

HARTING Electric



# News 2004



 People | Power | Partnership

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## Representatives – worldwide



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## Technical Details

### Description of Han-Modular® System

The **Han-Modular®** series is a new system of inserts designed to meet the specific requirements of individual customers. In close cooperation with potential users a range of modular inserts have been developed allowing the simple assembly of custom designed complete connectors which meet the diverse requirements encountered by designers today.

**Han-Modular®** is a logical development of the **Han-Corn®** series which already offers the combination of power and signal circuits in one connector.

The individual modules of this series now allow the integration of **electrical**, **optical** and **gaseous** signal and power connections in one connector assembly.

The individual contacts used in this system are all from existing well proven ranges and it is possible to use combinations of 2 to 12 modules depending on the size of the hoods and housings chosen.

The basic modules snap into a mounting frame and can be exchanged at any time.

**The advantages** are obvious: the insert can be individually arranged according to the relevant requirements. Thus the customer can find the optimum solution for any existing or future task.

### Specifications

DIN VDE 0627  
DIN VDE 0110  
DIN EN 61 984

### Frames

Number of modules 2, 3, 4, 6

PE wire gauge

- Power side 4 - 6 mm<sup>2</sup>  
AWG 12 - 10

- Signal side 1 - 2.5 mm<sup>2</sup>  
AWG 18 - 14

Material

die cast zinc alloy

Temperature range

-40 ... +125°C

Mechanical working life

≥ 500 mating cycles

### Locking element

Number per snap-off block 20

Material

Polycarbonate

Temperature range

-40 ... +125°C

Flammability acc. to UL 94

V 0

Identification	Size	Part-Number for Hoods / Housings*		Depiction
		Marking A ... F	Marking a ... f	
Frames	6 B	09 14 006 0303	09 14 006 0313	
	10 B	09 14 010 0303	09 14 010 0313	
	16 B	09 14 016 0303	09 14 016 0313	
	24 B	09 14 024 0303	09 14 024 0313	
Locking element for hinged frame		* Hinged frames can be used either in hood or housing, but two different markings must be used for one connector		
		09 14 000 9960	09 14 000 9960	
	<p>20 pieces per snap-off block please order separately</p>			<p>Ideal to pre-assemble the hinged frame</p>



## Han® E Protected Module

Identification	Part-Numbers		Drawing	Dimensions in mm
	Male insert	Female insert		
Han® E protected module with crimp terminal	09 14 006 3041	09 14 006 3141		
Crimp contacts order separately				

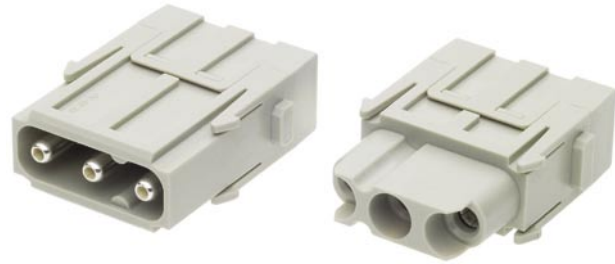
Identification	Wire gauge mm <sup>2</sup>	Part-Numbers		Drawing	Dimensions in mm
		Male insert	Female insert		
Crimp contacts Power contacts	0.5	09 33 000 6121	09 33 000 6220		
	0.75	09 33 000 3114	09 33 000 6214		
	1.0	09 33 000 6105	09 33 000 6205		
	1.5	09 33 000 6104	09 33 000 6204		
	2.5	09 33 000 6102	09 33 000 6202		
	3.0	09 33 000 6106	09 33 000 6206		
	4.0	09 33 000 6107	09 33 000 6207		
silver plated	0.5	09 33 000 6122	09 33 000 6222		
	0.75	09 33 000 6115	09 33 000 6215		
	1.0	09 33 000 6118	09 33 000 6218		
	1.5	09 33 000 6116	09 33 000 6216		
	2.5	09 33 000 6123	09 33 000 6223		
gold plated	4.0	09 33 000 6119	09 33 000 6221		
	0.75-1	09 33 000 6109			
	1.5	09 33 000 6110			
Relay contact silver plated	2.5	09 33 000 6111			

## Features

- Finger protected male and female contacts
- Suitable for high working voltage of 830 V
- Combination with all Han® modules is possible
- Suitable for all Han® B hoods and housings as well as in Han-Modular® Compact housings (except for Han® 6 B low construction)

## Technical Details

Number of contacts	6
Electrical data	
acc. to DIN EN 61 984	16 A 830 V 8 kV 3
Rated current	
Rated voltage	
Rated impulse voltage	
Pollution degree	
Pollution degree 2 also	16 A 1000V 8 kV 2
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	Polycarbonate
Temperature range	-40 ... +125°C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 500 mating cycles



Han® C-Module with Axial Screw Terminal

Identification	Part-Number		Drawing	Dimensions in mm
	Male insert	Female insert		
Han® C-module with axial screw terminal				
2.5 - 6 mm <sup>2</sup>	09 14 003 2601	09 14 003 2701		Kontaktanordnung Ansicht Anschlusseite 
6 - 10 mm <sup>2</sup>	09 14 003 2602	09 14 003 2702		

Identification	Part-Number	Drawing	Dimensions in mm
Hex Key SW 2			
for axial setscrew			
with grip	09 99 000 0313		
bit 1/4"	09 99 000 0369		
Working instructions for the assembly of the axial setscrew please see main HARTING Electric catalogue 02.1			

## Features

- Compatible to the Han® C-module with crimp terminal
- Suitable for large wire gauges up to 10 mm<sup>2</sup> (AWG 8)
- Compact power supply terminal with the aid of Han-Modular® Compact
- Combination with all Han® modules possible
- Suitable for all Han® B as well as for Han-Modular® Compact hoods and housings high construction

## Technical Details

Number of contacts	3
Electrical data acc. to DIN EN 61 984	40 A 690 V 8 kV 3
Rated current	
Rated voltage	
Rated impulse voltage	
Pollution degree	
Pollution degree 2 also	40 A 1000V 8 kV 2
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	Polycarbonate
Temperature range	-40 ... +125°C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 500 mating cycles



## Han® DDD-Module

Identification	Part-Numbers		Drawing	Dimensions in mm
	Male insert	Female insert		
Han® DDD-module with crimp terminal	09 14 017 3001	09 14 017 3101*		Contact arrangement View from termination side
Crimp contacts order separately	*Availability on request			

Identification	Wire gauge mm <sup>2</sup>	Part-Numbers		Drawing	Dimensions in mm																											
		Male insert	Female insert																													
<b>Crimp contacts</b>	0.14-0.37	09 15 000 6104	09 15 000 6204																													
Power contacts	0.5	09 15 000 6103	09 15 000 6203																													
	0.75	09 15 000 6105	09 15 000 6205																													
silver plated	1.0	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																													
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>∅</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup></td> <td>AWG 26-22</td> <td>0.90 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>1.10 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.30 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>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	0.90 mm	8 mm	0.5 mm <sup>2</sup>	AWG 20	1.10 mm	8 mm	0.75 mm <sup>2</sup>	AWG 18	1.30 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																													

## Features

- High contact density
- Combination with all Han® modules possible
- Suitable for all Han® B hoods and housings as well as for Han-Modular® Compact hoods and housings

## Technical Details

Number of contacts	17
Electrical data	
acc. to DIN EN 61 984	10 A 160 V 2.5 kV 3
Rated current	
Rated voltage	
Rated impulse voltage	
Pollution degree	
Pollution degree 2 also	10 A 250 V 4 kV 2
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	Polycarbonate
Temperature range	-40 ... +125°C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 500 mating cycles





Han® D-Sub-Module

Identification	Part-Number		Drawing	Dimensions in mm						
	Male insert	Female insert								
<p><b>Han® D-Sub-module</b> for RS485-based bus systems with T-functionality with screw terminal</p>		09 14 009 3151								
			<p>Contact arrangement View from termination side</p> <table border="1"> <thead> <tr> <th>Signal</th> <th>Contact-No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>8</td> </tr> <tr> <td>B</td> <td>3</td> </tr> </tbody> </table>	Signal	Contact-No.	A	8	B	3	
Signal	Contact-No.									
A	8									
B	3									

Features

- Suitable i.e. for PROFIBUS, CAN ...
- T-functionality with branch lines acc. to IEC 61158 up to 1.5 Mbaud
- Shielding contact by means of double clamp
- Termination of both bus conductors by means of screw terminals
- Good shielding properties due to inner potential separated zinc die cast chamber

Technical Details

Number of contacts	9 (2 of which are reserved)
Electrical data acc. to DIN EN 61 984	5 A 50 V 0.8 kV 3
Rated current	
Rated voltage	
Rated impulse voltage	
Pollution degree	
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material: - insert	Polycarbonate
- shielding element	Zinc die cast alloy
Temperature range	-40 ... +125°C
Flammability acc. to UL 94	V 0





## Part-Number 09 99 000 0110\*

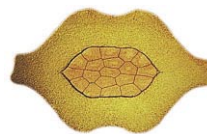
### Crimp connection

A perfect crimp connection is gastight, therefore corrosion free and amounts to a cold weld of the parts being connected. For this reason, major features in achieving high quality crimp connections are the design of the contact crimping parts and of course the crimping tool itself. Wires to be connected must be carefully matched with the correct size of crimp contacts. If these basic requirements are met, users will be assured of highly reliable connections with low contact resistance to corrosive attack.

### Advantages of the new crimping tool:

- higher mechanical stability
- about 10% lower operating forces than other crimping tool
- no adjustment and readjustment necessary
- tested up to 30.000 crimp connections: consistant quality
- including multi functional locator
- for Han D, Han E and Han C contacts ranging from 0.14 up to 4 mm<sup>2</sup>

### Crimp Cross Section



### Tensile strength of crimped connections

acc. to DIN IEC 60352-2, A2

Conductor cross section		Tensile strength	Han® Contacts	
mm <sup>2</sup>	AWG	N		
0.12	26	15	D	
0.14		18	D	
0.22	24	28	D	
0.25		32	D	
0.32	22	40	D	
0.50	20	60	D	E
0.75		85	D	E
0.82	18	90	D	E
1.00		108	D	E
1.30	16	135	D	E
1.50		150	D	E
2.10	14	200		E
2.50		230		E
3.30	12	275		E
4.00		310		E
				C

\*available by June 2004

## Features

Han<sup>®</sup>-GoldTec contacts establish a new technology in contact surface finishing. The Han<sup>®</sup>-GoldTec surface is composed of a durable nickel-phosphorous-alloy, plated with gold. This multiple-layer surface guarantees reliable connections.

Han<sup>®</sup>-GoldTec contacts have the same excellent features as the well-known gold plated contacts. Tough testing of the new surface proved conclusively that it is extremely resistant and durable.

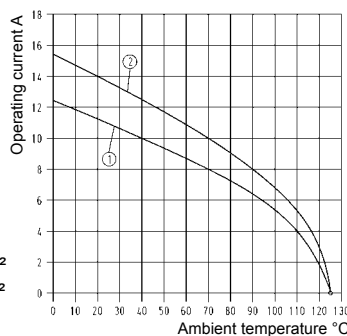
The new Han<sup>®</sup>-GoldTec contacts assure as did the former gold plated contacts the longterm availability of your machines and installations.

- Corrosion free even after extreme exposure to sulfur, nitrogen and chlorine (EN 60068)
- Extremely robust - the gold surface is not damaged after 500 mating cycles
- All standards requirements concerning power and data transmission are met conclusively (EN 61 984)
- Available for all contacts with crimp terminal up to 16 A rated current

## Derating Diagram

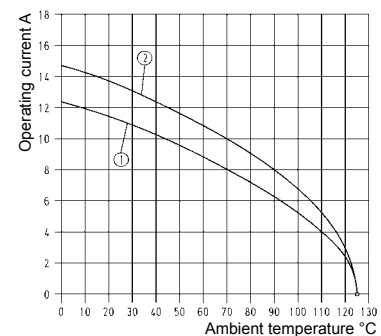
The current carrying capacity is as high as gold plated contacts.

Han<sup>®</sup> D and Han<sup>®</sup> E contacts with gold plated surface



1 = Han<sup>®</sup> D, wire gauge 1 mm<sup>2</sup>  
2 = Han<sup>®</sup> E, wire gauge 1 mm<sup>2</sup>

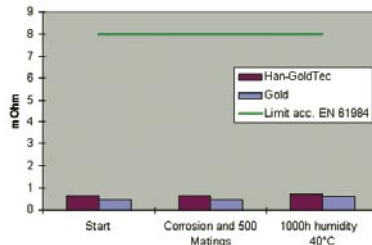
Han<sup>®</sup> D and Han<sup>®</sup> E contacts with GoldTec surface



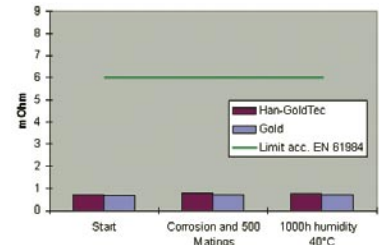
## Contact Resistance

Low contact resistance guarantees a safe and reliable data transfer.

Contact resistance Gold - GoldTec Han<sup>®</sup> D contacts



Contact resistance Gold - GoldTec Han<sup>®</sup> E contacts



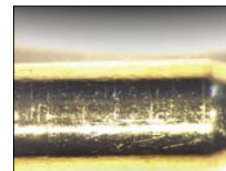
## Mechanical Working Life

The well-known robustness and durability of GoldTec contacts guarantee a high degree of availability your machines and installations.

Han<sup>®</sup> D contacts with GoldTec surface after 500 mating cycles.



Han<sup>®</sup> E contacts with GoldTec surface after 500 mating cycles.



## Technical Details


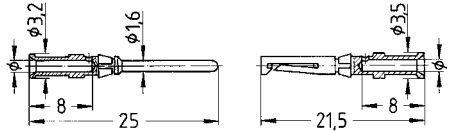
Standards  
IEC 512  
EN 60 068  
EN 61 984  
IEC 60 664


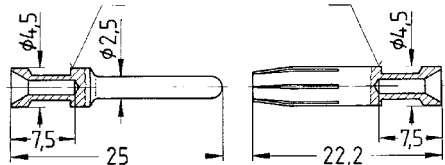
### Han® D

Material: copper alloy  
Surface: gold plated on NiP alloy  
Contact resistance: ≤ 3 mΩ  
Crimp terminal: 0.14 - 2.5 mm<sup>2</sup>  
AWG 26 - 14  
Operating current: 10 A

### Han® E

Material: copper alloy  
Surface: gold plated on NiP alloy  
Contact resistance: ≤ 1 mΩ  
Crimp terminal: 0.14 - 4 mm<sup>2</sup>  
AWG 26 - 12  
Operating current: 16 A

Identification	Wire gauge mm <sup>2</sup>	Part-Number		Drawing	Dimensions in mm																												
		Male insert	Female insert																														
<b>Han® D contacts</b>  	0.14-0.37	09 15 000 6304	09 15 000 6404		<table border="1"> <thead> <tr> <th colspan="2">Wire gauge</th> <th>∅</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm<sup>2</sup></td> <td>AWG 26-22</td> <td>0.90 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>1.10 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.30 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>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	0.90 mm	8 mm	0.5 mm <sup>2</sup>	AWG 20	1.10 mm	8 mm	0.75 mm <sup>2</sup>	AWG 18	1.30 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																											
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2.5 mm <sup>2</sup>	AWG 14	2.25 mm	6 mm																														
0.5	09 15 000 6303	09 15 000 6403																															
0.75	09 15 000 6305	09 15 000 6405																															
1.0	09 15 000 6302	09 15 000 6402																															
1.5	09 15 000 6301	09 15 000 6401																															
2.5	09 15 000 6306	09 15 000 6406																															

Identification	Wire gauge mm <sup>2</sup>	Part-Number		Drawing	Dimensions in mm																																
		Male insert	Female insert																																		
<b>Han® E contacts</b>  	0.14-0.37	09 33 000 6327	09 33 000 6427		<p>Identification of the crimp contacts</p> <table border="1"> <thead> <tr> <th>Identification</th> <th colspan="2">Wire gauge</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>no groove</td> <td>0.14-0.37 mm<sup>2</sup></td> <td>AWG 26-22</td> <td>7.5 mm</td> </tr> <tr> <td>no groove</td> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>7.5 mm</td> </tr> <tr> <td>1 groove*</td> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>7.5 mm</td> </tr> <tr> <td>1 groove</td> <td>1 mm<sup>2</sup></td> <td>AWG 18</td> <td>7.5 mm</td> </tr> <tr> <td>2 grooves</td> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> <td>7.5 mm</td> </tr> <tr> <td>3 grooves</td> <td>2.5 mm<sup>2</sup></td> <td>AWG 14</td> <td>7.5 mm</td> </tr> <tr> <td>no groove</td> <td>4 mm<sup>2</sup></td> <td>AWG 12</td> <td>7.5 mm</td> </tr> </tbody> </table>	Identification	Wire gauge		Stripping length	no groove	0.14-0.37 mm <sup>2</sup>	AWG 26-22	7.5 mm	no groove	0.5 mm <sup>2</sup>	AWG 20	7.5 mm	1 groove*	0.75 mm <sup>2</sup>	AWG 18	7.5 mm	1 groove	1 mm <sup>2</sup>	AWG 18	7.5 mm	2 grooves	1.5 mm <sup>2</sup>	AWG 16	7.5 mm	3 grooves	2.5 mm <sup>2</sup>	AWG 14	7.5 mm	no groove	4 mm <sup>2</sup>	AWG 12	7.5 mm
	Identification	Wire gauge				Stripping length																															
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0.75	09 33 000 6314	09 33 000 6414																																			
1.0	09 33 000 6305	09 33 000 6405																																			
1.5	09 33 000 6304	09 33 000 6404																																			
2.5	09 33 000 6302	09 33 000 6402																																			
4.0	09 33 000 6307	09 33 000 6407																																			

\*on the back crimp collar

## Technical Details

### Inserts Han® Q 4/2

Number of contacts	4/2 + PE
Power contacts Han® C	
Electrical data	
acc. to DIN EN 61 984	40 A 400/690V 6kV 3
Rated current	
Rated voltage	
Rated impulse voltage	
Pollution degree	
Control contacts Han® D	
Electrical data	
acc. to DIN EN 61 984	10 A 690V 6kV 3
Rated current	
Rated voltage	
Rated impulse voltage	
Pollution degree	
Insulation resistance	≥ 10 <sup>10</sup> Ω
Temperature range	40° C ... + 125° C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 500 mating cycles

### Han® C Contacts

Material	Copper alloy
Surface: hard silver plated	5 µm Ag
Contact resistance	≤ 0.3 mΩ
Crimp terminal - mm <sup>2</sup>	2.5 - 6 mm <sup>2</sup>
- AWG	14 - 10
Max. Insulation diameter of single strand	5 mm

### Han® D Contacts

Material	Copper alloy
Surface: hard silver plated	3 µm Ag
Contact resistance	≥ 1 mΩ
Crimp terminal - mm <sup>2</sup>	0.14 - 2.5 mm <sup>2</sup>
- AWG	26 - 14

### Hoods/housings

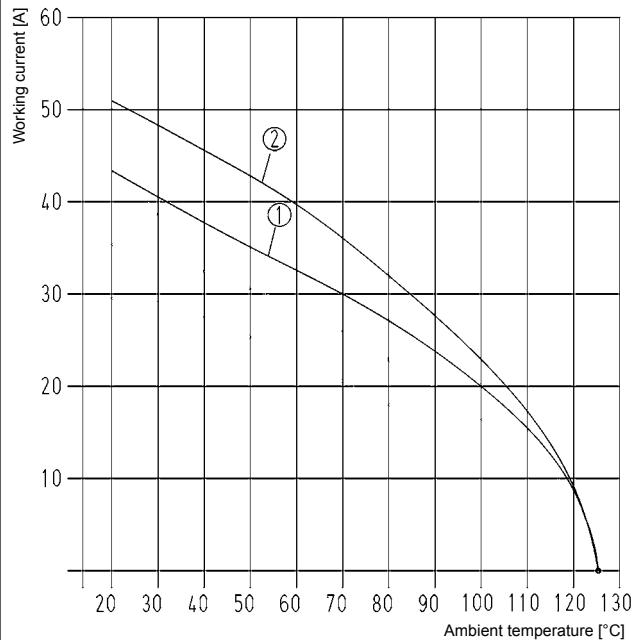
Material	Polycarbonate
Colour	RAL 9005
Seal	NBR
Temperature range	
connecting temperature	25° C ... + 40° C
working temperature	25° C ... + 80° C
Flammability acc. to UL 94	V 0
Protection degree acc. to DIN 40050 in locked position	IP 65

### Cables

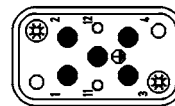
Set up of the wire	acc. to DIN VDE 0295 and DIN VDE 0281
Stranded wire	
Stranded wire gauge 2.5 mm <sup>2</sup>	
Number of stranded wires	50 x 0.25 mm Ø
Outer diameter	3.6 mm Ø
Stranded wire gauge 4 mm <sup>2</sup>	
Number of stranded wires	56 x 0.30 mm Ø
Outer diameter	4.2 mm Ø
Stranded wire gauge 6 mm <sup>2</sup>	
Number of stranded wires	84 x 0.30 mm Ø
Outer diameter	4.8 mm Ø

### Derating-Diagramm Han-Power® S

acc. to IEC 512-3



1 = Han® Q 4/2 wire gauge 4 mm<sup>2</sup>  
2 = Han® Q 4/2 wire gauge 6 mm<sup>2</sup>



Han® Q 4/2 fully equipped with wire gauge 4 x 6 mm<sup>2</sup>


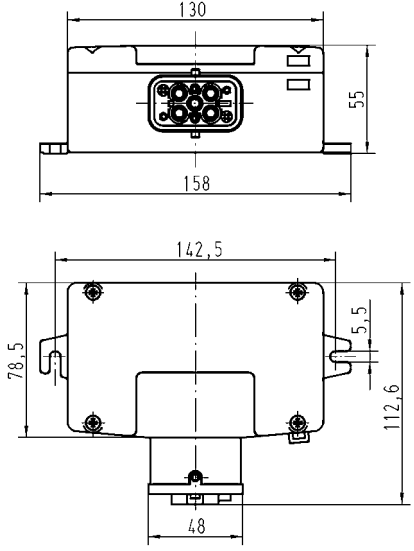
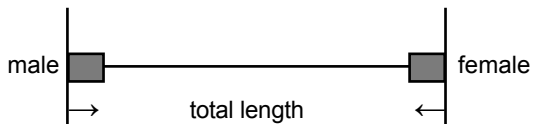

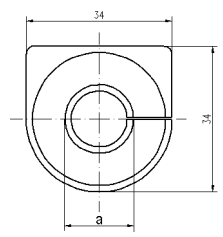
### Features


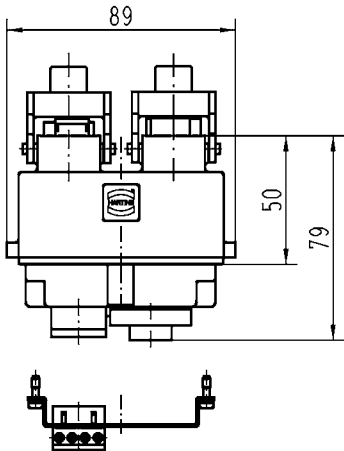
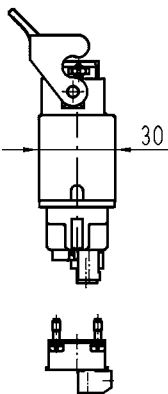



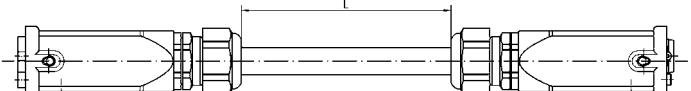
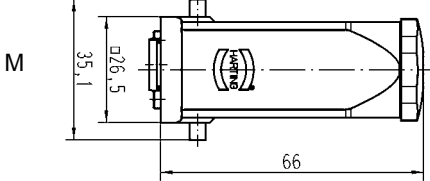
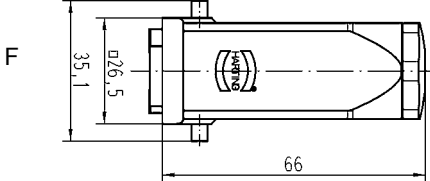
- 6 IDCs + PE for 2.5 up to 4 mm<sup>2</sup> and 4 up to 6 mm<sup>2</sup> wire gauge
- No interruption of the energy supply
- Space-saving and compact design
- Leading protective ground in the relevant insert
- Assembly with standard tools
- T-functionality for max. 500 V
- Marking on the termination board with identification of contacts
- Distribution to device

Han-Power® S: with 1 x Han® Q 4/2 the distribution to device is realized with a Han-Compact® cable to cable housing

## Description

The Han-Power® S connector is suitable for the assembly of serial power bus. Having assembled the energy supply Han-Power® S can be inserted at any place of the power cable. The cable mantle has to be removed, the conductor is placed **without** interruption in the IDC. Han-Power® S is applied for wire gauges of 2.5 mm<sup>2</sup> up to 4 mm<sup>2</sup> and 4 mm<sup>2</sup> up to 6 mm<sup>2</sup> and stranded wires manufactured acc. to DIN VDE 0281/DIN VDE 0295. For the distribution to the device a Han-Compact® cable to cable housing is used.

Identification	Part-Number	Drawing	Dimensions in mm															
<p><b>Han-Power® S</b> Distribution is realized with 1 Han-Compact® hood with Han® Q 4/2 insert</p>  <p>2.5 - 4 mm<sup>2</sup></p> <p>4 - 6 mm<sup>2</sup></p>	<p>09 12 008 4804</p> <p>09 12 008 4806</p>																	
Identification	Part-Number	Drawing	Dimensions in mm															
<p><b>System cable in fixed lengths</b></p> <p>Total length in m, pre-assembled on both sides, plastic hood black, top entry cable: 5 x 4 mm<sup>2</sup></p>	<table border="0"> <tr> <td>1.5</td> <td>20 88 641 1015</td> </tr> <tr> <td>3</td> <td>20 88 641 1030</td> </tr> <tr> <td>5</td> <td>20 88 641 1050</td> </tr> <tr> <td>10</td> <td>20 88 641 1100</td> </tr> <tr> <td>15</td> <td>20 88 641 1150</td> </tr> <tr> <td>30</td> <td>20 88 641 1300</td> </tr> </table>	1.5	20 88 641 1015	3	20 88 641 1030	5	20 88 641 1050	10	20 88 641 1100	15	20 88 641 1150	30	20 88 641 1300					
1.5	20 88 641 1015																	
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5	20 88 641 1050																	
10	20 88 641 1100																	
15	20 88 641 1150																	
30	20 88 641 1300																	
Identification	Part-Number	Drawing	Dimensions in mm															
<p><b>Seals</b></p>  <p>Blind grommet</p>	<table border="0"> <tr> <td>09 12 000 9969</td> <td>09 12 000 9974</td> </tr> <tr> <td>09 12 000 9970</td> <td></td> </tr> <tr> <td>09 12 000 9971</td> <td></td> </tr> <tr> <td>09 12 000 9972</td> <td></td> </tr> <tr> <td>09 12 000 9973</td> <td></td> </tr> </table>	09 12 000 9969	09 12 000 9974	09 12 000 9970		09 12 000 9971		09 12 000 9972		09 12 000 9973		<p>Cable ø</p> <p>a</p> <table border="0"> <tr> <td>7 -10</td> </tr> <tr> <td>10-13</td> </tr> <tr> <td>13-16</td> </tr> <tr> <td>16-19</td> </tr> <tr> <td>19-22</td> </tr> </table> 	7 -10	10-13	13-16	16-19	19-22	
09 12 000 9969	09 12 000 9974																	
09 12 000 9970																		
09 12 000 9971																		
09 12 000 9972																		
09 12 000 9973																		
7 -10																		
10-13																		
13-16																		
16-19																		
19-22																		

Identification	Part-Number	Drawing	Dimensions in mm
<p>Han® Data-T-SafetyBUS p®</p> 	<p>20 74 302 0161</p>		
<p>Han® 16 A bulkhead mounted housing</p>	<p>09 20 016 0301</p>		
<p>System cable with plastic hood Cable length (L) variable</p>	<p>20 88 311 0001</p>		
<p>System cable with metal hood Cable length (L) variable</p>	<p>20 88 351 0001</p>		
<p>Terminating connector Plastic version    male                              female</p>	<p>09 15 004 2691 09 15 004 2791</p>		
<p>Metal version    male                              female</p>	<p>09 15 004 2693 09 15 004 2793</p>		
<p>Cable in meters</p>	<p>20 23 023 1001</p>		



Han® Data-T-Connection SafetyBUS p®

## Advantages

- All terminals connectorized
- Hybrid cabling
- Compact design
- Proven data interface Han-Brid® Quintax 3 A
- T-Functionality
- High protection degree IP 65
- 360° shielded data connector
- Mounted on the switch cabinet by means of Han® 16 A bulkhead mounted housing

## General Description

The main feature of the Han® data-T-connection SafetyBUS p® is its compact design. It is the seamless transition between the IP 20 world within the switch cabinet and the IP 65 world in a rough industrial environment. It is suitable for use with existing SafetyBUS p® components such as switch cabinets for robots or machines. Equipped with connectors it can be assembled quickly. Also the enlargement of switch cabinets is possible, without interrupting the secure data transfer to other units.

The hybrid communication interface Han-Brid® Quintax 3 A ensures easy wiring.

## Technical Details

### Hoods / Housings

Material	Polycarbonate
Seal	NBR
Temperature range	-40°C up to +70°C
Protection degree in locked position	IP 65

### Power Supply

Electrical data acc. to DIN EN 61 984	10 A 50 V 0.8 kV 3
Rated current	10 A
Rated voltage	50 V
Rated impulse voltage	0.8 kV
Pollution degree	3
Wire gauge	0.14 up to 2.5 mm <sup>2</sup> flexible AWG 26 – 14

### Data Interface\*

Shielding	360°
Conductor diameter	0.14 up to 2.5 mm <sup>2</sup> flexible
Transmission properties:	Cat 5 acc. to ISO/IEC 11801 2002 und EN 50173
Dimensions shielded data conductor	3 up to 9.5 mm

### Specifications Cable

Type	SafetyBUS p® Hybrid, Li09Y/12YC11Y 3 x 0.75 mm <sup>2</sup> + 2 x 2.5 mm <sup>2</sup>
Temperature range	-40°C up to +80°C
Bending radius (once)	5 x cable ø
Bending radius (twice)	15 x cable ø
Outside jacket	acc. to VDE 0282 Teil 10
Jacket	PUR, halogen free
Colour	yellow, RAL 1003

### Data conductor 3 x 0.75 mm<sup>2</sup>

Colours	white, brown, green
Conductor	Cu blank 0.75 mm <sup>2</sup>

### Power conductor 2 x 2.5 mm<sup>2</sup>

Colours	red, black
Conductor	Cu blank 2.5 mm <sup>2</sup>

### Approvals

UL

\* Working instructions for the assembly of the axial setscrew please see main HARTING Electric catalogue 02.1


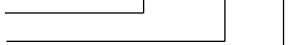
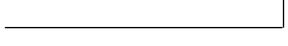
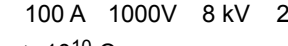


## Technical Details

### Specifications

DIN VDE 0627  
DIN VDE 0110  
DIN EN 61 984

### Inserts

Number of contacts	8 + PE
Electrical data acc. to DIN EN 61 984	100 A 690 V 8 kV 3
Working current	
Working voltage	
Rated impulse voltage	
Pollution degree	
Pollution degree 2 also	100 A 1000V 8 kV 2
Insulation resistance	$\geq 10^{10} \Omega$
Material	Polycarbonate
Temperature range	-40 ... +125°C
Flammability acc. to UL 94	V 0
Mechanical working life	$\geq 500$ mating cycles

### Contacts

Material	Copper alloy
Surface: hard silver plated	3 $\mu\text{m}$ Ag
Contact resistance	$\geq 0.5 \text{ m}\Omega / 3\text{m}\Omega$
Screw terminal	
- mm <sup>2</sup>	10 - 25 mm <sup>2</sup>
- AWG	7 - 3
- Tightening torque	6 Nm / 0.8 Nm

### Hoods/housings

Material	Die cast aluminium
Surface	Powder-coated RAL 7037
Locking element	Han-Easy Lock®
Hoods/housings seal	NBR
Temperature range	-40 ... +125°C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 65

### For accessories

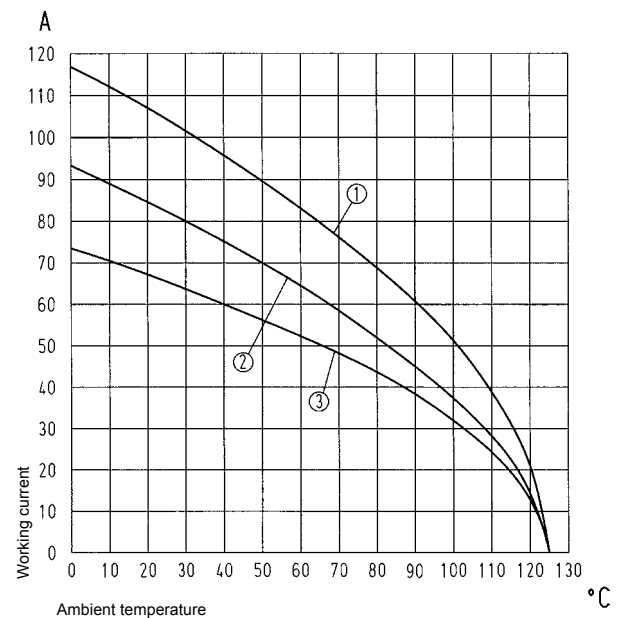
see main catalogue 02 1 HARTING Electric

Cable clamps	chapter 40
Coding of hoods/housings	chapter 40
Label acc. to CSA-approval	chapter 40
Han-Snap®	chapter 11

### Current carrying capacity

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

Control and test procedures according to DIN IEC 60 512-3.



- 1 = Wire gauge: 25 mm<sup>2</sup>  
2 = Wire gauge: 16 mm<sup>2</sup>  
3 = Wire gauge: 10 mm<sup>2</sup>

Number of contacts

8/0 +

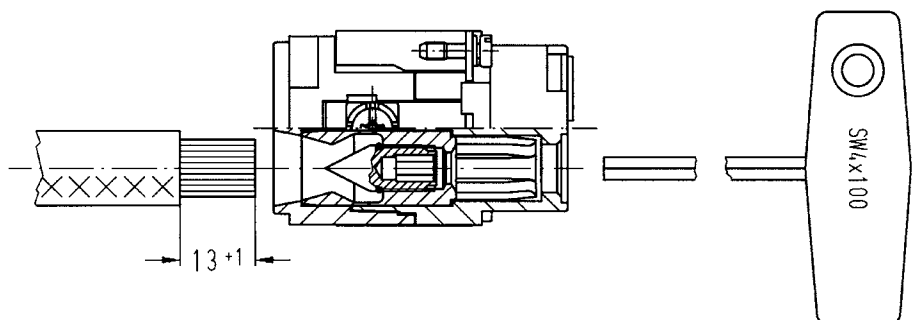


Inserts

Identification	Series	Part No.		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
Axial screw terminal	Han® K  8/0	09 38 008 2653	09 38 008 2753	<p>1) Distance for secure contact max. 21 mm</p> <p>Contact arrangement View from termination side</p>	
Hex Key SW 4 for axial setscrew			09 99 000 0363		
with grip			09 99 000 0370		
adapter 3/8 "					

Working instructions

for axial setscrew



## Characteristics

### Han-Snap® swinging mounting parts

- Swinging design allows easy access to the insert termination side even after assembly on standard rail or 35 x 7.5
- Quick assembly of the inserts without screws
- The swinging mounting parts can directly be screwed on a mounting panel within the control cabinet
- Reduction of assembly costs

### Han-Snap® latching part Han-Snap® plastic housings

- Inserts can be assembled on the insert mounting with the standard insert fixing screws.
- Up to 2 cable ties with max. 5 mm width can be used on the strain relief
- Strain relief and latching are one part
- The accessories are compatible with inserts of series Han B
- Practical and easy handling
- Reduction of material- and assembly costs

## Technical Details

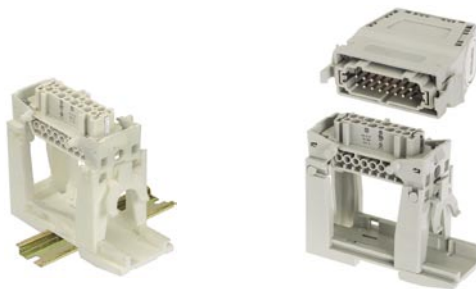
Vibration resistance	IEC 60 068, part 2-6
Resistance to shock	IEC 60 068, part 2-27
Torsional moment of fixing screws/ coding elements	0.8 Nm
Material	Thermoplastic resin, polycarbonate, RAL 7032, grey
Flammability	V0 acc. to UL 94
Temperature range	-40°C ... +125°C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 20

## Pack Contents

Delivery comprises for one insert

09 33 000 9801	- 1 carrier element, fixed
09 33 000 9803	- 1 carrier element, swinging - 2 insert mounting parts
09 33 000 9991	- 1 latching part with strain relief - 1 latching part
09 33 006 0401	- 2 half shells with 2 blind plugs
09 33 010 0401	
09 33 016 0401	
09 33 024 0401	

## Insert mountings with swinging element



### Identification

### Part-Number

### Drawing

### Dimensions in mm

#### Insert mounting parts swinging

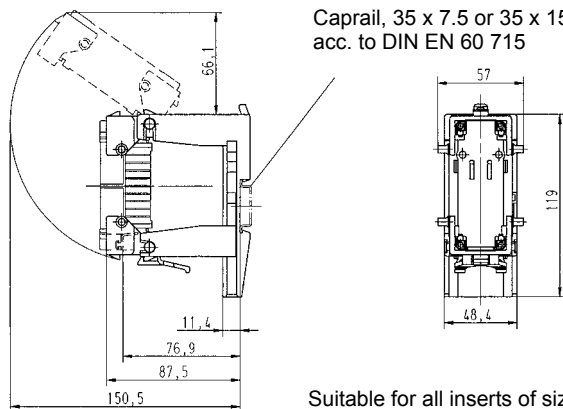
for standard inserts



for Han-Modular® hinged frames

09 33 000 9801

09 33 000 9803



Caprail, 35 x 7.5 or 35 x 15 acc. to DIN EN 60 715

Suitable for all inserts of size Han B (i.e.: Han 40/64 D, DD, E, ES, EE, HvE, HvES, Com, HsB)

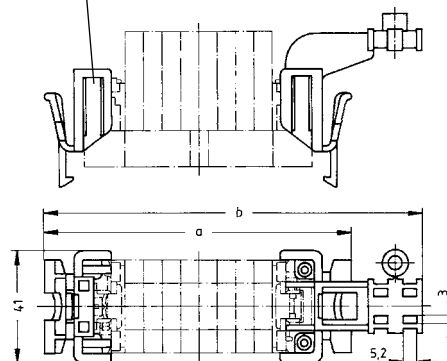
#### Latching part with strain relief



09 33 000 9991

Size	a	b
6 B	78.5	105.0
10 B	91.5	118.0
16 B	112.0	138.5
24 B	138.5	165.0

Slot for identification strips 7 mm

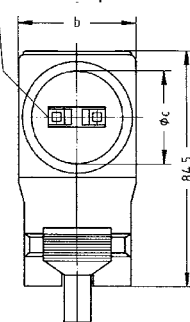


#### Plastic housings

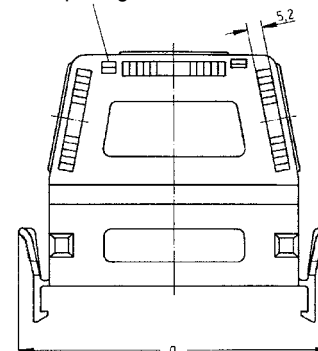


6 B	09 33 006 0401
10 B	09 33 010 0401
16 B	09 33 016 0401
24 B	09 33 024 0401

Blind plug with slot for identification strip



Opening for release



Size	a	b	c
6 B	78.5	39	24
10 B	91.5	43	30
16 B	112.0	43	34
24 B	138.5	43	34



## Technical Data

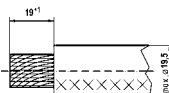
### Inserts

Number of contacts	i.e. 4, 5, 6, 10 depending on the frame
Rated current	350 A, 650 A
Rated voltage	4000 V
Testing voltage $U_{rms}$	10 kV
Degree of pollution	3
Flammability acc. to UL 94	V 0
Insulation resistance	$\geq 10^{10} \Omega$
Material	Polyamide
Contact resistance	$\leq 0.2 \text{ m}\Omega$
Temperature	- 40° ... + 125°C
Mechanical Working Life	$\geq 500$ mating cycles

### Contacts HC 350

Material	Copper alloy
Surface	Silver
Contact resistance	$\leq 0.2 \text{ m}\Omega$
Axial screw termination	
- Wire gauge	35 - 70 mm <sup>2</sup> or 95 - 120 mm <sup>2</sup>
- AWG	1 - 00 or 000 - 0000

Stripping length

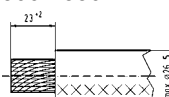


Wire gauge	mm <sup>2</sup>	35	50	70	95	120
Tightening torque	Nm	8	10	12	14	16

### Contacts HC 650

Material	Copper alloy
Surface	Silver
Contact resistance	$\leq 0.2 \text{ m}\Omega$
Axial screw termination	
- Wire gauge	70 - 120 mm <sup>2</sup> or 150 - 185 mm <sup>2</sup>
- MCM	138 - 236 or 300 - 350

Stripping length



Wire gauge	mm <sup>2</sup>	70	95	120	150	185
Tightening torque	Nm	12	14	16	17	18

## Features


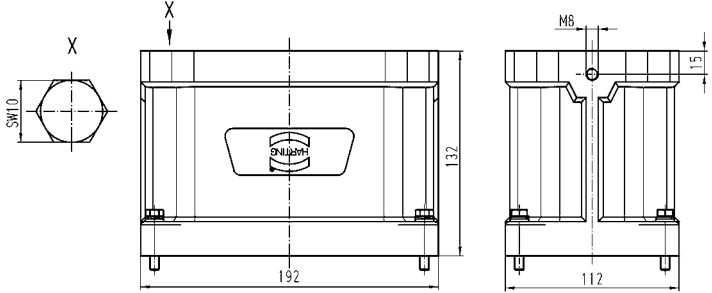

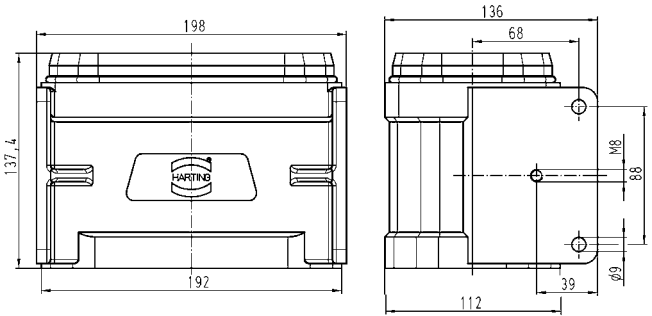

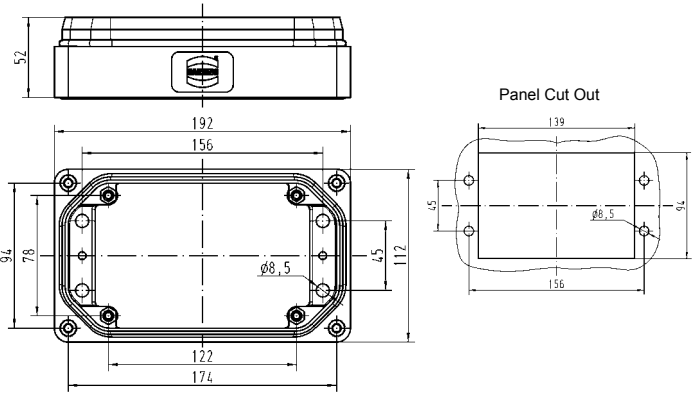

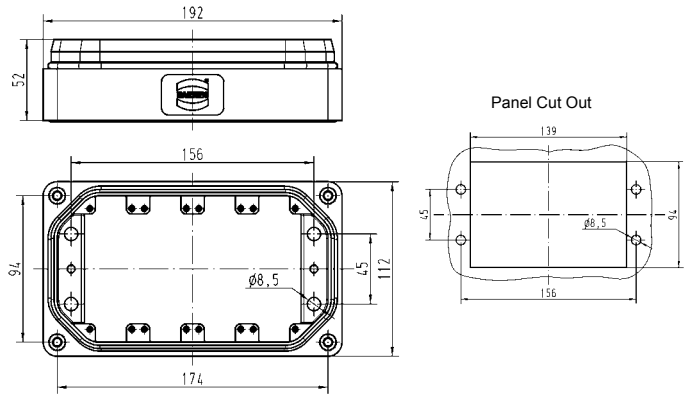
- Well proven Han® HPR design
- Corrosion resistant alloy
- Good EMC features
- Degree of protection IP 68
- Easy assembly
- Secure termination, easy to control
- Vibration resistant acc. to DIN EN 61 373
- Ideal motor/ drive connector for the transportation sector


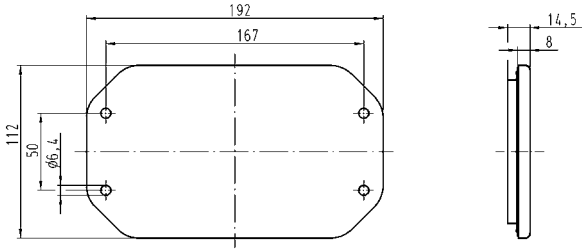

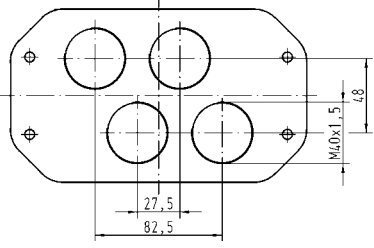

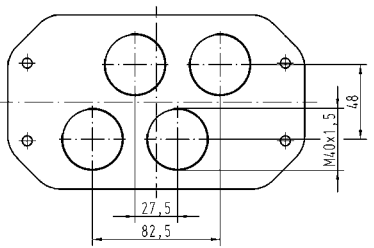

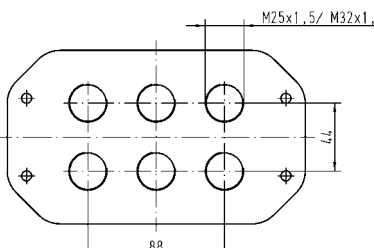

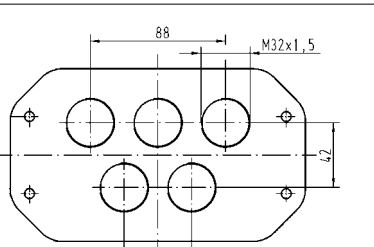

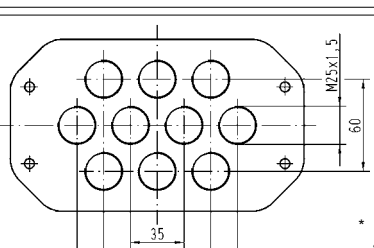
### Frames

Material	V2A steel
Tightening torque of the fixing screws	2 Nm

### Han® HPR hoods and housings

Material	Corrosion resistant Aluminium die cast
Surface	Powder Paint RAL 9005
Locking elements	V2A steel
Tightening torque	4 Nm
Seal	NBR
Temperature	-40°C ... +125°C
Degree of protection acc. to DIN 60 529 in locked position	IP 68

Identification	Part-Number	Drawing	Dimensions in mm
<p><b>Hood</b></p> 	<p>09 40 048 0451</p>		
<p><b>Surface mounted housing</b></p> 	<p>09 40 048 0951</p>		
<p><b>Bulkhead mounted housing</b></p> 	<p>09 40 048 0311</p>		
<p><b>Bulkhead mounted housing</b> for 4 standard inserts size 16 B</p> 	<p>09 40 048 0331</p>		

Identification	Part-Number	Drawing	Dimensions in mm
<p><b>Cover*</b> without cable entry</p> 	<p>09 40 048 9801</p>		
<p><b>Cover*</b> 4 x M40 for male inserts</p> 	<p>19 40 048 9801</p>		
<p><b>Cover*</b> 4 x M40 for female inserts</p> 	<p>19 40 048 9901</p>		
<p><b>Cover*</b> 6 x M25 6 x M32</p> 	<p>19 40 048 9820 19 40 048 9822</p>		
<p><b>Cover*</b> 5 x M32</p> 	<p>19 40 048 9812</p>		
<p><b>Cover*</b> 10 x M25</p> 	<p>19 40 048 9860</p>		<p>* Included in delivery range: 4 distance pieces 4 screws M6 4 washers</p>



Identification	Part-Number Male                  Female	Depiction
<p><b>Frame</b> for 4 standard inserts size 16B</p>	<p>09 40 048 9912    09 40 048 9912</p>	 <p>Suitable only for hood and surface mounted housings only</p>
<p><b>Frame</b> for 4 x HC 350 contacts + 2 x Han® Q 5/0</p>	<p>09 40 048 9810    09 40 048 9910</p>	
<p><b>Frame</b> for 4 x HC 650 + 2 x Han® Q 5/0</p>	<p>09 40 048 9811    09 40 048 9911</p>	
<p><b>Frame</b> for 6 x HC 350 contacts</p>	<p>09 40 048 9806    09 40 048 9906</p>	
<p><b>Frame</b> for 4 x HC 350 contacts + PE</p>	<p>09 40 048 9809    09 40 048 9909</p>	
<p><b>Frame</b> for 10 x HC 350 contacts</p>	<p>09 40 048 9860    09 40 048 9960</p>	



Hood for 3 x M32

**Advantages**

- Corrosion resistant alloy
- Good EMC properties
- Large wiring space
- Suitable for all connectors size 24

**Technical Details**

Material	corrosion resistant aluminium die cast
Surface	powder coated RAL 9005
Locking element	V2A stainless steel
Tightening torque	4 Nm
Seal	NBR
Temperature range	-40°C ... +125°C
Protection acc. to DIN 60 529 in locked position	IP 68

Identification

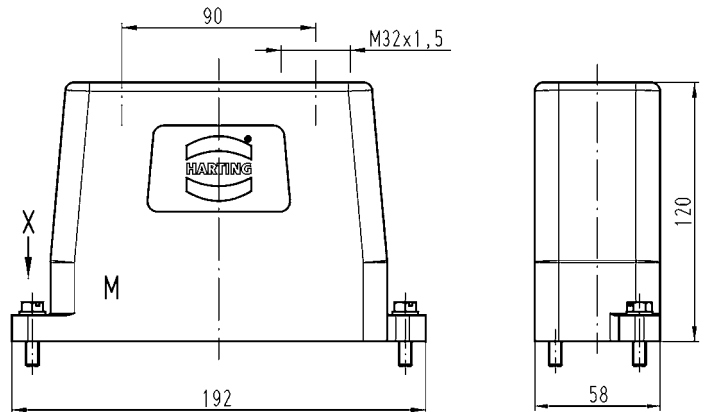
Part-Number

Drawing

Dimensions in mm

Han® 24 HPR hood

19 40 024 0467





PROFIBUS Repeater PRC 67-30

## Advantages

- Active panel feed through
- Suitable for star and line structures
- High protection degree IP 67
- Signal regeneration
- All terminals are connectorized
- Hybrid wiring possible
- T-functionality

## General Description

The PROFIBUS Repeater PRC 67-30 with automatic transmission rate detection is directly mounted on switch cabinets or termination boxes. When assembled the PRC 67-30 in its function as panel feed through reaches a protection degree of IP 67 outside of the switch cabinet and IP 20 inside of the switch cabinet.

The PRC 67-30 is available for star as well as for line topologies.

All interfaces are protected against overvoltage.

## Technical Details

### Housing and Assembly

Housing	Robust metal housing of die cast aluminium alloy
Dimensions	105 x 40 x 120 (W x D x H in mm, without connector)
Assembly	Directly on the switch cabinet or termination box

### Power Supply

Input voltage	24 V DC (18 ... 30 V DC)
Current Consumption	typical 250 mA (at 24 V DC)
Terminals	Outside of the switch cabinet: Han-Brid® Cu connector Inside of the switch cabinet: 4-pins screw terminal, connectorized

### PROFIBUS Interface

Supported bus structures	Point to point, star topology, line topology
Data transmission rate	automatic transmission rate detection, max. 12 MBit/s
Cable	acc. to DIN EN 50170
Terminals	Outside of the switch cabinet: Han-Brid® Cu connector Inside of the switch cabinet: PROFIBUS (D-Sub 9-pins female)
Maximum cable length	acc. to DIN EN 50170

### Environmental Conditions

Protection degree	IP 65 / IP 67 outside of the switch cabinet with connector <sup>1</sup> IP 20 inside of the switch cabinet
Operating temperature	0°C up to +55°C
Operating humidity	30% up to 95%, not condensing

<sup>1</sup> The protection degree between device and switch cabinet/termination box depends on the thickness of the panel on which it is mounted and the quality of the mounting surface. In order to improve the sealing effect, we recommend to use the assembly plate (see accessories).



## PROFIBUS Converter PCF 67-30 PF660

### Advantages

- Possibility to set up optical bus systems for PROFIBUS
- Active panel feed through
- High protection degree IP 67
- All terminals are connectorized
- Hybrid wiring possible
- T-functionality

### General Description

The PROFIBUS Converter PCF 67-30 PF660 with automatic transmission rate detection is directly mounted on switch cabinets or termination boxes. When assembled the PCF 67-30 PF660 in its function as panel feed through reaches a protection degree of IP 67 outside of the switch cabinet and IP 20 inside of the switch cabinet.

The PCF 67-30 PF660 is available for star as well as for line topologies. All interfaces are protected against overvoltage.

### Technical Details

#### Housing and Assembly

Housing	Robust metal housing of die cast aluminium alloy
Dimensions	105 x 40 x 120 (W x D x H in mm, without connector)
Assembly	Directly on the switch cabinet or termination box

#### Power Supply

Input voltage	24 V DC (18 ... 30 V DC)
Current Consumption	typical 250 mA (at 24 V DC)
Terminals	Outside of the switch cabinet: Han-Brid® F.O. connector Inside of the switch cabinet: 4-pins screw terminal, connectorized

#### PROFIBUS/ F.O. Interface

Supported bus structures	Point to point, star topology, line topology
Data transmission rate	automatic transmission rate detection, max. 12 MBit/s
Cable	acc. to DIN EN 50170
Terminals	Outside of the switch cabinet: Han-Brid® F.O. connector Inside of the switch cabinet: PROFIBUS (D-Sub 9-pins female)
Maximum cable length	acc. to DIN EN 50170

#### Environmental conditions

Protection degree	IP 65 / IP 67 outside of the switch cabinet with connector <sup>1</sup> IP 20 inside of the switch cabinet
Operating temperature	0°C up to +55°C
Operating humidity	30% up to 95%, not condensing

#### Transmission Medium

PCF 67-30	660 nm, (Polymer optical fibre) 980/1000 µm max. transmission length 50 m HCS <sup>®2</sup> 200/230 µm, max. transmission length 300 m
-----------	--

<sup>1</sup> The protection degree between device and switch cabinet/termination box depends on the thickness of the panel on which it is mounted and the quality of the mounting surface. In order to improve the sealing effect, we recommend to use the assembly plate (see accessories).

<sup>2</sup> HCS = Hard Clad Silica (registered trade mark of SpecTran Corporation)

Identification	Part-Number	Drawing	Dimensions in mm
<p><b>PRC 67-30</b>                      PROFIBUS Repeater                      for star topology                      Han-Brid® Cu: female + female</p>	<p>upon request</p>		
<p><b>PRC 67-30</b>                      PROFIBUS Repeater                      for line topology                      Han-Brid® Cu: male + female</p>	<p>upon request</p>		
<p><b>PCF 67-30 PF660</b>                      PROFIBUS Converter                      for star topology                      Han-Brid® F.O.: female + female</p>	<p>upon request</p>		
<p><b>PCF 67-30 PF660</b>                      PROFIBUS Converter                      for line topology                      Han-Brid® F.O.: male + female</p>	<p>upon request</p>		

Accessories	Part-Number	Drawing	Dimensions in mm
<p><b>Assembly Plate</b>                      to the inside of the switch cabinet</p>	<p>upon request</p>		



Ethernet Switch ECS 67-10 TP05U  
HARTING RJ Industrial® Push Pull

## Advantages

- High protection degree IP 67
- Robust metal housing
- Suitable for the direct use in industrial environments
- All terminals are connectorized
- Plug & Play installation

## General Description

The Ethernet Switch ESC 67-10 TP05U allows the connection of up to five terminal devices via twisted pair cable. Its main features are a high protection degree due to a robust metal housing and it can be used directly in industrial environments. Thus it is possible to reduce the termination time to set up industrial networks.

All terminals are connectorized, thus a secure and quick assembly is guaranteed. The Ethernet interfaces are protected against overvoltage.

## Technical Details

### Housing and Assembly

Housing	Robust metal housing of zinc die cast
Dimensions	45 x 120 x 87 (W x D x H in mm, without connector)
Assembly	35 mm standard rail acc. to DIN EN 60715 Panel mounting upright assembly Panel mounting flat assembly

### Power Supply

Input voltage	24 V DC (18 ... 30 V DC)
Current Consumption	100 mA (at 24 V DC)
Terminals	Connectorized with HARAX® M12-L connectors, A-coding Redundant power supply

### Ethernet Interface

Ports	5
Data transmission rate	10 or 100 MBit/s / Auto-negotiation
Cable	Shielded Twisted Pair (STP) and Unshielded Twisted Pair (UTP) Category 5
Terminals	Connectorized with HARTING RJ Industrial® Push Pull connectors Auto-crossing function
Maximum cable length	100 m (with category 5 cable) acc. to DIN EN 50173

### Environmental conditions

Protection degree	IP 65 / IP 67
Operating temperature	-40°C up to +70°C
Operating humidity	30% up to 95%, not condensing

Identification	Part-Number	Drawing	Dimensions in mm
<p>ESC 67-10 TP05U                      HARTING RJ Industrial®                      Push Pull                      Fast Ethernet Switch</p>	<p>20 70 305 3931</p>		
Accessories	Part-Number	Drawing	Dimensions in
<p>Set for mounting                      on standard rail                      acc. to DIN EN 60715</p>	<p>20 80 000 0003</p>		
<p>Set for panel mounting                      upright assembly</p>	<p>20 80 010 0001</p>		
<p>Set for panel mounting                      flat assembly</p>	<p>20 80 024 0002</p>		





Ethernet Hub EHB 67-10 TP05  
M12 D-Coding

## Advantages

- High protection degree IP 67
- Robust metal housing
- Suitable for the direct use in industrial environments
- All terminals are connectorized
- Plug & Play installation

## General Description

The Ethernet Hub EHB 67-10 TP05 allows the connection of up to five terminal devices. Ethernet Hubs are suitable for all applications, where switches are not needed or not suitable i.e. in Ethernet Powerlink networks.

One of its main features is a high protection degree due to a robust metal housing so it can be used directly in industrial environments. Thus it is possible to reduce the termination time to set up industrial networks.

## Technical Details

### Housing and Assembly

Housing	Robust metal housing of zinc die cast
Dimensions	45 x 120 x 87 (W x D x H in mm, without connector)
Assembly	35 mm standard rail acc. to DIN EN 60715 Panel mounting upright assembly Panel mounting flat assembly

### Power Supply

Input voltage	24 V DC (18 ... 30 V DC)
Current Consumption	125 mA (at 24 V DC)
Terminals	Connectorized with <i>HARAX</i> ® M12-L connector, A-coding Redundant power supply

### Ethernet Interface

Ports	5
Data transmission rate	10 or 100 MBit/s / Auto-sensing
Cable	Shielded-Twisted-Pair (STP) and Unshielded-Twisted-Pair (UTP) Category 5
Terminals	Connectorized with M12 circular connectors, D-coding
Maximum cable length	100 m (with category 5 cable) acc. to DIN EN 50173

### Environmental conditions

Protection degree	IP 65 / IP 67
Operating temperature	0°C up to +60°C
Operating humidity	30% up to 95%, not condensing

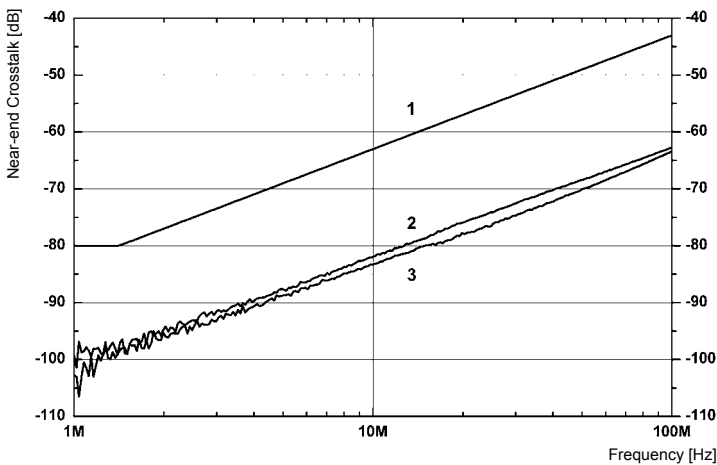
Identification	Part-Number	Drawing	Dimensions in mm
<p><b>EHB 67-10 TP05</b> Ethernet Hub 5 x 10/100Base T</p>	<p>20 70 305 3942</p>		
Accessories	Part-Number	Drawing	Dimensions in mm
<p>Set for mounting on standard rail acc. to DIN EN 60715</p>	<p>20 80 000 0003</p>		
<p>Set for panel mounting upright assembly</p>	<p>20 80 000 0001</p>		
<p>Set for panel mounting flat assembly</p>	<p>20 80 000 0002</p>		

## Technical Details

	<b>HARAX® M12-L screened version</b>		
	<b>Ethernet, D-coded</b>	<b>A-coded</b>	<b>Adapter M12-RJ45</b>
Rated voltage	32 V	32 V	-
Rated current	4 A	4 A	-
Conductor cross section	0.25 - 0.34 mm <sup>2</sup>	0.25 - 0.34 mm <sup>2</sup>	-
	AWG 24 - 22	AWG 24 - 22	-
Diameter of individual strand	≥ 0.1 mm	≥ 0.1 mm	-
Conductor insulation material	PVC	PVC	-
Conductor diameter	1.6 - 2.0 mm	1.6 - 2.0 mm	-
Cable diameter	5.5 - 7.2 mm	7 - 8.8 mm	-
Working temperature	-25°C ... +85°C	-25°C ... +85°C	-25°C ... +85°C
Temp. during connection*	-5°C ... +50°C	-5°C ... +50°C	-5°C ... +50°C
Degree of protection	IP 67	IP 67	IP 65 / 67
Number of terminations with same cable cross section	10	10	-
Transmission characteristics acc. to	DIN EN 50 173	-	DIN EN 50 173

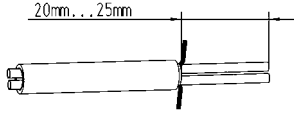
\* Please respect the manufacturer's recommendations.

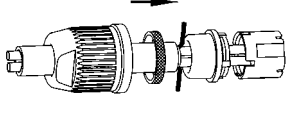
## HF Properties acc. to DIN EN 50173

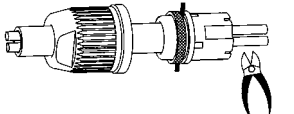



- 1 = Limit acc. to DIN EN 50173, Category 5
- 2 = Pin allocation diagonal wire pair 1/3 <-> 2/4
- 3 = Pin allocation diagonal wire pair 2/4 <-> 1/3

## Assembly manual HARAX® screened version

- 

1. strip cable
- 


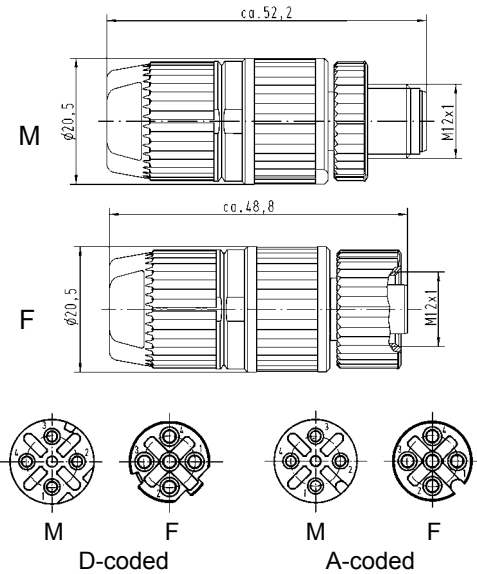


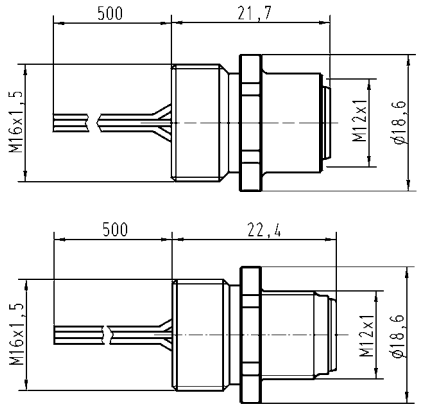

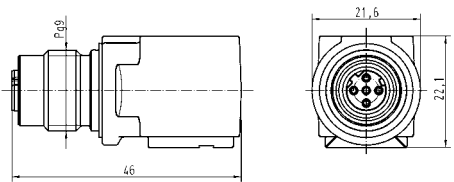

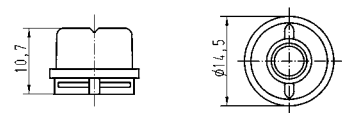
2. assemble HARAX® elements  
twist screening braid and push it into the seal slot
- 

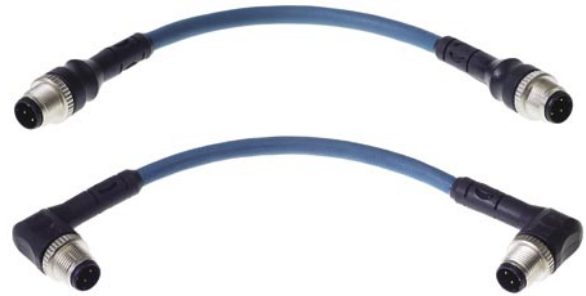
3. Slide ring over the seal  
cut off cable ends and the screening braid
- 

4. screw the connector

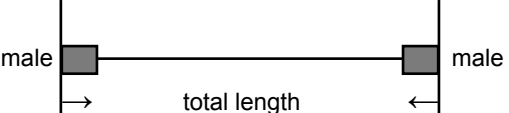
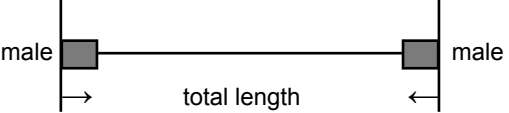
# HARAX® M12-L / M12 Panel Feed Through / Adaptor M12-RJ45



Identification	Part-Number		Drawing	Dimensions in mm
	Male contact	Female contact		
<b>HARAX® M12-L screened</b>    D-coded (Ethernet)  A-coded	21 03 281 1405  21 03 221 1405	21 03 281 2405  21 03 221 2405		
<b>M12 Panel Feed Through</b> Panel feed through M12, female D-coded, 50 cm conductors    Panel feed through M12, male A-coded, 50 cm conductors  		21 03 371 2403  21 03 311 1402		
<b>Adaptor M12-RJ45</b>  	21 03 381 4400			
<b>Seal M12-L</b>  	21 01 010 2003			



## System cables for Industrial Ethernet

Identification	Part-Number	Technical Details																									
<p><b>Pre-assembled and tested system cables</b></p> <p>for the cabling of Industrial Ethernet networks based on circular connectors, M12 D-coded</p>		<p>Cable type: Shielded Twisted Pair Standard conductor</p> <p>Mating face: M12 D-coded acc. to IEC 61 076-2-101</p> <p>Transmission properties acc. to ISO/IEC 11801:2002: Class D, 100% tested</p> <p><b>Pin assignment</b></p> <table border="1" data-bbox="790 913 1476 1146"> <thead> <tr> <th>Signal</th> <th>Function</th> <th>Conductor colour PROFInet®</th> <th>Conductor colour EIA/TIA 568B</th> <th>Pin assignment</th> </tr> </thead> <tbody> <tr> <td>TD+</td> <td>Transmission Data+</td> <td>Yellow</td> <td>White/Orange</td> <td>1</td> </tr> <tr> <td>TD-</td> <td>Transmission Data-</td> <td>Orange</td> <td>Orange</td> <td>3</td> </tr> <tr> <td>RD+</td> <td>Receiver Data+</td> <td>White</td> <td>White/Green</td> <td>2</td> </tr> <tr> <td>RD-</td> <td>Receiver Data-</td> <td>Blue</td> <td>Green</td> <td>4</td> </tr> </tbody> </table>	Signal	Function	Conductor colour PROFInet®	Conductor colour EIA/TIA 568B	Pin assignment	TD+	Transmission Data+	Yellow	White/Orange	1	TD-	Transmission Data-	Orange	Orange	3	RD+	Receiver Data+	White	White/Green	2	RD-	Receiver Data-	Blue	Green	4
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<p>2 x circular connectors M12 D-coded, straight version</p> <p>2 x circular connectors M12 D-coded, angled version</p>	<p>21 03 483 1401 21 03 483 1403 21 03 483 1405 21 03 483 1400<sup>1)</sup></p> <p>21 03 483 3401 21 03 483 3403 21 03 483 3405 21 03 483 3400<sup>1)</sup></p>	<p>1 m length 3 m 5 m</p> <p>Cable: AWG 26 / 0.14 mm<sup>2</sup></p>  <p>1) please give length separately</p>																									
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Bulkhead Mounted Housing with Cover

## Features

- Compact Design
- Robust metal version
- Combination with all inserts for hoods and housings of series Han® 3A and Han-Brid
- For standard assembly cut-out of Han® 3A bulkhead mounted housings
- Cover is attached to the housing
- Spring loaded cover closing

## Technical Details

Material	Die cast zinc alloy
Surface	Powder coated RAL 7037
Locking element	Steel zinc plated
Seal	NBR
Temperature range	-40°C ... +125°C
Protection acc. to DIN 60 529 in unlocked position	IP 44
in locked position	IP 67 achieved with seal screw

### Identification

### Part-Number

### Drawing

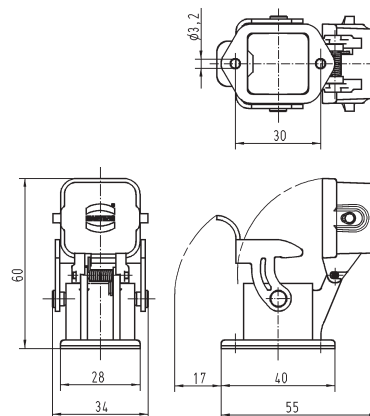
### Dimensions in mm

Han® 3 A  
Bulkhead mounted  
housing with cover

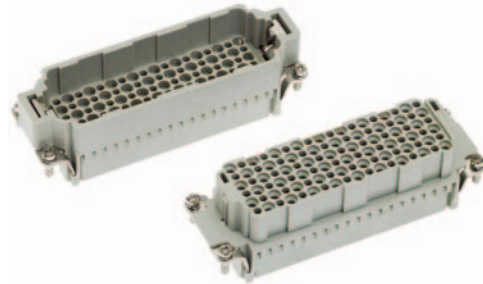
09 20 003 0305<sup>1)</sup>  
without glued seal

09 20 003 0306<sup>2)3)</sup>  
with glued seal

Panel cut out 22 x 22 mm



1) for mounted male insert  
2) for mounted female insert  
3) for mounted Han-Brid® male and female insert



Insert

## Features

- High density insert for applications in harsh industrial environments
- Depending on size suitable for 24, 42, 72 or 108 contacts + PE
- Due to optimized insulation features suitable for 10A 250V 4 kV 3 acc. to DIN EN 61 984
- Rated voltage acc. to UL/CSA 600V
- Insert complies with V 0 acc. to UL94
- Compatible with Han® DD first generation
- Suitable for the use of Han®-GoldTec contacts

## Technical Details

Number of contacts	24, 42, 72, 108
Electrical data	
acc. to DIN EN 61 984	10 A 250 V 4 kV 3
Rated current	
Rated voltage	
Rated impulse voltage	
Pollution degree	
Pollution degree also 2	10 A 230/400V 4 kV 2
Insulations resistance	≥ 10 <sup>10</sup> Ω
Material	Polycarbonate
Temperature range	-40 ... +125°C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 500 mating cycles

Identification	Size	Part-Number		Drawing	Dimensions in mm																				
		Male insert	Female insert																						
Han® DD insert	24 DD	09 16 024 3001	09 16 024 3101	<p>1) Distance for contact max. 21 mm</p> <p>Panel cut out for inserts for use without hoods/housings</p> <table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> </tr> </thead> <tbody> <tr> <td>24 DD</td> <td>44</td> <td>51</td> <td>35</td> </tr> <tr> <td>42 DD</td> <td>57</td> <td>64</td> <td>48</td> </tr> <tr> <td>72 DD</td> <td>77.5</td> <td>84.5</td> <td>68.5</td> </tr> <tr> <td>108 DD</td> <td>104</td> <td>111</td> <td>95</td> </tr> </tbody> </table>		a	b	c	24 DD	44	51	35	42 DD	57	64	48	72 DD	77.5	84.5	68.5	108 DD	104	111	95	
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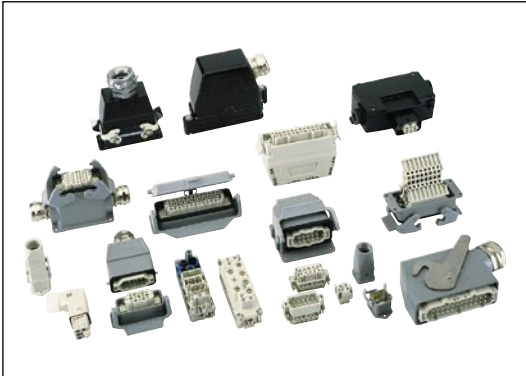
Identification	Wire gauge mm <sup>2</sup>	Part-Number		Drawing	Dimensions in mm																					
		Male contact	Female contact																							
Crimp contacts	0.14-0.37	09 15 000 6104	09 15 000 6204		<table border="1"> <thead> <tr> <th>Wire gauge</th> <th>ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0,14-0,37 mm<sup>2</sup></td> <td>AWG 26-22</td> <td>0,90 mm</td> </tr> <tr> <td>0,5 mm<sup>2</sup></td> <td>AWG 20</td> <td>1,10 mm</td> </tr> <tr> <td>0,75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1,30 mm</td> </tr> <tr> <td>1 mm<sup>2</sup></td> <td>AWG 18</td> <td>1,45 mm</td> </tr> <tr> <td>1,5 mm<sup>2</sup></td> <td>AWG 16</td> <td>1,75 mm</td> </tr> <tr> <td>2,5 mm<sup>2</sup></td> <td>AWG 14</td> <td>2,25 mm</td> </tr> </tbody> </table>	Wire gauge	ø	Stripping length	0,14-0,37 mm <sup>2</sup>	AWG 26-22	0,90 mm	0,5 mm <sup>2</sup>	AWG 20	1,10 mm	0,75 mm <sup>2</sup>	AWG 18	1,30 mm	1 mm <sup>2</sup>	AWG 18	1,45 mm	1,5 mm <sup>2</sup>	AWG 16	1,75 mm	2,5 mm <sup>2</sup>	AWG 14	2,25 mm
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silver plated	0.5	09 15 000 6103	09 15 000 6203																							
	0.75	09 15 000 6105	09 15 000 6205																							
	1.0	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®-GoldTec	0.14-0.37	09 15 000 6304	09 15 000 6404																							
	0.5	09 15 000 6303	09 15 000 6403																							
	0.75	09 15 000 6305	09 15 000 6405																							
	1.0	09 15 000 6302	09 15 000 6402																							
	1.5	09 15 000 6301	09 15 000 6401																							
	2.5	09 15 000 6306	09 15 000 6406																							





Notes

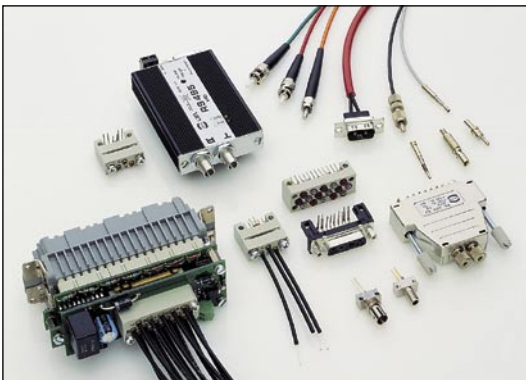
Product Range



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Han-InduNet® system cables



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and components



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