mm	8 mm	1 mm <sup>2</sup> AWG 18	1.45 mm	8 mm	1.5 mm <sup>2</sup> AWG 16	1.75 mm	8 mm	2.5 mm <sup>2</sup> AWG 14	2.25 mm	6 mm
	Wire gauge	∅	Stripping length																						
	0.14-0.37 mm <sup>2</sup> AWG 26-22	0.9 mm	8 mm																						
	0.5 mm <sup>2</sup> AWG 20	1.1 mm	8 mm																						
	0.75 mm <sup>2</sup> AWG 18	1.3 mm	8 mm																						
	1 mm <sup>2</sup> AWG 18	1.45 mm	8 mm																						
	1.5 mm <sup>2</sup> AWG 16	1.75 mm	8 mm																						
2.5 mm <sup>2</sup> AWG 14	2.25 mm	6 mm																							
0.5	09 15 000 6103	09 15 000 6203																							
0.75	09 15 000 6105	09 15 000 6205																							
1	09 15 000 6102	09 15 000 6202																							
1.5	09 15 000 6101	09 15 000 6201																							
2.5	09 15 000 6106	09 15 000 6206																							
Han D®, Crimp contact, Contact surface: Gold plated  	0.14 ... 0.37	09 15 000 6124	09 15 000 6224	 <table border="1"> <thead> <tr> <th>Wire gauge</th> <th>∅</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup> AWG 26-22</td> <td>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup> AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup> AWG 18</td> <td>1.3 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup> AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup> AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup> AWG 14</td> <td>2.25 mm</td> <td>6 mm</td> </tr> </tbody> </table>	Wire gauge	∅	Stripping length	0.14-0.37 mm <sup>2</sup> AWG 26-22	0.9 mm	8 mm	0.5 mm <sup>2</sup> AWG 20	1.1 mm	8 mm	0.75 mm <sup>2</sup> AWG 18	1.3 mm	8 mm	1 mm <sup>2</sup> AWG 18	1.45 mm	8 mm	1.5 mm <sup>2</sup> AWG 16	1.75 mm	8 mm	2.5 mm <sup>2</sup> AWG 14	2.25 mm	6 mm
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0.5	09 15 000 6123	09 15 000 6223																							
0.75	09 15 000 6125	09 15 000 6225																							
1	09 15 000 6122	09 15 000 6222																							
1.5	09 15 000 6121	09 15 000 6221																							
2.5	09 15 000 6126	09 15 000 6226																							

Number of contacts

**6+** 

100 A 690 V 8 kV 3  
 + 6 additional signal contacts  
 16 A 400 V 6 kV 3

## Features

- Combination of signal and power in one connector
- Crimp termination for power and signal area
- Use of standard Han® TC 100 and Han E® contacts
- 16 coding options

## Technical characteristics

Number of contacts	6
Additional contacts	+ 6 additional signal contacts
Rated current	100 A
Rated voltage	690 V
Rated impulse voltage	8 kV
Pollution degree	3
Rated current (signal)	16 A
Rated voltage (signal)	400 V
Rated impulse voltage (signal)	6 kV
Pollution degree (signal)	3
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 1 \text{ m}\Omega, \leq 0.3 \text{ m}\Omega$
Limiting temperature	$-40 \dots +125 \text{ }^\circ\text{C}$
Mating cycles	$\geq 500$
Wire outer diameter	$\leq 12.8 \text{ mm}$
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material (accessories)	Thermoplastic
Material flammability class acc. to UL 94	V-0
RoHS	compliant, compliant with exemption

## Specifications and approvals

EN 60664-1  
 IEC 61984  
 DNV GL

## Details

Contact resistance Han E® crimp contact:  $\leq 1 \text{ m}\Omega$

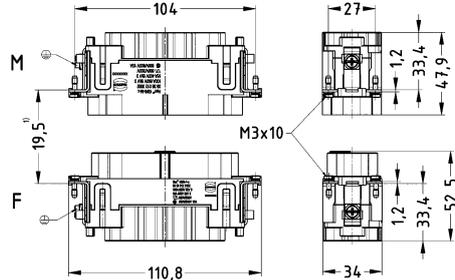
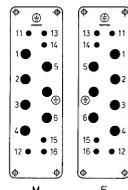
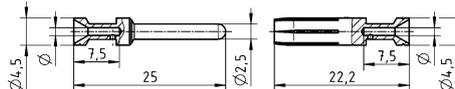
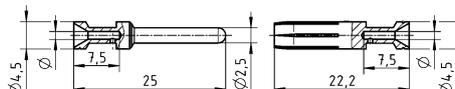
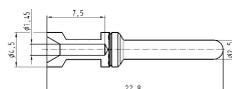
Contact resistance TC 100:  $\leq 0.3 \text{ m}\Omega$

For more technical details (i.e. number of crimping operations or crimping position) see eCatalogue

### Remarks on the crimp technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Han

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)																		
		Male	Female																			
<p>Han-Com®, Crimp termination</p>  <p>Please order crimp contacts separately. Please order coding pins separately.</p>	10 ... 25, 0.14 ... 2.5 Signal	09 38 012 3002	09 38 012 3102	 <p>1) distance for contact max. 21 mm</p>  <p>Contact arrangement (view from termination side)</p>																		
<p>Han E®, Crimp contact, Contact surface: Silver plated</p> 	0.5 0.75 1 1.5 2.5 4	09 33 000 6121 09 33 000 6114 09 33 000 6105 09 33 000 6104 09 33 000 6102 09 33 000 6107	09 33 000 6220 09 33 000 6214 09 33 000 6205 09 33 000 6204 09 33 000 6202 09 33 000 6207	 <table border="1"> <thead> <tr> <th>Conductor cross-section</th> <th>Identification</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup></td> <td>AWG 26-22 no groove</td> </tr> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20 no groove</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18 1 groove*</td> </tr> <tr> <td>1 mm<sup>2</sup></td> <td>AWG 18 1 groove</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16 2 grooves</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>AWG 14 3 grooves</td> </tr> <tr> <td>3 mm<sup>2</sup></td> <td>AWG 12 wide groove</td> </tr> <tr> <td>4 mm<sup>2</sup></td> <td>AWG 12 no groove</td> </tr> </tbody> </table> <p>* on the back crimp collar Stripping length 7.5 mm</p>	Conductor cross-section	Identification	0.14-0.37 mm <sup>2</sup>	AWG 26-22 no groove	0.5 mm <sup>2</sup>	AWG 20 no groove	0.75 mm <sup>2</sup>	AWG 18 1 groove*	1 mm <sup>2</sup>	AWG 18 1 groove	1.5 mm <sup>2</sup>	AWG 16 2 grooves	2.5 mm <sup>2</sup>	AWG 14 3 grooves	3 mm <sup>2</sup>	AWG 12 wide groove	4 mm <sup>2</sup>	AWG 12 no groove
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<p>Han E®, Crimp contact, Contact surface: Gold plated</p> 	0.5 0.75 1 1.5 2.5 4	09 33 000 6122 09 33 000 6115 09 33 000 6118 09 33 000 6116 09 33 000 6123 09 33 000 6119	09 33 000 6222 09 33 000 6215 09 33 000 6218 09 33 000 6216 09 33 000 6223 09 33 000 6221	 <table border="1"> <thead> <tr> <th>Conductor cross-section</th> <th>Identification</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup></td> <td>AWG 26-22 no groove</td> </tr> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20 no groove</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18 1 groove*</td> </tr> <tr> <td>1 mm<sup>2</sup></td> <td>AWG 18 1 groove</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16 2 grooves</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>AWG 14 3 grooves</td> </tr> <tr> <td>3 mm<sup>2</sup></td> <td>AWG 12 wide groove</td> </tr> <tr> <td>4 mm<sup>2</sup></td> <td>AWG 12 no groove</td> </tr> </tbody> </table> <p>* on the back crimp collar Stripping length 7.5 mm</p>	Conductor cross-section	Identification	0.14-0.37 mm <sup>2</sup>	AWG 26-22 no groove	0.5 mm <sup>2</sup>	AWG 20 no groove	0.75 mm <sup>2</sup>	AWG 18 1 groove*	1 mm <sup>2</sup>	AWG 18 1 groove	1.5 mm <sup>2</sup>	AWG 16 2 grooves	2.5 mm <sup>2</sup>	AWG 14 3 grooves	3 mm <sup>2</sup>	AWG 12 wide groove	4 mm <sup>2</sup>	AWG 12 no groove
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<p>Han E®, Crimp contact, Relay contact, Contact surface: Silver plated</p> 	0.75 ... 1 1.5	09 33 000 6109 09 33 000 6110		 <table border="1"> <thead> <tr> <th>Wire gauge</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.75 - 1 mm<sup>2</sup> AWG 18</td> <td>1.45 mm</td> <td>7.5 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup> AWG 16</td> <td>1.75 mm</td> <td>7.5 mm</td> </tr> </tbody> </table>	Wire gauge	Ø	Stripping length	0.75 - 1 mm <sup>2</sup> AWG 18	1.45 mm	7.5 mm	1.5 mm <sup>2</sup> AWG 16	1.75 mm	7.5 mm									
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New  
1  
14

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)															
		Male	Female																
TC 100, Crimp contact, Contact surface: Silver plated	10 16 25	09 11 000 6114 09 11 000 6116 09 11 000 6125	09 11 000 6214 09 11 000 6216 09 11 000 6225	<table border="1"> <thead> <tr> <th>Wire gauge</th> <th>Ø</th> <th>Stripping length A</th> </tr> </thead> <tbody> <tr> <td>10 mm<sup>2</sup></td> <td>4.3</td> <td>19 mm</td> </tr> <tr> <td>16 mm<sup>2</sup></td> <td>5.5</td> <td>19 mm</td> </tr> <tr> <td>25 mm<sup>2</sup></td> <td>7</td> <td>19 mm</td> </tr> <tr> <td>35 mm<sup>2</sup></td> <td>8.2</td> <td>16 mm</td> </tr> </tbody> </table> <p>for stranded wire according to IEC 60 228 Class 5</p>	Wire gauge	Ø	Stripping length A	10 mm <sup>2</sup>	4.3	19 mm	16 mm <sup>2</sup>	5.5	19 mm	25 mm <sup>2</sup>	7	19 mm	35 mm <sup>2</sup>	8.2	16 mm
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Coding element		09 12 000 9922																	

Han

Number of contacts

# 1

200 A 1.000 V 8 kV 3

## Features

- Power module for big cross-sections up to 70 mm<sup>2</sup>
- High rated voltage up to 1300 V
- IP20 protection for female and male module (by using male contacts with protective cap)
- Compatible to the Han® 300 A module
- Easy removal of the contacts

## Technical characteristics

Number of contacts	1
Rated current	200 A
Rated voltage	1000 V
Rated impulse voltage	8 kV
Pollution degree	3
Rated voltage	1000 V AC, 1300 V DC
Insulation resistance	>10 <sup>10</sup> Ω
Contact resistance	≤0.3 mΩ
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

## Specifications and approvals

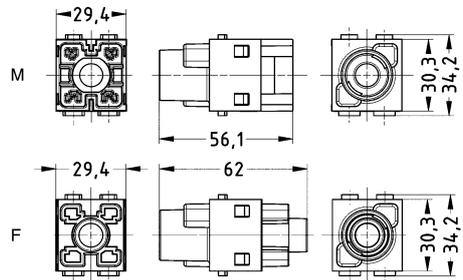
EN 50124-1  
EN 60664-1  
IEC 61984  
DNV GL

## Details

For more technical details (i.e. number of crimping operations or crimping position) see eCatalogue

### Remarks on the crimp technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)															
		Male	Female																
Han-Modular®, Han® 200 A module, With protective insert, Crimp termination   Please order crimp contacts separately.	16 ... 70	09 14 001 3003	09 14 001 3103																
TC 200, Crimp contact, Contact surface: Silver plated  	16 25 35 50 70	09 11 000 6150 09 11 000 6120 09 11 000 6121 09 11 000 6122 09 11 000 6123	09 11 000 6250 09 11 000 6220 09 11 000 6221 09 11 000 6222 09 11 000 6223	<table border="1"> <thead> <tr> <th>Wire gauge</th> <th>∅</th> <th>Stripping length A</th> </tr> </thead> <tbody> <tr> <td>25 mm<sup>2</sup></td> <td>7</td> <td>19 mm</td> </tr> <tr> <td>35 mm<sup>2</sup></td> <td>8.2</td> <td>20 mm</td> </tr> <tr> <td>50 mm<sup>2</sup></td> <td>10</td> <td>22.5 mm</td> </tr> <tr> <td>70 mm<sup>2</sup></td> <td>11.5</td> <td>22.5 mm</td> </tr> </tbody> </table> <p>for stranded wire according to IEC 60 228 Class 5</p>	Wire gauge	∅	Stripping length A	25 mm <sup>2</sup>	7	19 mm	35 mm <sup>2</sup>	8.2	20 mm	50 mm <sup>2</sup>	10	22.5 mm	70 mm <sup>2</sup>	11.5	22.5 mm
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TC 200, Crimp contact, With protective insert, Contact surface: Silver plated	25	09 11 000 7120		<table border="1"> <thead> <tr> <th>Wire gauge</th> <th>∅</th> <th>Stripping length A</th> </tr> </thead> <tbody> <tr> <td>25 mm<sup>2</sup></td> <td>7</td> <td>19 mm</td> </tr> <tr> <td>35 mm<sup>2</sup></td> <td>8.2</td> <td>20 mm</td> </tr> <tr> <td>50 mm<sup>2</sup></td> <td>10</td> <td>22.5 mm</td> </tr> <tr> <td>70 mm<sup>2</sup></td> <td>11.5</td> <td>22.5 mm</td> </tr> <tr> <td colspan="3">for stranded wire according to IEC 60 228 Class 5</td> </tr> </tbody> </table>	Wire gauge	∅	Stripping length A	25 mm <sup>2</sup>	7	19 mm	35 mm <sup>2</sup>	8.2	20 mm	50 mm <sup>2</sup>	10	22.5 mm	70 mm <sup>2</sup>	11.5	22.5 mm	for stranded wire according to IEC 60 228 Class 5		
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35	09 11 000 7121																					
50	09 11 000 7122																					
70	09 11 000 7123																					



Han

Number of contacts

# 1

300 A 1.000 V 8 kV 3

## Features

- Power module for big wire gauges up to 120 mm<sup>2</sup>
- High rated voltage up to 1300 V
- IP20 protection for female and male module (by using male contacts with protective cap)
- Compatible to the Han® 200 A module
- Short and space saving contacts
- Easy removal of the contacts

## Technical characteristics

Number of contacts	1
Rated current	300 A
Rated voltage	1000 V
Rated impulse voltage	8 kV
Pollution degree	3
Rated voltage	1000 V AC, 1300 V DC
Insulation resistance	>10 <sup>10</sup> Ω
Contact resistance	≤0.3 mΩ
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

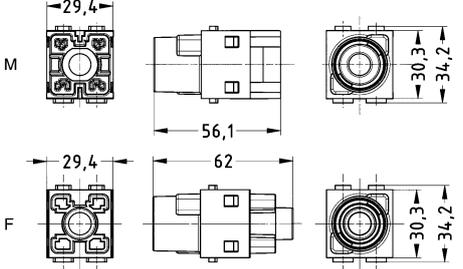
## Specifications and approvals

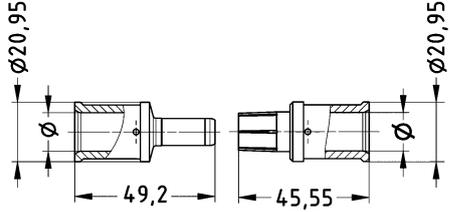
EN 50124-1  
EN 60664-1  
IEC 61984

## Details

### Remarks on the crimp technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Han-Modular®, Han® 300 A module, With protective insert, Crimp termination   <p>Please order crimp contacts separately.</p>	95 ... 120	09 14 001 3004	09 14 001 3104	

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)									
		Male	Female										
Crimp contact, Contact surface: Silver plated 	95 120	09 11 000 7536 09 11 000 7537	09 11 000 6636 09 11 000 6637	 <table border="1" data-bbox="995 551 1453 647"> <thead> <tr> <th>Wire gauge</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>95 mm<sup>2</sup></td> <td>13.55 mm</td> <td>22.5 mm</td> </tr> <tr> <td>120 mm<sup>2</sup></td> <td>15.55 mm</td> <td>22.5 mm</td> </tr> </tbody> </table>	Wire gauge	Ø	Stripping length	95 mm <sup>2</sup>	13.55 mm	22.5 mm	120 mm <sup>2</sup>	15.55 mm	22.5 mm
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120 mm <sup>2</sup>	15.55 mm	22.5 mm											

Han

Number of contacts

# 36

10 A 400 V 6 kV 3

## Features

- 36 Han D<sup>®</sup> contacts up to 400 V
- Suitable for transmitting power (10 A) and signals in one module
- e.g. for three phase AC motors including feedback for all six axes of a robot

## Technical characteristics

Number of contacts	36
Rated current	10 A
Rated voltage	400 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>10</sup> Ω
Contact resistance	≤3 mΩ
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Mating cycles with other HMC components	≥10000
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

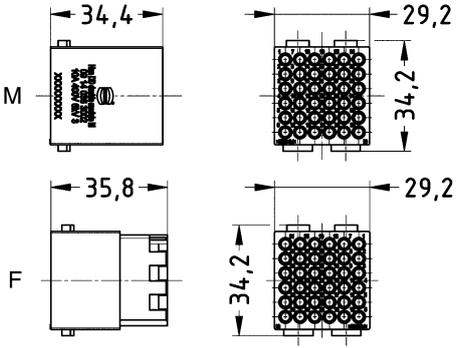
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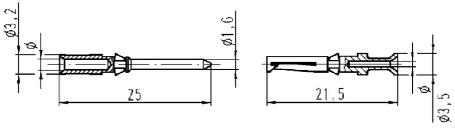
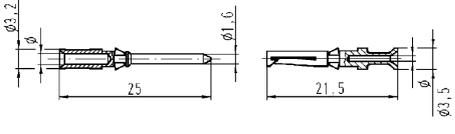
EN 60664-1  
IEC 61984

## Details

### Remarks on the crimp technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Han-Modular <sup>®</sup> , Han DD <sup>®</sup> module, Crimp termination    Please order crimp contacts separately.	0.14 ... 2.5	09 14 036 3002	09 14 036 3102	  Contact arrangement (view from termination side)

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)																					
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Han D <sup>®</sup> , Crimp contact, Contact surface: Silver plated 	0.14 ... 0.37	09 15 000 6104	09 15 000 6204	 <table border="1" data-bbox="997 504 1452 660"> <thead> <tr> <th>Wire gauge</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup> AWG 26-22</td> <td>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup> AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup> AWG 18</td> <td>1.3 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup> AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup> AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup> AWG 14</td> <td>2.25 mm</td> <td>6 mm</td> </tr> </tbody> </table>	Wire gauge	Ø	Stripping length	0.14-0.37 mm <sup>2</sup> AWG 26-22	0.9 mm	8 mm	0.5 mm <sup>2</sup> AWG 20	1.1 mm	8 mm	0.75 mm <sup>2</sup> AWG 18	1.3 mm	8 mm	1 mm <sup>2</sup> AWG 18	1.45 mm	8 mm	1.5 mm <sup>2</sup> AWG 16	1.75 mm	8 mm	2.5 mm <sup>2</sup> AWG 14	2.25 mm	6 mm
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2.5	09 15 000 6106	09 15 000 6206																							
Han D <sup>®</sup> , Crimp contact, Contact surface: Gold plated 	0.14 ... 0.37	09 15 000 6124	09 15 000 6224	 <table border="1" data-bbox="997 862 1452 1019"> <thead> <tr> <th>Wire gauge</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup> AWG 26-22</td> <td>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup> AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup> AWG 18</td> <td>1.3 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup> AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup> AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup> AWG 14</td> <td>2.25 mm</td> <td>6 mm</td> </tr> </tbody> </table>	Wire gauge	Ø	Stripping length	0.14-0.37 mm <sup>2</sup> AWG 26-22	0.9 mm	8 mm	0.5 mm <sup>2</sup> AWG 20	1.1 mm	8 mm	0.75 mm <sup>2</sup> AWG 18	1.3 mm	8 mm	1 mm <sup>2</sup> AWG 18	1.45 mm	8 mm	1.5 mm <sup>2</sup> AWG 16	1.75 mm	8 mm	2.5 mm <sup>2</sup> AWG 14	2.25 mm	6 mm
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1.5	09 15 000 6121	09 15 000 6221																							
2.5	09 15 000 6126	09 15 000 6226																							

Number of contacts

# 27

4 A 32 V 0.8 kV 3  
+ shielding

## Features

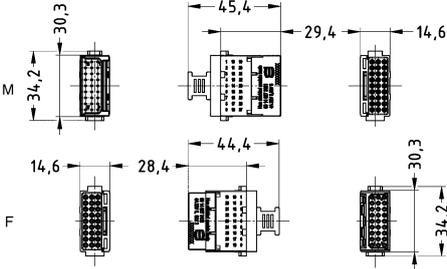
- EMC compatible connection of the cable screen with a large-area shielding plate
- High contact density up to 27 shielded contacts
- Suitable for turned or stamped D-Sub contacts
- Applicable as cost effective shielding connection

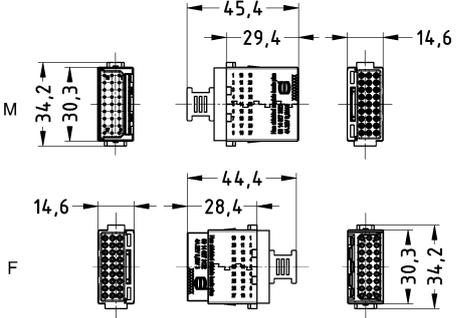
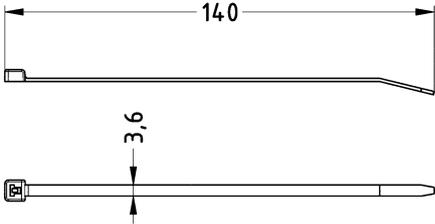
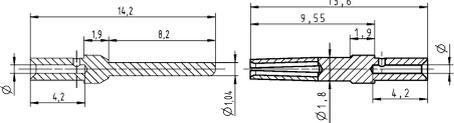
## Technical characteristics

Number of contacts	27
Additional contacts	+ shielding
Rated current	4 A
Rated voltage	32 V
Rated impulse voltage	0.8 kV
Pollution degree	3
Insulation resistance	>10 <sup>10</sup> Ω
Contact resistance	≤10 mΩ
Limiting temperature	-40 ... +125 °C, -40 ... +105 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material (accessories)	Polyamide (PA), Metal
Colour (accessories)	Black
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

## Specifications and approvals

EN 60664-1  
IEC 61984  
DNV GL

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Han-Modular®, Han® Shielded module basic, With 180° shielding element, Crimp termination   Please order crimp contacts separately.	0.09 ... 0.52	09 14 027 3021	09 14 027 3121	

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)															
		Male	Female																
<p>Han-Modular®, Han® Shielded module basic plus, With 360° shielding element, Crimp termination</p>  <p>With additional shield connection to the hinged frame Please order crimp contacts separately.</p>	0.09 ... 0.52	09 14 027 3022	09 14 027 3122																
<p>Cable tie, With metal latch, Limiting temperature: -40 ... +105 °C</p> 		09 14 000 9809	09 14 000 9809																
<p>D-Sub, Crimp contact</p> 	0.09 ... 0.25 0.13 ... 0.33 0.25 ... 0.52	09 67 000 7576 09 67 000 5576 09 67 000 8576	09 67 000 7476 09 67 000 5476 09 67 000 8476	 <table border="1"> <thead> <tr> <th>Wire gauge</th> <th>∅</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.09-0.25 mm<sup>2</sup></td> <td>0.64 mm</td> <td>4 mm</td> </tr> <tr> <td>0.13-0.33 mm<sup>2</sup></td> <td>0.88 mm</td> <td>4 mm</td> </tr> <tr> <td>0.25-0.52 mm<sup>2</sup></td> <td>1.13 mm</td> <td>4 mm</td> </tr> <tr> <td>0.33-0.82 mm<sup>2</sup></td> <td>1.34 mm</td> <td>4 mm</td> </tr> </tbody> </table> <p>for stranded wire according IEC 60228 Class 5</p>	Wire gauge	∅	Stripping length	0.09-0.25 mm <sup>2</sup>	0.64 mm	4 mm	0.13-0.33 mm <sup>2</sup>	0.88 mm	4 mm	0.25-0.52 mm <sup>2</sup>	1.13 mm	4 mm	0.33-0.82 mm <sup>2</sup>	1.34 mm	4 mm
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Number of contacts

# 4

16 A 400 V 4 kV 3  
 + 2 additional signal contacts + shielding  
 10 A 400 V 4 kV 3

## Features

- Interface for typical motor applications such as frequency-controlled drives
- 4 power contacts (pin 4 is pre-leading to be used as a PE)
- 2 signal contacts for temperature monitoring or breaks
- EMC compatible connection of the cable screen with a large-area shielding plate
- Shielded power cables can now be connectorised in combination with other cables

## Technical characteristics

Number of contacts	4
Additional contacts	+ 2 additional signal contacts, + shielding
Rated current	16 A
Rated voltage	400 V
Rated impulse voltage	4 kV
Pollution degree	3
Rated current (signal)	10 A
Rated voltage (signal)	400 V
Rated impulse voltage (signal)	4 kV
Pollution degree (signal)	3
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 3 \text{ m}\Omega, \leq 1 \text{ m}\Omega$
Limiting temperature	-40 ... +125 °C
Mating cycles	$\geq 500$
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

## Specifications and approvals

EN 60664-1  
 IEC 61984  
 DNV GL

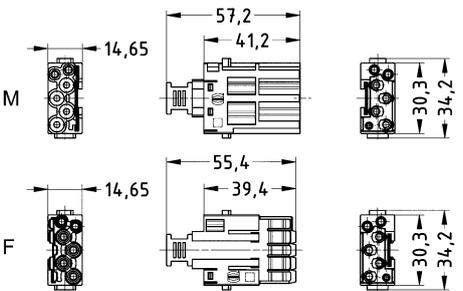
## Details

Contact resistance Han D® crimp contact:  $\leq 3 \text{ m}\Omega$

Contact resistance Han E® crimp contact:  $\leq 1 \text{ m}\Omega$

### Remarks on the crimp technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Han-Modular®, Han® Shielded power module, With shielding plate, Crimp termination  <p>Please order crimp contacts separately.                      4x Han E®                      2x Han D®</p>	0.14 ... 4	09 14 006 3021	09 14 006 3121	 <p>Contact arrangement (view from termination side)</p>

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)																					
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Han D®, Crimp contact, Contact surface: Silver plated	0.14 ... 0.37	09 15 000 6104	09 15 000 6204																						
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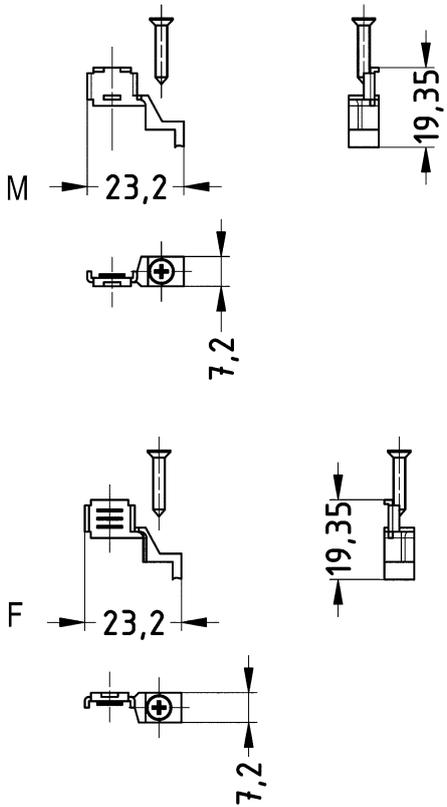
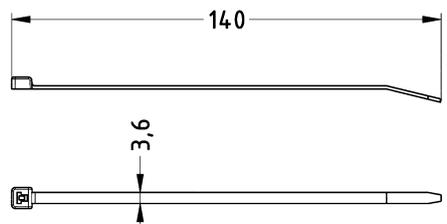
Han

Features

- Optional Shielding termination to the hinged frames with the GND adapter

Technical characteristics

Limiting temperature	-40 ... +105 °C
Material (accessories)	Metal, Polyamide (PA)
Colour (accessories)	Black

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Han® Shielded power module, GND Adapter 	09 14 000 9807	09 14 000 9808	
Cable tie, With metal latch, Limiting temperature: -40 ... +105 °C 	09 14 000 9809	09 14 000 9809	

Number of contacts

# 7

Han

## Features

- Module for identifying industrial components
- Profinet I/O communication protocol conformance class B
- SNMP enabled (V1, V2C)

## Technical characteristics

Number of contacts	7
Operating temperature	-40 ... +70 °C
Storage temperature	-40 ... +70 °C
Mating cycles	≥500
Degree of protection acc. to IEC 60529	IP20
Nominal voltage	24 V DC ±10 %
Power consumption	<2 W
Memory	32 KByte Flash
Diagnostic display	Connection (Link), Power connection
Material (insert)	Polycarbonate (PC), Liquid crystal polymer (LCP)
Colour (insert)	RAL 7032 (pebble grey), White
Material flammability class acc. to UL 94	V-0

## Specifications and approvals

IEC 60721-3-3  
 EN 50102  
 EN 61000-4-2 Electrostatic discharge (ESD)  
 EN 61000-4-3 Electromagnetic field  
 EN 61000-4-4 Rapid transients (burst)  
 EN 61000-4-5 Surge voltages  
 EN 61000-4-6 conducted disturbances  
 IEC 61158 PROFINET



Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Han-Modular®, ID Profinet, Memory module / CPU  GSD software file and operating instructions can be downloaded from the eCatalogue.	09 80 615 0100		
Han-Modular®, ID Profinet, Power supply, Data interface with HARTING ix Industrial® (Typ A)  GSD software file and operating instructions can be downloaded from the eCatalogue.		09 80 615 0200	

Number of contacts

# 4

Optional PE contact module and signal module

## Features

- Continuously voltage and current measurement
- Data interval 1 second
- Communication via MODBus TCP or RTU
- Analysing up to 25<sup>th</sup> harmonics per phase
- Power factor, frequency, active-, reactive-, apparent power calculation
- THD U and THD I each phase

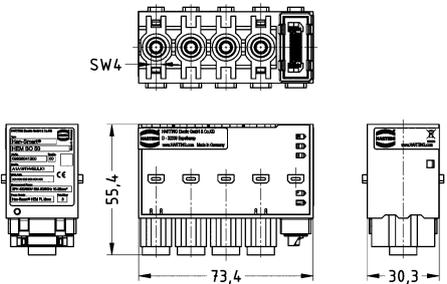
## Technical characteristics

Number of contacts	4
Additional contacts	Optional PE contact module and signal module
Rated current	≤63 A
Rated voltage	230 V / 400 V
Pollution degree	2
Input voltage	24 V DC ±10 %
Current consumption	100 mA
Voltage measuring range	20 ... 277 V AC @ 50 / 60 Hz
Current measurement range	5 ... 50 A AC @ 50 / 60 Hz
Measurement accuracy	±2 %
Measurement category	III
Limiting temperature	-20 ... +55 °C
Relative humidity	5 ... 95 %
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material flammability class acc. to UL 94	V-0

## Specifications and approvals

EN 61000-6-2  
 EN 61000-6-4  
 EN 61010-1  
 EN 61010-2-030  
 EN 61326-1



Identification	Conductor cross-section (mm <sup>2</sup> )	Part number Female	Drawing (dimensions in mm)
Han-Modular®, HEM module, Connector with integrated AC voltage and current detection for energy measurement, Axial screw termination 	10 ... 25	09 80 504 1200	

Number of contacts

1

100 A 830 V 8 kV 3

## Features

- Crimp or axial screw termination available
- Unlock of contacts with a screw driver from mating side
- Separate axial screw contacts can be terminated without any special tools directly to the wire

## Technical characteristics

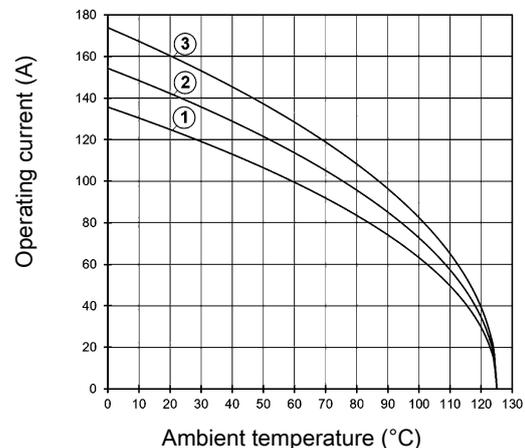
Number of contacts	1
Rated current	100 A
Rated voltage	830 V
Rated impulse voltage	8 kV
Pollution degree	3
Rated voltage acc. to UL	600 V
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 0.3 \text{ m}\Omega$
Limiting temperature	-40 ... +125 °C
Mating cycles	$\geq 500$
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0
RoHS	compliant, compliant with exemption

## Derating

### Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.

Measuring and testing techniques acc. to IEC 60512-5-2



- ① Conductor cross-section 16 mm<sup>2</sup>
- ② Conductor cross-section 25 mm<sup>2</sup>
- ③ Conductor cross-section 35 mm<sup>2</sup>

## Specifications and approvals

EN 60664-1  
IEC 61984  
UL 1977 ECBT2.E235076  
UL 2237 PVVA2.E318390  
CSA-C22.2 No. 182.3 PVVA8.E318390  
DNV GL

## Details

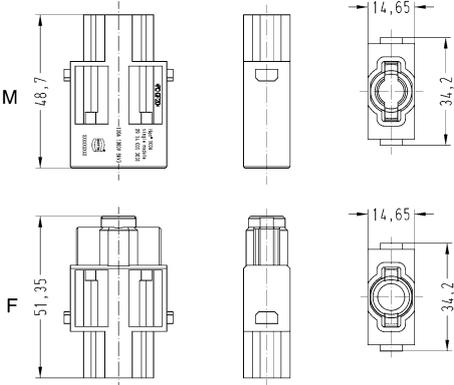
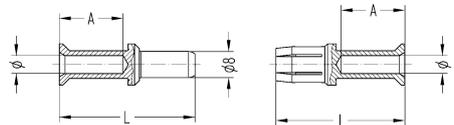
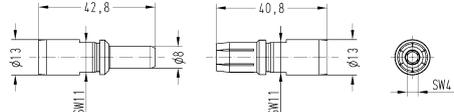
### Remarks on the axial screw technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

### Remarks on the crimp technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Han

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number Male	Drawing (dimensions in mm)															
Han-Modular®, Han® 100 A module, Single module  <p>Please order contacts separately.</p>	10 ... 35	09 14 001 3031																
TC 100, Crimp contact, Contact surface: Silver plated 	10 16 25	09 11 000 6114 09 11 000 6116 09 11 000 6125	 <table border="1"> <thead> <tr> <th>Wire gauge</th> <th>Ø</th> <th>Stripping length A</th> </tr> </thead> <tbody> <tr> <td>10 mm<sup>2</sup></td> <td>4.3</td> <td>19 mm</td> </tr> <tr> <td>16 mm<sup>2</sup></td> <td>5.5</td> <td>19 mm</td> </tr> <tr> <td>25 mm<sup>2</sup></td> <td>7</td> <td>19 mm</td> </tr> <tr> <td>35 mm<sup>2</sup></td> <td>8.2</td> <td>16 mm</td> </tr> </tbody> </table> <p>for stranded wire according to IEC 60 228 Class 5</p>	Wire gauge	Ø	Stripping length A	10 mm <sup>2</sup>	4.3	19 mm	16 mm <sup>2</sup>	5.5	19 mm	25 mm <sup>2</sup>	7	19 mm	35 mm <sup>2</sup>	8.2	16 mm
Wire gauge	Ø	Stripping length A																
10 mm <sup>2</sup>	4.3	19 mm																
16 mm <sup>2</sup>	5.5	19 mm																
25 mm <sup>2</sup>	7	19 mm																
35 mm <sup>2</sup>	8.2	16 mm																
TC 100, Axial screw contact, Contact surface: Silver plated 	10 ... 25 16 ... 35	09 11 000 6112 09 11 000 6113	 <p>Stripping length 13 mm</p> <table border="1"> <thead> <tr> <th colspan="5">Tightening torque</th> </tr> <tr> <th>mm<sup>2</sup></th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> </tr> </thead> <tbody> <tr> <td>Nm</td> <td>6</td> <td>6</td> <td>7</td> <td>8</td> </tr> </tbody> </table>	Tightening torque					mm <sup>2</sup>	10	16	25	35	Nm	6	6	7	8
Tightening torque																		
mm <sup>2</sup>	10	16	25	35														
Nm	6	6	7	8														

Number of contacts

1

Han

### Features

- PE module to connect large cable diameters within the Han-Modular® hinged frames
- Electrically conductive connection of the PE contact to the hinged frames and the hoods and housings acc. to EN 61984
- Pre-leading and robust 100 A PE contact
- Suitable for the connection of standard power cables even with large cross-sections (no special cables with reduced PE necessary)
- Crimp- and axial module are compatible modules

### Technical characteristics

Number of contacts	1
Contact resistance	≤0.3 mΩ
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (insert)	Zinc die-cast, nickel-plated
Material (contacts)	Copper alloy
RoHS	compliant with exemption

### Specifications and approvals

IEC 61984  
 UL 1977 ECBT2.E235076  
 CSA-C22.2 No. 182.3 ECBT8.E235076

### Details

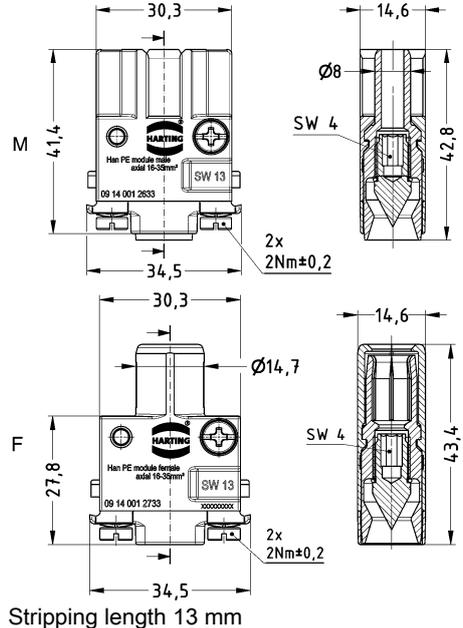
Short-time withstand current: 1920 A for 1 second (acc. to IEC 60947-7-2)

#### Remarks on the axial screw technique

The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Han-Modular®, Han® PE module, Crimp termination, Pack contents: 2 PE module halves, 1 contact pressure plate, 1 crimp contact Contact surface: Silver plated	16 25	09 14 001 3072 09 14 001 3073	09 14 001 3172 09 14 001 3173	

Han

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Han-Modular®, Han® PE module, Axial screw termination,</p> <p>Pack contents: PE module with pre-assembled axial screw contact</p> <p>Contact surface: Silver plated</p> 	10 ... 25	09 14 001 2632	09 14 001 2732	 <p>Stripping length 13 mm</p>

### Technical characteristics

Input voltage	24 V DC ±10 %
Current consumption	100 mA
Limiting temperature	-20 ... +55 °C
Relative humidity	5 ... 95 %
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material flammability class acc. to UL 94	V-0

### Specifications and approvals

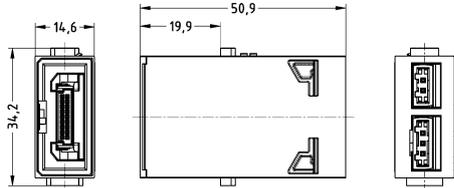
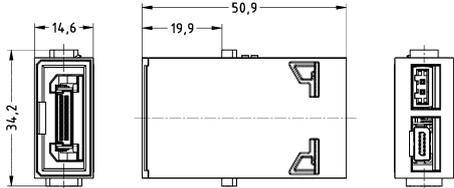
EN 61000-6-2  
 EN 61000-6-4  
 EN 61010-1  
 EN 61010-2-030  
 EN 61326-1



### Details

Must be sourced with PELV or SELV acc. EN 50178.

Voltage source must be galvanically isolated from power mains.

Identification	Part number Male	Drawing (dimensions in mm)
<p>Han-Modular®,                      HEM module,                      Modbus RTU Communication interface for the use in combination with 09 80 504 1200</p> 	09 80 316 0100	 <p>Interface :                      har-flexicon®, 2-pin                      RS 485 Modbus RTU/slave: har-flexicon®, 3-pin</p>
<p>Han-Modular®,                      HEM module,                      Modbus TCP Communication interface for the use in combination with 09 80 504 1200</p> 	09 80 416 0100	 <p>Interface :                      har-flexicon®, 2-pin                      Modbus TCP specification V1.1b: ix Industrial® Type A</p>

Number of contacts

**6+** 

 35 A 400/690 V 6 kV 3  
 35 A 500 V 6 kV 3

## Features

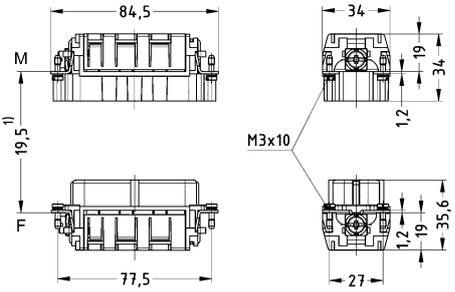
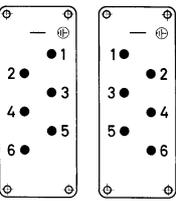
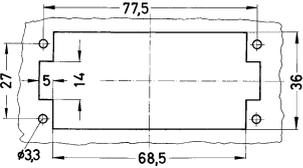
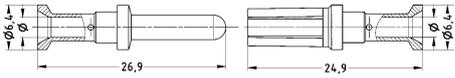
- Suitable for power supply applications
- Crimp termination

## Technical characteristics

Number of contacts	6
Rated current	35 A
Rated voltage conductor-earth	400 V
Rated voltage conductor-conductor	690 V
Rated impulse voltage	6 kV
Pollution degree	3
Rated voltage acc. to UL	600 V
Rated voltage acc. to CSA	600 V
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 1 \text{ m}\Omega$
Limiting temperature	-40 ... +125 °C
Mating cycles	$\geq 500$
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

## Specifications and approvals

 EN 60664-1  
 IEC 61984

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)																		
		Male	Female																			
<p>Han® HsB, Crimp termination</p>  <p>Please order crimp contacts separately.</p>	1.5 ... 10	09 31 006 3001	09 31 006 3101	 <p>1) distance for contact max. 21 mm</p>  <p>M F Contact arrangement (view from termination side)</p>  <p>Panel cut out for use without Hoods/Housings</p>																		
<p>Han® HsB, Crimp contact, Contact surface: Silver plated</p> 	1.5 2.5 4 6 10	09 31 000 6104 09 31 000 6105 09 31 000 6101 09 31 000 6102 09 31 000 6103	09 31 000 6204 09 31 000 6205 09 31 000 6201 09 31 000 6202 09 31 000 6203	 <table border="1"> <thead> <tr> <th>Wire gauge</th> <th>ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>1.5 mm<sup>2</sup> AWG 16</td> <td>1.78 mm</td> <td>9.5 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup> AWG 14</td> <td>2.28 mm</td> <td>9.5 mm</td> </tr> <tr> <td>4 mm<sup>2</sup> AWG 12</td> <td>2.88 mm</td> <td>9.5 mm</td> </tr> <tr> <td>6 mm<sup>2</sup> AWG 10</td> <td>3.53 mm</td> <td>9.5 mm</td> </tr> <tr> <td>10 mm<sup>2</sup> AWG 8</td> <td>4.33 mm</td> <td>9.5 mm</td> </tr> </tbody> </table>	Wire gauge	ø	Stripping length	1.5 mm <sup>2</sup> AWG 16	1.78 mm	9.5 mm	2.5 mm <sup>2</sup> AWG 14	2.28 mm	9.5 mm	4 mm <sup>2</sup> AWG 12	2.88 mm	9.5 mm	6 mm <sup>2</sup> AWG 10	3.53 mm	9.5 mm	10 mm <sup>2</sup> AWG 8	4.33 mm	9.5 mm
Wire gauge	ø	Stripping length																				
1.5 mm <sup>2</sup> AWG 16	1.78 mm	9.5 mm																				
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6 mm <sup>2</sup> AWG 10	3.53 mm	9.5 mm																				
10 mm <sup>2</sup> AWG 8	4.33 mm	9.5 mm																				

## Features

- Application with socket and data connector (RJ45, USB)
- Compact design for easy installation in single or double frame
- Suitable for data module in HIFF-size
- Screening shield to optimise EMC protection

## Technical characteristics

Mounting depth	30 mm
Supply voltage	250 V AC
Nominal frequency	50 Hz, 60 Hz
Nominal current	13 A, 10 A
Material (hood/housing)	Thermoplastic
RoHS	compliant

## Specifications and approvals



Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	
Han-Port®, Socket, 2 cut-outs for HIFF data module, Finger safe, Screw termination, Great Britain (BS), 30 mm / 250 V AC / 60 Hz, 50 Hz / 13 A	4	39 50 001 0452	
Han-Port®, Socket, 2 cut-outs for HIFF data module, Spring clamp termination, Switzerland, 30 mm / 250 V AC / 50 Hz / 10 A	1.5	39 50 001 0454	

Connector for food+beverage industry  
Screw locking

## Features

- “Easy-to-Clean” design
- Certified by Ecolab
- IP6K9K acc. to ISO 20653
- Inserts for Data / Signal / Power / Hybrid
- Han® 3 A inserts adaptable

## Technical characteristics

Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Degree of protection acc. to IEC 60529	IP67, in locked position, IP6K9K acc. to ISO 20653
Material (hood/housing)	Polypropylen
Colour (hood/housing)	Black, Blue
Material (seal)	EPDM, Silicone
Colour (seal)	Blue

## Specifications and approvals

Ecolab Topactive 200  
Ecolab Topactive 500  
Ecolab Topax 66  
Ecolab Topactive OKTO  
Ecolab Topax 990  
FDA 21 CFR 177.1520  
FDA 21 CFR 177.2600

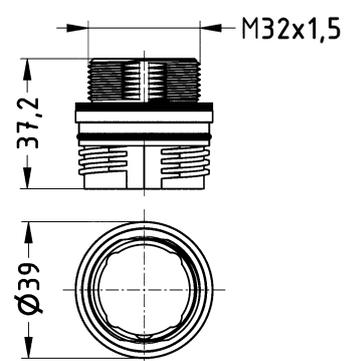
Identification	Cable entry	Part number	Drawing (dimensions in mm)
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Han® F+B,  
Screw mounted housing,  
Straight,  
Black



1x M32

09 15 503 0102

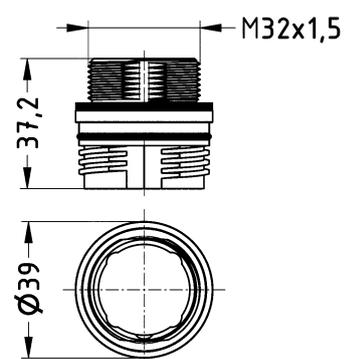


Han® F+B,  
Screw mounted housing,  
Straight,  
Blue



1x M32

09 15 513 0102





Number of contacts

**32+**

16 A 500 V 6 kV 3

Han

### Features

- Proven Han® E inserts in size L32 with wire protection

### Technical characteristics

Number of contacts	32
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
Rated voltage acc. to UL	600 V
Rated voltage acc. to CSA	600 V
Insulation resistance	>10 <sup>10</sup> Ω
Contact resistance	≤1 mΩ
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

### Specifications and approvals

EN 60664-1  
IEC 61984  
UL 1977 ECBT2.E235076  
DNV GL

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Han E®, Screw termination, With wire protection, Contact surface: Silver plated 	0.75 ... 2.5	09 33 032 2601	09 33 032 2701	

Standard hoods/housings for industrial connectors  
Double locking lever

Han

### Features

- Reduces the number of connector interfaces required on the machine (with up to 8 Han Modular® inserts in one housing)
- Han-Easy Lock® bracket (cross) or metal bracket (longitudinal) available
- Cable entries can be designed variably (up to M50) using the hood configurator

### Technical characteristics

Limiting temperature	-40 ... +125 °C
Degree of protection acc. to IEC 60529	IP65
Type rating acc. to UL 50 / UL 50E	4, 4X, 12
Material (hood/housing)	Aluminium die-cast
Surface (hood/housing)	Powder-coated
Colour (hood/housing)	RAL 7037 (dust grey)
Material (seal)	NBR
Material (locking)	Polycarbonate (PC), Stainless steel
Colour (locking)	RAL 7037 (dust grey)
Material flammability class acc. to UL 94 (locking levers)	V-0

### Specifications and approvals

DNV GL

Identification	Cable entry	Part number	Drawing (dimensions in mm)
Han® B, Hood, Top entry  	1x M40 1x M50	19 30 132 0428 19 30 132 0429	
Han® B, Hood, Side entry	1x M40	19 30 132 0528	
Han® B, Bulkhead mounted housing, Han-Easy Lock®		09 30 132 0301	
Han® B, Surface mounted housing, Side entry, Han-Easy Lock®  	1x M40 2x M40	19 30 132 0271 19 30 132 0272	



Han

Identification	Cable entry	Part number	Drawing (dimensions in mm)
<p>Han® B, Cable to cable housing, Top entry, Han-Easy Lock®</p> 	<p>1x M40</p>	<p>19 30 132 0728</p>	

Standard hoods/housings for industrial connectors  
Single locking lever

Han

## Technical characteristics

Limiting temperature	-40 ... +125 °C
Degree of protection acc. to IEC 60529	IP65
Type rating acc. to UL 50 / UL 50E	4, 4X, 12
Material (hood/housing)	Aluminium die-cast
Surface (hood/housing)	Powder-coated
Colour (hood/housing)	RAL 7037 (dust grey)

## Technical characteristics

Material (seal)	NBR
Material (locking)	Steel, zinc plated

## Specifications and approvals

DNV GL

Identification	Cable entry	Part number	Drawing (dimensions in mm)
Han® B, Hood, Top entry	1x M40 1x M50	19 30 132 0441 19 30 132 0449	
Han® B, Hood, Side entry	1x M40	19 30 132 0541	
Han® B, Bulkhead mounted housing, With thermo-plastic cover 		09 30 132 0304 ML	
Han® B, Bulkhead mounted housing		09 30 132 0307 ML	
Han® B, Surface mounted housing, Side entry	1x M40 2x M40	19 30 132 0275 ML 19 30 132 0276 ML	
Han® B, Surface mounted housing, With thermo-plastic cover, Side entry	1x M40 2x M40	19 30 132 2275 ML 19 30 132 2276 ML	
Han® B, Cable to cable housing, Top entry 	1x M40	19 30 132 0738 ML	

### Features

- Suitable for more than 100 different modules
- Quick and easy assembly supported by an audible "Click"
- Very robust mechanical characteristics
- Modules can be assembled/removed without tools
- Two leading PE contacts

### Technical characteristics

Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (frames)	Zinc die-cast, Stainless steel

### Specifications and approvals

EN 60664-1  
IEC 61984  
DNV GL

#### Identification

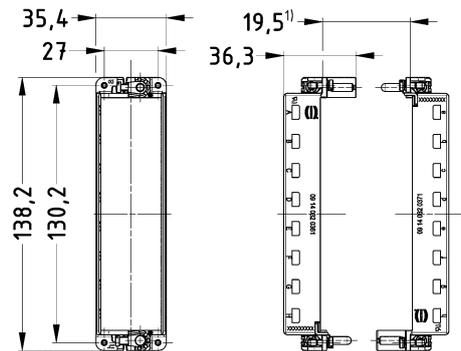
Han-Modular®,  
Hinged frame plus,  
for 8 modules,  
A ... H



#### Part number

09 14 032 0361

#### Drawing (dimensions in mm)

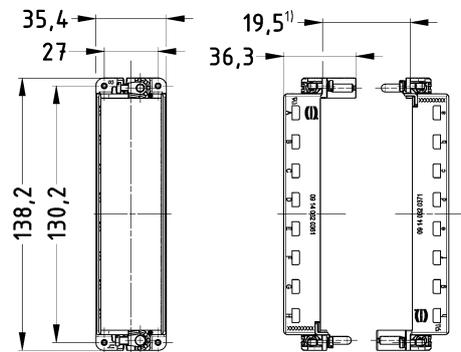


1) distance for contact max. 20.5 mm

Han-Modular®,  
Hinged frame plus,  
for 8 modules,  
a ... h



09 14 032 0371



1) distance for contact max. 20.5 mm

## Features

- Hoods/Housings for higher EMC requirements
- Continuous shield connection using conductive surface
- Metal hoods / housings with high shielding efficiency
- Field of application: for sensitive interconnections that have to be shielded against electrical, magnetic or electro-magnetic interferences
- Locking levers: Han-Easy Lock®

## Technical characteristics

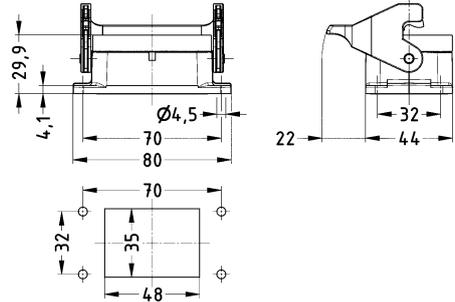
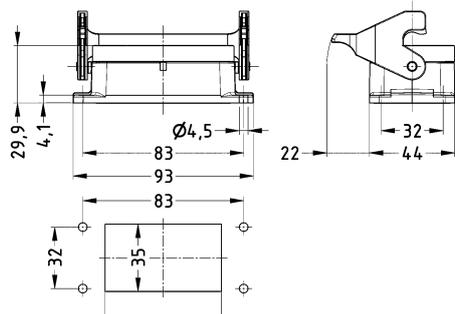
Limiting temperature	-40 ... +125 °C
Degree of protection acc. to IEC 60529	IP65
Type rating acc. to UL 50 / UL 50E	4, 12
Material (hood/housing)	Aluminium die-cast
Surface (hood/housing)	Uncoated
Colour (hood/housing)	Unpainted
Material (seal)	NBR
Material (locking)	Polycarbonate (PC), Stainless steel
Colour (locking)	RAL 7037 (dust grey)
Material flammability class acc. to UL 94 (locking levers)	V-0

## Specifications and approvals

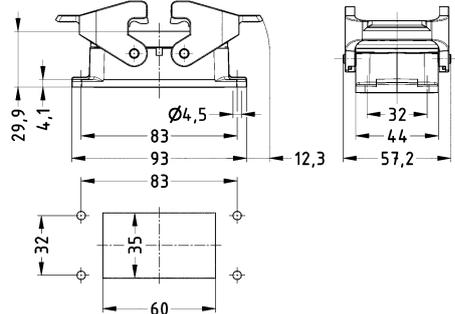
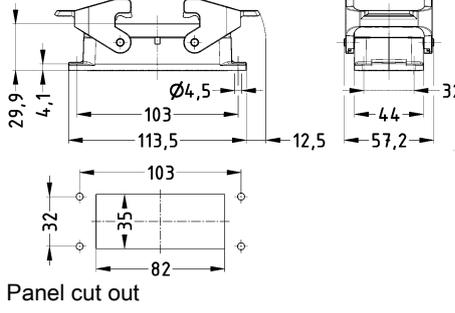
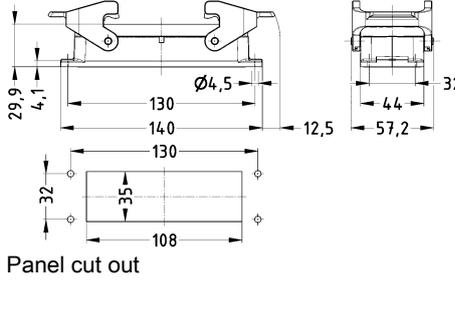
UL 1977 ECBT2.E235076  
 CSA-C22.2 No. 182.3 ECBT8.E235076  
 DNV GL

Hoods/Housings for higher EMC requirements  
Single locking lever

Han

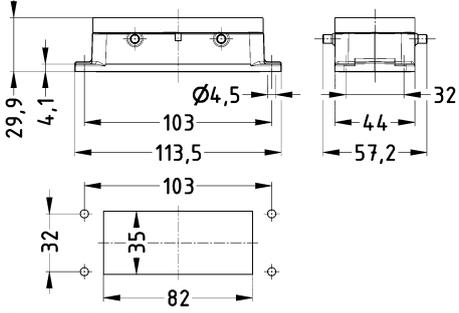
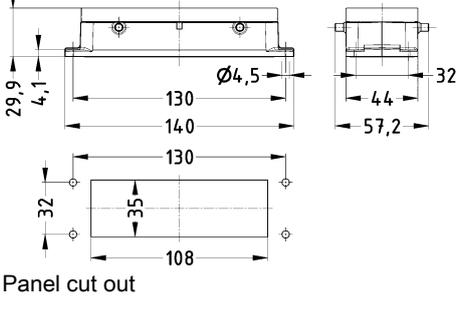
Identification	Part number Low construction	Drawing (dimensions in mm)
<p>Han® EMC/B, Bulkhead mounted housing, Han-Easy Lock®, Size 6 B</p> 	<p>09 62 806 2301</p>	 <p>Panel cut out</p>
<p>Han® EMC/B, Bulkhead mounted housing, Han-Easy Lock®, Size 10 B</p> 	<p>09 62 810 2305</p>	 <p>Panel cut out</p>

Hoods/Housings for higher EMC requirements  
Double locking lever

Identification	Part number Low construction	Drawing (dimensions in mm)
<p>Han® EMC/B, Bulkhead mounted housing, Han-Easy Lock®, Size 10 B</p> 	<p>09 62 810 2301</p>	 <p>Panel cut out</p>
<p>Han® EMC/B, Bulkhead mounted housing, Han-Easy Lock®, Size 16 B</p> 	<p>09 62 816 2301</p>	 <p>Panel cut out</p>
<p>Han® EMC/B, Bulkhead mounted housing, Han-Easy Lock®, Size 24 B</p> 	<p>09 62 824 2301</p>	 <p>Panel cut out</p>

Hoods/Housings for higher EMC requirements  
Double locking lever (on the hood)

Han

Identification	Part number Low construction	Drawing (dimensions in mm)
<p>Han® EMC/B, Bulkhead mounted housing, Size 16 B</p> 	<p>09 62 816 2303</p>	 <p>Panel cut out</p>
<p>Han® EMC/B, Bulkhead mounted housing, Size 24 B</p> 	<p>09 62 824 2306</p>	 <p>Panel cut out</p>

Hoods/housings for harsh outdoor environments  
Screw locking

Han

## Technical characteristics

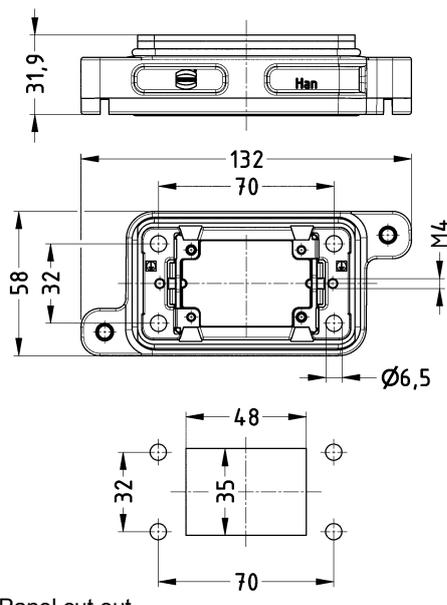
Limiting temperature	-40 ... +125 °C
Tightening torque (screw locking)	4 Nm
Degree of protection acc. to IEC 60529	IP65, IP68, IP69 / IPX9K acc. to ISO 20653
Type rating acc. to UL 50 / UL 50E	4, 4X, 12
Material (hood/housing)	Aluminium die-cast, Corrosion resistant
Surface (hood/housing)	Powder-coated

## Technical characteristics

Colour (hood/housing)	RAL 9005 (jet black)
Material (seal)	NBR

## Specifications and approvals

UL 1977 ECBT2.E235076  
CSA-C22.2 No. 182.3 ECBT8.E235076  
DNV GL

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR, Bulkhead mounted housing, Rear mounting, Size 6 B, Pack contents: Mounting frame is included within the delivery</p> 	<p>09 40 006 0391</p>	 <p>Panel cut out</p>

Han

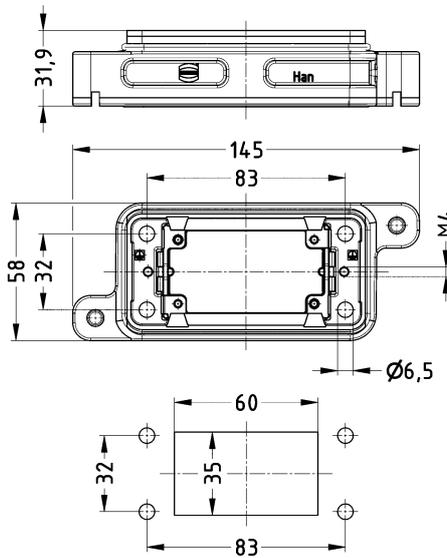
Identification

Part number

Drawing  
(dimensions in mm)

Han® HPR,  
Bulkhead mounted housing,  
Rear mounting,  
Size 10 B,  
Pack contents:  
Mounting frame is included within the delivery

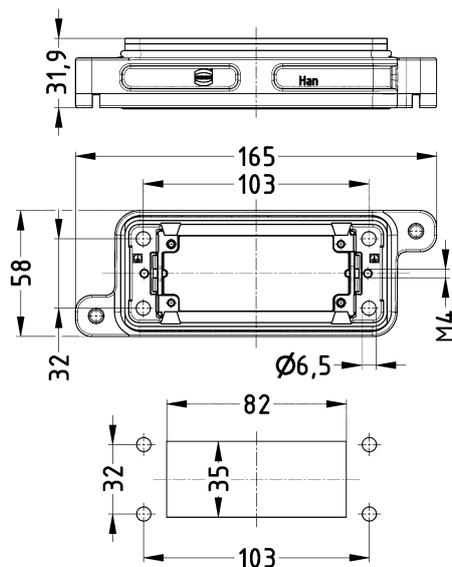
09 40 010 0391



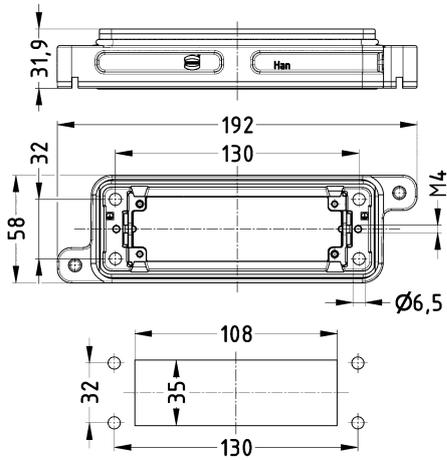
Panel cut out

Han® HPR,  
Bulkhead mounted housing,  
Rear mounting,  
Size 16 B,  
Pack contents:  
Mounting frame is included within the delivery

09 40 016 0391



Panel cut out

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR, Bulkhead mounted housing, Rear mounting, Size 24 B, Pack contents: Mounting frame is included within the delivery</p> 	<p>09 40 024 0391</p>	 <p>Panel cut out</p>

Han

Hoods/housings for harsh outdoor environments  
Screw locking

Han

## Features

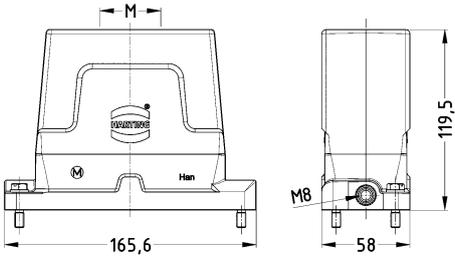
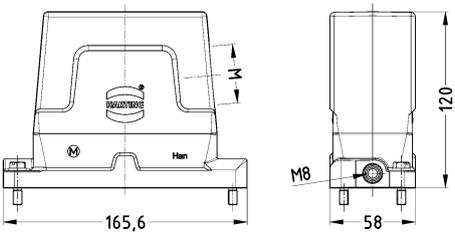
- Option of connecting a cable for a functional earth externally
- Large space for cables
- Excellent EMC characteristics

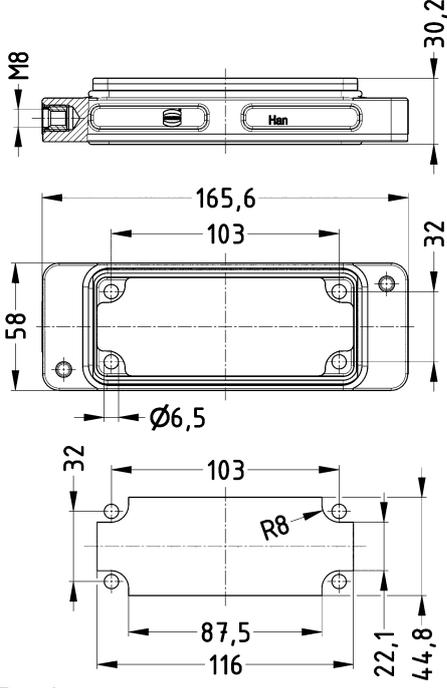
## Technical characteristics

Limiting temperature	-40 ... +125 °C
Tightening torque (screw locking)	4 Nm
Degree of protection acc. to IEC 60529	IP66, IP68, IP69 / IPX9K acc. to ISO 20653
Type rating acc. to UL 50 / UL 50E	4, 4X, 12
Material (hood/housing)	Aluminium die-cast, Corrosion resistant
Surface (hood/housing)	Powder-coated
Colour (hood/housing)	RAL 9005 (jet black)
Material (seal)	NBR
Material (locking)	Stainless steel

## Specifications and approvals

UL 1977 ECBT2.E235076  
CSA-C22.2 No. 182.3 ECBT8.E235076  
DNV GL

Identification	Cable entry	Part number	Drawing (dimensions in mm)
<p>Han® HPR, Hood, Enlarged, with functional earth, Top entry</p> 	<p>1x M32 1x M40</p>	<p>19 40 016 0442 19 40 016 0443</p>	
<p>Han® HPR, Hood, Enlarged, with functional earth, Side entry</p> 	<p>1x M32 1x M40</p>	<p>19 40 016 0552 19 40 016 0553</p>	

Identification	Cable entry	Part number	Drawing (dimensions in mm)
<p>Han® HPR, Bulkhead mounted housing, Enlarged, with functional earth</p> 		<p>09 40 016 0371</p>	 <p>Panel cut out</p>

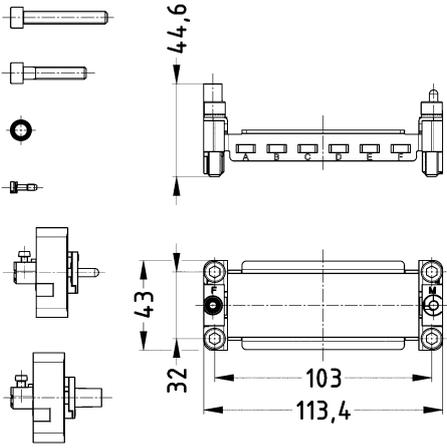
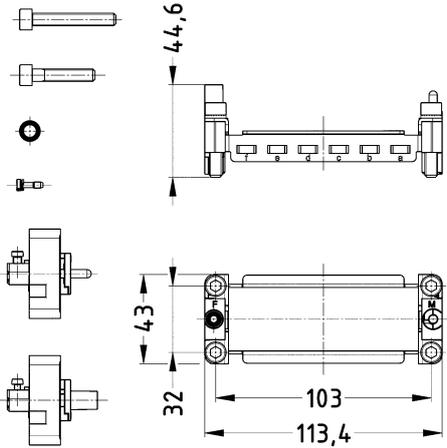
Han

## Features

- Hinged frames with additional PE connection for 6 Han-Modular® single modules
- Two leading PE contacts
- Compatible to the hinged frame Han® HPR EasyCon

## Technical characteristics

Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (accessories)	Zinc die-cast, Stainless steel

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	Drawing (dimensions in mm)
<p>Han® HPR enlarged, Frame, for up to 6 single modules, A ... F,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M3 screw,                      4x washer SK S6,                      4x cheese-head screw M6 x 30,                      4x cheese-head screw M6 x 40</p> 	4 ... 10 PE terminal power side, 1 ... 2.5 PE terminal signal side	09 11 016 9933	
<p>Han® HPR enlarged, Frame, for up to 6 single modules, a ... f,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M3 screw,                      4x washer SK S6,                      4x cheese-head screw M6 x 30,                      4x cheese-head screw M6 x 40</p> 	4 ... 10 PE terminal power side, 1 ... 2.5 PE terminal signal side	09 11 016 9934	

Hoods/housings for harsh outdoor environments  
Screw locking

Han

## Features

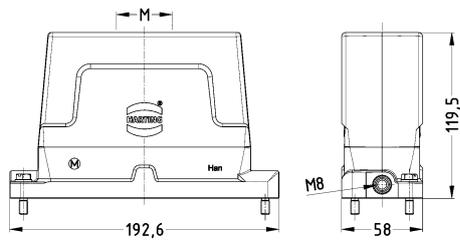
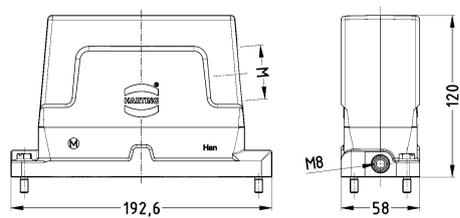
- Option of connecting a cable for a functional earth externally
- Large space for cables
- Excellent EMC characteristics

## Technical characteristics

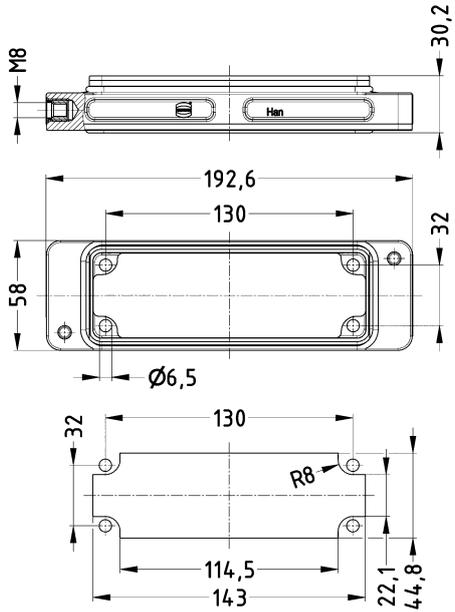
Limiting temperature	-40 ... +125 °C
Tightening torque (screw locking)	4 Nm
Degree of protection acc. to IEC 60529	IP66, IP68, IP69 / IPX9K acc. to ISO 20653
Type rating acc. to UL 50 / UL 50E	4, 4X, 12
Material (hood/housing)	Aluminium die-cast, Corrosion resistant
Surface (hood/housing)	Powder-coated
Colour (hood/housing)	RAL 9005 (jet black)
Material (seal)	NBR
Material (locking)	Stainless steel

## Specifications and approvals

UL 1977 ECBT2.E235076  
CSA-C22.2 No. 182.3 ECBT8.E235076  
DNV GL

Identification	Cable entry	Part number	Drawing (dimensions in mm)
Han® HPR, Hood, Enlarged, with functional earth, Top entry  	1x M32 1x M40	19 40 024 0442 19 40 024 0443	
Han® HPR, Hood, Enlarged, with functional earth, Side entry  	1x M32 1x M40	19 40 024 0552 19 40 024 0553	

Han

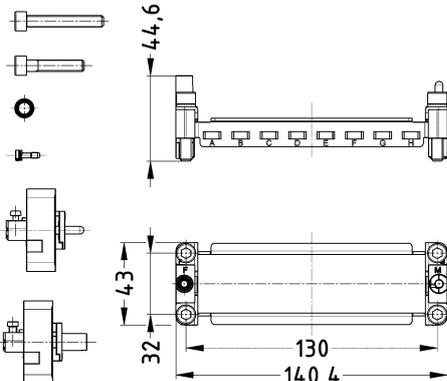
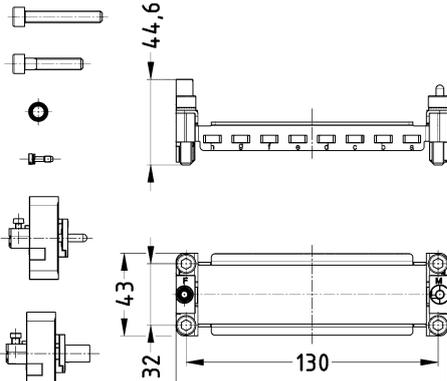
Identification	Cable entry	Part number	Drawing (dimensions in mm)
<p>Han® HPR, Bulkhead mounted housing, Enlarged, with functional earth</p> 		<p>09 40 024 0371</p>	 <p>Panel cut out</p>

## Features

- Hinged frames with additional PE connection for 8 Han-Modular® single modules
- Two leading PE contacts
- Compatible to the hinged frame Han® HPR EasyCon

## Technical characteristics

Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (accessories)	Zinc die-cast, Stainless steel

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	Drawing (dimensions in mm)
<p>Han® HPR enlarged, Frame, for up to 8 single modules, A ... H,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M3 screw,                      4x washer SK S6,                      4x cheese-head screw M6 x 30,                      4x cheese-head screw M6 x 40</p> 	4 ... 10 PE terminal power side, 1 ... 2.5 PE terminal signal side	09 11 024 9933	
<p>Han® HPR enlarged, Frame, for up to 8 single modules, a ... h,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M3 screw,                      4x washer SK S6,                      4x cheese-head screw M6 x 30,                      4x cheese-head screw M6 x 40</p> 	4 ... 10 PE terminal power side, 1 ... 2.5 PE terminal signal side	09 11 024 9934	

Han

### Features

- Guide pins and bushes for secure mating of hood and housing
- Can also be used for coding
- Are used in the hinged frame instead of M6 fixing screws

### Technical characteristics

Material (accessories)      Stainless steel

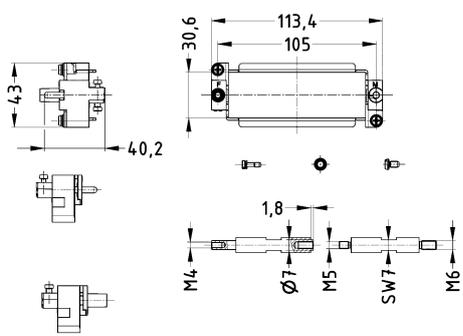
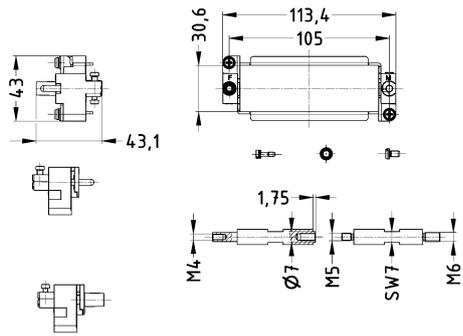
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Han® HPR enlarged, Guide pin, for bulkhead mounted housings	09 40 000 9811		
Han® HPR enlarged, Guide bush, for bulkhead mounted housings		09 40 000 9812	
Han® HPR enlarged, Guide pin, for hoods	09 40 000 9906		
Han® HPR enlarged, Guide bush, for hoods		09 40 000 9907	

## Features

- Hinged frames with additional PE connection for 6 Han-Modular® single modules
- Two leading PE contacts
- Compatible to the hinged frame Han® HPR enlarged

## Technical characteristics

Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (accessories)	Zinc die-cast, Stainless steel

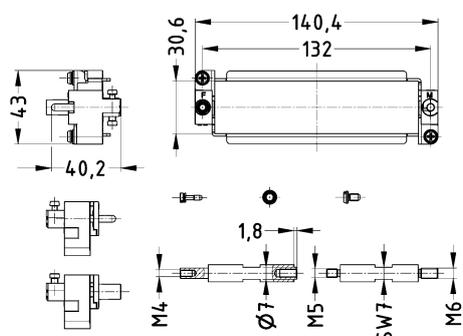
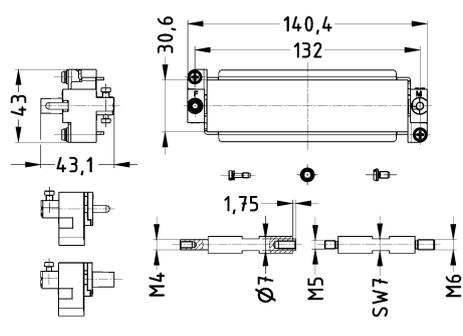
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	Drawing (dimensions in mm)
<p>Han® HPR EasyCon, Frame, for up to 6 single modules, A ... F,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M4/M5 distance bolts (A/F 7),                      2x M5/M6 distance bolts (A/F 7),                      2x M3 screw,                      2x M4 screw,                      2x washer SK S4</p> 	4 ... 10 PE terminal power side, 1 ... 2.5 PE terminal signal side	09 40 016 9933	
<p>Frame, for up to 6 single modules, a ... f,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M4/M5 distance bolts (A/F 7),                      2x M5/M6 distance bolts (A/F 7),                      2x M3 screw,                      2x M4 screw,                      2x washer SK S4</p> 	4 ... 10 PE terminal power side, 1 ... 2.5 PE terminal signal side	09 40 016 9934	

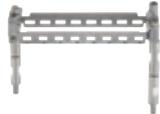
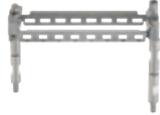
## Features

- Hinged frames with additional PE connection for 8 Han-Modular® single modules
- Two leading PE contacts
- Compatible to the hinged frame Han® HPR enlarged

## Technical characteristics

Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (accessories)	Zinc die-cast, Stainless steel

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	Drawing (dimensions in mm)
<p>Han® HPR EasyCon, Frame, for up to 8 single modules, A ... H,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M4/M5 distance bolts (A/F 7),                      2x M5/M6 distance bolts (A/F 7),                      2x M3 screw,                      2x M4 screw,                      2x washer SK S4</p> 	<p>4 ... 10 PE terminal power side,                      1 ... 2.5 PE terminal signal side</p>	09 40 024 9933	
<p>Han® HPR EasyCon, Frame, for up to 8 single modules, a ... h,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M4/M5 distance bolts (A/F 7),                      2x M5/M6 distance bolts (A/F 7),                      2x M3 screw,                      2x M4 screw,                      2x washer SK S4</p> 	<p>4 ... 10 PE terminal power side,                      1 ... 2.5 PE terminal signal side</p>	09 40 024 9934	

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number	Drawing (dimensions in mm)
<p>Han® HPR EasyCon, Frame, for up to 8 single modules, A ... H, Low construction,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M4/M5 distance bolts (A/F 7),                      2x M5/M6 distance bolts (A/F 7),                      2x M3 screw,                      2x M4 screw,                      2x washer SK S4</p> 	<p>4 ... 10 PE terminal power side,                      1 ... 2.5 PE terminal signal side</p>	<p>09 40 024 9935</p>	
<p><b>ATTENTION!</b> Only to be used with Han® 24 HPR EasyCon Short hoods and housings!</p> <p>Han® HPR EasyCon, Frame, for up to 8 single modules, a ... h, Low construction,</p> <p>Pack contents:                      1x male PE adapter,                      1x female PE adapter,                      2x M4/M5 distance bolts (A/F 7),                      2x M5/M6 distance bolts (A/F 7),                      2x M3 screw,                      2x M4 screw,                      2x washer SK S4</p> 	<p>4 ... 10 PE terminal power side,                      1 ... 2.5 PE terminal signal side</p>	<p>09 40 024 9936</p>	
<p><b>ATTENTION!</b> Only to be used with Han® 24 HPR EasyCon Short hoods and housings!</p>			

Han

## Contents

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Ha-VIS eCon 2000 Advanced 5 ports.....

**New 3.2**

Ha-VIS eCon 2000 Advanced 8 ports.....

**New 3.4**

Switch

## Features

- Unmanaged Plug & Play Gigabit Switch
- Robust and miniaturised Ethernet interface ix Industrial®
- Flat design for DIN rail or wall mounting
- Optimised for imaging processes and other data intensive applications
- Full Gigabit Ethernet Non Blocking switch architecture according to IEEE 802.3

## Technical characteristics

Series	Ha-VIS eCon 2000
Element	Industrial Ethernet Switches
Specification	Unmanaged
Total number of ports	5
Operating temperature	-40 ... +70 °C
Storage temperature	-40 ... +85 °C
Degree of protection acc. to IEC 60529	IP30, when mated
Nominal voltage	24 V DC, 48 V DC
Power consumption	3.1 W @ 24 V DC, 3.4 W @ 48 V DC
10/100/1000 Mbit/s (ix Industrial®-Ports)	5 x
Transmission standard	10BASE-Te, 100BASE-TX EEE, 1000BASE-T EEE
Auto-negotiation	Yes
Auto-polarity	Yes
Auto-MDI(X)	Yes
Transmission physics	Twisted Pair, Cat. 5
Data rate	10 Mbit/s, 100 Mbit/s, 1000 Mbit/s
Transmission length	100 m
Material (hood/housing)	Aluminium (anodised)

## Specifications and approvals

EN 61000-6-1 EMC Interference immunity  
 EN 61000-6-2 EMC Interference immunity  
 EN 55024 EMC Interference immunity  
 EN 61000-4-2 Electrostatic discharge (ESD)  
 EN 61000-4-3 Electromagnetic field  
 EN 61000-4-4 Rapid transients (burst)  
 EN 61000-4-6 conducted disturbances  
 EN 61000-6-4 emission standard  
 EN 55032 emission standard  
 FCC 47 FCR Part 15  
 IEC 60721-3-3 Mechanical stability (class 3M4)  
 IEC 60068-2-6 Vibration (sinusoidal)  
 IEC 60068-2-27 Shock  
 IEEE 802.3  
 IEC 61076-3-124 Type A  
 UL in preparation  
 DNV GL in preparation  
 E1 in preparation

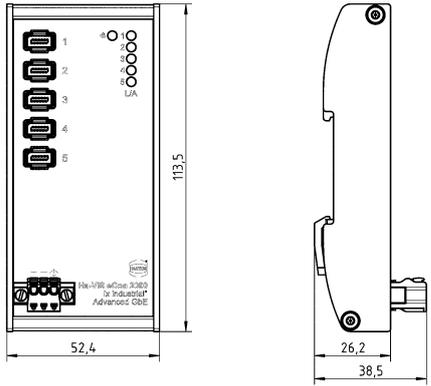
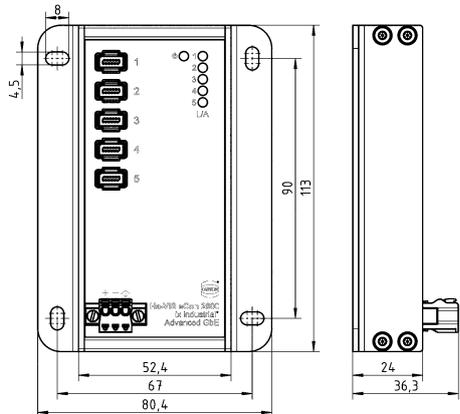
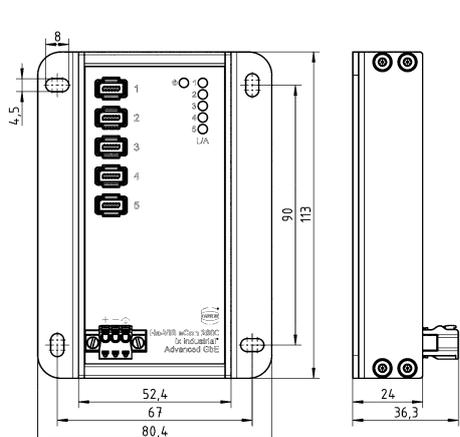


Total number of ports

# 5

Unmanaged Gigabit Switch

Switch

Identification	Part number	Drawing (dimensions in mm)
<p>Ha-VIS eCon 2050GX-I-A, 35 mm DIN rail acc. to EN 60715, Pack contents: Pluggable and screwable Push-In contact for power supply, Assembly instructions</p> 	<p>24 14 405 0000</p>	
<p>Ha-VIS eCon 2050GX-I-AW, Flat wall mounting, Pack contents: Pluggable and screwable Push-In contact for power supply, Assembly instructions</p> 	<p>24 14 405 0001</p>	
<p>Ha-VIS eCon 2050GX-I-AWT, Flat wall mounting, Pack contents: Pluggable and screwable Push-In contact for power supply, Assembly instructions</p> <p>with coated PCB</p> 	<p>24 14 405 0002</p>	

## Features

- Unmanaged Plug & Play Gigabit Switch
- Robust and miniaturised Ethernet interface ix Industrial®
- Flat design for DIN rail or wall mounting
- Optimised for imaging processes and other data intensive applications
- Full Gigabit Ethernet Non Blocking switch architecture according to IEEE 802.3

## Technical characteristics

Series	Ha-VIS eCon 2000
Element	Industrial Ethernet Switches
Specification	Unmanaged
Total number of ports	8
Operating temperature	-40 ... +70 °C
Storage temperature	-40 ... +85 °C
Degree of protection acc. to IEC 60529	IP30, when mated
Nominal voltage	24 V DC, 48 V DC
Power consumption	4.6 W @ 24 V DC, 4.8 W @ 48 V DC
10/100/1000 Mbit/s (ix Industrial®-Ports)	8 x
Transmission standard	10BASE-Te, 100BASE-TX EEE, 1000BASE-T EEE
Auto-negotiation	Yes
Auto-polarity	Yes
Auto-MDI(X)	Yes
Transmission physics	Twisted Pair, Cat. 5
Data rate	10 Mbit/s, 100 Mbit/s, 1000 Mbit/s
Transmission length	100 m
Material (hood/housing)	Aluminium (anodised)

## Specifications and approvals

EN 61000-6-1 EMC Interference immunity  
 EN 61000-6-2 EMC Interference immunity  
 EN 55024 EMC Interference immunity  
 EN 61000-4-2 Electrostatic discharge (ESD)  
 EN 61000-4-3 Electromagnetic field  
 EN 61000-4-4 Rapid transients (burst)  
 EN 61000-4-6 conducted disturbances  
 EN 61000-6-4 emission standard  
 EN 55032 emission standard  
 FCC 47 FCR Part 15  
 IEC 60721-3-3 Mechanical stability (class 3M4)  
 IEC 60068-2-6 Vibration (sinusoidal)  
 IEC 60068-2-27 Shock  
 IEEE 802.3  
 IEC 61076-3-124 Type A  
 UL in preparation  
 DNV GL in preparation  
 E1 in preparation



# Ha-VIS eCon 2000 Advanced 8 ports



Total number of ports

# 8

Unmanaged Gigabit Switch

Switch

Identification	Part number	Drawing (dimensions in mm)
<p>Ha-VIS eCon 2080GX-I-A, 35 mm DIN rail acc. to EN 60715, Pack contents: Pluggable and screwable Push-In contact for power supply, Assembly instructions</p> 	<p>24 14 408 0000</p>	
<p>Ha-VIS eCon 2080GX-I-AW, Flat wall mounting, Pack contents: Pluggable and screwable Push-In contact for power supply, Assembly instructions</p> 	<p>24 14 408 0001</p>	
<p>Ha-VIS eCon 2080GX-I-AWT, Flat wall mounting, Pack contents: Pluggable and screwable Push-In contact for power supply, Assembly instructions</p> <p>with coated PCB</p> 	<p>24 14 408 0002</p>	

New  
3 - 5

Contents

Page

DIN 41612 .....

**New 5.2**

PCB

Number of contacts

**64**

Female connector  
Straight  
Press-in termination

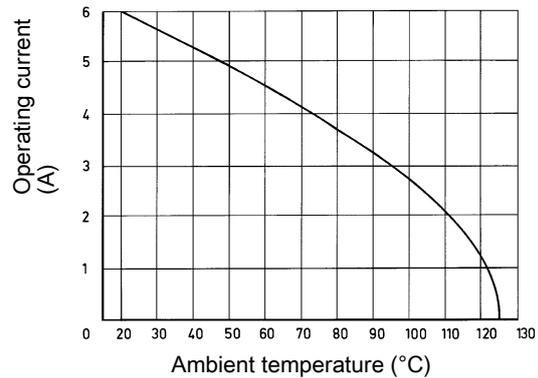


PCB

### Technical characteristics

Contact rows	4
Contact spacing (termination side)	5.08 mm
Contact spacing (mating side)	5.08 mm
Clearance distance	≥1.6 mm
Creepage distance	≥3 mm
Rated current	6 A
Test voltage $U_{r.m.s.}$	1.55 kV (contact-contact), 2.5 kV (contact-ground)
Insulation resistance	>10 <sup>12</sup> Ω
Limiting temperature	-40 ... +105 °C upper limiting temperature limited by the pcb
PCB thickness	≥1.6 mm
Railway classification	F4/I3, acc. to NFF 16-101/102
Material (insert)	Thermoplastic resin, glass-fibre filled
Isolation group	IIIa (175 ≤ CTI < 400)
Colour (insert)	Grey
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal, Mating side, Nickel plated, Termination side
Material flammability class acc. to UL 94	V-0
RoHS	compliant

### Derating



### Specifications and approvals

IEC 60603-2

Identification	Termination length	Part number	Drawing (dimensions in mm)
DIN 41612, Type G, low profile, Female connector, Press-in termination, Straight, Performance level 1	4.5 mm	09 06 264 2832	<p>PCB layout</p>
DIN 41612, Type G, low profile, Female connector, Press-in termination, Straight, Performance level 2	4.5 mm	09 06 264 6832	

**New**  
**5**  
**·**  
**2**

Number of contacts

# 64

Female connector  
Straight  
Wave soldering termination

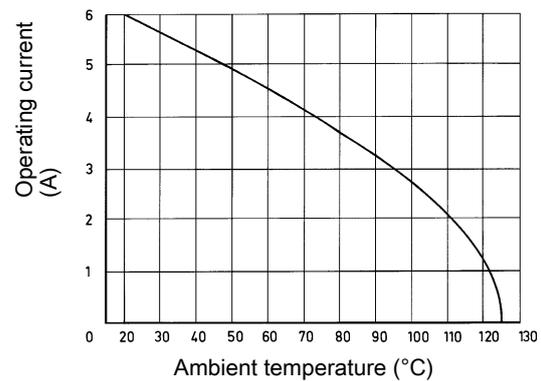


PCB

## Technical characteristics

Contact rows	4
Contact spacing (termination side)	5.08 mm
Contact spacing (mating side)	5.08 mm
Clearance distance	≥1.6 mm
Creepage distance	≥3 mm
Rated current	6 A
Test voltage $U_{r.m.s.}$	1.55 kV (contact-contact), 2.5 kV (contact-ground)
Insulation resistance	>10 <sup>12</sup> Ω
Limiting temperature	-55 ... +125 °C
Railway classification	F4/I3, acc. to NFF 16-101/102
Material (insert)	Thermoplastic resin, glass-fibre filled
Isolation group	IIIa (175 ≤ CTI < 400)
Colour (insert)	Grey
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal, Mating side, Sn over Ni, Termination side
Material flammability class acc. to UL 94	V-0

## Derating



## Specifications and approvals

IEC 60603-2

Identification	Termination length	Part number	Drawing (dimensions in mm)
DIN 41612, Type G, low profile, Female connector, Wave soldering termination, Straight, Performance level 1	3.7 mm 4.5 mm	09 06 264 2833 09 06 264 2834	<p><b>Drawing (dimensions in mm)</b></p> <p><b>PCB layout</b></p>
DIN 41612, Type G, low profile, Female connector, Wave soldering termination, Straight, Performance level 2	3.7 mm 4.5 mm	09 06 264 6833 09 06 264 6834	

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HARTING T1 Industrial General information .....	<b>New 6.2</b>
HARTING T1 Industrial.....	<b>New 6.3</b>
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Han® PushPull RJ45 metal.....	<b>New 6.27</b>
HARTING RJ Industrial® .....	<b>New 6.31</b>

## New products for Single Pair Ethernet (SPE)

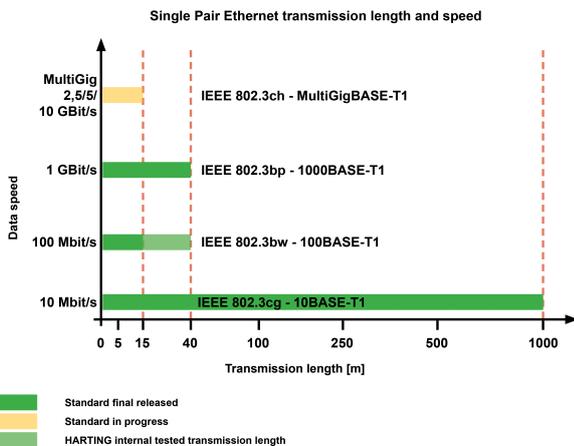
### Single Pair Ethernet – the new transmission technology using only one wire pair

#### Introduction

#### The current IEEE standards

New TCP/IP-based transmission methods that use only one copper pair will replace old bus systems and analogue interfaces like the 20 mA current loop. They should also seamlessly connect sensor/actuator networks to Ethernet-based automation networks (such as PROFINET).

IEEE 802.3 is developing various transmission standards for this purpose. These include, firstly, the 100BASE-T1 in IEEE 802.3bw for 100 Mbit/s transmissions as well as the IEEE 802.3bp 1000BASE-T1 Gigabit version. It also defines a standard for remote power supply called Power over Data Line (PoDL) (IEEE 802.3bu). The combination of data and power using very small connectors and single pair cables enables miniaturisation, higher data rates and modularisation for simple as well as complex systems. IEEE is currently working on a further standard for even higher data rates up to 10 Gbit/s (IEEE 802.3ch), which are required for high-resolution sensors and video transmissions. A standard for only 10 Mbit/s (IEEE 802.3cg) is also released. This standard is highly relevant for many industries, since it enables transmission distances of up to 1,000 metres.



#### Overview of the relevant SPE/T1 standards for industry (status 3/2020)

Data transmission speed	Bandwidth	Protocol acc. to	Status	Cabling acc. to	Link length	Note
10 Mbit/s	20 MHz	IEEE802.3cg	available	10BASE-T1	1000 m	shielded
100 Mbit/s	200 MHz	IEEE802.3bw	available	100BASE-T1	40 m	shielded
1 Gbit/s	600 MHz	IEEE802.3bp	available	1000BASE-T1	40 m	shielded
additional remote power supply		IEEE802.3bu	available			

#### Standards are essential – even for interfaces

The successful and large-scale implementation of SPE requires the consistent compatibility of devices, cables and connectors. Standardised and harmonised interfaces are the key for all manufacturers so that they can jointly develop an SPE product ecosystem consisting of sensors, actuators, controllers and connection technology. Users can then create suitable automation solutions with these components and be sure of their investment.

The mating face is described as a standard under IEC 63171-6. It is specially designed for use in environmental conditions up to M<sub>3</sub>L<sub>3</sub>C<sub>3</sub>E<sub>3</sub>.

The various transmission speeds (bit rates) and ranges for SPE and the requirements up to M<sub>3</sub>L<sub>3</sub>C<sub>3</sub>E<sub>3</sub> result in an extensive product range for SPE connectors, which HARTING will cover as follows:

- IP20 products for use in protected zones, in control cabinets or within devices with:
  - PCB sockets – horizontal and vertical/straight and angled
  - Cable plugs – initially with crimp contacts, later also as IDC version
  - Preassembled cords, also available in over-moulded version
- IP65/67 products for use in industrial environments
  - Same/similar PCB sockets as IP20, but with M8 or M12 housing with threaded and PushPull locking added
  - Matching M8 or M12 cable sockets
  - Preassembled cords, also available in over-moulded version
- IP65/67 SnapIn variants
  - Sockets, plugs and cords with flexible plastic protective housings provide very compact space-saving solutions for devices and distributors

All HARTING T1 Industrial connectors are based on the same SPE data container, in the form of a contact carrier with shield plate. This delivers consistent stability and high performance, identical assembly sequences and plug-in compatibility between the different HARTING T1 Industrial IPxx variants. For example, the user can plug SPE IP20 cords onto T1 M8 or M12 sockets for measuring and testing purposes.

A complete SPE cable portfolio is being prepared so that complete cabling based on SPE and HARTING T1 Industrial can also be implemented. Corresponding standards are also being worked on for the cables which describe the basic structure and the assured performance:

Data transmission speed	Bandwidth	Cable standard	Laying procedure	Core structure	Typical cores	Note
1 Gbit/s	600 MHz	IEC 61156-11	unmoved	solid wire	AWG23/1 and 22/1	shielded
1 Gbit/s	600 MHz	IEC 61156-12	moved	stranded wire	AWG26/7	shielded
10 Mbit/s	20 MHz	IEC 61156-13	unmoved	solid wire	AWG18...16	shielded
10 Mbit/s	20 MHz	IEC 61156-14	moved	stranded wire	AWG22...26	shielded

Notice: According to IEC 61156-1x, the SPE cables are modified accordingly for use in different MICE environments and for special applications. Cables suitable for drag chains, torsion cables, outdoor cables and SPE cables can thus be used in railway applications.

The HARTING T1 Industrial cabling components shown here are the basis portfolio. They enable the SPE/T1 interfaces to be integrated onto devices and the power supply connection for these devices. HARTING's T1 Industrial portfolio will be successively expanded. Thanks to its forward-looking design, it can also be expanded for applications in the direction of 10 Gbit/s.

Number of contacts

# 2

+ shielding



Inter-  
face

## Features

- Internationally standardised mating face acc. to IEC 63171-6
- For the construction of future-proof and standardised Single Pair Ethernet (SPE) communication networks with standardised cabling according to ISO / IEC 11801 and TIA 42
- Designed for industrial applications up to M<sub>3</sub>L<sub>3</sub>C<sub>3</sub>E<sub>3</sub> environmental conditions
- Meets all IEEE 802.3 requirements for SPE
- Robust industrial design with 360° shielding, locking lever protection and high mating cycles
- Suitable for remote power supply for all Power over Data Line (PoDL) classes

## Technical characteristics

Number of contacts	2
Additional contacts	+ shielding
Rated current	4 A
Rated voltage	60 V DC
Test voltage U <sub>DC</sub>	1 kV (contact-contact), 2.25 kV (contact-ground)
Contact resistance	≤20 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +85 °C
Mating cycles	≥1000
Degree of protection acc. to IEC 60529	IP20
Transmission characteristics	600 MHz, Bandwidth
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s
Moisture Sensitivity Level (MSL)	1, acc. to ECA/IPC/JEDEC J-STD-020D
Process Sensitivity Level (PSL)	R0, acc. to ECA/IPC/JEDEC J-STD-020D
RoHS	compliant

## Specifications and approvals

IEC 63171-6  
 IEEE 802.3bu (remote power supply over PoDL = Power over Data Line)  
 IEEE 802.3cg (10BASE-T1)  
 IEEE 802.3bw (100BASE-T1)  
 IEEE 802.3bp (1000BASE-T1)

## Details

Unmating under electrical load with 1.5 A / 60 V. 50 cycles for each polarity.

UL approval in preparation

**Cable assemblies** see chapter 8



Number of contacts

# 2

+ shielding



## Features

- Internationally standardised mating face acc. to IEC 63171-6
- For the construction of future-proof and standardised Single Pair Ethernet (SPE) communication networks with standardised cabling according to ISO / IEC 11801 and TIA 42
- Designed for industrial applications up to M<sub>3</sub>L<sub>3</sub>C<sub>3</sub>E<sub>3</sub> environmental conditions
- Meets all IEEE 802.3 requirements for SPE
- Robust industrial design with 360° shielding, locking lever protection and high mating cycles
- Suitable for remote power supply for all Power over Data Line (PoDL) classes

## Technical characteristics

Number of contacts	2
Additional contacts	+ shielding
Rated current	4 A
Rated voltage	60 V DC
Test voltage U <sub>DC</sub>	1 kV (contact-contact), 2.25 kV (contact-ground)
Contact resistance	≤20 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +85 °C
Mating cycles	≥1000
Conductor cross-section	0.08 ... 0.32 mm <sup>2</sup> Stranded, 0.08 ... 0.12 mm <sup>2</sup> , 0.22 ... 0.32 mm <sup>2</sup>
Conductor cross-section	AWG 28/7 ... AWG 22/7 Stranded, AWG 28 ... AWG 26, AWG 24 ... AWG 22
Wire outer diameter	≤1.55 mm
Degree of protection acc. to IEC 60529	IP20
Cable diameter	4.5 ... 6 mm
Transmission characteristics	600 MHz, Bandwidth
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s
RoHS	compliant

## Specifications and approvals

IEC 63171-6  
 IEEE 802.3bu (remote power supply over PoDL = Power over Data Line)  
 IEEE 802.3cg (10BASE-T1)  
 IEEE 802.3bw (100BASE-T1)  
 IEEE 802.3bp (1000BASE-T1)

## Details

Unmating under electrical load with 1.5 A / 60 V. 50 cycles for each polarity.

UL approval in preparation

**Cable assemblies** see chapter 8

Identification

HARTING T1 Industrial,  
 Cable connector,  
 Crimp termination,  
 Fully shielded, 360° shielding contact,  
 AWG 28/7 ... AWG 22/7,  
 Pack contents:  
 Packaging with 100 pieces

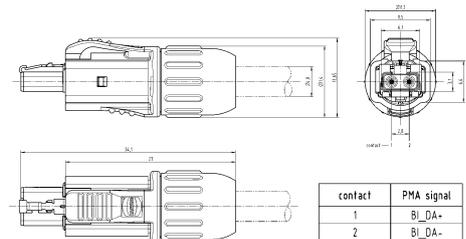
Please order crimp contacts separately.



Part number

09 45 181 2800 XL

Drawing  
 (dimensions in mm)



Identification	Part number	Drawing (dimensions in mm)
Crimp contact, Turned contacts, AWG 28 ... AWG 26, Pack contents: 500 pieces on a reel	09 45 500 2800	
Crimp contact, Turned contacts, AWG 24 ... AWG 22, Pack contents: 500 pieces on a reel	09 45 500 2802	
Crimping tool, for HARTING T1 Industrial contacts (AWG 28 ... AWG 26)	09 45 800 2800	
Crimping tool, for HARTING T1 Industrial contacts (AWG 24 ... AWG 22)	09 45 800 2801	

Inter-  
face

Number of contacts

8

+ 2x GND



## Features

- Miniaturised Ethernet data interface suitable for industry in acc. to IEC 61076-3-124 type A
- Robust industrial design
- 360° shielding
- Category of transmission Cat. 6<sub>A</sub>
- 5000 mating cycles
- 70 % reduced size compared to RJ45
- Suitable for all PoE versions

## Technical characteristics

Number of contacts	8
Additional contacts	+ 2x GND
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	≤30 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +85 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥5000
Degree of protection acc. to IEC 60529	IP20
Transmission characteristics	Cat. 6 <sub>A</sub> , Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Insertion force	≤25 N
Withdrawal force	≤25 N
Material (insert)	Liquid crystal polymer (LCP)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Ni
Material flammability class acc. to UL 94	V-0
RoHS	compliant

## Specifications and approvals

IEC 61076-3-124  
 UL 1977 ECBT2.E102079  
 CSA-C22.2 No. 182.3 ECBT8.E102079







Number of contacts

10

Inter-  
face

## Features

- Miniaturised interface for signals and bus systems in acc. to IEC 61076-3-124 type B, suitable for industrial use
- Robust industrial design
- 360° shielding
- 5000 mating cycles
- Very small and space saving interface

## Technical characteristics

Number of contacts	10
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	$\leq 30 \text{ m}\Omega$
Shielding resistance	$\leq 100 \text{ m}\Omega$
Limiting temperature	-40 ... +85 °C
Storage temperature	-30 ... +60 °C
Mating cycles	$\geq 5000$
Degree of protection acc. to IEC 60529	IP20
Transmission characteristics	Cat. 6A, Class E <sub>A</sub> up to 500 MHz
Insertion force	$\leq 25 \text{ N}$
Withdrawal force	$\leq 25 \text{ N}$
Material (insert)	Liquid crystal polymer (LCP)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Ni
Material flammability class acc. to UL 94	V-0
RoHS	compliant

## Specifications and approvals

IEC 61076-3-124  
 UL 1977 ECBT2.E102079  
 CSA-C22.2 No. 182.3 ECBT8.E102079



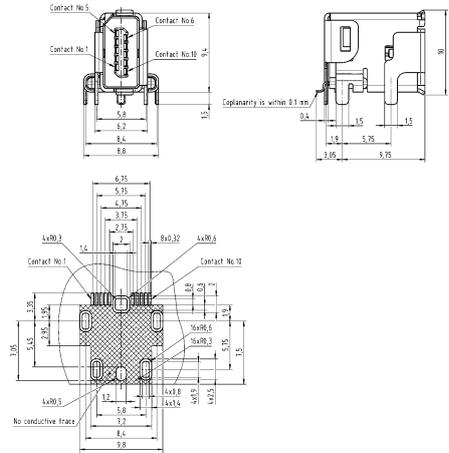
Identification

Part number

Drawing  
(dimensions in mm)

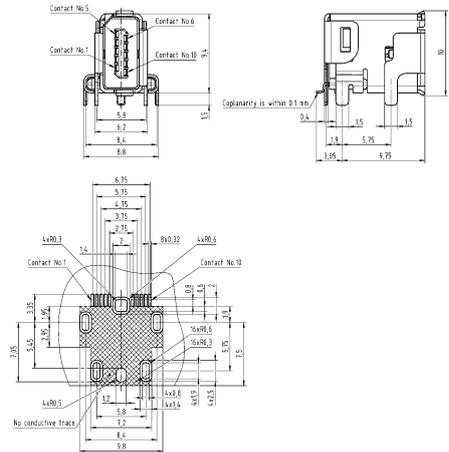
HARTING ix Industrial®,  
Signal,  
PCB connector,  
Angled,  
Solder termination,  
Fully shielded, 360° shielding contact,  
Pack contents:  
Sample

09 45 281 9000 333



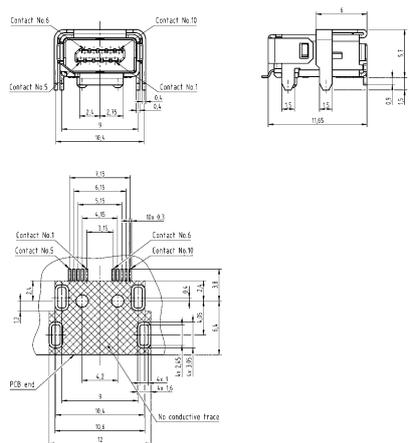
HARTING ix Industrial®,  
Signal,  
PCB connector,  
Angled,  
Solder termination,  
Fully shielded, 360° shielding contact,  
Pack contents:  
400 pieces on reel

09 45 281 9000



HARTING ix Industrial®,  
Signal,  
PCB connector,  
Horizontal,  
Solder termination,  
Fully shielded, 360° shielding contact,  
Pack contents:  
Sample

09 45 281 9001 333



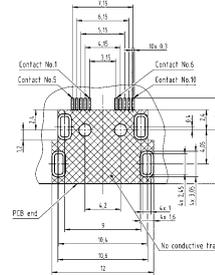
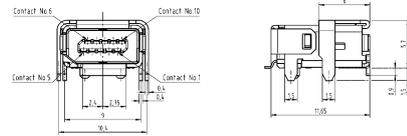
Identification

Part number

Drawing  
(dimensions in mm)

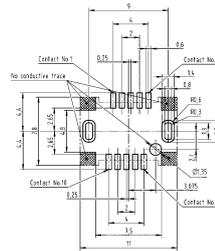
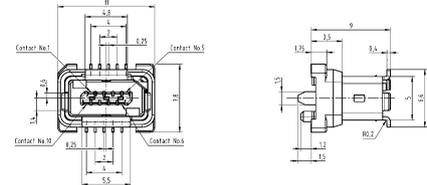
HARTING ix Industrial®,  
Signal,  
PCB connector,  
Horizontal,  
Solder termination,  
Fully shielded, 360° shielding contact,  
Pack contents:  
550 pieces on reel

09 45 281 9001



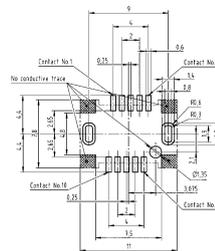
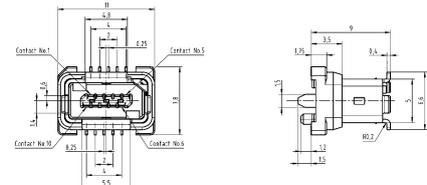
HARTING ix Industrial®,  
Signal,  
PCB connector,  
Vertical,  
Solder termination,  
Fully shielded, 360° shielding contact,  
Pack contents:  
Sample

09 45 281 9002 333



HARTING ix Industrial®,  
Signal,  
PCB connector,  
Vertical,  
Solder termination,  
Fully shielded, 360° shielding contact,  
Pack contents:  
450 pieces on reel

09 45 281 9002



Number of contacts

8

+ 2x GND



## Features

- Miniaturised Ethernet data interface suitable for industry in acc. to IEC 61076-3-124 type A
- Robust industrial design
- 360° shielding
- Category of transmission Cat. 6<sub>A</sub>
- 5000 mating cycles
- Suitable for all PoE versions

## Technical characteristics

Number of contacts	8
Additional contacts	+ 2x GND
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	≤30 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +85 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥5000
Conductor cross-section	AWG 28/7 ... AWG 22/7, AWG 28/7 ... AWG 26/7, AWG 24/7
Wire outer diameter	≤1.55 mm, 0.95 ... 1.05 mm, 1.1 ... 1.25 mm
Degree of protection acc. to IEC 60529	IP20
Retention force	≥80 N locking
Cable diameter	5.5 ... 7.2 mm
Transmission characteristics	Cat. 6 <sub>A</sub> , Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Insertion force	≤25 N
Withdrawal force	≤25 N
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Ni
Material flammability class acc. to UL 94	V-0
RoHS	compliant

## Specifications and approvals

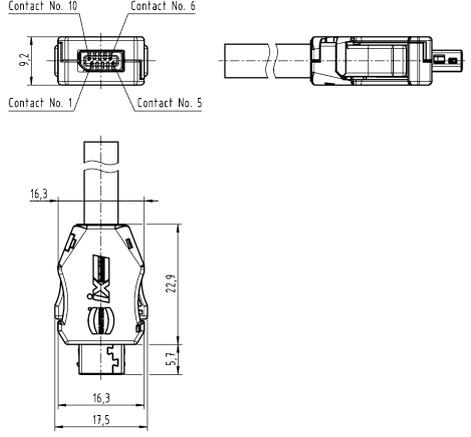
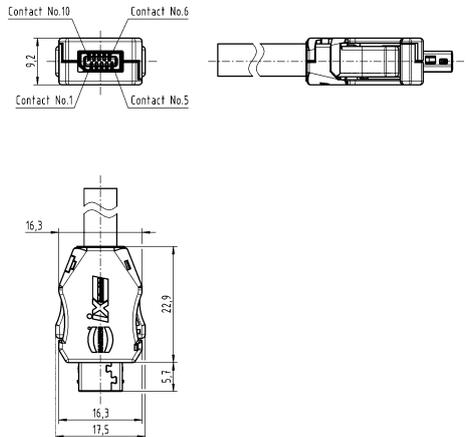
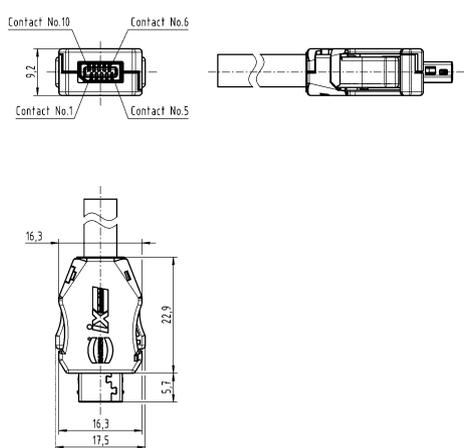
IEC 61076-3-124  
UL 1977 ECBT2.E102079  
CSA-C22.2 No. 182.3 ECBT8.E102079



## Details

Cable assemblies see chapter 8

Interface

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING ix Industrial®, Data, Cable connector, Solder termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 22/7 and conductor diameters up to 1.55 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2560 XL</p>	
<p>HARTING ix Industrial®, Data, Cable connector, IDC termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 26/7 and conductor diameters from 0.95 - 1.05 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2561 XL</p>	
<p>HARTING ix Industrial®, Data, Cable connector, IDC termination, Fully shielded, 360° shielding contact, for AWG 24 and conductor diameters from 1.1 - 1.25 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2562 XL</p>	

Number of contacts

10



## Features

- Miniaturised interface for signals and bus systems in acc. to IEC 61076-3-124 type B, suitable for industrial use
- Robust industrial design
- 360° shielding
- 5000 mating cycles
- Very small and space saving interface

## Technical characteristics

Number of contacts	10
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	$\leq 30 \text{ m}\Omega$
Shielding resistance	$\leq 100 \text{ m}\Omega$
Limiting temperature	-40 ... +85 °C
Storage temperature	-30 ... +60 °C
Mating cycles	$\geq 5000$
Conductor cross-section	AWG 28/7 ... AWG 22/7, AWG 28/7 ... AWG 26/7, AWG 24/7
Wire outer diameter	$\leq 1.55 \text{ mm}$ , 0.95 ... 1.05 mm, 1.1 ... 1.25 mm
Degree of protection acc. to IEC 60529	IP20
Retention force	$\geq 80 \text{ N}$ locking
Cable diameter	5.5 ... 7.2 mm
Insertion force	$\leq 25 \text{ N}$
Withdrawal force	$\leq 25 \text{ N}$
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Ni
Material flammability class acc. to UL 94	V-0
RoHS	compliant

## Specifications and approvals

IEC 61076-3-124  
UL 1977 ECBT2.E102079  
CSA-C22.2 No. 182.3 ECBT8.E102079

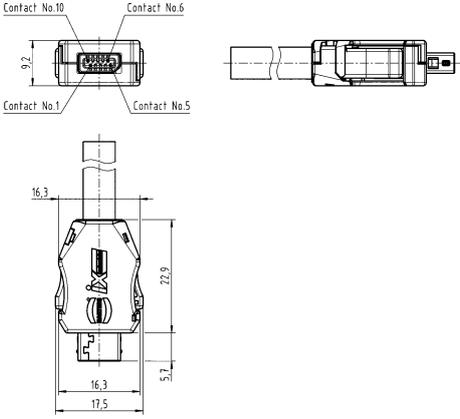
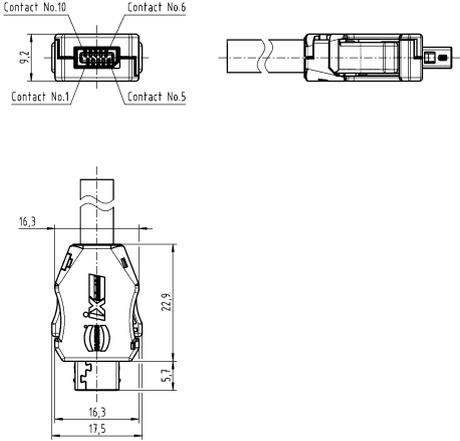
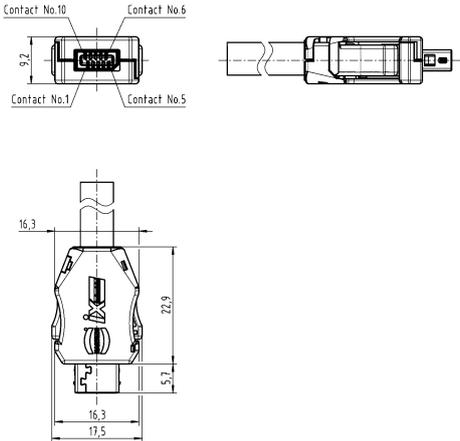


## Details

**Cable assemblies** see chapter 8



Inter-  
face

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING ix Industrial®, Signal, Cable connector, Solder termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 22/7 and conductor diameters up to 1.55 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9000 XL</p>	
<p>HARTING ix Industrial®, Signal, Cable connector, IDC termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 26/7 and conductor diameters from 0.95 - 1.05 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9001 XL</p>	
<p>HARTING ix Industrial®, Signal, Cable connector, IDC termination, Fully shielded, 360° shielding contact, for AWG 24 and conductor diameters from 1.1 - 1.25 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9002 XL</p>	



Identification

Part number

Assembly tool,  
for HARTING ix Industrial® to assemble the single wire to the IDC  
and the cable strain relief crimping

09 45 800 0181



Removal tool,  
for HARTING ix Industrial® as pull-out aid for close-fitting ix  
Industrial® connectors

09 45 800 0182





Inter-  
face

## Features

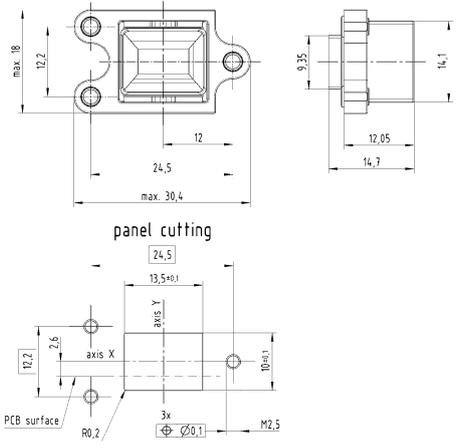
- PushPull housing (bulkhead mounting) with HARTING PushPull technology
- Small, space-saving PushPull interfaces in IP65 / IP67
- High packing density (spacing 25 x 18 mm)

## Technical characteristics

Limiting temperature	-40 ... +70 °C
Mating cycles	≥750
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Material (hood/housing)	Polybutylene terephthalate (PBT)
Colour (hood/housing)	Black
Material (seal)	PTS
Colour (seal)	Yellow
Material flammability class acc. to UL 94	V-0

## Details

Can be combined with HARTING ix Industrial® jacks, angled, horizontal, vertical, types A and B

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING Mini PushPull, Bulkhead mounted housing, Without board locks, <b>Available as from Q3/2020</b></p> 	<p>09 51 521 0001</p>	 <p>max. 18</p> <p>12,2</p> <p>12</p> <p>24,5</p> <p>max. 30,4</p> <p>9,35</p> <p>14,1</p> <p>12,05</p> <p>14,7</p> <p>panel cutting</p> <p>24,5</p> <p>13,5±0,1</p> <p>axis Y</p> <p>axis X</p> <p>2,6</p> <p>12,2</p> <p>PCB surface</p> <p>R0,2</p> <p>3x</p> <p>∅0,1</p> <p>M2,5</p>

Number of contacts

# 8

+ 2x GND



## Features

- Small, space-saving PushPull interfaces in IP65 / IP67
- Easy handling of ix Industrial patch cords in switch cabinets or sets
- Miniaturised Ethernet data interface for industry in acc. to IEC 61076-3-124, type A

## Technical characteristics

Number of contacts	8
Additional contacts	+ 2x GND
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	≤30 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +70 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥750
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Transmission characteristics	Cat. 6A, Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Insertion force	≤25 N
Withdrawal force	≤25 N
Material (insert)	Liquid crystal polymer (LCP)
Colour (insert)	Black
Material (hood/housing)	Polybutylene terephthalate (PBT)
Colour (hood/housing)	Black
Material (seal)	PTS
Colour (seal)	Yellow
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

## Specifications and approvals

IEC 61076-3-124 Type A  
EN 50173-1

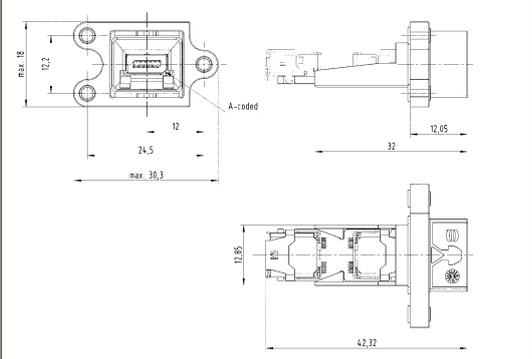




Identification	Part number	Drawing (dimensions in mm)
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HARTING Mini PushPull, ix Industrial®, Bulkhead mounted housing, Panel feed trough set, Fully shielded, 360° shielding contact, **Available as from Q3/2020**,  
 Pack contents:  
 incl. seal, 2x HARTING ix Industrial®-jack type A (Ethernet) and board drillings for M2.5

09 51 221 0001



Interface

Number of contacts

# 8

+ 2x GND



## Features

- Small, space-saving PushPull interfaces in IP65 / IP67
- Easy handling of ix Industrial patch cords in switch cabinets or sets
- Miniaturised interface for signals and bus systems, suitable for industrial use in acc. to IEC 61076-3-124, type B

## Technical characteristics

Number of contacts	8
Additional contacts	+ 2x GND
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	≤30 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +70 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥750
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Insertion force	≤25 N
Withdrawal force	≤25 N
Material (insert)	Liquid crystal polymer (LCP)
Colour (insert)	Black
Material (hood/housing)	Polybutylene terephthalate (PBT)
Colour (hood/housing)	Black
Material (seal)	PTS
Colour (seal)	Yellow
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

## Specifications and approvals

IEC 61076-3-124 Type B



Inter-  
face

### Identification

HARTING Mini PushPull,  
ix Industrial®,  
Bulkhead mounted housing,  
Panel feed trough set,  
Fully shielded, 360° shielding contact,  
**Available as from Q3/2020,**

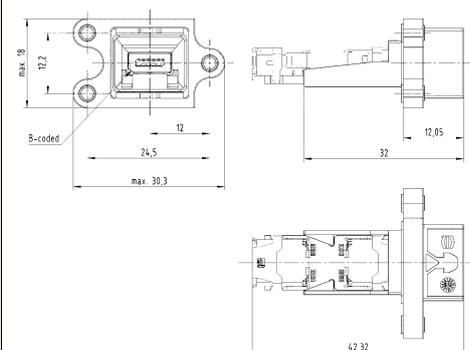
Pack contents:  
incl. seal, 2x HARTING ix Industrial®-jack type B (Signal) and  
board drillings for M2.5



### Part number

09 51 221 0002

### Drawing (dimensions in mm)



Number of contacts

8

+ 2x GND

Inter-  
face

## Features

- Ethernet connector based on HARTING ix Industrial®
- 360° shielding
- Field-assembly connector with IDC contacts
- Category of transmission: Cat. 6<sub>A</sub> / class E<sub>A</sub> for 1 / 10 Gbit Ethernet
- Miniaturised Ethernet data interface for industry in acc. to IEC 61076-3-124, type A

## Technical characteristics

Number of contacts	8
Additional contacts	+ 2x GND
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage U <sub>r,m.s.</sub>	0.5 kV
Contact resistance	≤30 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +70 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥750
Conductor cross-section	0.09 ... 0.14 mm <sup>2</sup> , 0.23 ... 0.36 mm <sup>2</sup>
Conductor cross-section	AWG 28 ... AWG 26, AWG 24 ... AWG 22
Wire outer diameter	≤1.15 mm, ≤1.59 mm
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Cable diameter	4.5 ... 7.5 mm
Transmission characteristics	Cat. 6 <sub>A</sub> , Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Insertion force	≤25 N
Withdrawal force	≤25 N
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (hood/housing)	Polybutylene terephthalate (PBT) / PA66
Colour (hood/housing)	Black
Material (seal)	HNBR / NBR
Colour (seal)	Black
Material (locking)	Polybutylene terephthalate (PBT)
Colour (locking)	Yellow
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

## Specifications and approvals

IEC 61076-3-124 Type A  
EN 50173-1



## Details

**Cable assemblies** see chapter 8

Can be combined with HARTING ix Industrial® jacks

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, 8 contacts + 2 GND, AWG 28 ... AWG 26, Conductor cross-section 0.09 ... 0.14 mm<sup>2</sup>, Wire outer diameter ≤ 1.15 mm, <b>Available as from Q3/2020.</b></p> <p>Pack contents: incl. housing, HARTING ix Industrial®-connector type A, shielding and cable gland</p> 	<p>09 51 121 0001</p>	
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, 8 contacts, AWG 24 ... AWG 22, Conductor cross-section 0.23 ... 0.36 mm<sup>2</sup>, Wire outer diameter ≤ 1.59 mm, <b>Available as from Q3/2020.</b></p> <p>Pack contents: incl. housing, HARTING ix Industrial®-connector type A, shielding and cable gland</p> 	<p>09 51 121 0003</p>	

Number of contacts

8

+ 2x GND

Inter-  
face

## Features

- 360° shielding
- Field-assembly connector with IDC contacts
- Miniaturised interface for signals and bus systems, suitable for industrial use in acc. to IEC 61076-3-124, type B

## Technical characteristics

Number of contacts	8
Additional contacts	+ 2x GND
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	≤30 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +70 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥750
Conductor cross-section	0.09 ... 0.14 mm <sup>2</sup> , 0.23 ... 0.36 mm <sup>2</sup>
Conductor cross-section	AWG 28 ... AWG 26, AWG 24 ... AWG 22
Wire outer diameter	≤1.15 mm, ≤1.59 mm
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Cable diameter	4.5 ... 7.5 mm
Insertion force	≤25 N
Withdrawal force	≤25 N
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (hood/housing)	Polybutylene terephthalate (PBT) / PA66
Colour (hood/housing)	Black
Material (seal)	HNBR / NBR
Colour (seal)	Black
Material (locking)	Polybutylene terephthalate (PBT)
Colour (locking)	Yellow
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

## Specifications and approvals

IEC 61076-3-124 Type B



## Details

**Cable assemblies** see chapter 8

Can be combined with HARTING ix Industrial® jacks

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, 8 contacts + 2 GND, AWG 28 ... AWG 26, Conductor cross-section 0.09 ... 0.14 mm<sup>2</sup>, Wire outer diameter ≤ 1.15 mm, <b>Available as from Q3/2020</b>, Pack contents: incl. housing, HARTING ix Industrial®-connector type B, shielding and cable gland</p> 	<p>09 51 121 0002</p>	
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, 8 contacts, AWG 24 ... AWG 22, Conductor cross-section 0.23 ... 0.36 mm<sup>2</sup>, Wire outer diameter ≤ 1.59 mm, <b>Available as from Q3/2020</b>, Pack contents: incl. housing, HARTING ix Industrial®-connector type B, shielding and cable gland</p> 	<p>09 51 121 0004</p>	

Interface



Interface

### Technical characteristics

Limiting temperature	-40 ... +70 °C
Mating cycles	≥100
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Material (seal)	NBR

### Technical characteristics

Colour (seal)	Black
Material (accessories)	Polybutylene terephthalate (PBT)
Colour (accessories)	Black
Material flammability class acc. to UL 94	V-0

#### Identification

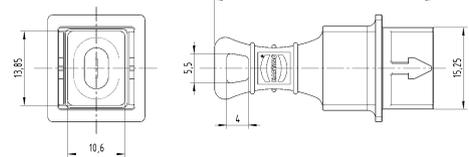
#### Part number

#### Drawing (dimensions in mm)

HARTING Mini PushPull,  
Protection cover,  
for cable side,  
**Available as from Q3/2020**



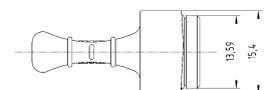
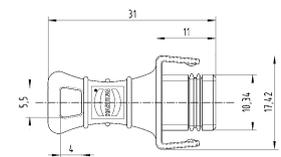
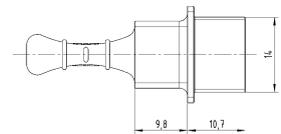
09 51 800 0002



HARTING Mini PushPull,  
Protection cover,  
for device side,  
**Available as from Q3/2020**



09 51 800 0003



Number of contacts

# 4



Inter-  
face

## Features

- HARTING PushPull (V14) technology
- 360° shielding
- Field assembly
- No side cutter needed anymore – integrated cutting blades behind the IDC contacts cut the wires to the correct length
- Wide range IDC for solid and stranded wires from AWG 26 to AWG 22
- Suitable for all PoE versions

## Technical characteristics

Number of contacts	4
Limiting temperature	-40 ... +85 °C
Mating cycles	≥750
Conductor cross-section	0.14 ... 0.34 mm <sup>2</sup> Stranded, 0.22 ... 0.32 mm <sup>2</sup> Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded, AWG 24/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP65, IP67
Cable diameter	6.5 ... 9.5 mm
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Data rate	10 Mbit/s, 100 Mbit/s
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated

## Specifications and approvals

IEC 60603-7 Mating face  
IEC 11801  
EN 50173-1  
IEC 61076-3-117 Variant 14  
DNV GL



Identification

Han® PushPull (V14),  
Connector,  
AIDA compliant,  
PROFINET,  
Straight,  
IDC termination,  
Fully shielded, 360° shielding contact

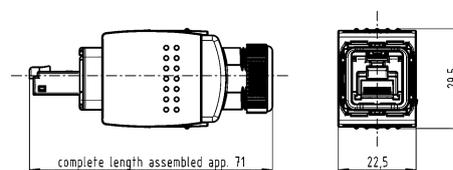


When installing a PROFINET system, observe the PROFINET installation guideline.

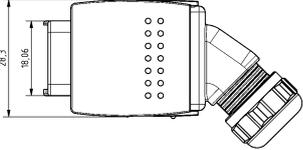
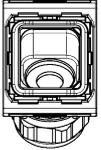
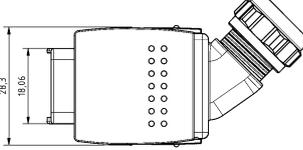
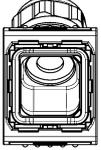
Part number

09 35 229 0401

Drawing  
(dimensions in mm)



Inter-  
face

Identification	Part number	Drawing (dimensions in mm)	
<p>Han® PushPull (V14), Connector, AIDA compliant, PROFINET, Angled bottom, IDC termination, Fully shielded, 360° shielding contact</p> 	<p>09 35 229 0402</p>		
<p>When installing a PROFINET system, observe the PROFINET installation guideline.</p>			
<p>Han® PushPull (V14), Connector, AIDA compliant, PROFINET, Angled top, IDC termination, Fully shielded, 360° shielding contact When installing a PROFINET system, observe the PROFINET installation guideline.</p>	<p>09 35 229 0403</p>		

Number of contacts

# 8



Inter-  
face

## Features

- HARTING PushPull (V14) technology
- 360° shielding
- Category of transmission Cat. 6A
- Field assembly
- No side cutter needed anymore – integrated cutting blades behind the IDC contacts cut the wires to the correct length
- Wide range IDC for solid and stranded wires from AWG 26 to AWG 22
- Suitable for all PoE versions

## Technical characteristics

Number of contacts	8
Limiting temperature	-40 ... +85 °C
Mating cycles	≥750
Conductor cross-section	0.14 ... 0.34 mm <sup>2</sup> Stranded, 0.22 ... 0.32 mm <sup>2</sup> Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded, AWG 24/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP65, IP67
Cable diameter	6.5 ... 9.5 mm
Transmission characteristics	Cat. 6A, Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated

## Specifications and approvals

IEC 60603-7 Mating face  
IEC 11801  
EN 50173-1  
IEC 61076-3-117 Variant 14  
DNV GL



### Identification

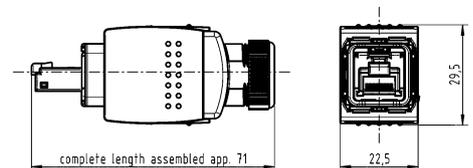
Han® PushPull (V14),  
Connector,  
AIDA compliant,  
PROFINET,  
Straight,  
IDC termination,  
Fully shielded, 360° shielding contact



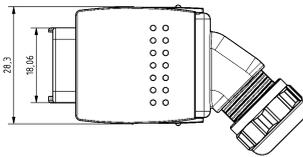
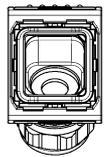
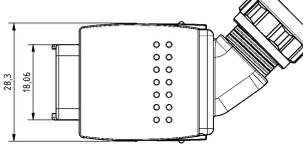
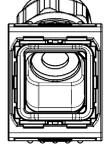
### Part number

09 35 220 0401

### Drawing (dimensions in mm)

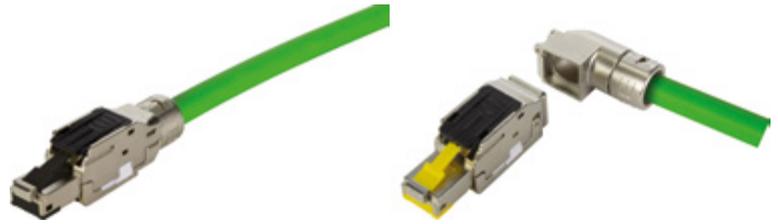


Inter-  
face

Identification	Part number	Drawing (dimensions in mm)	
<p>Han® PushPull (V14), Connector, AIDA compliant, PROFINET, Angled bottom, IDC termination, Fully shielded, 360° shielding contact</p> 	<p>09 35 220 0402</p>		
<p>Han® PushPull (V14), Connector, AIDA compliant, Angled top, IDC termination, Fully shielded, 360° shielding contact</p> 	<p>09 35 220 0403</p>		

Number of contacts

# 4



## Features

- Very robust full metal housing
- Wide range IDC for solid and stranded wires from AWG 26 to AWG 22
- No side cutter needed anymore – integrated cutting blades behind the IDC contacts cut the wires to the correct length
- Very robust and patent pending cable fixing
- 35° + 90° angled version with variable cable outlet in 4 different cable outlet directions
- Simple mounting
- Suitable for all PoE versions

## Technical characteristics

Number of contacts	4
Limiting temperature	-40 ... +85 °C
Mating cycles	≥750
Conductor cross-section	0.14 ... 0.34 mm <sup>2</sup> Stranded, 0.22 ... 0.32 mm <sup>2</sup> Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded, AWG 24/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP20
Cable diameter	4.5 ... 9 mm
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Data rate	10 Mbit/s, 100 Mbit/s
Material (hood/housing)	Zinc die-cast
RoHS	compliant with exemption

## Specifications and approvals

IEC 60603-7 Mating face  
IEC 11801  
EN 50173-1  
DNV GL



Inter-  
face

### Identification

HARTING RJ Industrial®,  
Connector,  
Multi Feature RJ45,  
Straight,  
IDC termination,  
Fully shielded, 360° shielding contact,  
**Available as from Q2/2020**



HARTING RJ Industrial®,  
Connector,  
Multi Feature RJ45,  
90° angled,  
IDC termination,  
Fully shielded, 360° shielding contact,  
**Available as from Q2/2020**

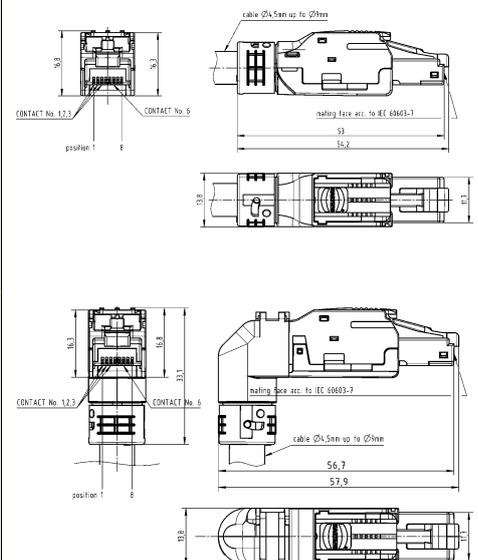


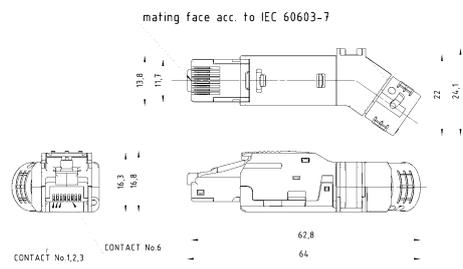
### Part number

09 45 151 1140

09 45 151 1141

### Drawing (dimensions in mm)

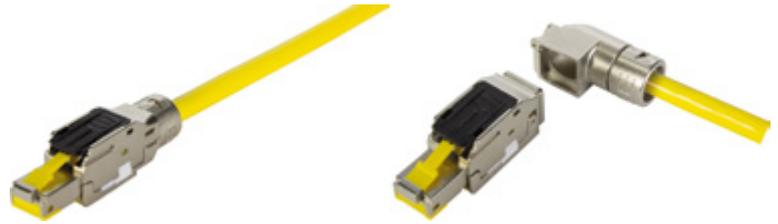


Identification	Part number	Drawing (dimensions in mm)
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, 35° angled, IDC termination, Fully shielded, 360° shielding contact, <b>Available as from Q2/2020</b></p>	<p>09 45 151 1142</p>	<p>mating face acc. to IEC 60603-7</p>  <p>Dimensions shown in drawing:              13.8, 11.7, 22, 24.1, 16.3, 16.8, 62.8, 64.              CONTACT No.1,2,3, CONTACT No.6</p>

Inter-  
face

Number of contacts

# 8



## Features

- Very robust full metal housing
- Wide range IDC for solid and stranded wires from AWG 26 to AWG 22
- No side cutter needed anymore – integrated cutting blades behind the IDC contacts cut the wires to the correct length
- Very robust and patent pending cable fixing
- 35° + 90° angled version with variable cable outlet in 4 different cable outlet directions
- Simple mounting
- Suitable for all PoE versions

## Technical characteristics

Number of contacts	8
Limiting temperature	-40 ... +85 °C
Mating cycles	≥750
Conductor cross-section	0.14 ... 0.34 mm <sup>2</sup> Stranded, 0.22 ... 0.32 mm <sup>2</sup> Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded, AWG 24/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP20
Cable diameter	4.5 ... 9 mm
Transmission characteristics	Cat. 6A, Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (hood/housing) RoHS	Zinc die-cast compliant with exemption

## Specifications and approvals

IEC 60603-7 Mating face  
IEC 11801  
EN 50173-1  
DNV GL



Identification

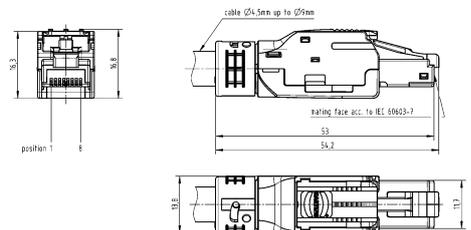
HARTING RJ Industrial®,  
Connector,  
Multi Feature RJ45,  
Straight,  
IDC termination,  
Fully shielded, 360° shielding contact,  
**Available as from Q2/2020**



Part number

09 45 151 1570

Drawing  
(dimensions in mm)



Inter-  
face

Inter-  
face

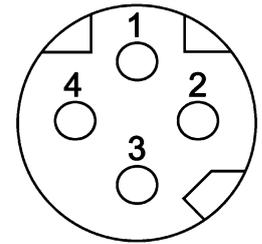
Identification	Part number	Drawing (dimensions in mm)
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, 90° angled, IDC termination, Fully shielded, 360° shielding contact, <b>Available as from Q2/2020</b></p> 	<p>09 45 151 1571</p>	<p>position 1 - 8</p> <p>mating face acc. to IEC 60603-7</p> <p>cable Ø4.5mm up to Ø9mm</p>
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, 35° angled, IDC termination, Fully shielded, 360° shielding contact, <b>Available as from Q2/2020</b></p>	<p>09 45 151 1572</p>	<p>position 1 - 8</p> <p>mating face acc. to IEC 60603-7</p>

Contents	Page
Device side M8.....	<b>New 7.2</b>
Cable side M8.....	<b>New 7.8</b>
Device side M12 Power.....	<b>New 7.10</b>
Cable side M12 Power .....	<b>New 7.20</b>
Tools .....	<b>New 7.30</b>

Number of contacts

4

Reflow soldering termination (THR)  
Shielded



**Technical characteristics**

Number of contacts	4
Rated current	4 A
Rated voltage	60 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

**Technical characteristics**

Transmission characteristics	Cat. 5, Class D up to 100 MHz
Tightening torque	1 Nm Lock nut
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated
RoHS	compliant with exemption

**Specifications and approvals**

IEC 61076-2-114

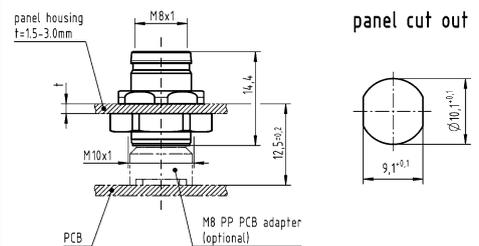
Identification

Part number  
Female

Drawing  
(dimensions in mm)

Circular connectors M8,  
PCB connector,  
Straight,  
Reflow soldering termination (THR),  
Shielded,  
Pack contents:  
50 pieces in a tray

21 02 381 2418



Order housings separately

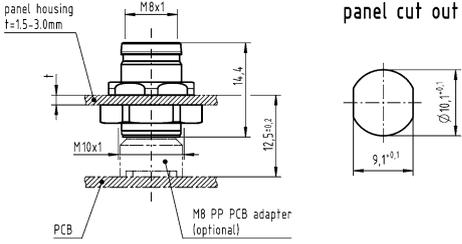


Circular connectors M8,  
PCB connector,  
Straight,  
Reflow soldering termination (THR),  
Shielded,  
Pack contents:  
25 pieces in a carton box

21 02 381 2419



Order housings separately

Identification	Part number Female	Drawing (dimensions in mm)
<p>Circular connectors M8, Housing, for front mounting, Pack contents: incl. lock nut</p> 	<p>21 02 301 2001</p>	
<p>Circular connectors M8, Housing, for front mounting, Pack contents: without lock nut</p>	<p>21 02 301 2002</p>	
<p>Lock nut, M10 x 1</p>	<p>21 01 000 0051</p>	

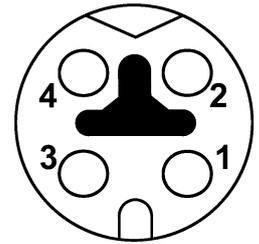
Circular



Number of contacts

4

Reflow soldering termination (THR)  
Shielded



Technical characteristics

Number of contacts	4
Rated current	4 A
Rated voltage	60 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

Technical characteristics

Transmission characteristics	Cat. 5, Class D up to 100 MHz
Tightening torque	1 Nm Lock nut
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated
RoHS	compliant with exemption

Specifications and approvals

IEC 61076-2-114

Circular

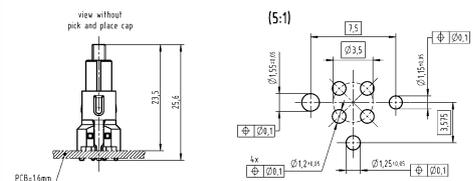
Identification

Part number  
Female

Drawing  
(dimensions in mm)

Circular connectors M8,  
PCB connector,  
Reflow soldering termination (THR),  
Shielded,  
Pack contents:  
50 pieces in a tray

21 02 341 2418



Order housings separately

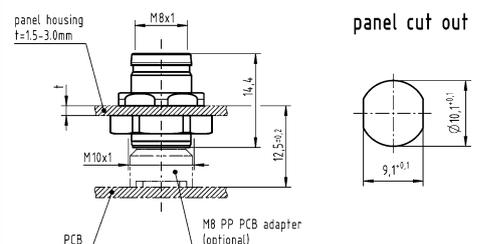
21 02 341 2419

Circular connectors M8,  
PCB connector,  
Straight,  
Reflow soldering termination (THR),  
Shielded,  
Pack contents:  
25 pieces in a carton box



Order housings separately

21 02 301 2001



New  
7  
·  
5



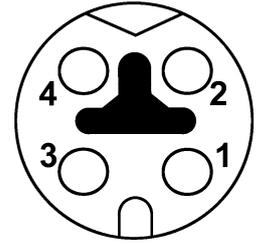
Identification	Part number Female	Drawing (dimensions in mm)
Circular connectors M8, Housing, for front mounting, Pack contents: without lock nut	21 02 301 2002	
Lock nut, M10 x 1	21 01 000 0051	

Circular

Number of contacts

**4**

Reflow soldering termination (THR)  
Shielded



**Technical characteristics**

Number of contacts	4
Rated current	4 A
Rated voltage	60 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated
Transmission characteristics	Cat. 5, Class D up to 100 MHz

**Technical characteristics**

Tightening torque	1 Nm Lock nut
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated
RoHS	compliant with exemption

**Specifications and approvals**

IEC 61076-2-114

Circular

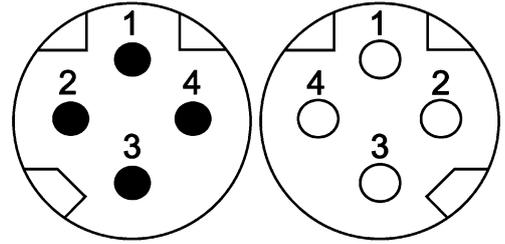
Identification	Part number Female	Drawing (dimensions in mm)
Circular connectors M8, PCB connector, Straight, for front mounting, Reflow soldering termination (THR), Shielded, Pack contents: incl. housing	21 02 341 2431	



Number of contacts

4

HARAX® connection technology  
Shielded



Technical characteristics

Number of contacts	4
Rated current	4 A
Rated voltage	60 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, in locked position
Cable diameter	6.2 ... 6.8 mm

Technical characteristics

Transmission characteristics	Cat. 5, Class D up to 100 MHz
Tightening torque	0.4 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Polyamide (PA), Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

Specifications and approvals

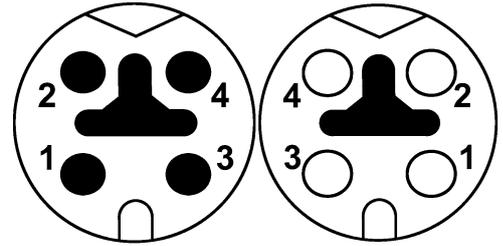
IEC 61076-2-114

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M8, Cable connector, Straight, HARAX® connection technology, Shielded, Screw locking	21 02 185 1405	21 02 185 2405	
Circular connectors M8, Cable connector, Straight, HARAX® connection technology, Shielded, PushPull locking	21 02 185 1430		

Number of contacts

4

HARAX® connection technology  
Shielded



Technical characteristics

Number of contacts	4
Rated current	4 A
Rated voltage	60 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, in locked position
Cable diameter	6.2 ... 6.8 mm

Technical characteristics

Transmission characteristics	Cat. 5, Class D up to 100 MHz
Tightening torque	0.4 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Polyamide (PA), Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

Specifications and approvals

IEC 61076-2-114

Circular

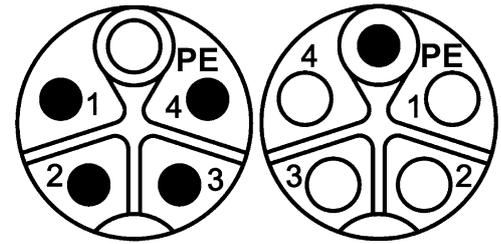
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M8, Cable connector, Straight, HARAX® connection technology, Shielded, Screw locking	21 02 145 1405	21 02 145 2405	
Circular connectors M8, Cable connector, Straight, HARAX® connection technology, Shielded, PushPull locking	21 02 145 1430		



Number of contacts

**4+**

Reflow soldering termination (THR)  
Shielded



## Technical characteristics

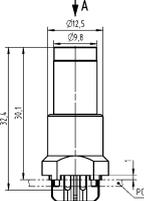
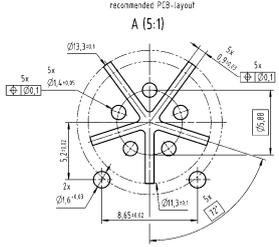
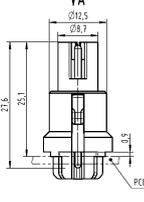
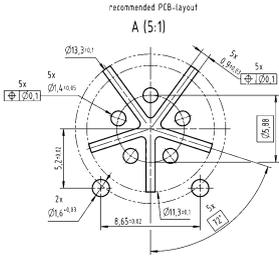
Number of contacts	4
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

## Technical characteristics

Tightening torque	2 Nm Lock nut
Material (insert)	Liquid crystal polymer (LCP)
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

## Specifications and approvals

IEC 61076-2-111

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: 30 pieces in a carton box    Order housings separately	21 03 309 1505 407	21 03 309 2505 407	 
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: 60 pieces in a tray    Order housings separately	21 03 309 1505	21 03 309 2505	 

**New**  
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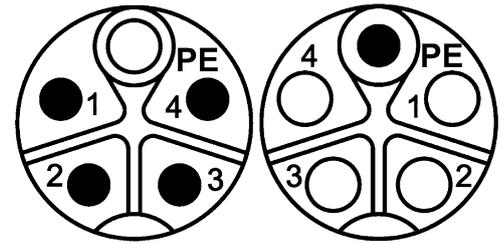
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, Housing, for front mounting, Pack contents: 30 pieces	21 03 302 1000 407	21 03 302 2001 407	
			
Circular connectors M12, Housing, for rear mounting, Pack contents: 30 pieces	21 03 302 1001 407	21 03 302 2000 407	

Circular

Number of contacts

4+

Reflow soldering termination (THR)  
Shielded



**Technical characteristics**

Number of contacts	4
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

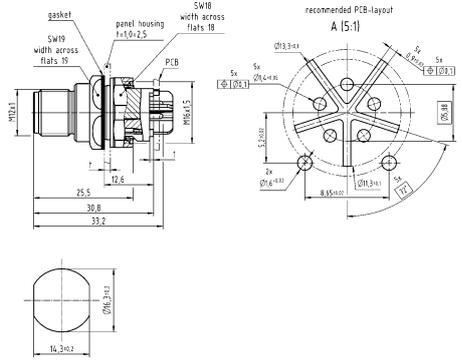
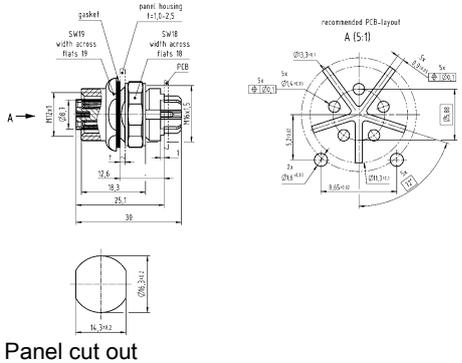
**Technical characteristics**

Tightening torque	2 Nm Lock nut
Material (insert)	Liquid crystal polymer (LCP)
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

**Specifications and approvals**

IEC 61076-2-111

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, M12 Power, PCB adapter, Straight, incl. housing, for rear mounting, Reflow soldering termination (THR), Shielded 	21 03 309 1530	21 03 309 2530	<p>Panel cut out</p> <p>Panel cut out</p>

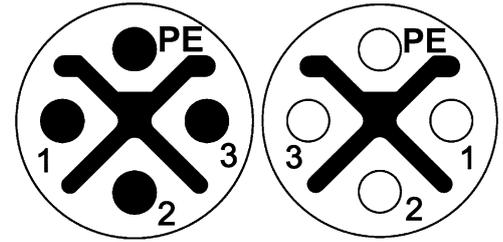
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
<p>Circular connectors M12, M12 Power, PCB adapter, Straight, incl. housing, for front mounting, Reflow soldering termination (THR), Shielded</p> 	21 03 309 1531	21 03 309 2531	 <p>Panel cut out</p>  <p>Panel cut out</p>

Circular

Number of contacts

3+

Reflow soldering termination (THR)  
Shielded



Circular

### Technical characteristics

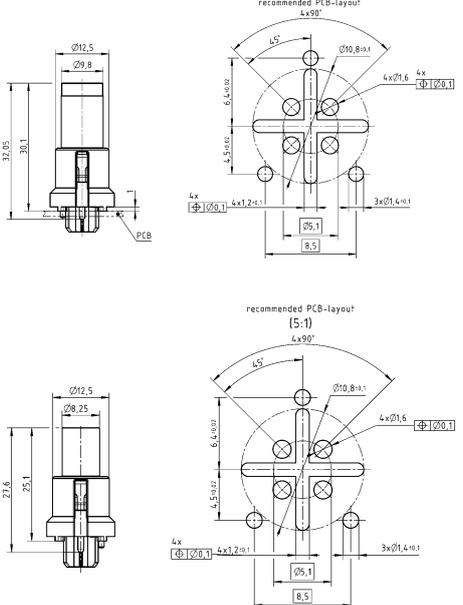
Number of contacts	3
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

### Technical characteristics

Tightening torque	2 Nm Lock nut
Material (insert)	Liquid crystal polymer (LCP)
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

### Specifications and approvals

IEC 61076-2-111

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: 30 pieces in a carton box   Order housings separately	21 03 399 1430	21 03 399 2430	
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: 60 pieces in a tray Order housings separately	21 03 399 1460	21 03 399 2460	



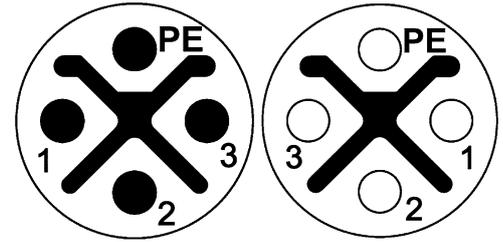
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
<p>Circular connectors M12, Housing, for front mounting, Pack contents: 30 pieces</p> 	21 03 302 1000 407	21 03 302 2001 407	
<p>Circular connectors M12, Housing, for rear mounting, Pack contents: 30 pieces</p>	21 03 302 1001 407	21 03 302 2000 407	

Circular

Number of contacts

**3+**

Reflow soldering termination (THR)  
Shielded



Circular

### Technical characteristics

Number of contacts	3
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

### Technical characteristics

Tightening torque	2 Nm Lock nut
Material (insert)	Liquid crystal polymer (LCP)
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

### Specifications and approvals

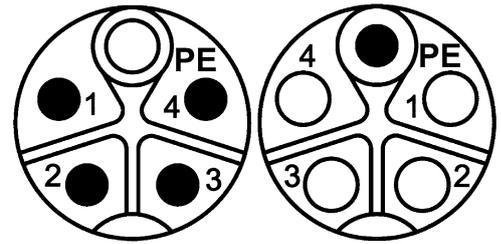
IEC 61076-2-111

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: incl. housing	21 03 399 1403	21 03 399 2403	<p>Panel cut out</p> <p>Panel cut out</p>

Number of contacts

4+

Shielded



### Technical characteristics

Number of contacts	4
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Conductor length	30 cm
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

### Technical characteristics

Conductor cross-section	2.5 mm <sup>2</sup> , 1.5 mm <sup>2</sup>
Tightening torque	0.6 Nm, 2 Nm Lock nut
Material (insert)	Polyamide (PA)
Material (contacts)	Brass
Surface (contacts)	Gold plated

### Specifications and approvals

IEC 61076-2-111

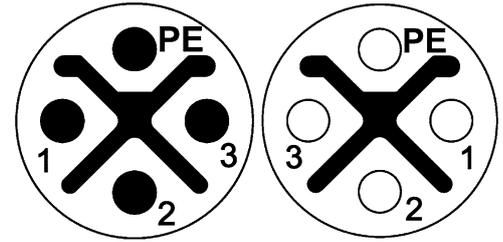
Circular

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Panel feed through, With conductors, for front mounting, Shielded 	1.5 2.5	21 03 309 5503 21 03 309 5501	21 03 309 6503 21 03 309 6501	<p>Panel cut out</p> <p>Panel cut out</p> <p>Panel cut out</p>
Circular connectors M12, M12 Power, Panel feed through, With conductors, for rear mounting, Shielded 	1.5 2.5	21 03 309 5504 21 03 309 5502	21 03 309 6504 21 03 309 6502	<p>Panel cut out</p> <p>Panel cut out</p> <p>Panel cut out</p>

Number of contacts

**3+**

Unshielded



### Technical characteristics

Number of contacts	3
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

### Technical characteristics

Conductor cross-section	1.5 mm <sup>2</sup> , 2.5 mm <sup>2</sup>
Conductor cross-section	AWG 16, AWG 14
Tightening torque	0.6 Nm, 2 Nm Lock nut
Material (insert)	Polyamide (PA)
Material (contacts)	Brass
Surface (contacts)	Gold plated

### Specifications and approvals

IEC 61076-2-111

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Panel feed through, With conductors, for front mounting, Unshielded  	1.5	21 03 396 1401	21 03 396 2401	<p>Panel cut out</p> <p>Panel cut out</p> <p>Panel cut out</p>
	2.5	21 03 399 1401	21 03 399 2401	

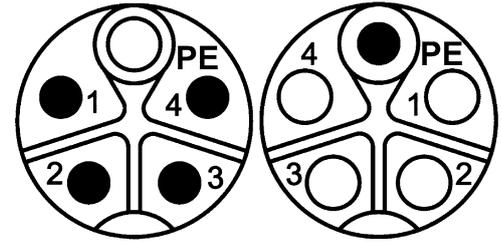
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Panel feed through, With conductors, for rear mounting, Unshielded	1.5	21 03 396 1402	21 03 396 2402	<p>Panel cut out</p> <p>Panel cut out</p> <p>Panel cut out</p>
	2.5	21 03 399 1402	21 03 399 2402	

Circular

Number of contacts

**4+**

Crimp termination  
Shielded



## Technical characteristics

Number of contacts	4
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥500
Locking type	PushPull, Screw locking
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated
Conductor cross-section	0.5 ... 2.5 mm <sup>2</sup> , 2.5 mm <sup>2</sup> , 1.5 mm <sup>2</sup> , 0.75 mm <sup>2</sup> , 0.5 mm <sup>2</sup>

## Technical characteristics

Conductor cross-section	AWG 20 ... AWG 14, AWG 14, AWG 16, AWG 19, AWG 21
Cable diameter	5.8 ... 13.5 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

## Specifications and approvals

IEC 61076-2-111

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Circular connectors M12, M12 PushPull-Power, Cable connector, Straight, Crimp termination, Shielded, PushPull locking</p> <p>Please order crimp contacts separately.</p>	0.5 ... 2.5	21 03 896 1525	21 03 896 2525	
<p>Circular connectors M12, M12 Power, Cable connector, Straight, Crimp termination, Shielded, Screw locking</p> <p>Please order crimp contacts separately.</p>	0.5 ... 2.5	21 03 896 1515	21 03 896 2515	

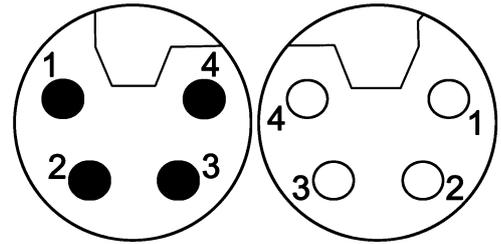




Number of contacts

# 4

Crimp termination  
Shielded



## Technical characteristics

Number of contacts	4
Rated current	16 A
Rated voltage	63 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥500
Locking type	PushPull, Screw locking
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated
Conductor cross-section	2.5 mm <sup>2</sup> , 1.5 mm <sup>2</sup> , 0.75 mm <sup>2</sup> , 0.5 mm <sup>2</sup>
Conductor cross-section	AWG 14, AWG 16, AWG 19, AWG 21

## Technical characteristics

Cable diameter	5.8 ... 13.5 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

## Specifications and approvals

IEC 61076-2-111



Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 PushPull-Power, Cable connector, Straight, Crimp termination, Shielded, PushPull locking Please order crimp contacts separately.		21 03 896 1420	21 03 896 2420	
Circular connectors M12, M12 Power, Cable connector, Straight, Crimp termination, Shielded, Screw locking Please order crimp contacts separately.		21 03 896 1410	21 03 896 2410	

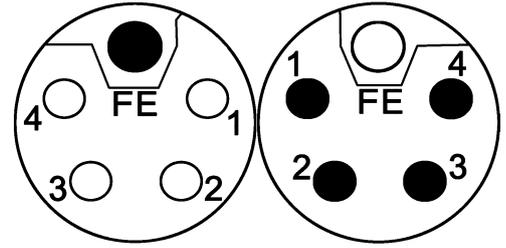




Number of contacts



Crimp termination  
Shielded



## Technical characteristics

Number of contacts	4
Rated current	16 A
Rated voltage	63 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥500
Locking type	PushPull, Screw locking
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated
Conductor cross-section	2.5 mm <sup>2</sup> , 1.5 mm <sup>2</sup> , 0.75 mm <sup>2</sup> , 0.5 mm <sup>2</sup>
Conductor cross-section	AWG 14, AWG 16, AWG 19, AWG 21

## Technical characteristics

Cable diameter	5.8 ... 13.5 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

## Specifications and approvals

IEC 61076-2-111



Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 PushPull-Power, Cable connector, Straight, Crimp termination, Shielded, PushPull locking Please order crimp contacts separately.		21 03 896 1520	21 03 896 2520	
Circular connectors M12, M12 Power, Cable connector, Straight, Crimp termination, Shielded, Screw locking Please order crimp contacts separately.		21 03 896 1510	21 03 896 2510	

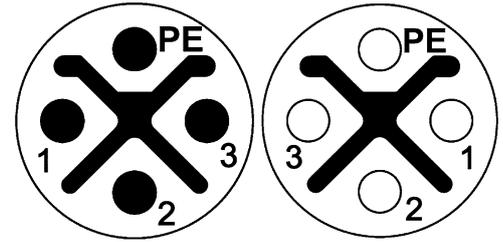
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Crimp contact, Turned contacts, Pack contents: 50 pieces	0.5	21 01 100 9962	21 01 100 9964	
	0.75	21 01 100 9963	21 01 100 9965	
	1.5	21 01 100 9937	21 01 100 9939	
	2.5	21 01 100 9938	21 01 100 9940	

Circular

Number of contacts

**3+**

Crimp termination  
Shielded



## Technical characteristics

Number of contacts	3
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥500
Locking type	PushPull, Screw locking
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated
Conductor cross-section	2.5 mm <sup>2</sup> , 1.5 mm <sup>2</sup> , 0.75 mm <sup>2</sup> , 0.5 mm <sup>2</sup>

## Technical characteristics

Conductor cross-section	AWG 14, AWG 16, AWG 19, AWG 21
Cable diameter	5.8 ... 13.5 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

## Specifications and approvals

IEC 61076-2-111

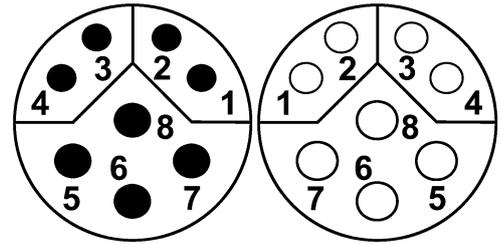
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 PushPull-Power, Cable connector, Straight, Crimp termination, Shielded, PushPull locking Please order crimp contacts separately.		21 03 896 1425	21 03 896 2425	
Circular connectors M12, M12 Power, Cable connector, Straight, Crimp termination, Shielded, Screw locking		21 03 896 1415	21 03 896 2415	
Circular connectors M12, M12 Power, Cable connector, Straight, Crimp termination, Shielded, Screw locking Please order crimp contacts separately.		21 03 896 1415	21 03 896 2415	



Number of contacts

# 8

4 Power + 4 Data  
Crimp termination  
Shielded



## Technical characteristics

Number of contacts	8
Rated current	6 A
Rated voltage	50 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Rated current (data)	0.5 A
Insulation resistance	>10 <sup>8</sup> Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	PushPull, Screw locking
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated
Conductor cross-section	0.33 ... 0.82 mm <sup>2</sup> , 0.13 ... 0.25 mm <sup>2</sup> , 0.08 ... 0.22 mm <sup>2</sup>

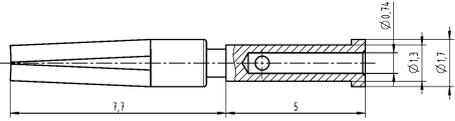
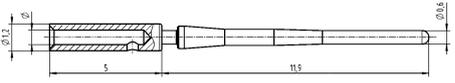
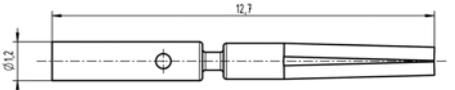
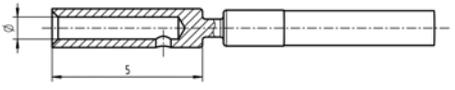
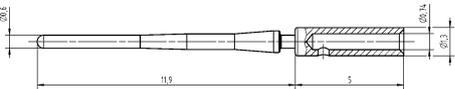
## Technical characteristics

Conductor cross-section	AWG 22 ... AWG 18, AWG 26 ... AWG 23, AWG 28 ... AWG 24
Cable diameter	5.7 ... 8.8 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated
RoHS	compliant with exemption

## Specifications and approvals

IEC 61076-2-113

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Slim Design, Cable connector, Straight, Crimp termination, Shielded, PushPull locking Please order crimp contacts separately.		21 03 861 1830		
Circular connectors M12, M12 Slim Design, Cable connector, Straight, Crimp termination, Shielded, Screw locking Please order crimp contacts separately.		21 03 861 1814	21 03 861 2805	
Circular connectors M12, M12 Slim Design, Cable connector, Panel feed through, for rear mounting, Crimp termination, Shielded Please order crimp contacts separately.		21 03 861 1825	21 03 861 2825	

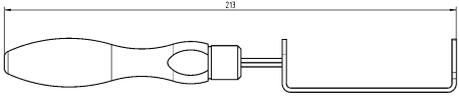
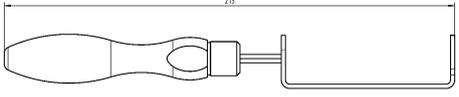
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Crimp contact, Turned contacts, Pack contents: 50 pieces  <i>har-speed</i> , Crimp contact, Turned contacts  	0.13 ... 0.25 0.33 ... 0.82	21 01 100 9982	21 01 100 9984	
		21 01 100 9981	21 01 100 9983	
	0.08 ... 0.22 0.13 ... 0.25	21 01 100 9014	21 01 100 9023	
		21 01 100 9019	21 01 100 9021	
				
				
				

Circular

Circular

## Technical characteristics

Conductor cross-section 0.09 ... 0.82 mm<sup>2</sup>,  
0.5 ... 2.5 mm<sup>2</sup>

Identification	Conductor cross-section (mm <sup>2</sup> )	Wrench size	Part number	Drawing (dimensions in mm)
Crimping tool, for turned male and female contact, 4 indent crimp in acc. to MIL 22 520/2-01	0.09 ... 0.82		09 99 000 0501	
Crimping tool, for power contacts	0.5 ... 2.5		09 99 000 0509	
Locator, for part number 09 99 000 0501 and Data- und Power contacts Y-coding			09 99 000 0618	
Locator, for part number 09 99 000 0509			09 99 000 0638	
Dynamometric screwdriver, for M12 Power		18	09 99 000 0659	
Dynamometric screwdriver, for M8		13	09 99 000 0660	

Contents	Page
HARTING M12 system cables .....	<b>New 8.2</b>
HARTING T1 Industrial system cables .....	<b>New 8.6</b>
HARTING Mini PushPull ix Industrial® system cables.....	<b>New 8.7</b>
HARTING VarioBoot RJ45 system cables.....	<b>New 8.11</b>
HARTING VarioBoot RJ45 / DualBoot RJ45 system cables .....	<b>New 8.14</b>
HARTING DualBoot RJ45 Cat. 6 <sub>A</sub> PUR system cables.....	<b>New 8.17</b>
HARTING Industrial drag chain cable SF/UTP Cat. 6 <sub>A</sub> PUR.....	<b>New 8.19</b>

## M12 system cables with PushPull and screw lock

### A new portfolio of over-moulded M12 system cables

Our product line of over-moulded M12 system cables will be expanded. HARTING offers the best system cable for every application: in both straight and angled versions. In addition to the unshielded system cables with screw locking, the time-saving PushPull interlock is now also available for shielded assemblies with A-, D- and X-coding. Thus, customers benefit from the advantages of PushPull connectors for over-moulded cable assemblies.

The cabling solutions have been tested and certified for the entire industrial environment. The key factors are IP protection, plug-in safety, robustness, vibration resistance and EMC safety.

HARTING offers a comprehensive product range of pre-assembled, shielded M12 system cables. The A-coded connectors enable sensors and actuators to be connected quickly. But HARTING also offers pre-assembled, tested system cables for Ethernet communications. A suitable solution is already available using the D-coded connectors with their transmission rate of

up to 100 Mbit/s. System cables with X-coded connectors can be used for even more data-hungry applications in automation environments. Transfer rates of up to 10 Gigabit can be achieved with this cabling solution.

In addition to the standardised lengths and solutions, customised variants can also be implemented.



HARTING M12 A-, D- und X-coded cable assemblies



M12 system cables,  
shielded, A-coding,  
3, 4, 5 and 8 poles

## Part number definition



### Connector 1

- 10 Male straight screw
- 11 Female straight screw
- 12 Male angled screw
- 13 Female angled screw
- 20 Male straight PushPull
- 22 Male angled PushPull

### Connector 2

- 00 No connector
- 10 Male straight screw
- 11 Female straight screw
- 12 Male angled screw
- 13 Female angled screw
- 20 Male straight PushPull
- 22 Male angled PushPull

### Number of contacts

- 3 3 poles
- 4 4 poles
- 5 5 poles
- 8 8 poles

### Cable material

- 33 PVC (3 poles)
- 32 PUR (3 poles)
- 43 PVC (4 poles)
- 42 PUR (4 poles)
- 53 PVC (5 poles)
- 52 PUR (5 poles)
- 83 PVC (8 poles)
- 82 PUR (8 poles)

### Preferred length\*

- 005 0.5 m
- 010 1.0 m
- 015 1.5 m
- 020 2.0 m
- 050 5.0 m
- 075 7.5 m
- 100 10.0 m

\* Other cable lengths on request!



M12 system cables,  
D-coding,  
4 poles

Cable

## Part number definition



### Connector 1

- 30 Male straight screw
- 31 Female straight screw
- 32 Male angled screw
- 33 Female angled screw
- 40 Male straight PushPull
- 42 Male angled PushPull

### Connector 2

- 00 No connector
- 30 Male straight screw
- 31 Female straight screw
- 32 Male angled screw
- 33 Female angled screw
- 40 Male straight PushPull
- 42 Male angled PushPull

### Number of contacts

4 4 poles

### Cable material

- 46 PVC
- 45 PUR
- 47 EtherRail

### Preferred length\*

- 005 0.5 m
- 010 1.0 m
- 015 1.5 m
- 020 2.0 m
- 050 5.0 m
- 075 7.5 m
- 100 10.0 m

New  
8  
·  
4

\* Other cable lengths on request!



M12 system cables,  
X-coding,  
8 poles

## Part number definition



### Connector 1

- 50 Male straight screw
- 51 Female straight screw
- 52 Male angled screw
- 53 Female angled screw
- 60 Male straight PushPull
- 62 Male angled PushPull

### Connector 2

- 00 No connector
- 50 Male straight screw
- 51 Female straight screw
- 52 Male angled screw
- 53 Female angled screw
- 60 Male straight PushPull
- 62 Male angled PushPull

### Number of contacts

8 8 poles

### Cable material

- 85 PVC
- 86 PUR
- 88 EtherRail

### Preferred length\*

- 005 0.5 m
- 010 1.0 m
- 015 1.5 m
- 020 2.0 m
- 050 5.0 m
- 075 7.5 m
- 100 10.0 m

\* Other cable lengths on request!

1x 2x AWG 26/7  
 HARTING T1 Industrial Overmoulded  
 HARTING T1 Industrial Overmoulded



## Features

- Internationally standardised mating face acc. to IEC 63171-6
- For the construction of future-proof and standardised Single Pair Ethernet (SPE) communication networks with standardised cabling according to ISO / IEC 11801 and TIA 42
- Designed for industrial applications up to M<sub>3</sub>L<sub>3</sub>C<sub>3</sub>E<sub>3</sub> environmental conditions
- Meets all IEEE 802.3 requirements for SPE
- Robust industrial design with 360° shielding, locking lever protection and high mating cycles
- Suitable for remote power supply for all Power over Data Line (PoDL) classes
- Very flexible, overmoulded cable with a small footprint

## Technical characteristics

Number of cores	2
Core structure	1x 2x AWG 26/7
Connector 1	HARTING T1 Industrial, Overmoulded
Connector 2	HARTING T1 Industrial, Overmoulded
Rated current	4 A
Rated voltage	60 V DC
Test voltage U <sub>DC</sub>	1 kV (contact-contact), 2.25 kV (contact-ground)
Contact resistance	≤20 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +80 °C unmoved, -25 ... +80 °C moved
Mating cycles	≥1000
Degree of protection acc. to IEC 60529	IP20
Transmission characteristics	600 MHz, Bandwidth
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s
Material (cable)	PUR (polyurethane)
Colour (cable)	Yellow

## Specifications and approvals

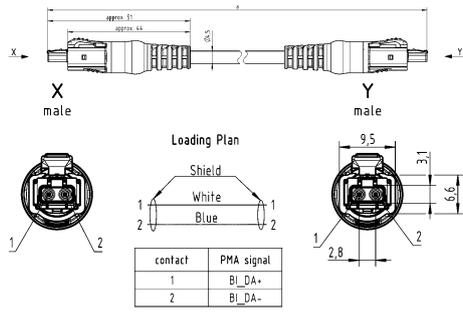
IEC 63171-6  
 IEEE 802.3bu (remote power supply over PoDL = Power over Data Line)  
 IEEE 802.3cg (10BASE-T1)  
 IEEE 802.3bw (100BASE-T1)  
 IEEE 802.3bp (1000BASE-T1)  
 IEC 60332-1-2 Flame retardancy  
 EN 60811-404 Oil resistancy

## Details

Unmating under electrical load with 1.5 A / 60 V. 50 cycles for each polarity.

Other cable lengths on request!

UL approval in preparation

Identification	Cable length	Part number	Drawing (dimensions in mm)
HARTING T1 Industrial, Copper cable (round), Halogen-free, Oil resistant, Flame retardant, Pre-assembled on both sides 	0.5 m	33 28 010 1001 005	
	1 m	33 28 010 1001 010	
	2 m	33 28 010 1001 020	
	3 m	33 28 010 1001 030	
	5 m	33 28 010 1001 050	
	7.5 m	33 28 010 1001 075	
	10 m	33 28 010 1001 100	
	15 m	33 28 010 1001 150	
	20 m	33 28 010 1001 200	

New 8 · 6

4x 2x AWG 26/7  
 HARTING Mini PushPull ix Industrial® Type A Overmoulded  
 HARTING Mini PushPull ix Industrial® Type A Overmoulded  
 Cable material: PVC



## Features

- Miniaturised Ethernet data interface suitable for industry in acc. to IEC 61076-3-124 type A
- Robust industrial design
- 360° shielding
- Category of transmission Cat. 6<sub>A</sub>
- 5000 mating cycles
- Flexible, space saving
- Suitable for all PoE versions

## Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING Mini PushPull, ix Industrial®, Type A, Overmoulded
Connector 2	HARTING Mini PushPull, ix Industrial®, Type A, Overmoulded
Limiting temperature	-20 ... +80 °C unmoved, -20 ... +80 °C moved
Transmission characteristics	Cat. 6 <sub>A</sub> , Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (cable)	PVC
Colour (cable)	Yellow

Cable

## Specifications and approvals

IEC 61076-3-124

## Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
HARTING Mini PushPull, Copper cable (round), Pre-assembled on both sides	0.2 m	33 48 343 4805 002	
	0.3 m	33 48 343 4805 003	
	0.4 m	33 48 343 4805 004	
	0.5 m	33 48 343 4805 005	
	0.7 m	33 48 343 4805 007	
	1 m	33 48 343 4805 010	
	1.5 m	33 48 343 4805 015	
	2 m	33 48 343 4805 020	
	2.5 m	33 48 343 4805 025	
	3 m	33 48 343 4805 030	
	5 m	33 48 343 4805 050	
7.5 m	33 48 343 4805 075		
10 m	33 48 343 4805 100		

4x 2x AWG 26/7  
 HARTING Mini PushPull ix Industrial® Type A Overmoulded  
 HARTING Mini PushPull ix Industrial® Type A Overmoulded  
 Cable material: PUR



## Features

- Miniaturised Ethernet data interface suitable for industry in acc. to IEC 61076-3-124 type A
- Robust industrial design
- 360° shielding
- Category of transmission Cat. 6<sub>A</sub>
- 5000 mating cycles
- Flexible, space saving
- Suitable for all PoE versions

## Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING Mini PushPull, ix Industrial®, Type A, Overmoulded
Connector 2	HARTING Mini PushPull, ix Industrial®, Type A, Overmoulded
Limiting temperature	-40 ... +80 °C unmoved, -40 ... +80 °C moved
Transmission characteristics	Cat. 6 <sub>A</sub> , Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (cable)	PUR (polyurethane)
Colour (cable)	Yellow

## Specifications and approvals

IEC 61076-3-124

## Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
HARTING Mini PushPull, Copper cable (round), Pre-assembled on both sides	0.2 m	33 48 343 4804 002	
	0.3 m	33 48 343 4804 003	
	0.4 m	33 48 343 4804 004	
	0.5 m	33 48 343 4804 005	
	0.7 m	33 48 343 4804 007	
	1 m	33 48 343 4804 010	
	1.5 m	33 48 343 4804 015	
	2 m	33 48 343 4804 020	
	2.5 m	33 48 343 4804 025	
	3 m	33 48 343 4804 030	
	5 m	33 48 343 4804 050	
	7.5 m	33 48 343 4804 075	
10 m	33 48 343 4804 100		

New 8 · 8

10x AWG 26  
 HARTING Mini PushPull ix Industrial® Type B Overmoulded  
 HARTING Mini PushPull ix Industrial® Type B Overmoulded  
 Cable material: PVC



## Features

- Miniaturised interface for signals and bus systems in acc. to IEC 61076-3-124 type B, suitable for industrial use
- Robust industrial design
- 360° shielding
- 5000 mating cycles
- Flexible, space saving

## Technical characteristics

Number of cores	10
Core structure	10x AWG 26
Connector 1	HARTING Mini PushPull, ix Industrial®, Type B, Overmoulded
Connector 2	HARTING Mini PushPull, ix Industrial®, Type B, Overmoulded
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Limiting temperature	-5 ... +80 °C unmoved, -30 ... +80 °C moved
Material (cable)	PVC
Colour (cable)	Grey

## Specifications and approvals

IEC 61076-3-124

## Details

Other cable lengths on request!

Cable

Identification	Cable length	Part number	Drawing (dimensions in mm)
HARTING Mini PushPull, Copper cable (round), Pre-assembled on both sides	0.2 m	33 48 353 5A20 002	
	0.3 m	33 48 353 5A20 003	
	0.4 m	33 48 353 5A20 004	
	0.5 m	33 48 353 5A20 005	
	0.7 m	33 48 353 5A20 007	
	1 m	33 48 353 5A20 010	
	1.5 m	33 48 353 5A20 015	
	2 m	33 48 353 5A20 020	
	2.5 m	33 48 353 5A20 025	
	3 m	33 48 353 5A20 030	
5 m	33 48 353 5A20 050		
7.5 m	33 48 353 5A20 075		
10 m	33 48 353 5A20 100		

10x AWG 26  
 HARTING Mini PushPull ix Industrial® Type B Overmoulded  
 HARTING Mini PushPull ix Industrial® Type B Overmoulded  
 Cable material: PUR



## Features

- Miniaturised interface for signals and bus systems in acc. to IEC 61076-3-124 type B, suitable for industrial use
- Robust industrial design
- 360° shielding
- 5000 mating cycles
- Flexible, space saving

## Technical characteristics

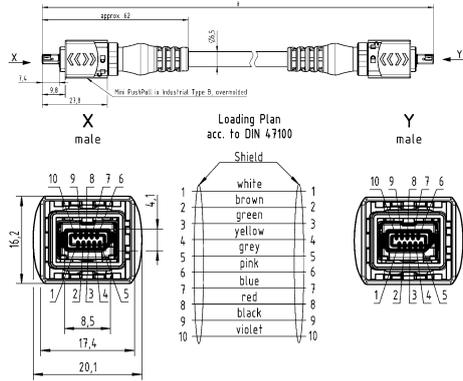
Number of cores	10
Core structure	10x AWG 26
Connector 1	HARTING Mini PushPull, ix Industrial®, Type B, Overmoulded
Connector 2	HARTING Mini PushPull, ix Industrial®, Type B, Overmoulded
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Limiting temperature	-5 ... +80 °C unmoved, -40 ... +80 °C moved
Material (cable)	PUR (polyurethane)
Colour (cable)	Grey

## Specifications and approvals

IEC 61076-3-124

## Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
HARTING Mini PushPull, Copper cable (round), Pre-assembled on both sides 	0.2 m	33 48 353 5A21 002	
	0.3 m	33 48 353 5A21 003	
	0.4 m	33 48 353 5A21 004	
	0.5 m	33 48 353 5A21 005	
	0.7 m	33 48 353 5A21 007	
	1 m	33 48 353 5A21 010	
	1.5 m	33 48 353 5A21 015	
	2 m	33 48 353 5A21 020	
	2.5 m	33 48 353 5A21 025	
	3 m	33 48 353 5A21 030	
	5 m	33 48 353 5A21 050	
7.5 m	33 48 353 5A21 075		
10 m	33 48 353 5A21 100		

4x 2x AWG 26/7  
 HARTING VarioBoot RJ45 Preferred directions left/right  
 HARTING VarioBoot RJ45 Preferred directions left/right



## Features

- Transmission of up to 10 Gbit/s
- Overmoulded
- Locking lever protection
- Adaptable and changeable cable outlet
- Flexible, space saving

## Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING VarioBoot RJ45, Preferred directions left/right
Connector 2	HARTING VarioBoot RJ45, Preferred directions left/right
Limiting temperature	-20 ... +60 °C unmoved, 0 ... +60 °C moved
Degree of protection acc. to IEC 60529	IP20
Transmission characteristics	Cat. 6A, Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (cable)	FRNC (LSZH)
Colour (cable)	Grey, Red, Yellow, Green, Blue

## Specifications and approvals

IEC 11801  
 IEC 61156-6  
 IEC 60332-1 Flame retardancy  
 IEC 60754-2 Halogen freeness  
 IEC 60754-2 Non corrosive  
 IEC 61034 Low smoke

Cable

## Details

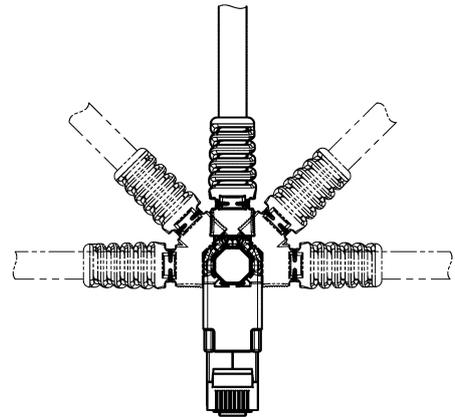
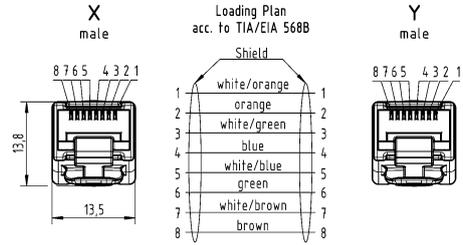
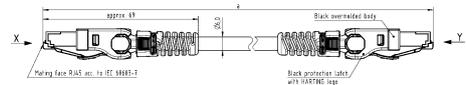
Other cable lengths on request!

Identification      Cable length      Part number      Drawing (dimensions in mm)

RJ45,  
Copper cable (round),  
Wiring 1:1,  
Flame retardant,  
Halogen-free,  
Pre-assembled on both sides,  
Preferred directions left/right,  
Grey



0.3 m      09 48 858 5585 003  
0.4 m      09 48 858 5585 004  
0.5 m      09 48 858 5585 005  
1 m      09 48 858 5585 010  
2 m      09 48 858 5585 020  
3 m      09 48 858 5585 030  
5 m      09 48 858 5585 050  
7.5 m      09 48 858 5585 075  
10 m      09 48 858 5585 100  
15 m      09 48 858 5585 150  
20 m      09 48 858 5585 200



RJ45,  
Copper cable (round),  
Wiring 1:1,  
Flame retardant,  
Halogen-free,  
Pre-assembled on both sides,  
Preferred directions left/right,  
Red



0.3 m      09 48 858 5586 003  
0.4 m      09 48 858 5586 004  
0.5 m      09 48 858 5586 005  
1 m      09 48 858 5586 010  
2 m      09 48 858 5586 020  
3 m      09 48 858 5586 030  
5 m      09 48 858 5586 050  
7.5 m      09 48 858 5586 075  
10 m      09 48 858 5586 100  
15 m      09 48 858 5586 150  
20 m      09 48 858 5586 200

RJ45,  
Copper cable (round),  
Wiring 1:1,  
Flame retardant,  
Halogen-free,  
Pre-assembled on both sides,  
Preferred directions left/right,  
Yellow



0.3 m      09 48 858 5587 003  
0.4 m      09 48 858 5587 004  
0.5 m      09 48 858 5587 005  
1 m      09 48 858 5587 010  
2 m      09 48 858 5587 020  
3 m      09 48 858 5587 030  
5 m      09 48 858 5587 050  
7.5 m      09 48 858 5587 075  
10 m      09 48 858 5587 100  
15 m      09 48 858 5587 150  
20 m      09 48 858 5587 200

RJ45,  
Copper cable (round),  
Wiring 1:1,  
Flame retardant,  
Halogen-free,  
Pre-assembled on both sides,  
Preferred directions left/right,  
Green



0.3 m      09 48 858 5588 003  
0.4 m      09 48 858 5588 004  
0.5 m      09 48 858 5588 005  
1 m      09 48 858 5588 010  
2 m      09 48 858 5588 020  
3 m      09 48 858 5588 030  
5 m      09 48 858 5588 050  
7.5 m      09 48 858 5588 075  
10 m      09 48 858 5588 100  
15 m      09 48 858 5588 150  
20 m      09 48 858 5588 200

Cable

Identification	Cable length	Part number	Drawing (dimensions in mm)
RJ45, Copper cable (round), Wiring 1:1, Flame retardant, Halogen-free, Pre-assembled on both sides, Preferred directions left/right, Blue	0.3 m 0.4 m 0.5 m 1 m 2 m 3 m 5 m 7.5 m 10 m 15 m 20 m	09 48 858 5589 003 09 48 858 5589 004 09 48 858 5589 005 09 48 858 5589 010 09 48 858 5589 020 09 48 858 5589 030 09 48 858 5589 050 09 48 858 5589 075 09 48 858 5589 100 09 48 858 5589 150 09 48 858 5589 200	

Cable

4x 2x AWG 26/7  
 HARTING VarioBoot RJ45 Preferred directions left/right  
 HARTING DualBoot RJ45



## Features

- Transmission of up to 10 Gbit/s
- Overmoulded
- Locking lever protection
- Adaptable and changeable cable outlet
- Flexible, space saving
- HARTING DualBoot RJ45 is compatible with Han-Modular®

## Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING VarioBoot RJ45, Preferred directions left/right
Connector 2	HARTING DualBoot RJ45
Limiting temperature	-20 ... +60 °C unmoved, 0 ... +60 °C moved
Degree of protection acc. to IEC 60529	IP20
Transmission characteristics	Cat. 6A, Class EA up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (cable)	FRNC (LSZH)
Colour (cable)	Grey, Red, Yellow, Green, Blue

## Specifications and approvals

IEC 11801  
 IEC 61156-6  
 IEC 60332-1 Flame retardancy  
 IEC 60754-2 Halogen freeness  
 IEC 60754-2 Non corrosive  
 IEC 61034 Low smoke

## Details

Other cable lengths on request!

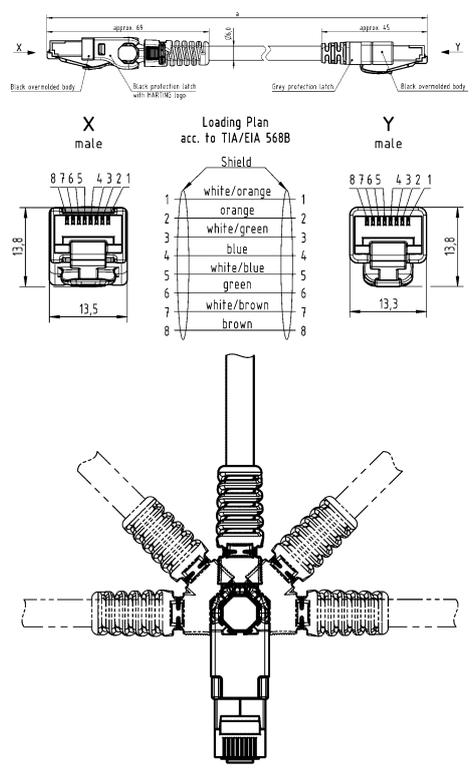
Identification	Cable length	Part number	Drawing (dimensions in mm)																								
RJ45, Copper cable (round), Wiring 1:1, Flame retardant, Halogen-free, Pre-assembled on both sides, Preferred directions left/right, Grey	0.3 m	09 48 858 7585 003	<p>The drawing shows a cross-section of the cable with dimensions: approx. 65 mm for the main length, approx. 25 mm for the boot length, and approx. 45 mm for the boot length. It also shows a wiring plan for the X and Y male connectors.</p> <p><b>X male</b></p> <p><b>Y male</b></p> <p><b>Loading Plan acc. to TIA/EIA 568B</b></p> <table border="1"> <tr><td>1</td><td>white/orange</td><td>1</td></tr> <tr><td>2</td><td>orange</td><td>2</td></tr> <tr><td>3</td><td>white/green</td><td>3</td></tr> <tr><td>4</td><td>blue</td><td>4</td></tr> <tr><td>5</td><td>white/blue</td><td>5</td></tr> <tr><td>6</td><td>green</td><td>6</td></tr> <tr><td>7</td><td>white/brown</td><td>7</td></tr> <tr><td>8</td><td>brown</td><td>8</td></tr> </table>	1	white/orange	1	2	orange	2	3	white/green	3	4	blue	4	5	white/blue	5	6	green	6	7	white/brown	7	8	brown	8
	1	white/orange		1																							
	2	orange		2																							
	3	white/green		3																							
	4	blue		4																							
	5	white/blue		5																							
	6	green		6																							
	7	white/brown		7																							
	8	brown		8																							
	0.4 m	09 48 858 7585 004																									
	0.5 m	09 48 858 7585 005																									
1 m	09 48 858 7585 010																										
2 m	09 48 858 7585 020																										
3 m	09 48 858 7585 030																										
5 m	09 48 858 7585 050																										
7.5 m	09 48 858 7585 075																										
10 m	09 48 858 7585 100																										
15 m	09 48 858 7585 150																										
20 m	09 48 858 7585 200																										
RJ45, Copper cable (round), Wiring 1:1, Flame retardant, Halogen-free, Pre-assembled on both sides, Preferred directions left/right, Red	0.3 m	09 48 858 7586 003																									
	0.4 m	09 48 858 7586 004																									
	0.5 m	09 48 858 7586 005																									
	1 m	09 48 858 7586 010																									
	2 m	09 48 858 7586 020																									
	3 m	09 48 858 7586 030																									
	5 m	09 48 858 7586 050																									
	7.5 m	09 48 858 7586 075																									
	10 m	09 48 858 7586 100																									
	15 m	09 48 858 7586 150																									
	20 m	09 48 858 7586 200																									
RJ45, Copper cable (round), Wiring 1:1, Flame retardant, Halogen-free, Pre-assembled on both sides, Preferred directions left/right, Yellow	0.3 m	09 48 858 7587 003																									
	0.4 m	09 48 858 7587 004																									
	0.5 m	09 48 858 7587 005																									
	1 m	09 48 858 7587 010																									
	2 m	09 48 858 7587 020																									
	3 m	09 48 858 7587 030																									
	5 m	09 48 858 7587 050																									
	7.5 m	09 48 858 7587 075																									
	10 m	09 48 858 7587 100																									
	15 m	09 48 858 7587 150																									
	20 m	09 48 858 7587 200																									
RJ45, Copper cable (round), Wiring 1:1, Flame retardant, Halogen-free, Pre-assembled on both sides, Preferred directions left/right, Green	0.3 m	09 48 858 7588 003																									
	0.4 m	09 48 858 7588 004																									
	0.5 m	09 48 858 7588 005																									
	1 m	09 48 858 7588 010																									
	2 m	09 48 858 7588 020																									
	3 m	09 48 858 7588 030																									
	5 m	09 48 858 7588 050																									
	7.5 m	09 48 858 7588 075																									
	10 m	09 48 858 7588 100																									
	15 m	09 48 858 7588 150																									
	20 m	09 48 858 7588 200																									

Identification	Cable length	Part number	Drawing (dimensions in mm)
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RJ45,  
Copper cable (round),  
Wiring 1:1,  
Flame retardant,  
Halogen-free,  
Pre-assembled on both sides,  
Preferred directions left/right,  
Blue



0.3 m	09 48 858 7589 003
0.4 m	09 48 858 7589 004
0.5 m	09 48 858 7589 005
1 m	09 48 858 7589 010
2 m	09 48 858 7589 020
3 m	09 48 858 7589 030
5 m	09 48 858 7589 050
7.5 m	09 48 858 7589 075
10 m	09 48 858 7589 100
15 m	09 48 858 7589 150
20 m	09 48 858 7589 200



Cable

4x 2x AWG 26/7  
 HARTING DualBoot RJ45  
 HARTING DualBoot RJ45



## Features

- Transmission of up to 10 Gbit/s
- Overmoulded
- Locking lever protection
- Flexible, space saving
- HARTING DualBoot RJ45 is compatible with Han-Modular®

## Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING DualBoot RJ45
Connector 2	HARTING DualBoot RJ45
Limiting temperature	-40 ... +80 °C unmoved, -40 ... +80 °C moved
Transmission characteristics	Cat. 6 <sub>A</sub> , Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (cable)	PUR (polyurethane)
Colour (cable)	Grey, Green
RoHS	compliant

## Specifications and approvals

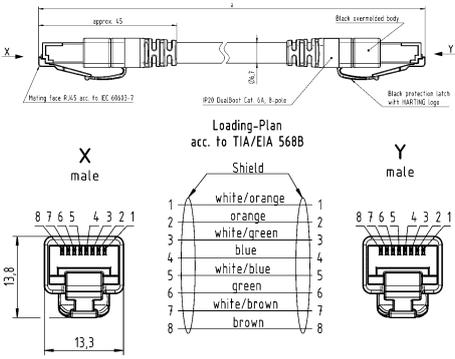
UN/ECE-R 118  
 UL 1863 DUXR.E470046

## Details

Other cable lengths on request!

Cable

Identification	Cable length	Part number	Drawing (dimensions in mm)
RJ45, Copper cable (round), Pre-assembled on both sides, Grey	0.3 m	09 48 474 7743 003	
	0.5 m	09 48 474 7743 005	
	1 m	09 48 474 7743 010	
	2 m	09 48 474 7743 020	
	3 m	09 48 474 7743 030	
	5 m	09 48 474 7743 050	
	6 m	09 48 474 7743 060	
	7 m	09 48 474 7743 070	
	10 m	09 48 474 7743 100	
	12 m	09 48 474 7743 120	
	15 m	09 48 474 7743 150	
	20 m	09 48 474 7743 200	
	25 m	09 48 474 7743 250	
	30 m	09 48 474 7743 300	
	35 m	09 48 474 7743 350	
	40 m	09 48 474 7743 400	

Identification	Cable length	Part number	Drawing (dimensions in mm)
RJ45, Copper cable (round), Pre-assembled on both sides, Green  	0.3 m	09 48 474 7744 003	 <p>                         X male      Loading-Plan acc. to TIA/EIA 568B      Y male                          Shield                          1 white/orange                          2 orange                          3 white/green                          4 blue                          5 white/blue                          6 green                          7 white/brown                          8 brown                     </p>
	0.5 m	09 48 474 7744 005	
	1 m	09 48 474 7744 010	
	2 m	09 48 474 7744 020	
	3 m	09 48 474 7744 030	
	5 m	09 48 474 7744 050	
	7 m	09 48 474 7744 070	
	10 m	09 48 474 7744 100	
	14 m	09 48 474 7744 140	
	15 m	09 48 474 7744 150	
	20 m	09 48 474 7744 200	
	25 m	09 48 474 7744 250	
	30 m	09 48 474 7744 300	
	35 m	09 48 474 7744 350	
	40 m	09 48 474 7744 400	

Cable

4x 2x AWG 26/7



## Features

- Suitable for generic cabling
- For drag chain applications
- Highly EMC resistant
- Oil resistancy
- Flame retardant, halogen free and RoHS compliant

## Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Rated voltage	100 V
Test voltage $U_{r.m.s.}$	2 kV Wire / wire / shielding
Limiting temperature	-40 ... +70 °C unmoved, -40 ... +70 °C moved
Conductor resistance @ 20 °C	≤140 Ω/km
Insulation resistance @ 20 °C	≥1000 MΩ x km
Signal run time @ 20 °C	≤5.13 ns/m
Impedance @ 100 MHz	100 Ω ±10 %
Cable diameter	6.5 ... 7.1 mm
Minimum bending radius	10x Cable diameter, (repeated bending), 5x Cable diameter, (singular bending)
Drag chain compatible	Yes
Bending cycles	≥ 5.000.000 @ 15x Cable diameter @ traversing distance ≤ 1 m @ speed ≤ 0.3 m/s @ acceleration ≤ 6 m/s <sup>2</sup>
Tensile strenght	≤15 N/mm <sup>2</sup>
Transmission characteristics	Cat. 6 <sub>A</sub> , Class E <sub>A</sub> up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Material (cable)	PUR (polyurethane)
Colour (cable)	Black
RoHS	compliant

Cable

## Specifications and approvals

EN 50173-3 generic cabling  
IEC 60332-1-2 Flame retardancy  
IEC 60754-1

Identification	Cable length	Part number	Drawing (dimensions in mm)
Copper cable (round), Not assembled  	20 m 50 m 100 m 500 m	09 45 600 0555 09 45 600 0556 09 45 600 0557 09 45 600 0558	

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