



Pushing Performance



People | Power | Partnership

# HARTING News 2013

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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, as well as in manufacturing, mechatronics and software creation. The Group uses these skills to develop customized solutions and products such as connectors for energy and data transmission applications including, for example, mechanical engineering, rail technology, wind energy plants, factory automation and the telecommunications sector. In addition, HARTING also produces electro-magnetic components for the automobile industry and offers solutions in the field of Enclosures and Shop Systems. The HARTING Group currently comprises 36 subsidiary companies and worldwide distributors employing a total of approximately 3,500 staff.



HARTING Subsidiary company



HARTING Representatives



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

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

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

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

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

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

### **Our claim: pushing performance.**

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

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

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

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

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





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

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

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

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

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

**HARTING solutions extend across technology boundaries.**

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

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

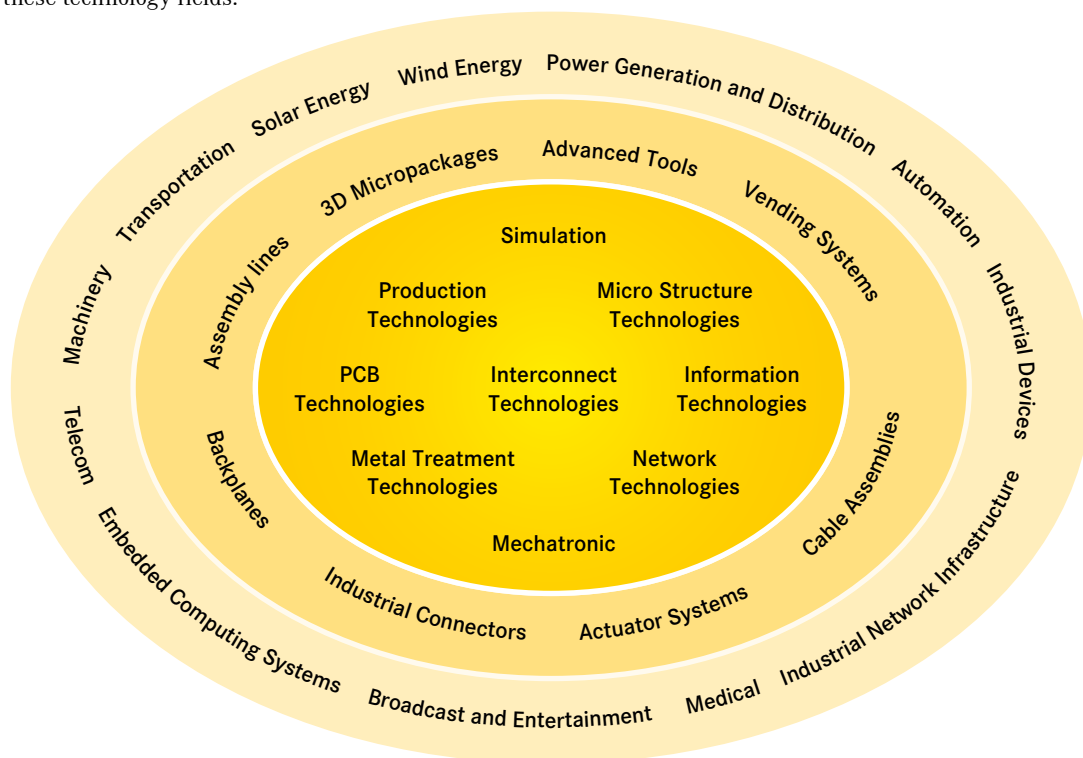




**HARTING knowledge is practical know-how generating synergy effects.**

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

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



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## Description

Han® High Temp is a new product series that is based on our well-established Han® B and Han® E series. We used high-quality materials with wide temperature ranges to produce connectors that are uniquely suited for a wide variety of applications.

These connectors can withstand temperatures up to 200 °C – so they can be used directly in machines and facilities that would otherwise require cumbersome and complex constructions.

For our users, this delivers direct advantages:

- The electro-mechanical design process is optimized.  
Machine parts which are exposed to high temperatures can be designed modularly.
- The work process is optimized  
since lower wiring complexity results in reduced maintenance costs.
- The after-sales phase is optimized  
because this more service-friendly approach results in less outages and down times.

## Design overview

The basic structure of the Han® High Temp connector consists of a bulkhead mounted housing and a cable-side hood.

Hoods and housings:

The aluminium die-cast hoods and housings feature a highly compressed surface with excellent non-stick properties. It also has a special non-stick coating on the bulkhead-side seal which allows easy handling without significant sticking.

Inserts:

The Han® High Temp series features very rugged contact inserts, which are really the heart of any connector. The LCP injection-moulded insert delivers outstanding temperature resistance coupled with excellent mechanical stability.

Contacts:

Our new temperature resistant contacts, for either screw or crimp terminations, ensure reliable connections with minimal contact resistance even at extreme temperatures.



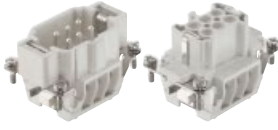
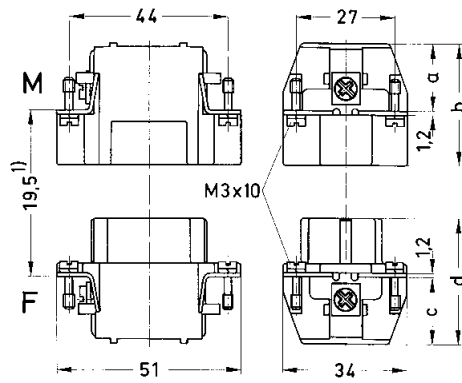
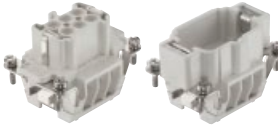
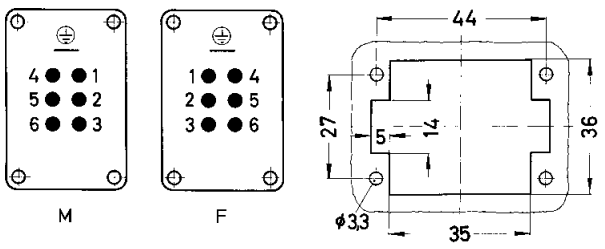
**Han® High Temp connectors  
remain robust and reliable for their entire lifespan!**


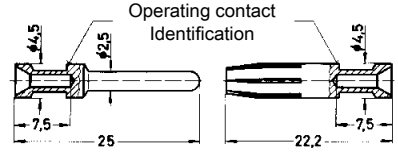


Number of contacts

6 +

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Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
<p>Screw termination with wire protection</p> 	09 33 806 2601	09 33 806 2701	 <p>a = 19.7 mm b = 34.7 mm c = 21.0 mm d = 37.0 mm</p> <p>1) Distance for contact max. 21 mm</p>	
<p>Crimp termination Crimp contacts order separately</p> 	09 33 806 2602	09 33 806 2702	 <p>Contact arrangement view from termination side</p> <p>Panel cut out</p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																							
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<p>Han® High Temp contacts</p> 	0.5	09 33 800 6121	09 33 800 6220		<table border="1"> <thead> <tr> <th>Wire gauge</th> <th>Identifica- tion</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>no groove</td> <td>7.5 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1 groove*</td> <td>7.5 mm</td> </tr> <tr> <td>1.0 mm<sup>2</sup></td> <td>AWG 18</td> <td>1 groove</td> <td>7.5 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> <td>2 grooves</td> <td>7.5 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>AWG 14</td> <td>3 grooves</td> <td>7.5 mm</td> </tr> </tbody> </table>	Wire gauge	Identifica- tion	Stripping length	0.5 mm <sup>2</sup>	AWG 20	no groove	7.5 mm	0.75 mm <sup>2</sup>	AWG 18	1 groove*	7.5 mm	1.0 mm <sup>2</sup>	AWG 18	1 groove	7.5 mm	1.5 mm <sup>2</sup>	AWG 16	2 grooves	7.5 mm	2.5 mm <sup>2</sup>	AWG 14	3 grooves	7.5 mm
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0.75	09 33 800 6114	09 33 800 6214																										
1.0	09 33 800 6105	09 33 800 6205																										
1.5	09 33 800 6104	09 33 800 6204																										
2.5	09 33 800 6102	09 33 800 6202																										

\* on the back crimp collar





Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Hood side entry	19 62 806 1540		1 x 20		
Hood side entry		19 62 806 0546 19 62 806 0547	1 x 25 1 x 32		
Hood top entry	19 62 806 1440		1 x 20		
Hood top entry		19 62 806 0446 19 62 806 0447	1 x 25 1 x 32		


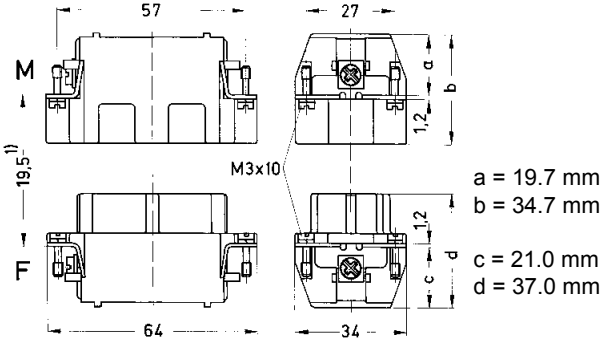

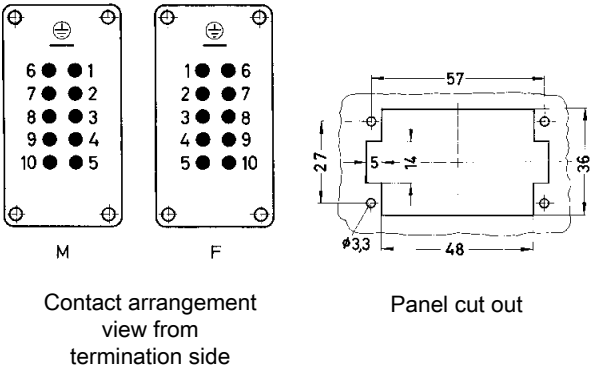
Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Bulkhead mounted housing	09 62 806 0391				


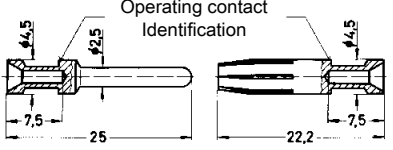
Panel cut out

Number of contacts


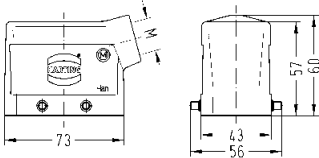

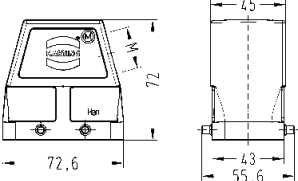

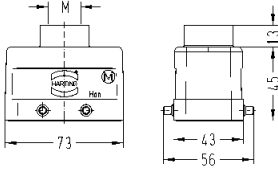

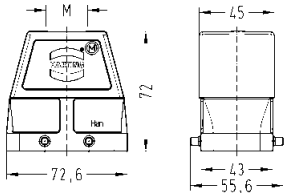
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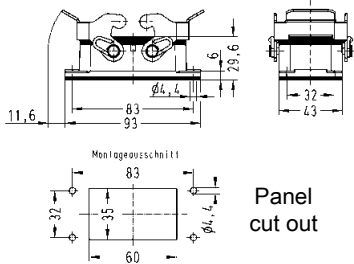
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<p>Screw termination with wire protection</p> 	09 33 810 2601	09 33 810 2701	 <p>a = 19.7 mm b = 34.7 mm c = 21.0 mm d = 37.0 mm</p> <p>1) Distance for contact max. 21 mm</p>	
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Number of contacts


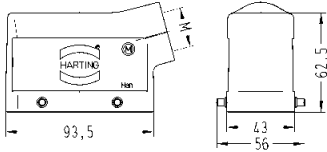

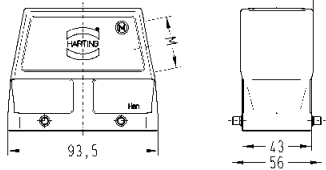

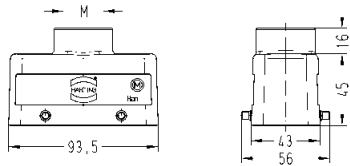

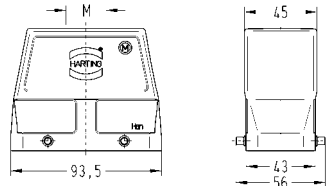
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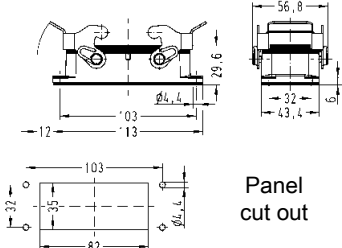
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1.5 mm <sup>2</sup>	AWG 16	2 grooves																					
2.5 mm <sup>2</sup>	AWG 14	3 grooves																					



Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Hood side entry 	19 62 816 1521		1 x 20		
Hood side entry 		19 62 816 0527	1 x 32		
Hood top entry 	19 62 816 1421		1 x 25		
Hood top entry 		19 62 816 0427	1 x 32		

Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Bulkhead mounted housing 	09 62 816 0391				

Number of contacts


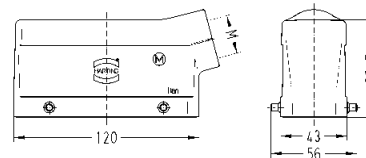

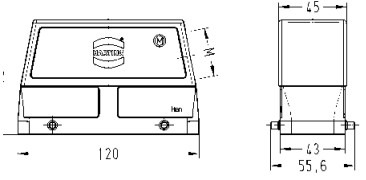

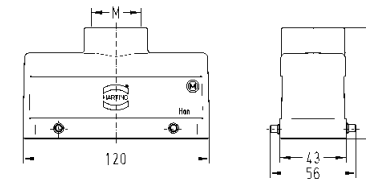

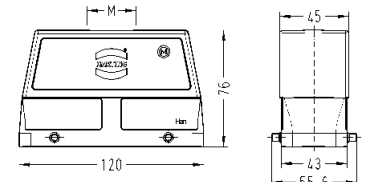
24 +


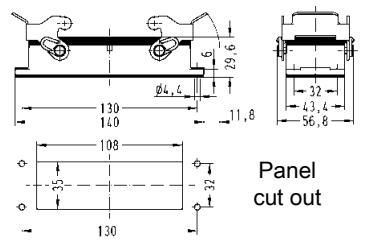
Available September 2013

Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
<p>Crimp termination with wire protection</p>	09 33 824 2601	09 33 824 2701	<p>1) Distance for contact max. 21 mm</p> <p>a = 19.7 mm b = 34.7 mm c = 21.0 mm d = 37.0 mm</p>	
<p>Screw termination Crimp contacts order separately</p>	09 33 824 2602	09 33 824 2702	<p>Contact arrangement view from termination side</p> <p>Panel cut out</p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																		
		Male contact	Female contact																				
<p>Han® High Temp contacts</p>	0.5 0.75 1.0 1.5 2.5	09 33 800 6121 09 33 800 6114 09 33 800 6105 09 33 800 6104 09 33 800 6102	09 33 800 6220 09 33 800 6214 09 33 800 6205 09 33 800 6204 09 33 800 6202		<table border="1"> <thead> <tr> <th>Wire gauge</th> <th>Identification</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>no groove</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1 groove*</td> </tr> <tr> <td>1.0 mm<sup>2</sup></td> <td>AWG 18</td> <td>1 groove</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> <td>2 grooves</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>AWG 14</td> <td>3 grooves</td> </tr> </tbody> </table> <p>* on the back crimp collar</p>	Wire gauge	Identification	Stripping length	0.5 mm <sup>2</sup>	AWG 20	no groove	0.75 mm <sup>2</sup>	AWG 18	1 groove*	1.0 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
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2.5 mm <sup>2</sup>	AWG 14	3 grooves																					



Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Hood side entry 	19 62 824 1521		1 x 25		
Hood side entry 		19 62 824 0527 19 62 824 0528	1 x 32 1 x 40		
Hood top entry 	19 62 824 1422		1 x 32		
Hood top entry 		19 62 824 0427	1 x 32		

Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Bulkhead mounted housing 	09 62 824 0391				Panel cut out

## Features

- High construction
- Large cabling space
- Cable entry with optimised 30° angle
- Compatible to all standard hoods and housings

## Technical characteristics

Material hood/housing	aluminium die cast
Colour	RAL 7037 (grey)
Surface	powder coated
Locking lever	Han-Easy Lock®
Material Locking lever	stainless steel
Seal hood/housing	NBR
Limiting temperatures	-40 °C ... +125 °C
Approval acc. to UL 50 in locked position	IP 65





Han® 16 B hood with M50 cable entry

Identification	Part-Number	M	Drawing	Dimensions in mm
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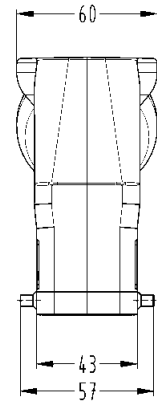
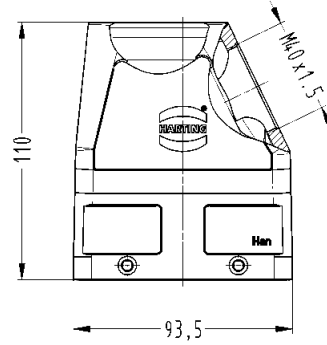
**Hood**

side entry M40  
with 2 locking levers on the  
bulkhead mounted housing



19 30 016 0523

40



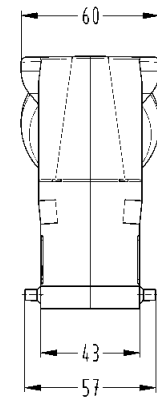
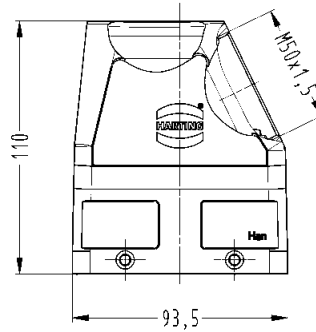
**Hood**

side entry M50  
with 2 locking levers on the  
bulkhead mounted housing



19 30 016 0529

50



Available Juli 2013




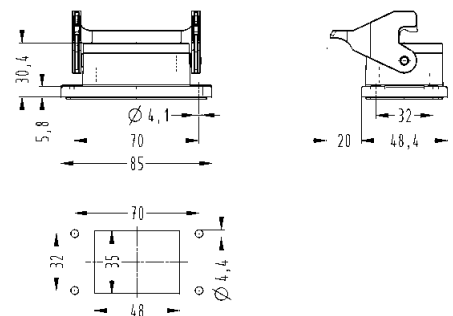

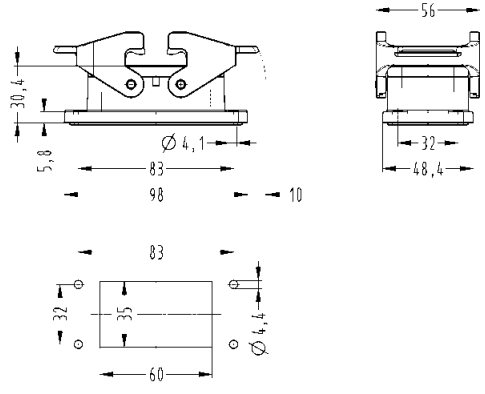

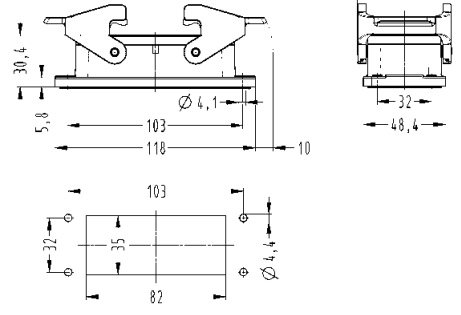

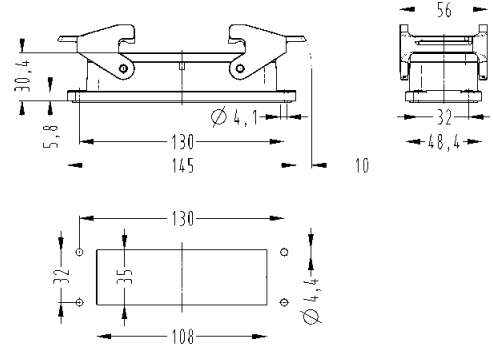
## Features

- Compatible to all standard hoods/housings
- Approved lever locking system with Han-Easy Lock®
- Standard panel cut out
- Degree of protection IP 66 and IP 67
- No sliding off the seal due to the protective flange

## Technical Characteristics

### Han® Standard Hoods/Housings Metal hoods/housings for industrial applications

Material	aluminium die-cast
Colour	RAL 7037 (grey)
Surface	powder-coated
Locking element	Stainless steel
Lever type	Han-Easy Lock®
Hoods/Housings seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 66 and IP 67

Identification	Part-Number	Drawing	Dimensions in mm
<p>Housings, bulkhead mounting 6 B</p> 	<p>09 30 006 1301</p>		
<p>Housings, bulkhead mounting 10 B</p> 	<p>09 30 010 1301</p>		
<p>Housings, bulkhead mounting 16 B</p> 	<p>09 30 016 1301</p>		
<p>Housings, bulkhead mounting 24 B</p> 	<p>09 30 024 1301</p>		



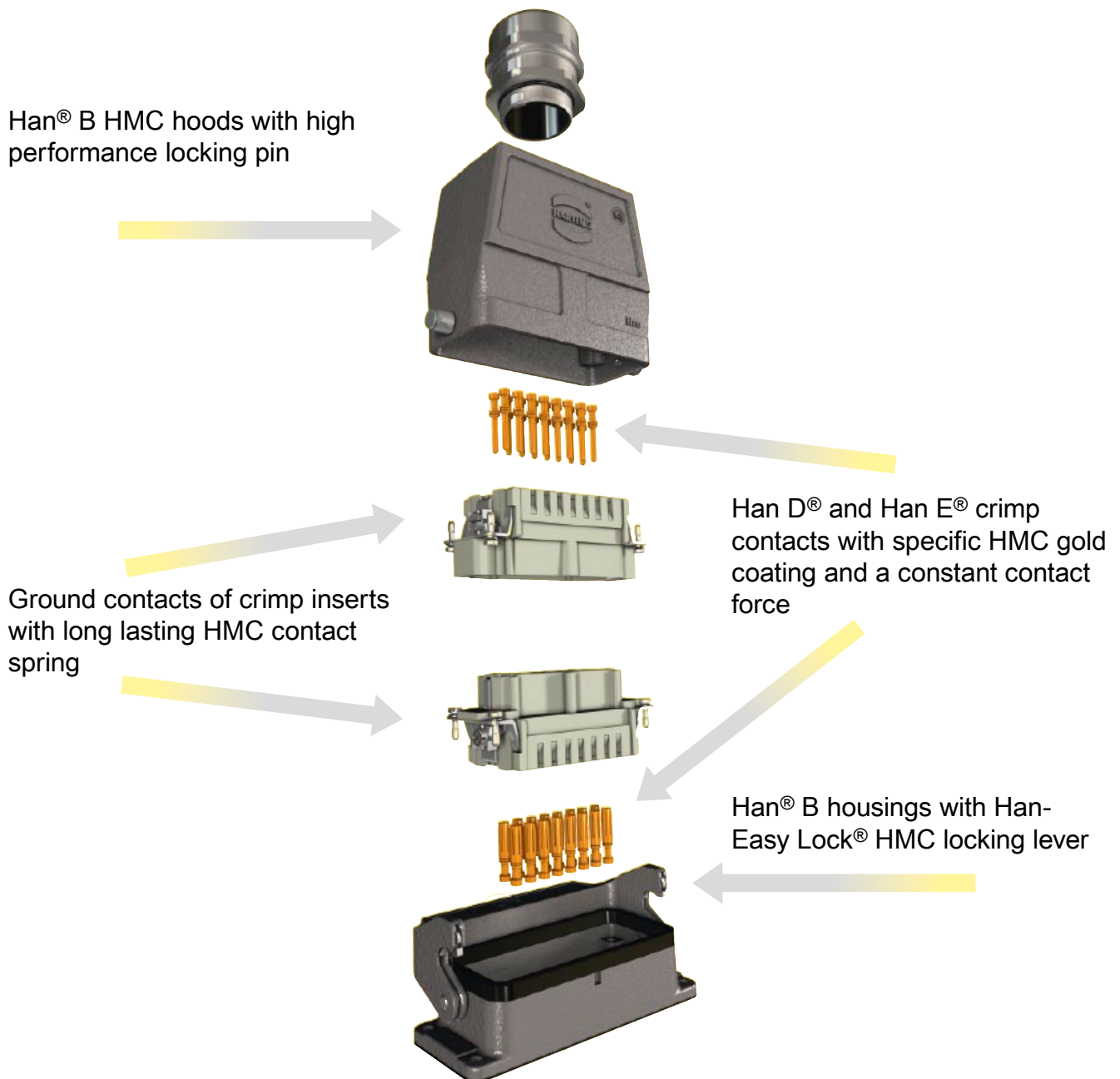
## Features

This series Han® HMC (**H**igh **M**ating **C**ycles) is a connector series specifically aiming at industrial applications for 10,000 mating cycles.

Benefits:

- High mechanical robustness
- Simple and easy understandable design
- Optimized concept for signal and power transmission
- Low mating and unmating forces
- High contact density

## General Description





## Technical characteristics

### Hoods/Housings Han B<sup>®</sup> HMC

Material	aluminium die-cast
Surface	powder coated RAL 7037 (grey)
Locking element	Han-Easy Lock <sup>®</sup> HMC
Flammability acc. to UL 94	V 0
Hoods/Housings seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 65

Selection of hoods housings see page 53

### Specifications

DIN EN 175 301-801  
DIN EN 60 664-1  
DIN EN 61 984

### Inserts

Number of contacts	40, 64 + PE
Electrical data acc. to EN 61 984	<b>10 A 250 V 4 kV 3</b>
Rated current	10 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3
Pollution degree 2 also - for wrap terminal only	10 A 230/400 V 4 kV 2 10 A 250 V 4 kV 2
Rated voltage acc. to UL/CSA	600 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

### Contacts Han D<sup>®</sup> HMC

Material	copper alloy
Surface	HMC gold plating
Contact resistance	≤ 3 mΩ
Crimp terminal - min	0.14 mm <sup>2</sup> / AWG 26
Crimp terminal - max	2.5 mm <sup>2</sup> / AWG 14

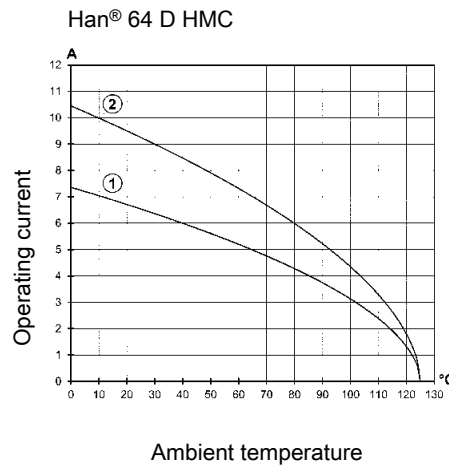
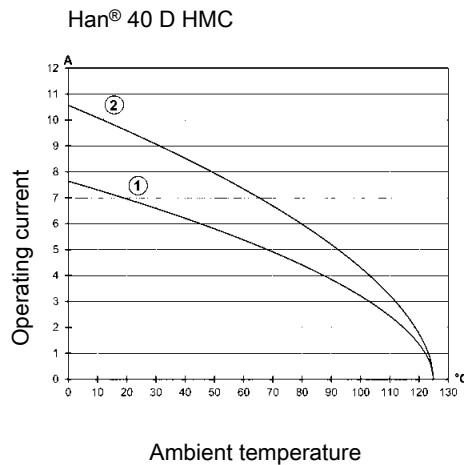
## Features

- High density contacts / connector
- For requirements up to 250 V / 10 A
- Time saving rapid termination by use of crimping contacts
- Suitable for hoods/housings of series Han<sup>®</sup> B HMC
- Han D<sup>®</sup> HMC contacts available with special HMC gold plating for 10,000 mating cycles

## 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 according to DIN EN 60 512-5



① 0.75 mm<sup>2</sup>  
② 1.5 mm<sup>2</sup>

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																												
		Male contact	Female contact																														
Crimp contacts HMC gold plated	0.14-0.37	09 15 200 6124	09 15 200 6224		<table border="1"> <thead> <tr> <th>Wire gauge</th> <th></th> <th>D</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>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.3 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		D	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		D			Stripping length																											
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	0.5	09 15 200 6123	09 15 200 6223																														
	0.75	09 15 200 6125	09 15 200 6225																														
	1	09 15 200 6122	09 15 200 6222																														
	1.5	09 15 200 6121	09 15 200 6221																														
	2.5	09 15 200 6126	09 15 200 6226																														

## Technical characteristics

### Hoods/Housings Han<sup>®</sup> B HMC

Material	aluminium die-cast
Surface	powder coated RAL 7037 (grey)
Locking element	Han-Easy Lock <sup>®</sup> · HMC
Flammability acc. to UL 94	V 0
Hoods/Housings seal	NBR
Limiting temperatures	-40 °C / 125 °C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 65

Selection of hoods housings see page 53

### Specifications

DIN EN 60 664-1  
DIN EN 61 984

### Inserts

Number of contacts	24, 42, 72, 108, + PE
Electrical data acc. to EN 61 984	<b>10 A 250 V 4 kV 3</b>
Rated current	10 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3
Pollution degree 2 also	10 A 230/400 V 4 kV 2
Rated voltage acc. to UL/CSA	600 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

### Contacts Han D<sup>®</sup> HMC

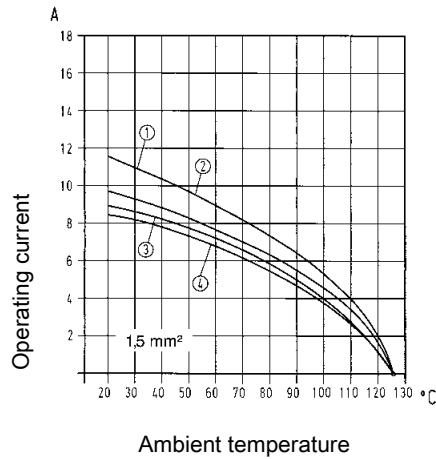
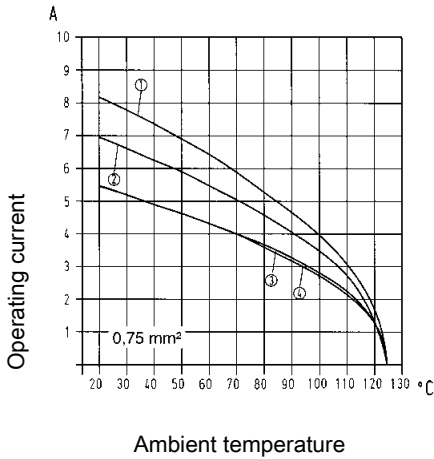
Material	copper alloy
Surface - hard-gold plated	HMC gold plated
Contact resistance	≤ 3 mΩ
Crimp terminal - min	0.14 mm <sup>2</sup> / AWG 26
Crimp terminal - max	2.5 mm <sup>2</sup> / AWG 14

## Features

- High density of crimping contacts, up to 108 contacts/connector
- Time saving rapid termination by use of crimping contacts
- For requirements up to 250 V / 10 A
- Han D<sup>®</sup> HMC contacts available with special HMC gold plating for 10,000 mating cycles
- Suitable for hoods/housings of series Han<sup>®</sup> B HMC

## 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 according to DIN EN 60 512-5



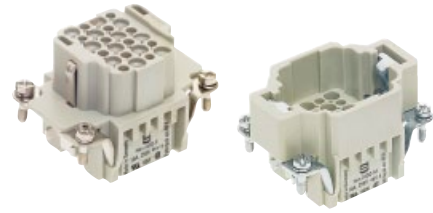
- ① Han® 24 DD HMC
- ② Han® 42 DD HMC
- ③ Han® 72 DD HMC
- ④ Han® 108 DD HMC

Identification	Wire gauge (mm²)	Part number		Drawing	Dimensions in mm																												
		Male contact	Female contact																														
Crimp contacts HMC gold plated	0.14-0.37	09 15 200 6124	09 15 200 6224		<table border="1"> <thead> <tr> <th>Wire gauge</th> <th></th> <th>D</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm²</td> <td>AWG 26-22</td> <td>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm²</td> <td>AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm²</td> <td>AWG 18</td> <td>1.3 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm²</td> <td>AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm²</td> <td>AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm²</td> <td>AWG 14</td> <td>2.25 mm</td> <td>6 mm</td> </tr> </tbody> </table>	Wire gauge		D	Stripping length	0.14-0.37 mm²	AWG 26-22	0.9 mm	8 mm	0.5 mm²	AWG 20	1.1 mm	8 mm	0.75 mm²	AWG 18	1.3 mm	8 mm	1 mm²	AWG 18	1.45 mm	8 mm	1.5 mm²	AWG 16	1.75 mm	8 mm	2.5 mm²	AWG 14	2.25 mm	6 mm
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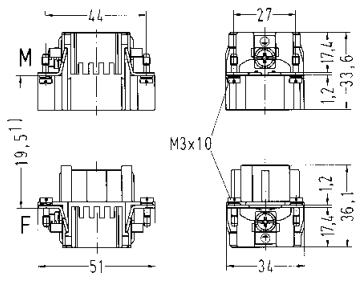
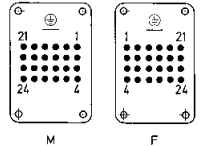
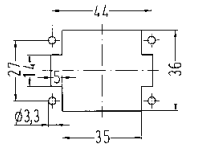


Number of contacts

24 +

Available May 2013



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
<p><b>Crimp terminal</b></p> <p>Order crimp contacts separately (see Technical characteristics on page 19)</p>  <p>Only with Han Docking Frame (see page 61)</p>	Han DD® HMC	09 16 224 3001	09 16 224 3101	 <p>1) Distance for contact max. 21 mm</p> <p>Contact arrangement view from termination side</p>  <p>Panel cut out for inserts for use without hoods/housings</p> 	
<p><b>Coding pin</b></p> 				09 33 000 9915	<p>Coding pin</p>  <p>Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.</p>

Number of contacts

42 +

Available May 2013



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

<p><b>Crimp terminal</b></p> <p>Order crimp contacts separately (see Technical characteristics on page 19)</p>	<p>Han DD® HMC</p>	<p>09 16 242 3001</p>	<p>09 16 242 3101</p>	<p>1) Distance for contact max. 21 mm</p> <p>Contact arrangement view from termination side</p> <p>Panel cut out for inserts for use without hoods/housings</p>
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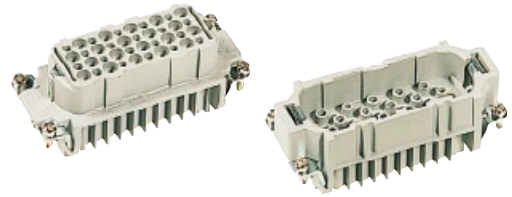
<p><b>Coding pin</b></p>			<p>09 33 000 9915</p>	<p><b>Coding pin</b></p> <p>Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.</p>
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Number of contacts

40 +

Available May 2013



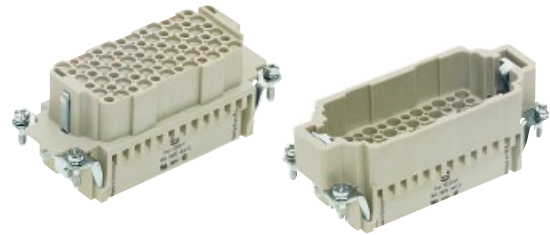
Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
<p><b>Crimp terminal</b></p> <p>Order crimp contacts separately (see Technical characteristics on page 17)</p>	Han D® HMC	09 21 240 3001	09 21 240 3101	<p>1) Distance for contact max. 21 mm</p> <p>Contact arrangement view from termination side</p> <p>Panel cut out for inserts for use without hoods/housings</p>	
<p><b>Coding pin</b></p>				09 33 000 9915	<p>Coding pin</p> <p>Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.</p>

Number of contacts

72 +

Available May 2013



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

**Crimp terminal**  
 Order crimp contacts separately (see Technical characteristics on page 19)

Han DD® HMC

09 16 272 3001

09 16 272 3101

1) Distance for contact max. 21 mm

Contact arrangement view from termination side

Panel cut out for inserts for use without hoods/housings

**Coding pin**

09 33 000 9915

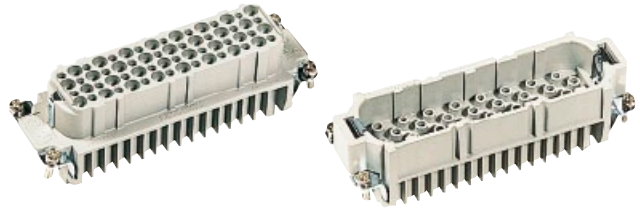
**Coding pin**

Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.

Number of contacts

64 +

Available May 2013



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
<p><b>Crimp terminal</b></p> <p>Order crimp contacts separately (see Technical characteristics on page 17)</p>	Han D® HMC	09 21 264 3001	09 21 264 3101	<p>1) Distance for contact max. 21 mm</p> <p>Contact arrangement view from termination side</p> <p>Panel cut out for inserts for use without hoods/housings</p>	
<p><b>Coding pin</b></p>				09 33 000 9915	<p>Coding pin</p> <p>Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.</p>

Number of contacts

108 +

Available May 2013



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

**Crimp terminal**  
 Order crimp contacts separately (see Technical characteristics on page 19)

Han DD® HMC

09 16 208 3001

09 16 208 3101

1) Distance for contact max. 21 mm

Contact arrangement view from termination side

Panel cut out for inserts for use without hoods/housings

**Coding pin**

09 33 000 9915

Coding pin

Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.

## Technical characteristics

### Hoods/Housings Han<sup>®</sup> B HMC

Material	aluminium die-cast
Surface	powder-coated
Locking element	Han-Easy Lock <sup>®</sup> HMC
Flammability acc. to UL 94	V 0
Hoods/Housings seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 65

selection of hoods/housings see page 53

Specifications	DIN EN 60 664-1 DIN EN 61 984
----------------	----------------------------------

### Inserts

Number of contacts	6, 10, 16, 24, + PE
Electrical data acc. to EN 61 984	<b>16 A 500 V 6 kV 3</b>
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
Pollution degree 2 also	16 A 400/690 V 6 kV 2
Rated voltage acc. to UL/CSA	600 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

### Contacts Han E<sup>®</sup> HMC

Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 1 mΩ
Crimp terminal - min	0.14 mm <sup>2</sup> / AWG 26
Crimp terminal - max	4 mm <sup>2</sup> / AWG 12

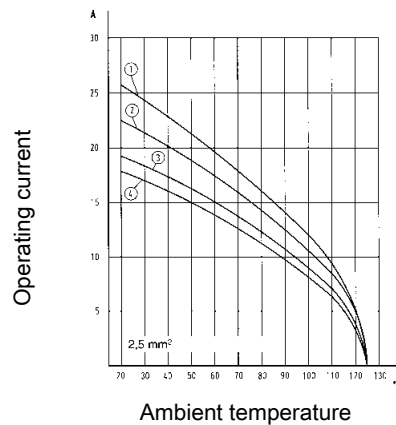
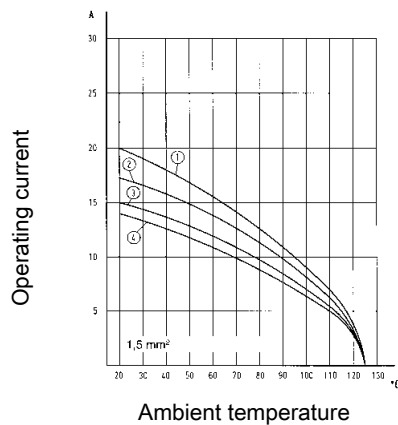
## Features

- Han E<sup>®</sup> HMC contacts with crimp termination
- Suitable for hoods/housings of series Han<sup>®</sup> B HMC
- Han E<sup>®</sup> HMC contacts available with special HMC gold plating for 10,000 mating cycles

## 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.

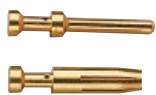
Measuring and testing techniques according to DIN EN 60 512-5



- ① Han<sup>®</sup> 6 E HMC
- ② Han<sup>®</sup> 10 E HMC
- ③ Han<sup>®</sup> 16 E HMC
- ④ Han<sup>®</sup> 24 E HMC

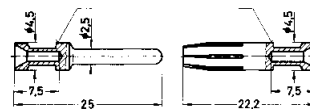
Identification	Wire gauge (mm <sup>2</sup> )	Part number	Male contact	Female contact	Drawing	Dimensions in mm
----------------	-------------------------------	-------------	--------------	----------------	---------	------------------

Crimp contacts  
HMC gold plated



0.14-0.37	09 33 200 6117	09 33 200 6217
0.5	09 33 200 6122	09 33 200 6222
0.75	09 33 200 6115	09 33 200 6215
1	09 33 200 6118	09 33 200 6218
1.5	09 33 200 6116	09 33 200 6216
2.5	09 33 200 6123	09 33 200 6223
4	09 33 200 6119	09 33 200 6221

Operating contact  
Identification



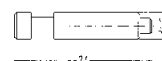
Identification	Wire gauge	Stripping length
no groove	0.14-0.37 mm <sup>2</sup>	AWG 26-22
no groove	0.5 mm <sup>2</sup>	AWG 20
1 groove*	0.75 mm <sup>2</sup>	AWG 18
1 groove	1 mm <sup>2</sup>	AWG 18
2 grooves	1.5 mm <sup>2</sup>	AWG 16
3 grooves	2.5 mm <sup>2</sup>	AWG 14
wide groove	3 mm <sup>2</sup>	AWG 12
no groove	4 mm <sup>2</sup>	AWG 12

\* on the back crimp collar

Coding pin  
for crimp inserts only



09 33 000 9954



Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.



## Technical characteristics

### Hoods/Housings Han® B HMC

Material	aluminium die-cast
Surface	powder-coated
Locking element	Han-Easy Lock® HMC
Flammability acc. to UL 94	V 0
Hoods/Housings seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 65

Selection of hoods/housings see page 53

Specifications	DIN EN 60 664-1 DIN EN 61 984
----------------	----------------------------------

### Inserts

Number of contacts	40, 64 + PE
Electrical data acc. to EN 61 984	<b>16 A 500 V 6 kV 3</b>
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

### Contacts Han® E HMC

Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 1 mΩ
Crimp terminal - min	0.14 mm <sup>2</sup> / AWG 26
Crimp terminal - max	4 mm <sup>2</sup> / AWG 12

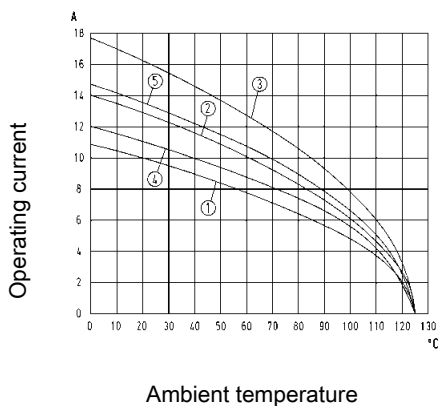
## Features

- Han E® HMC contacts with crimp termination
- Polarised insert
- Suitable for hoods/housings of series Han® B HMC
- Han E® HMC contacts available with special HMC gold plating for 10,000 mating cycles

## 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 according to DIN EN 60 512-5



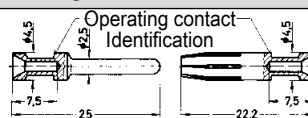
- ① Han® 64 EEE HMC / 1.5 mm<sup>2</sup>
- ② Han® 64 EEE HMC / 2.5 mm<sup>2</sup>
- ③ Han® 64 EEE HMC / 4.0 mm<sup>2</sup>
- ④ Han® 40 EEE HMC / 1.5 mm<sup>2</sup>
- ⑤ Han® 40 EEE HMC / 2.5 mm<sup>2</sup>

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm
		Male contact	Female contact		

**Crimp contacts**  
HMC gold plated



Wire gauge (mm <sup>2</sup> )	Male contact	Female contact
0.14-0.37	09 33 200 6117	09 33 200 6217
0.5	09 33 200 6122	09 33 200 6222
0.75	09 33 200 6115	09 33 200 6215
1	09 33 200 6118	09 33 200 6218
1.5	09 33 200 6116	09 33 200 6216
2.5	09 33 200 6123	09 33 200 6223
4	09 33 200 6119	09 33 200 6221



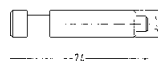
Identification	Wire gauge		Stripping length
no groove	0.14-0.37 mm <sup>2</sup>	AWG 26-22	7.5 mm
no groove	0.5 mm <sup>2</sup>	AWG 20	7.5 mm
1 groove*	0.75 mm <sup>2</sup>	AWG 18	7.5 mm
1 groove	1 mm <sup>2</sup>	AWG 18	7.5 mm
2 grooves	1.5 mm <sup>2</sup>	AWG 16	7.5 mm
3 grooves	2.5 mm <sup>2</sup>	AWG 14	7.5 mm
wide groove	3 mm <sup>2</sup>	AWG 12	7.5 mm
no groove	4 mm <sup>2</sup>	AWG 12	7.5 mm

\* on the back crimp collar

**Coding pin**  
for crimp inserts only



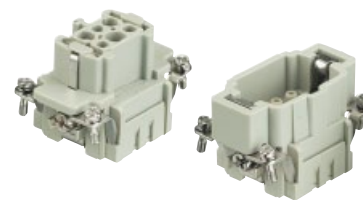
09 33 000 9954



Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted from the opposing cavity in the male insert.

Number of contacts

6 +



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

**Crimp terminal**

Order crimp contacts separately (see Technical characteristics on page 27)

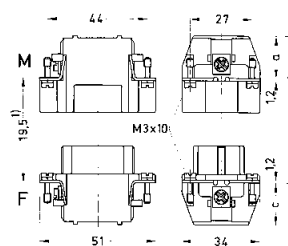


Only with Han® Docking frame (page 61)

Han E®  
HMC

09 33 206 2602

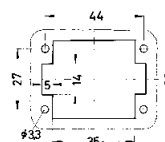
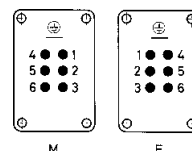
09 33 206 2702



1) Distance for contact max. 21 mm

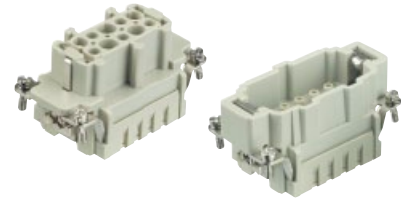
	a	b	c	d
Han E® HMC	19	34	19	36

Contact arrangement  
view from termination side



Number of contacts

10 +



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

**Crimp terminal**  
 Order crimp contacts separately (see Technical characteristics on page 27)

Han E®  
 HMC

09 33 210 2602

09 33 210 2702

1) Distance for contact max. 21 mm

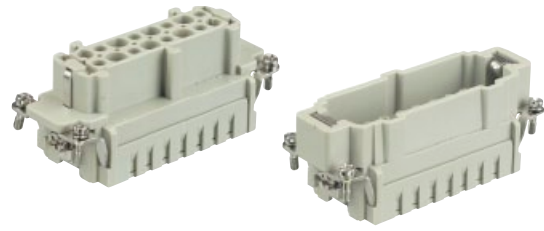
	a	b	c	d
Han E® HMC	19	34	19	36

**Contact arrangement view from termination side**

**Panel cut out**

Number of contacts

16 +



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm												
		Male insert (M)	Female insert (F)														
<p>Crimp terminal</p> <p>Order crimp contacts separately (see Technical characteristics on page 27)</p>	Han E® HMC	09 33 216 2602	09 33 216 2702	<p>1) Distance for contact max. 21 mm</p> <table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>Han E® HMC</td> <td>19</td> <td>34</td> <td>19</td> <td>36</td> </tr> </tbody> </table> <p>Contact arrangement view from termination side</p> <p>Panel cut out</p>		a	b	c	d	Han E® HMC	19	34	19	36			
	a	b	c	d													
Han E® HMC	19	34	19	36													

Number of contacts

40 +



Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

**Crimp termination**

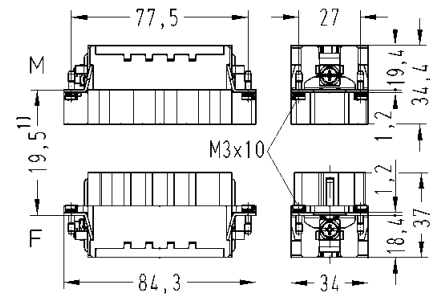
Order crimp contacts separately (see Technical characteristics on page 29)



Han®  
EEE  
HMC

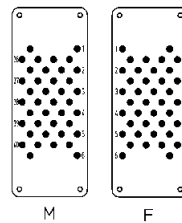
09 32 240 3001

09 32 240 3101

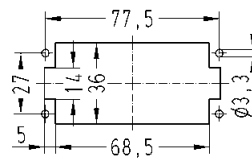


1) Distance for contact max. 21 mm

Contact arrangement  
view from termination side

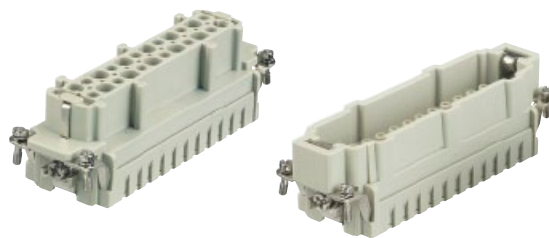


Panel cut out



Number of contacts

24 +

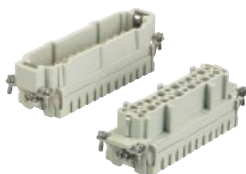


Inserts

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

Crimp terminal

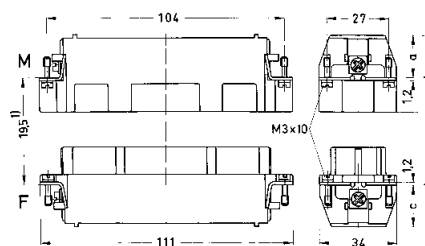
Order crimp contacts separately (see Technical characteristics on page 27)



Han E®  
HMC

09 33 224 2602

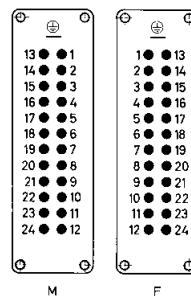
09 33 224 2702



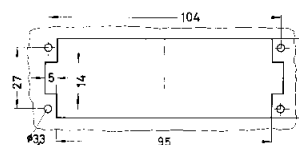
1) Distance for contact max. 21 mm

	a	b	c	d
Han E® HMC	19	34	19	36

Contact arrangement  
view from termination side



Panel cut out




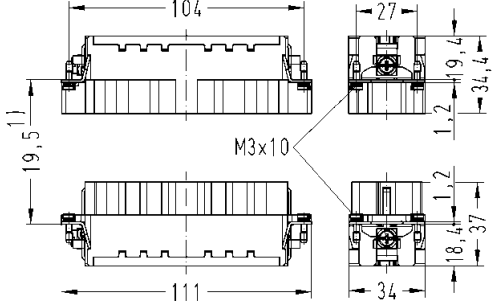
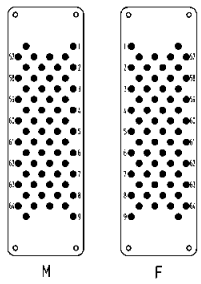
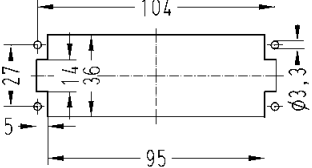


Number of contacts

64 +









Inserts

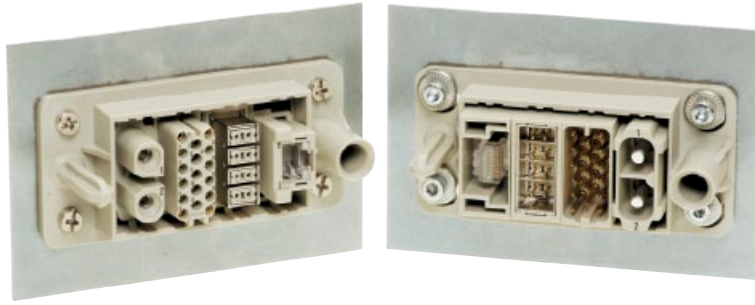
Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
<p><b>Crimp termination</b></p> <p>Order crimp contacts separately (see Technical characteristics on page 29)</p> 	Han® EEE HMC	09 32 264 3001	09 32 264 3101	 <p>1) Distance for contact max. 21 mm</p> <p>Contact arrangement view from termination side</p>  <p>Panel cut out</p> 	

# Summary Han-Modular®



Series	Han E® module	Han® EE module	Han E® Protected module	Han® EEE module
Number of contacts	6	8	6	20
Modules	Crimp terminal	Crimp terminal	Crimp terminal	Crimp terminal
				
Rated current	16 A	16 A	16 A	16 A
Rated voltage	500 V	400 V	830 V	500 V
Wire gauge	0.14 ... 4 mm <sup>2</sup>	0.14 ... 4 mm <sup>2</sup>	0.14 ... 4 mm <sup>2</sup>	0.14 ... 4 mm <sup>2</sup>
Page	36	38	40	42

Series	Han DD® module	Han® DDD module		
Number of contacts	12	17		
Modules	Crimp terminal	Crimp terminal		
				
Rated current	10 A	10 A		
Rated voltage	250 V	160 V		
Wire gauge	0.14 ... 2.5 mm <sup>2</sup>	0.14 ... 2.5 mm <sup>2</sup>		
Page	44	46		



## Features

- Blind mating connector system for drawer systems
- Direct panel mounting without housing
- Very robust design
- Solid pre-leading guid pins and float bushes
- Can be fixed with standard M4 screws
- Designed for 10,000 mating cycles

### Notice:

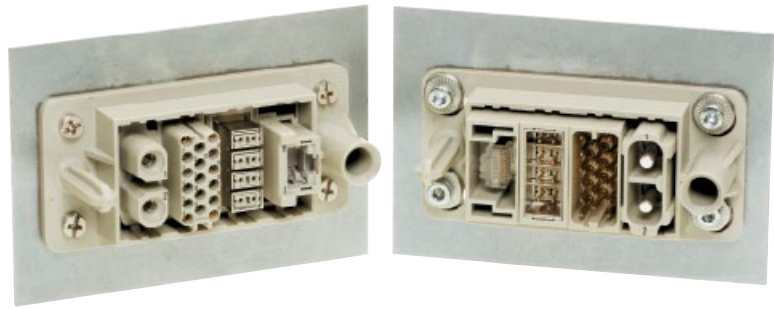
Due to the plastic material used in the docking frame without PE, the panel will need to be grounded separately

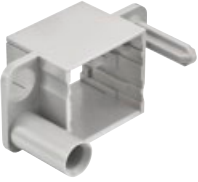
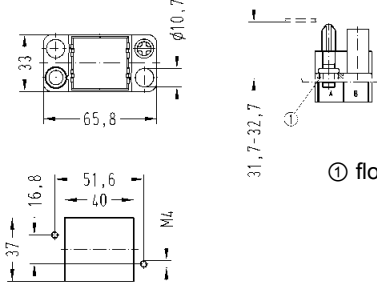
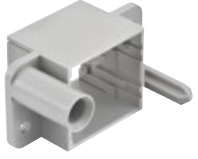
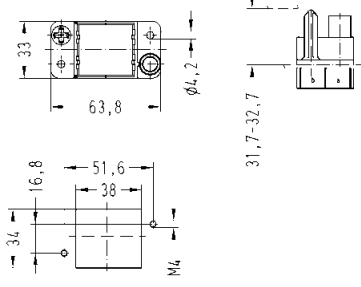

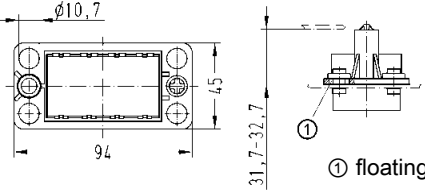

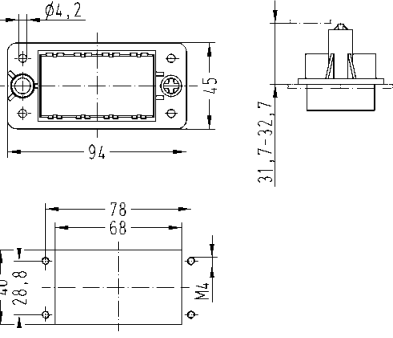
## Technical characteristics

Specifications	DIN EN 60 664-1 DIN EN 61 984
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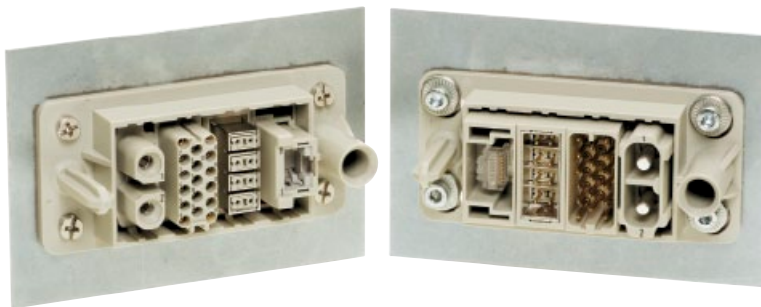
### Docking frames


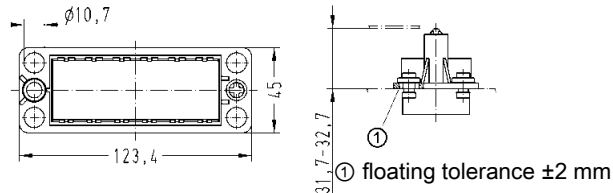

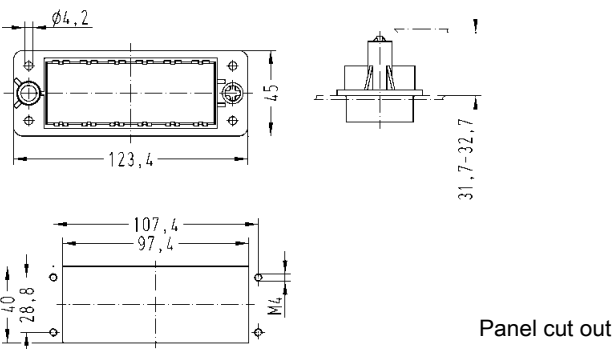

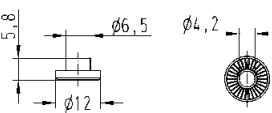
Number of modules	2, 4, 6
Material	
- Docking frames	polycarbonate
- Float washer	zinc die-cast
Floating tolerance	± 2 mm
Aligning tolerance	± 4 mm
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life	
- mating cycles	≥ 10,000



Identification	Part number		Drawing	Dimensions in mm
	Marking A ... F <sup>1)</sup>	Marking a ... f <sup>2)</sup>		
Docking frame for 2 modules 	09 14 006 1701			① floating tolerance $\pm 2$ mm  Panel cut out
Docking frame for 2 modules 		09 14 006 1711		Panel cut out
Docking frame for 4 modules 	09 14 016 1701			① floating tolerance $\pm 2$ mm
Docking frame for 4 modules 		09 14 016 1711		Panel cut out

1) Float mount  
2) Fixed



Identification	Part number		Drawing	Dimensions in mm
	Marking A ... F <sup>1)</sup>	Marking a ... f <sup>2)</sup>		
Docking frame for 6 modules 	09 14 024 1701			① floating tolerance $\pm 2$ mm
Docking frame for 6 modules 		09 14 024 1711		Panel cut out
Float washer to enable the frame to be float mounted using standard M4 fixing screws 	09 14 000 9936			

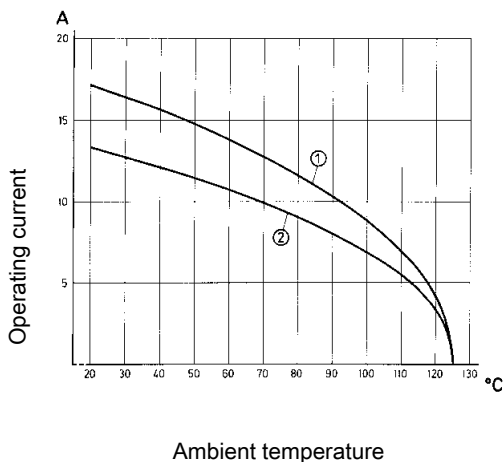
## Features

- Suitable for Han E<sup>®</sup> HMC crimp contacts
- Standard module for power up to 40 A
- Designed for 10,000 mating cycles with Han E<sup>®</sup> HMC crimp contacts and only with Han-Modular<sup>®</sup> Docking frame

## 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 according to DIN EN 60 512-5



- ① 24 B HMC hoods/housings with 6 modules; wire gauge: 2.5 mm<sup>2</sup>  
 ② 24 B HMC hoods/housings with 6 modules; wire gauge: 1.5 mm<sup>2</sup>

## Technical characteristics

Specifications                      DIN EN 60 664-1  
   DIN EN 61 984

Approvals                             

### Inserts

Number of contacts                      6  
 Electrical data  
 acc. to EN 61 984                      **16 A 500 V 6 kV 3**  
 Rated current                              16 A  
 Rated voltage                              500 V  
 Rated impulse voltage                  6 kV  
 Pollution degree                          3

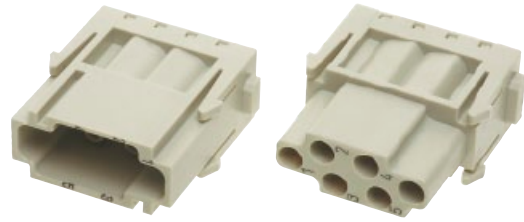
Rated voltage  
 acc. to UL/CSA                          600 V  
 Insulation resistance                    ≥ 10<sup>10</sup> Ω  
 Material                                      polycarbonate  
 Limiting temperatures                  -40 °C ... +125 °C  
 Flammability acc. to UL 94            V 0  
 Mechanical working life  
 - mating cycles                            ≥ 10,000

### Contacts Han E<sup>®</sup> HMC

Material                                      copper alloy  
 Surface                                        HMC gold plated  
 Contact resistance                        ≤ 1 mΩ  
 Crimp terminal  
 - mm<sup>2</sup>    0.14 ... 4 mm<sup>2</sup>  
 - AWG    26 ... 12

Number of contacts

6



Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
<b>Crimp terminal</b> Order crimp contacts separately	09 14 006 3001	09 14 006 3101	<p>Contact arrangement view from termination side</p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																																				
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<b>Crimp contacts</b> HMC gold plated  	0.14-0.37 0.5 0.75 1 1.5 2.5 4	09 33 200 6117 09 33 200 6122 09 33 200 6115 09 33 200 6118 09 33 200 6116 09 33 200 6123 09 33 200 6119	09 33 200 6217 09 33 200 6222 09 33 200 6215 09 33 200 6218 09 33 200 6216 09 33 200 6223 09 33 200 6221																																						
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## Features

- Suitable for Han E® HMC crimp contacts
- High contact density
- Designed for 10,000 mating cycles with Han E® HMC crimp contacts and only with Han-Modular® Docking frame

## Technical characteristics

Specifications DIN EN 60 664-1  
DIN EN 61 984

Approvals

### Inserts

Number of contacts	8
Electrical data acc. to EN 61 984	<b>16 A 400 V 6 kV 3</b>
Rated current	16 A
Rated voltage	400 V
Rated impulse voltage	6 kV
Pollution degree	3

Rated voltage acc. to UL	600 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

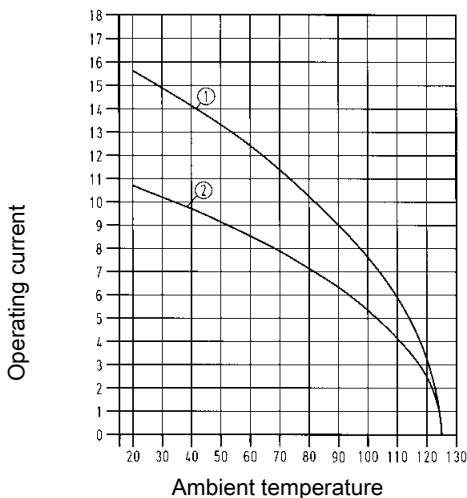
### Contacts Han E® HMC

Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 1 mΩ
Crimp terminal	
- mm <sup>2</sup>	0.14 ... 4 mm <sup>2</sup>
- AWG	26 ... 12

## 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 according to  
DIN EN 60 512-5

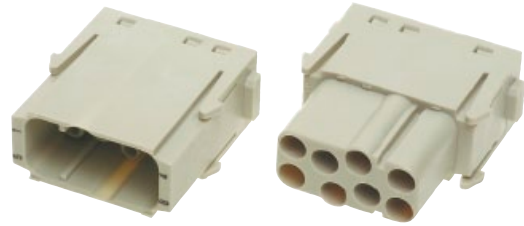


① 24 B HMC hoods/housings with 6 modules; wire gauge: 2.5 mm<sup>2</sup>

② 24 B HMC hoods/housings with 6 modules; wire gauge: 1.5 mm<sup>2</sup>

Number of contacts

8



Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
<p><b>Crimp terminal</b> Order crimp contacts separately</p>	09 14 008 3001	09 14 008 3101	<p>                     M 34,2 14,6 34                      F 34,2 14,6 35,8                      M F                      Contact arrangement view from termination side                 </p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																																				
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<p><b>Crimp contacts</b> HMC gold plated</p>	0.14-0.37 0.5 0.75 1 1.5 2.5 4	09 33 200 6117 09 33 200 6122 09 33 200 6115 09 33 200 6118 09 33 200 6116 09 33 200 6123 09 33 200 6119	09 33 200 6217 09 33 200 6222 09 33 200 6215 09 33 200 6218 09 33 200 6216 09 33 200 6223 09 33 200 6221	<p>Operating contact Identification</p>																																					
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## Features

- Suitable for Han E<sup>®</sup> HMC crimp contacts
- designed for a high working voltage up to 830 V
- finger safe male and female contacts
- Designed for 10,000 mating cycles with Han E<sup>®</sup> HMC crimp contacts and only with Han-Modular<sup>®</sup> Docking frame

## Technical characteristics

Specifications DIN EN 60 664-1  
DIN EN 61 984

Approvals

### Inserts

Number of contacts	6
Electrical data acc. to EN 61 984	<b>16 A 830 V 8 kV 3</b>
Rated current	16 A
Rated voltage	830 V
Rated impulse voltage	8 kV
Pollution degree	3

Rated voltage acc. to UL	600 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

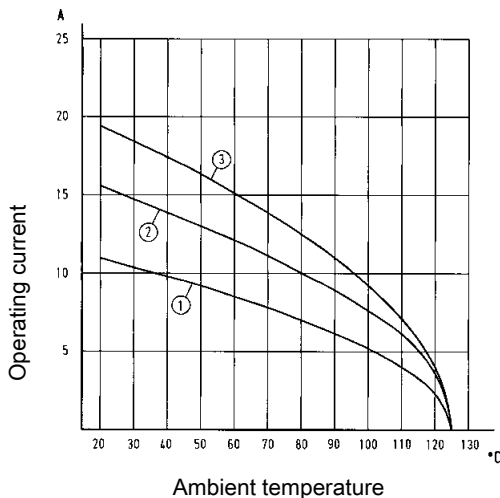
### Contacts Han E<sup>®</sup> HMC

Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 1 mΩ
Crimp terminal	
- mm <sup>2</sup>	0.14 ... 4 mm <sup>2</sup>
- AWG	26 ... 12

## 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.

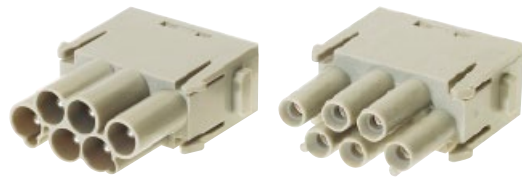
Measuring and testing techniques according to  
DIN EN 60 512-5



- ① 24 B HMC hoods/housings with 6 modules; wire gauge: 1.5 mm<sup>2</sup>
- ② 24 B HMC hoods/housings with 6 modules; wire gauge: 2.5 mm<sup>2</sup>
- ③ 24 B HMC hoods/housings with 6 modules; wire gauge: 4 mm<sup>2</sup>

Number of contacts

6



Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
<b>Crimp terminal</b> Order crimp contacts separately	09 14 006 3041	09 14 006 3141	<p>M</p> <p>F</p> <p>M F</p> <p>Contact arrangement view from termination side</p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																											
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<b>Crimp contacts</b> HMC gold plated  	0.14-0.37 0.5 0.75 1 1.5 2.5 4	09 33 200 6117 09 33 200 6122 09 33 200 6115 09 33 200 6118 09 33 200 6116 09 33 200 6123 09 33 200 6119	09 33 200 6217 09 33 200 6222 09 33 200 6215 09 33 200 6218 09 33 200 6216 09 33 200 6223 09 33 200 6221	<p>Operating contact Identification</p> <table border="1"> <thead> <tr> <th>Identification</th> <th>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> </tr> <tr> <td>no groove</td> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> </tr> <tr> <td>1 groove*</td> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> </tr> <tr> <td>1 groove</td> <td>1 mm<sup>2</sup></td> <td>AWG 18</td> </tr> <tr> <td>2 grooves</td> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> </tr> <tr> <td>3 grooves</td> <td>2.5 mm<sup>2</sup></td> <td>AWG 14</td> </tr> <tr> <td>wide groove</td> <td>3 mm<sup>2</sup></td> <td>AWG 12</td> </tr> <tr> <td>no groove</td> <td>4 mm<sup>2</sup></td> <td>AWG 12</td> </tr> </tbody> </table> <p>* on the back crimp collar</p>	Identification	Wire gauge	Stripping length	no groove	0.14-0.37 mm <sup>2</sup>	AWG 26-22	no groove	0.5 mm <sup>2</sup>	AWG 20	1 groove*	0.75 mm <sup>2</sup>	AWG 18	1 groove	1 mm <sup>2</sup>	AWG 18	2 grooves	1.5 mm <sup>2</sup>	AWG 16	3 grooves	2.5 mm <sup>2</sup>	AWG 14	wide groove	3 mm <sup>2</sup>	AWG 12	no groove	4 mm <sup>2</sup>	AWG 12	
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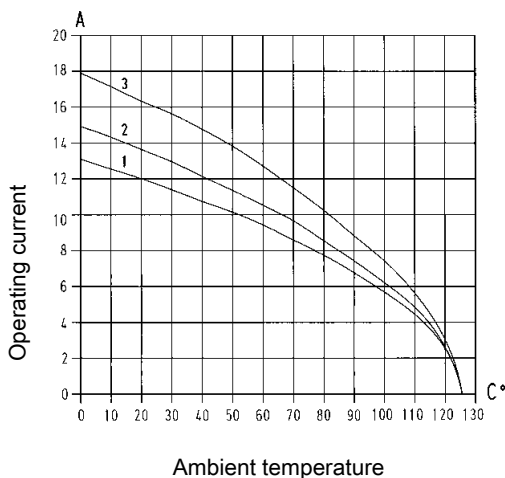
## Features

- Suitable for Han E® HMC crimp contacts
- High contact density
- Up to 16 A per contact
- Also suitable as a reliable signal connector
- Designed for 10,000 mating cycles with Han E® HMC crimp contacts and only with Han-Modular® Docking frame

## 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 according to DIN EN 60 512-5



- ① 24 B HMC hoods/housings with 3 modules; wire gauge: 1.5 mm<sup>2</sup>
- ② 24 B HMC hoods/housings with 3 modules; wire gauge: 2.5 mm<sup>2</sup>
- ③ 24 B HMC hoods/housings with 3 modules; wire gauge: 4 mm<sup>2</sup>

## Technical characteristics

Specifications DIN EN 60 664-1  
DIN EN 61 984

Approvals

### Inserts

Number of contacts	20
Electrical data acc. to EN 61 984	<b>16 A 500 V 6 kV 3</b>
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3

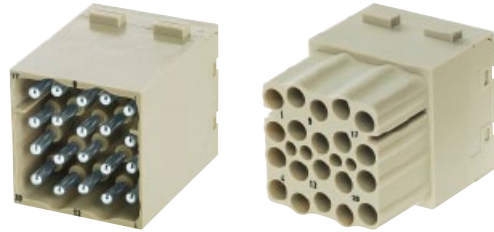
Rated voltage acc. to UL	600 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

### Contacts Han E® HMC

Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 1 mΩ
Crimp terminal	
- mm <sup>2</sup>	0.14 ... 4 mm <sup>2</sup>
- AWG	26 ... 12

Number of contacts

20



Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
Crimp terminal Order crimp contacts separately	09 14 020 3001	<b>09 14 020 3101</b>	<p>Contact arrangement view from termination side</p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																											
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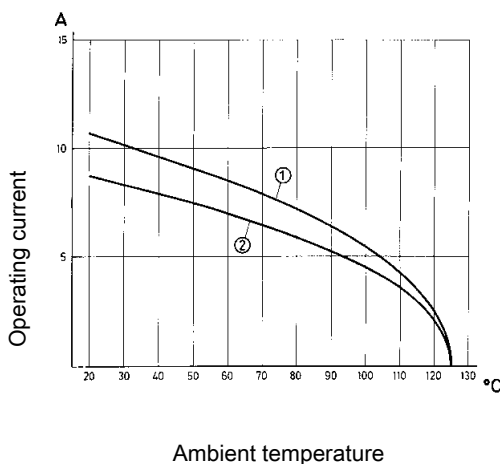
## Features

- Suitable for Han D<sup>®</sup> HMC crimp contacts
- Standard module for power up to 10 A
- Compatible to Han D<sup>®</sup> module with Quick Lock terminal
- Designed for 10,000 mating cycles with Han D<sup>®</sup> HMC crimp contacts and only with Han-Modular<sup>®</sup> Doking frame

## 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 according to DIN EN 60 512-5



① 24 B HMC hoods/housings with 6 modules; wire gauge: 1.5 mm<sup>2</sup>

② 24 B HMC hoods/housings with 6 modules; wire gauge: 1.0 mm<sup>2</sup>

## Technical characteristics

Specifications DIN EN 60 664-1  
DIN EN 61 984

Approvals

### Inserts

Number of contacts	12
Electrical data acc. to EN 61 984	<b>10 A 250 V 4 kV 3</b>
Rated current	10 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3

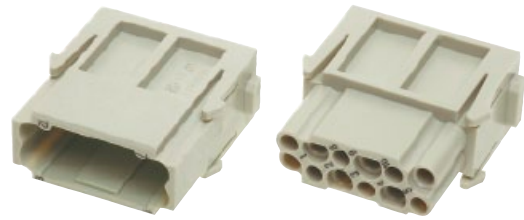
Rated voltage acc. to UL/CSA	600 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

### Contacts Han D<sup>®</sup> HMC

Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 3 mΩ
Crimp terminal	
- mm <sup>2</sup>	0.14 ... 2.5 mm <sup>2</sup>
- AWG	26 ... 14

Number of contacts

12



Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
<p>Crimp terminal</p> <p>Order crimp contacts separately</p>	09 14 012 3001	09 14 012 3101	<p>M</p> <p>F</p> <p>M</p> <p>F</p> <p>Contact arrangement view from termination side</p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																												
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<p>Crimp contacts</p> <p>HMC gold plated</p>	<p>0.14-0.37</p> <p>0.5</p> <p>0.75</p> <p>1</p> <p>1.5</p> <p>2.5</p>	<p>09 15 200 6124</p> <p>09 15 200 6123</p> <p>09 15 200 6125</p> <p>09 15 200 6122</p> <p>09 15 200 6121</p> <p>09 15 200 6126</p>	<p>09 15 200 6224</p> <p>09 15 200 6223</p> <p>09 15 200 6225</p> <p>09 15 200 6222</p> <p>09 15 200 6221</p> <p>09 15 200 6226</p>		<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>0.9</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>1.1</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.3</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup></td> <td>AWG 16</td> <td>1.45</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> <td>1.75</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>AWG 14</td> <td>2.25</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	8 mm	0.5 mm <sup>2</sup>	AWG 20	1.1	8 mm	0.75 mm <sup>2</sup>	AWG 18	1.3	8 mm	1 mm <sup>2</sup>	AWG 16	1.45	8 mm	1.5 mm <sup>2</sup>	AWG 16	1.75	8 mm	2.5 mm <sup>2</sup>	AWG 14	2.25	6 mm
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1.5 mm <sup>2</sup>	AWG 16	1.75	8 mm																														
2.5 mm <sup>2</sup>	AWG 14	2.25	6 mm																														



## Features

- Suitable for Han D® HMC crimp contacts
- High contact density
- Designed for 10,000 mating cycles with Han® D HMC crimp contacts and only with Han-Modular® Docking frame

## Technical characteristics

Specifications DIN EN 60 664-1  
DIN EN 61 984

Approvals

### Inserts

Number of contacts	17
Electrical data acc. to EN 61 984	<b>10 A 160 V 2.5 kV 3</b>
Rated current	10 A
Rated voltage	160 V
Rated impulse voltage	2.5 kV
Pollution degree	3

Rated voltage acc. to UL	250 V
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 10,000

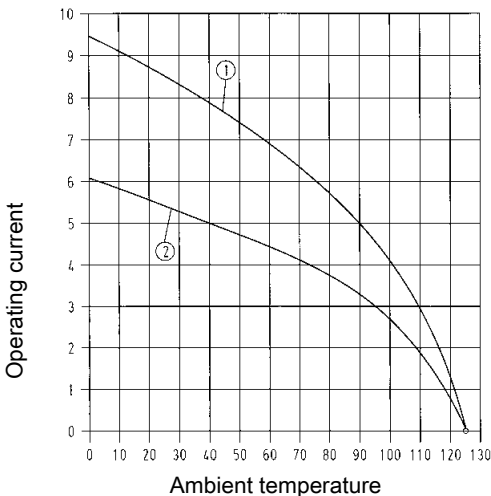
### Contacts Han D® HMC

Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 3 mΩ
Crimp terminal	
- mm <sup>2</sup>	0.14 ... 2.5 mm <sup>2</sup>
- AWG	26 ... 14

### 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 according to DIN EN 60 512-5

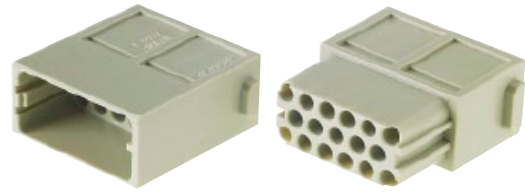


① 24 B HMC hoods/housings with 6 modules; wire gauge: 1.5 mm<sup>2</sup>

② 24 B HMC hoods/housings with 6 modules; wire gauge: 1.0 mm<sup>2</sup>

Number of contacts

17



Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		
<p><b>Crimp terminal</b> Order crimp contacts separately</p>	09 14 017 3001	09 14 017 3101	<p>Contact arrangement view from termination side</p>	

Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																												
		Male contact	Female contact																														
<p><b>Crimp contacts</b> HMC gold plated</p>	0,14-0,37 0,5 0,75 1 1,5 2,5	09 15 200 6124 09 15 200 6123 09 15 200 6125 09 15 200 6122 09 15 200 6121 09 15 200 6126	09 15 200 6224 09 15 200 6223 09 15 200 6225 09 15 200 6222 09 15 200 6221 09 15 200 6226	<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>0.9</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm<sup>2</sup></td> <td>AWG 20</td> <td>1.1</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.3</td> <td>8 mm</td> </tr> <tr> <td>1 mm<sup>2</sup></td> <td>AWG 18</td> <td>1.45</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm<sup>2</sup></td> <td>AWG 16</td> <td>1.75</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm<sup>2</sup></td> <td>AWG 14</td> <td>2.25</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	8 mm	0.5 mm <sup>2</sup>	AWG 20	1.1	8 mm	0.75 mm <sup>2</sup>	AWG 18	1.3	8 mm	1 mm <sup>2</sup>	AWG 18	1.45	8 mm	1.5 mm <sup>2</sup>	AWG 16	1.75	8 mm	2.5 mm <sup>2</sup>	AWG 14	2.25	6 mm	
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2.5 mm <sup>2</sup>	AWG 14	2.25	6 mm																														

## Technical characteristics

## Han® B HMC


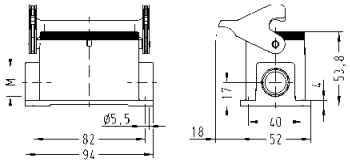

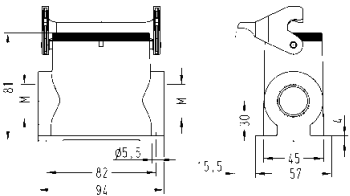

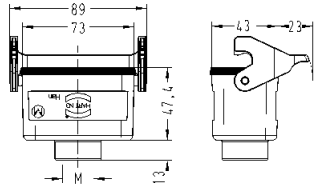
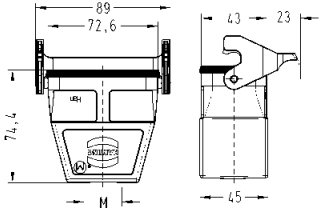

## Metal hoods/housings for industrial applications

Material	aluminium die-cast
Colour	RAL 7037 (grey)
Surface	powder-coated
Locking element	Stainless steel
Lever type	Han-Easy Lock® HMC
Hoods/Housings seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Approval acc. to UL 50	NEMA Type 4/4X/12
Degree of protection acc. to DIN EN 60 529	
for coupled connector	IP 65
Locking cycles	≥ 10,000


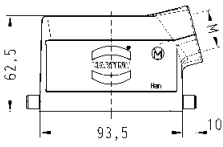
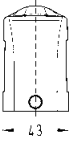

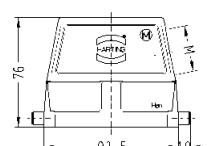
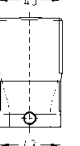

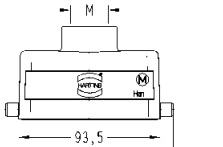
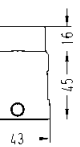

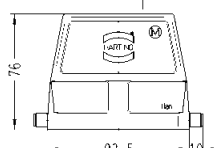
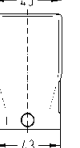

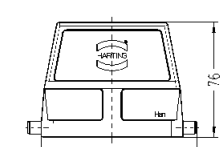


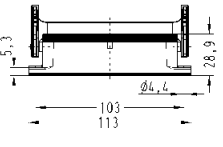
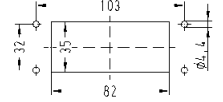
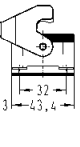
Metal hoods/housings for industrial applications / 1 lever locking system

Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Hoods side entry		19 30 210 1540		1 x 20 1 x 25	
		19 30 210 1541			
side entry			19 30 210 0547	1 x 32	
Hoods top entry		19 30 210 1440		1 x 20 1 x 25	
		19 30 210 1441			
top entry			19 30 210 0447	1 x 32	
Hoods without cable entry			09 30 210 0803	—	
Housings, bulkhead mounting		09 30 210 0305			 Panel cut out

Metal hoods/housings for industrial applications / 1 lever locking system

Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Housings, surface mounting  side entry		19 30 210 1250	1 x 20		Blind way for one cable entry
		19 30 210 1290	2 x 20		
side entry			19 30 210 0291 19 30 210 0292		Blind way for one cable entry
Hoods, cable to cable  top entry		19 30 210 1750	1 x 20		
			1 x 25		
top entry			19 30 210 0756		


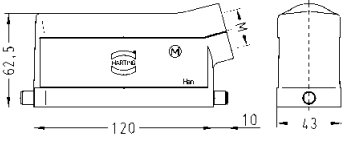

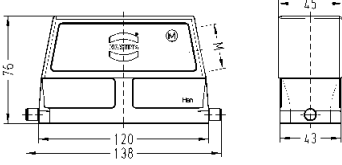

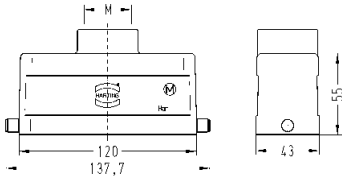

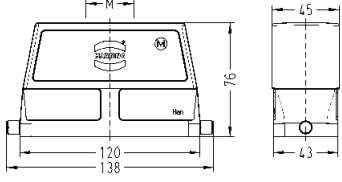

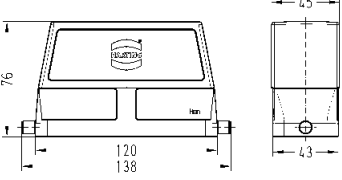

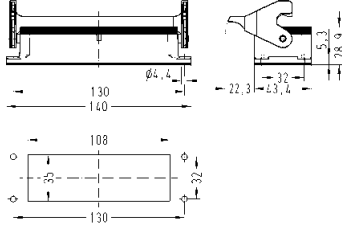
Metal hoods/housings for industrial applications / 1 lever locking system

Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Hoods side entry		19 30 216 1541	1 x 25 1 x 32		
		19 30 216 1542			
side entry		19 30 216 0547	1 x 32 1 x 40		
		19 30 216 0548			
Hoods top entry		19 30 216 1441	1 x 25 1 x 32		
		19 30 216 1442			
top entry		19 30 216 0447	1 x 32 1 x 40		
		19 30 216 0448			
Hoods without cable entry		09 30 216 0803	—		
Housings, bulkhead mounting		09 30 216 0307		 	

Metal hoods/housings for industrial applications / 1 lever locking system


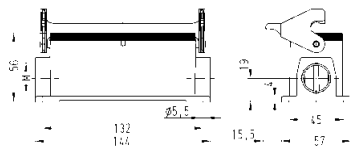

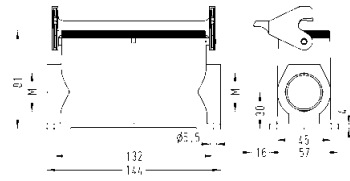

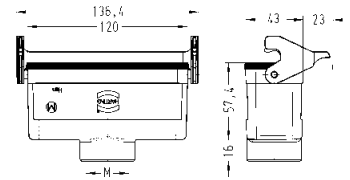

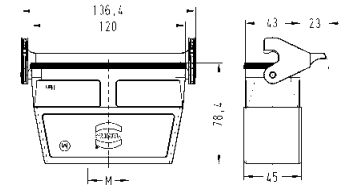
Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Housings, surface mounting  side entry   side entry	19 30 216 1251 19 30 216 1291		1 x 25 2 x 25	<p>Blind way for one cable entry</p>	
			19 30 216 0252 19 30 216 0291 19 30 216 0292	1 x 32 2 x 25 2 x 32	<p>Blind way for one cable entry</p>
Hoods, cable to cable  top entry   top entry	19 30 216 1751 19 30 216 1752		1 x 25 1 x 32		
			19 30 216 0757	1 x 32	

Metal hoods/housings for industrial applications / 1 lever locking system

Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Hoods side entry		19 30 224 1541		1 x 25 1 x 32	
		19 30 224 1542			
side entry			19 30 224 0547 19 30 224 0548	1 x 32 1 x 40	
Hoods top entry		19 30 224 1442		1 x 32	
top entry			19 30 224 0447 19 30 224 0448	1 x 32 1 x 40	
Hoods without cable entry			09 30 224 0803	—	
Housings, bulkhead mounting		09 30 224 0307			 <p>Panel cut out</p>



Metal hoods/housings for industrial applications / 1 lever locking system

Identification	Part number		Cable entry metric	Drawing	Dimensions in mm
	Low construction	High construction			
Housings, surface mounting side entry 	19 30 224 1251		1 x 25	 <p>Blind way for one cable entry</p>	
	19 30 224 1291		2 x 25		
side entry 		19 30 224 0292	2 x 32	 <p>Blind way for one cable entry</p>	
Hoods, cable to cable top entry 	19 30 224 1752		1 x 32		
		19 30 224 0757	1 x 32		
top entry 					

## Features

- Suitable for all inserts of the series Han D® HMC, Han E® HMC, Han® EEE HMC and Han DD® HMC
- Ideal for applications in the field of transportation, as well as in the printing industry
- Due to the floating system of the docking frame the PE connection of the mounting base has to be installed separately
- Inserts are protected against mechanical damage
- Designed for 10,000 mating cycles

## Technical characteristics

Material	
Docking frame	stainless steel
Fixing screws	steel, zinc-plated
Pull-in-range	
x-axis	± 1.5 mm
y-axis	± 1.5 mm
Mechanical working life	
- mating cycles	10,000



Identification                          Size                          Part number                          Drawing                          Dimensions in mm

Han® Docking frame

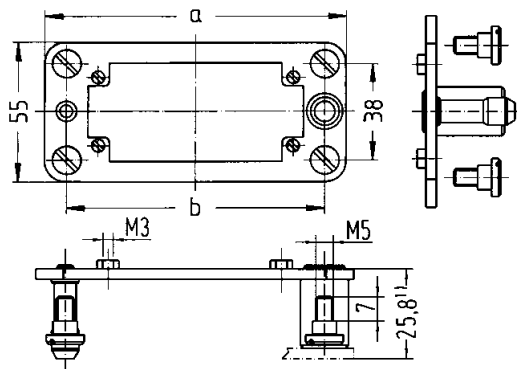


6 B                          09 30 006 1701

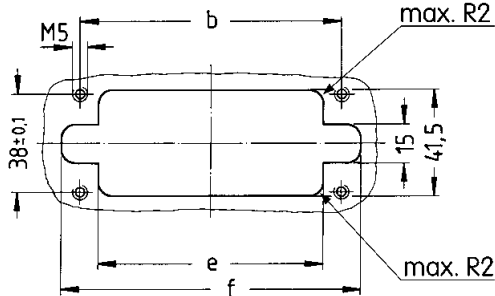
10 B                          09 30 010 1701

16 B                          09 30 016 1701

24 B                          09 30 024 1701



Distance for electrical and F.O. contacts max. 27 mm; for pneumatic contacts max. 26.5 mm

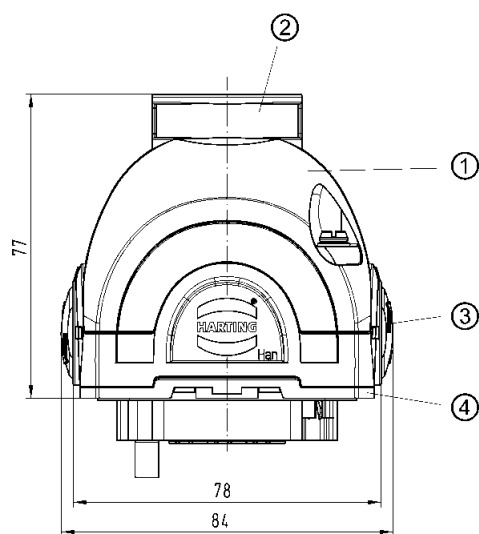


Range of delivery:  
1 frame  
4 cheese head shoulder screws to fix  
the docking frame

Size	a	b	e	f
6 B	86	69	54.5	84
10 B	99	82	67.5	97
16 B	119.5	102.5	88	117.5
24 B	146	129	114.5	144

## Features

- Suitable for rough environments
- Two-part hoods for easy wiring and testing
- High robustness by means of an internal locking mechanism



- ① Shell with top entry
- ② Thread M25 ... M40
- ③ Carrier hood with push button release
- ④ Housings bulkhead mounting

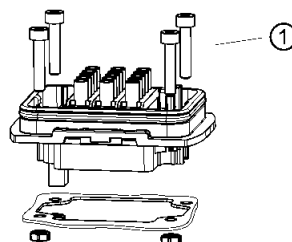
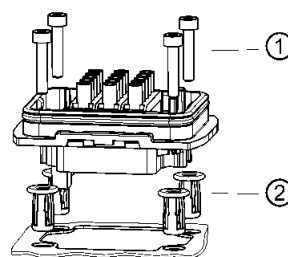
## Technical characteristics

### Shells and Housings, surface mounting

Material	aluminium die-cast
Surface	powder coated
Locking element	stainless steel
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 65 and IP 67
Tightening torque M4 fixing screw	1.2 Nm ... 2.0 Nm

### Carrier hoods and Housings, bulkhead mounting

Number of Han-Yellock® modules	
Han-Yellock® 30	3
Han-Yellock® 60	6
Material	zinc die-cast
Surface	chromated
Colour	RAL 9005 (black)
Locking element	metallised plastic / stainless steel
Hoods/Housings seal	
Limiting temperatures	-40 °C ... +125 °C
Un-/Locking temperatures	-10 °C ... +85 °C
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 65 and IP 67
Mechanical working life - mating cycles	< 500
PE contact wire gauge	≤ 4 mm <sup>2</sup>
Tightening torque M4 fixing screw panel fastener	1 Nm 2.3 Nm



- ① M4 fixing screw (screw length > 20 mm)
- ② Panel fastener

Available June 2013



Identification	Part number	Cable entry	Drawing	Dimensions in mm
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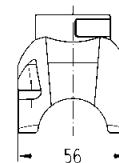
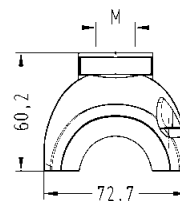
**Shell**

Han-Yellock® 30  
top entry



11 13 300 1401

M25

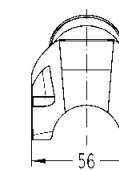
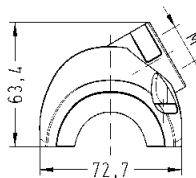


Han-Yellock® 30  
side entry



11 13 300 1501

M25

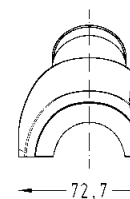
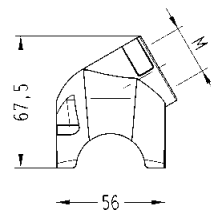


Han-Yellock® 30  
angled entry



11 13 300 1601

M25



**Shell**

Han-Yellock® 60  
top entry

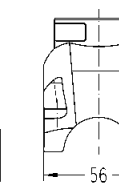
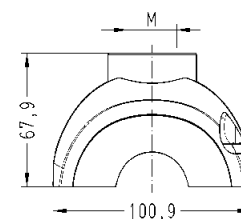


11 13 600 1402

M32

11 13 600 1403

M40

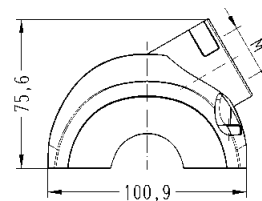


Han-Yellock® 60  
side entry



11 13 600 1502

M32



Identification	Part-Number	Drawing	Dimensions in mm
<p><b>Housings, bulkhead mounting</b></p> <p>Han-Yellock® 30</p> <p>Han-Yellock® 60</p> <p>Set consists of Han-Yellock® bulkhead mounted housing and panel fastener*<sup>1</sup></p> <p>Han-Yellock® 30</p> <p>Han-Yellock® 60</p> <p>*<sup>1</sup> screws for using with panel fastener M4 x 20 or longer</p>	<p>11 13 300 0301</p> <p>11 13 600 0301</p> <p>11 13 300 0302</p> <p>11 13 600 0302</p>		<p>56</p> <p>56</p> <p>56</p> <p>56</p>
<p><b>Carrier hood</b></p> <p>push button with slot Han-Yellock® 30*<sup>2</sup></p> <p>Han-Yellock® 60</p> <p>plain push button Han-Yellock® 30*<sup>2</sup></p> <p>Han-Yellock® 60*<sup>2</sup></p>	<p>11 13 300 0110</p> <p>11 13 600 0110</p> <p>11 13 300 0100</p> <p>11 13 600 0100</p>		<p>56</p> <p>56</p> <p>56</p> <p>56</p>

\*<sup>2</sup> differing from depiction

## Features

- Suitable for HARTING LC contacts
- For GI-Fibre 50 - 62.5 / 125 µm and for single mode fibre
- Using of guiding pins (male and female) is obligatory

## Technical characteristics

### Inserts

Number of contacts	6
Material	polycarbonate
Limiting temperatures	-40 °C ... +85 °C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 500 mating cycles

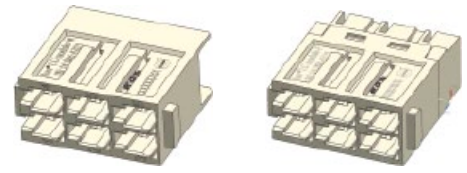
# Han-Modular® LC module



Number of contacts

# 6

Available Nov. 2013



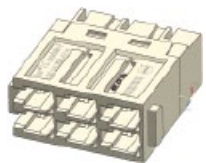
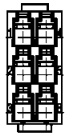
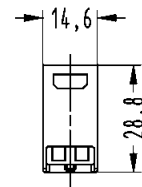
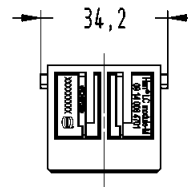
Identification	Part-Number		Drawings	Dimensions in mm
	Male insert (M)	Female insert (F)		

LC module  
order contacts separately



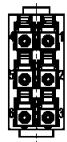
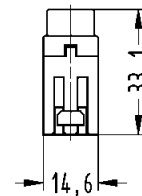
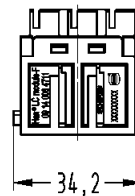
09 14 006 4701

M



09 14 006 4711

F



Contact arrangement  
View termination side

Identification	Part-Number		Drawings	Dimensions in mm
	Male insert (M)			

LC contact

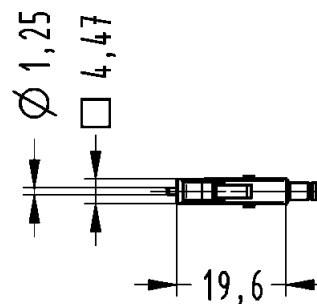


for multi mode  
for cable  $\varnothing \leq 3$  mm  
for cable  $\varnothing \leq 2$  mm

20 10 125 8211  
20 10 125 8212

for single mode  
for cable  $\varnothing \leq 3$  mm  
for cable  $\varnothing \leq 2$  mm

20 10 125 8220  
20 10 125 8221





## Features

- Screw connection, suitable for all users around the world
- Field assembly without special tools
- For flexible and solid conductors from 0.5 to 2.5 mm<sup>2</sup>
- Additional protection against voltage and accidental contact by a sliding insulation cover that closes automatically during mating

## Technical characteristics

Specifications	DIN EN 60 664-1 DIN EN 61 984
----------------	----------------------------------

### Inserts

Number of contacts	5
Electrical data acc. to EN 61 984	<b>16 A 230/400 V 4 kV 3</b>
Rated current	16 A
Rated voltage	230/400 V
Rated impulse voltage	4 kV
Pollution degree	3

Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 500

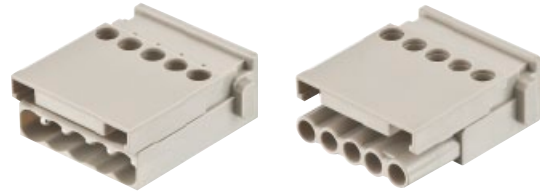
### Contacts

Material	copper alloy
Surface	
- hard-silver plated	3 μm Ag
Contact resistance	≤ 1 mΩ
Quick Lock termination	
- mm <sup>2</sup>	0.5 ... 2.5 mm <sup>2</sup>
- AWG	20 ... 14

Number of contacts

5

Available September 2013



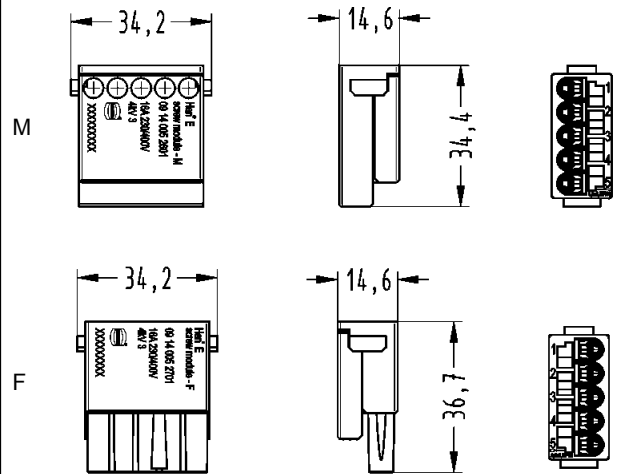
Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		

Screw termination



09 14 005 26 01

09 14 005 27 01



## Features

- Blind mating connector system for drawer systems
- Direct panel mounting without housing
- Very robust design
- Solid pre-leading guide pins and float bushes
- Can be fixed with standard M4 screws

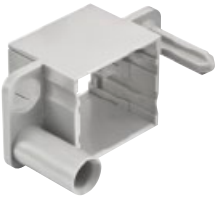
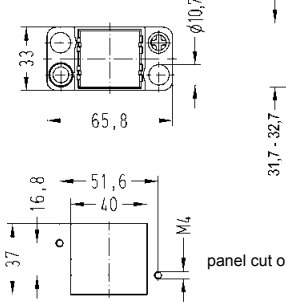
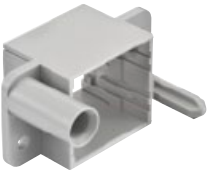
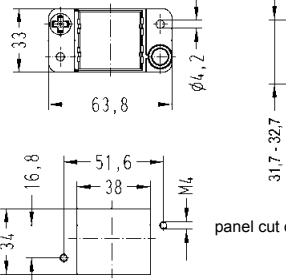
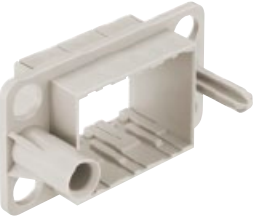
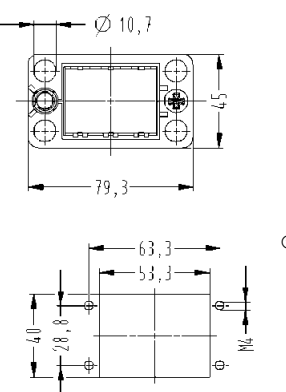
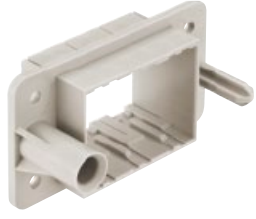
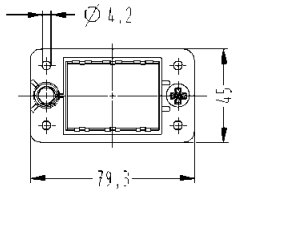
**Note:**

Due to the plastic material used in the docking frame without PE, the panel will need to be grounded separately.

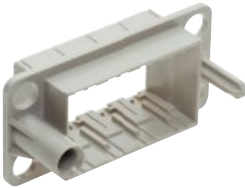

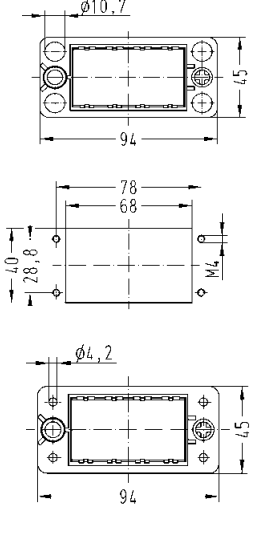
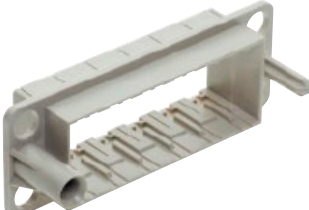
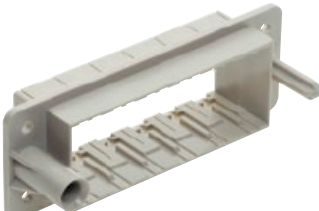
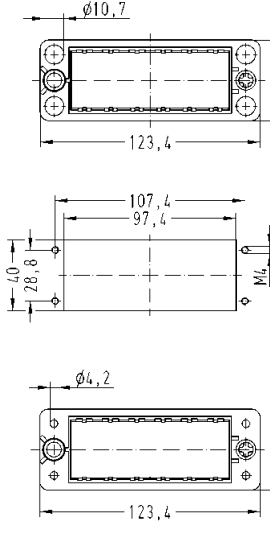

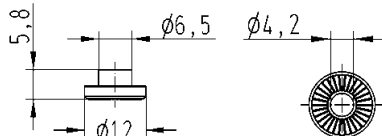
## Technical characteristics

Specifications	DIN EN 60 664-1 DIN EN 61 984
<b>Frames</b>	
Number of modules	2, 3, 4, 6
Material	
Docking Frame	polycarbonate
Float washer	zinc die-cast alloy
Floating tolerance	± 2 mm
Aligning tolerance	± 4 mm
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 500 mating cycles



Identification	Float mount A ... F	Fixed a ... f	Drawings	Dimensions in mm
<p>Docking frame for 2 modules</p> 	09 14 006 1701			<p>① floating tolerance: ± 2 mm</p>
<p>Docking frame for 2 modules</p> 		09 14 006 1711		
<p>Docking frame for 3 modules</p> 	09 14 010 1701			<p>① floating tolerance: ± 2 mm</p>
<p>Docking frame for 3 modules</p> 		09 14 010 1711		



Identification	Float mount A ... F	Fixed a ... f	Drawings	Dimensions in mm
<p>Docking frame for 4 modules</p>  <p>Docking frame for 4 modules</p> 	<p>09 14 016 1701</p>	<p>09 14 016 1711</p>		<p>① floating tolerance: <math>\pm 2</math> mm</p> <p>panel cut out</p>
<p>Docking frame for 6 modules</p>  <p>Docking frame for 6 modules</p> 	<p>09 14 024 1701</p>	<p>09 14 024 1711</p>		<p>① floating tolerance: <math>\pm 2</math> mm</p>
<p>Float washer to enable the frame to be float mounted using standard M4 fixing screws</p> 	<p>09 14 000 9936</p>			



## Features

- Suitable for individual modules of the series Han-Modular® in control cabinets, distribution etc. as cable-to-cable connection
- Strain relief provided by cable ties (max. width: 5 mm)
- Optional fixing due to two drill holes on the strain relief flange
- Easy mounting and removal of the modules (see Han-Modular® removal tool)

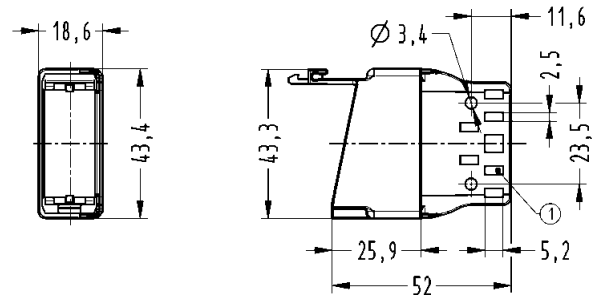
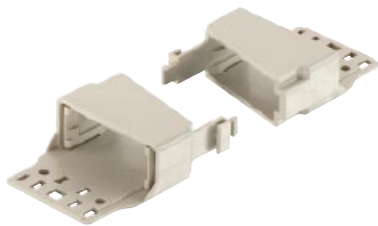
### Identification

### Part-Number

### Depiction

Module clamp with strain relief \*

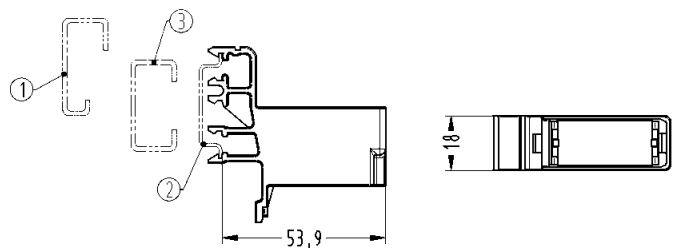
09 14 000 0312



1 For cable ties with max. 5 mm width

Module clamp for rail \*

09 14 000 0313




- 1 G-rail DIN EN 60 715-G32
- 2 Rail DIN EN 60 715-35 x 7.5 with 1 mm thickness or -35 x 15 with 1.5 mm thickness
- 3 C-rail DIN EN 60 715-C30

## Features

- Suitable for rough industrial environments (degree of protection IP 65 with closed cover)
- Optimum locking (3 mm double bit or rotation knob)
- Safe opening (integrated spring, 30 degree opening and locking position in the cover)
- Worldwide use (see approvals)
- High quality plastics

## Technical characteristics

<b>Material</b>	
Frame	plastic PBT black
Cover	plastic PC transparent plastic ABS metallic silver
<b>Limiting temperatures</b>	-30 °C ... +70 °C
<b>Locking</b>	3 mm double bit rotation knob
<b>Suitable for wall thickness</b>	1 ... 5 mm
<b>Degree of protection acc. to EN 60 529 with closed cover</b>	IP 65
<b>Dimensions</b>	
single mounting frame (HxWxD)	127 x 66 x 32
double mounting frame (HxWxD)	127 x 131 x 32
<b>Approvals</b>	NEMA 4/4x/12/13 

# Han-Port® Mounting Frame

Available September 2013



Plastic mounting frame

Identification	Part-Number	Depiction
<p>Single mounting frames, plastic</p> <p>with transparent plastic cover and 3 mm double bit closure</p> <p>with transparent plastic cover and rotation knob closure</p> <p>with metallic silver plastic cover and 3 mm double bit closure</p> <p>with metallic silver plastic cover and rotation knob closure</p>	<p>39 50 000 0300</p> <p>39 50 000 0310</p> <p>39 50 000 0320</p> <p>39 50 000 0330</p>	



# Han-Port® Mounting Frame

Available September 2013



Plastic mounting frame

Identification

Part-Number

Depiction

Double mounting frames, plastic

with transparent plastic cover  
and 3 mm double bit closure

39 50 000 0400

with transparent plastic cover  
and rotation knob closure

39 50 000 0410

with metallic silver plastic cover  
and 3 mm double bit closure

39 50 000 0420

with metallic silver plastic cover  
and rotation knob closure

39 50 000 0430



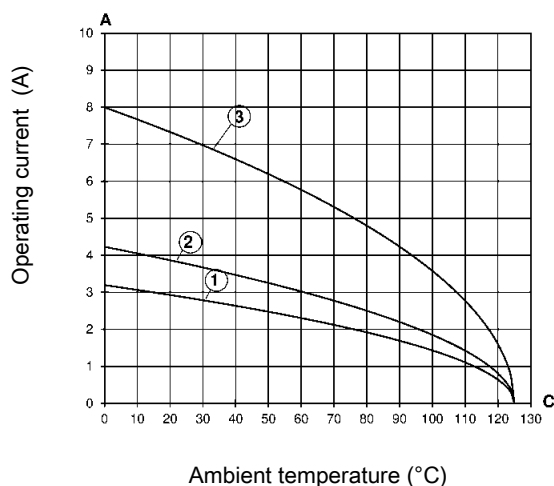
## Features

- Heavy duty connector for D-Sub signal contacts
- Suitable for all Han® 3 A hoods/housing types: Standard (metal, plastic), EMC, INOX, M and HPR
- High contact density at small foot print
- Easy handling of signal connectors in industrial environment
- One preleading contact

## 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 according to DIN EN 60 512-5



- ① wire gauge: 0.14 mm<sup>2</sup>    stamped contacts
- ② wire gauge: 0.25 mm<sup>2</sup>    stamped contacts
- ③ wire gauge: 0.5 mm<sup>2</sup>     turned contacts

## Technical characteristics

### Inserts

Number of contacts	21
Electrical data	
acc. to EN 61 984	<b>6.5 A ~50 V / 120 V 0.8 kV 3</b>
Rated current	6.5 A
Rated voltage AC	~50 V
Rated voltage DC	-120 V
Rated impulse voltage	0.8 kV
Pollution degree	3

Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Mechanical working life	
- mating cycles	according to performance level of used contacts

### Contacts

Material	copper alloy
Surface	
- selectively gold plated	according to performance level
Crimp termination	
- mm <sup>2</sup>	0.09 mm <sup>2</sup> ... 0.56 mm <sup>2</sup>
- AWG	28 ... 20

### Hoods/Housings

Detailed information and further hood/housing types see catalog "Industrial Connectors Han®", chapter 31

#### Plastic hoods/housings

Material	polycarbonate
Flammability acc. to UL 94	V 0
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 67

#### Metal hoods/housings

Material	zinc die-cast
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 44
	IP 67 is achieved with seal screw 09 20 000 9918

Number of contacts

**21**



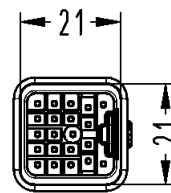
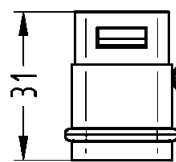
Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		

Crimp terminal  
Order crimp contacts separately

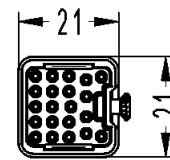
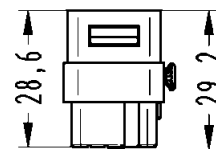
09 12 021 3001

09 12 021 3101

M



F



Identification	Part number	Drawing	Dimensions in mm
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Insertion / removal tool  
for D-Sub crimp contacts



09 99 000 0368

Contacts



Identification	Wire gauge (mm <sup>2</sup> )	Part number		Drawing	Dimensions in mm																
		Male contact	Female contact																		
Individual contacts, turned  Performance level 1  	0.09-0.25 0.13-0.33 0.25-0.52	09 67 000 7576	09 67 000 7476	<table border="1"> <thead> <tr> <th colspan="2">Wire gauge</th> <th>Ø*</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.09-0.25 mm<sup>2</sup></td> <td>AWG 28-24</td> <td>1.7</td> <td>4 mm</td> </tr> <tr> <td>0.13-0.33 mm<sup>2</sup></td> <td>AWG 26-22</td> <td>1.7</td> <td>4 mm</td> </tr> <tr> <td>0.25-0.52 mm<sup>2</sup></td> <td>AWG 24-20</td> <td>1.7</td> <td>4 mm</td> </tr> </tbody> </table>	Wire gauge		Ø*	Stripping length	0.09-0.25 mm <sup>2</sup>	AWG 28-24	1.7	4 mm	0.13-0.33 mm <sup>2</sup>	AWG 26-22	1.7	4 mm	0.25-0.52 mm <sup>2</sup>	AWG 24-20	1.7	4 mm	
		Wire gauge			Ø*	Stripping length															
0.09-0.25 mm <sup>2</sup>	AWG 28-24	1.7	4 mm																		
0.13-0.33 mm <sup>2</sup>	AWG 26-22	1.7	4 mm																		
0.25-0.52 mm <sup>2</sup>	AWG 24-20	1.7	4 mm																		
09 67 000 5576	09 67 000 5476																				
09 67 000 8576	09 67 000 8476																				
Individual contacts, stamped  Performance level 1	0.09-0.25 0.25-0.56	09 67 000 7176	09 67 000 7276	<table border="1"> <thead> <tr> <th colspan="2">Wire gauge</th> <th>Ø*</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.09-0.25 mm<sup>2</sup></td> <td>AWG 28-24</td> <td>1.02</td> <td>2.5 mm + 0.5</td> </tr> <tr> <td>0.25-0.56 mm<sup>2</sup></td> <td>AWG 24-20</td> <td>1.52</td> <td>2.5 mm + 0.5</td> </tr> </tbody> </table>	Wire gauge		Ø*	Stripping length	0.09-0.25 mm <sup>2</sup>	AWG 28-24	1.02	2.5 mm + 0.5	0.25-0.56 mm <sup>2</sup>	AWG 24-20	1.52	2.5 mm + 0.5					
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09 67 000 8176	09 67 000 8276																				
500 pieces/reel  Performance level 1 Unrolling left	0.09-0.25 0.25-0.56	09 67 000 7166	09 67 000 7266	<table border="1"> <thead> <tr> <th colspan="2">Wire gauge</th> <th>Ø*</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.09-0.25 mm<sup>2</sup></td> <td>AWG 28-24</td> <td>1.02</td> <td>2.5 mm + 0.5</td> </tr> <tr> <td>0.25-0.56 mm<sup>2</sup></td> <td>AWG 24-20</td> <td>1.52</td> <td>2.5 mm + 0.5</td> </tr> </tbody> </table>	Wire gauge		Ø*	Stripping length	0.09-0.25 mm <sup>2</sup>	AWG 28-24	1.02	2.5 mm + 0.5	0.25-0.56 mm <sup>2</sup>	AWG 24-20	1.52	2.5 mm + 0.5					
		Wire gauge			Ø*	Stripping length															
0.09-0.25 mm <sup>2</sup>	AWG 28-24	1.02	2.5 mm + 0.5																		
0.25-0.56 mm <sup>2</sup>	AWG 24-20	1.52	2.5 mm + 0.5																		
09 67 000 8166	09 67 000 8266																				
10,000 pieces/reel  Performance level 1 Unrolling left	0.09-0.25 0.25-0.56	09 67 000 7156	09 67 000 7256	<table border="1"> <thead> <tr> <th colspan="2">Wire gauge</th> <th>Ø*</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.09-0.25 mm<sup>2</sup></td> <td>AWG 28-24</td> <td>1.02</td> <td>2.5 mm + 0.5</td> </tr> <tr> <td>0.25-0.56 mm<sup>2</sup></td> <td>AWG 24-20</td> <td>1.52</td> <td>2.5 mm + 0.5</td> </tr> </tbody> </table>	Wire gauge		Ø*	Stripping length	0.09-0.25 mm <sup>2</sup>	AWG 28-24	1.02	2.5 mm + 0.5	0.25-0.56 mm <sup>2</sup>	AWG 24-20	1.52	2.5 mm + 0.5					
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0.25-0.56 mm <sup>2</sup>	AWG 24-20	1.52	2.5 mm + 0.5																		
09 67 000 8156	09 67 000 8256																				

\*) Ø = max. insulation diameter

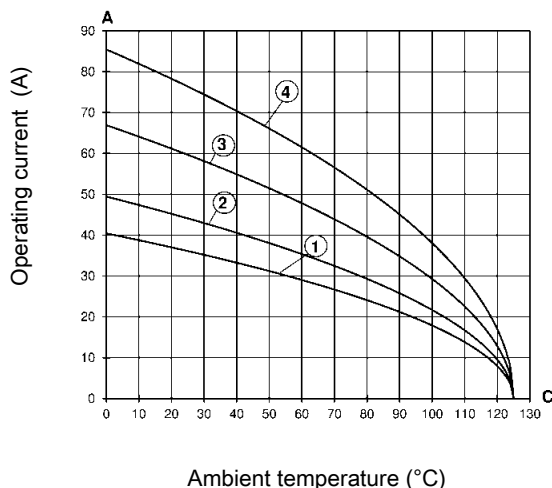
## Features

- High current inserts designed to fit all hoods/housings size Han® 3 A
- 4 coding options
- Use of standard Han® C crimp contacts
- Finger protected male and female contacts
- Pre-mating PE crimp contact

## 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 according to DIN EN 60 512-5



- ① wire gauge: 2.5 mm<sup>2</sup>
- ② wire gauge: 4 mm<sup>2</sup>
- ③ wire gauge: 6 mm<sup>2</sup>
- ④ wire gauge: 10 mm<sup>2</sup>

## Technical characteristics

### Inserts

Number of contacts	3 + PE
Electrical data	
acc. to EN 61 984	<b>40 A 400 V 6 kV 3</b>
Rated current	40 A
Rated voltage	400 V
Rated impulse voltage	6 kV
Pollution degree	3

Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life	
- mating cycles	≥ 500

### Contacts

Material	copper alloy
Surface	
- hard-silver plated	3 μm Ag
Contact resistance	≤ 1 mΩ
Crimp termination	
- mm <sup>2</sup>	1.5 ... 10 mm <sup>2</sup>
- AWG	16 ... 8

### Tools

see chapter 99  
in the main catalogue  
„Industrial Connectors Han®“

### Hoods/Housings

Detailed information and further hood/housing types see catalogue „Industrial Connectors Han®“, chapter 31

#### Plastic hoods/housings

Material	polycarbonate
Flammability acc. to UL 94	V 0
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 67

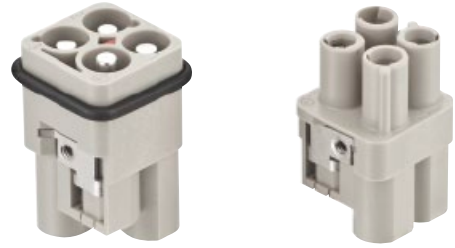
#### Metal hoods/housings

Material	zinc die-cast
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 44
	IP 67 is achieved with seal screw 09 20 000 9918

Number of contacts

3 +

Available July 2013



Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		

Crimp terminal  
Order crimp contacts separately

09 12 003 3051

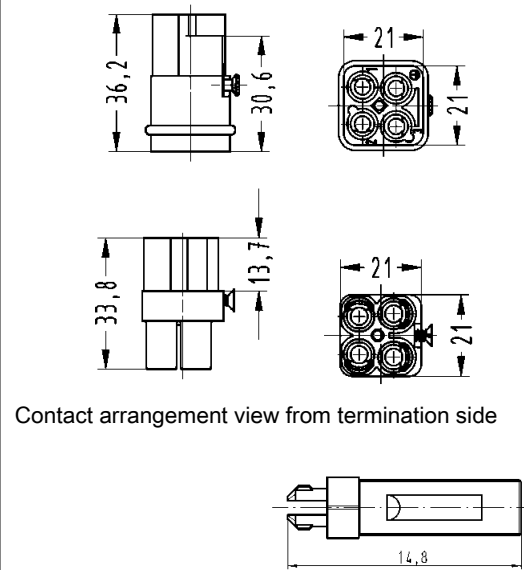
09 12 003 3151

Coding element  
20 pieces per frame



09 12 000 9924

09 12 000 9924



Identification	Wire gauge (mm²)	Part number		Drawing	Dimensions in mm
		Male contact	Female contact		

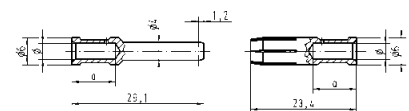
Crimp contacts  
Power contacts  
silver plated



1,5  
2,5  
4  
6  
10

09 32 000 6104  
09 32 000 6105  
09 32 000 6107  
09 32 000 6108  
09 32 000 6109

09 32 000 6204  
09 32 000 6205  
09 32 000 6207  
09 32 000 6208  
09 32 000 6209



Wire gauge			Ø	Stripping length
1.5	mm²	AWG 16	1.75	9 mm
2.5	mm²	AWG 14	2.25	9 mm
4	mm²	AWG 12	2.85	9.6 mm
6	mm²	AWG 10	3.5	9.6 mm
10	mm²	AWG 8	4.3	12 mm

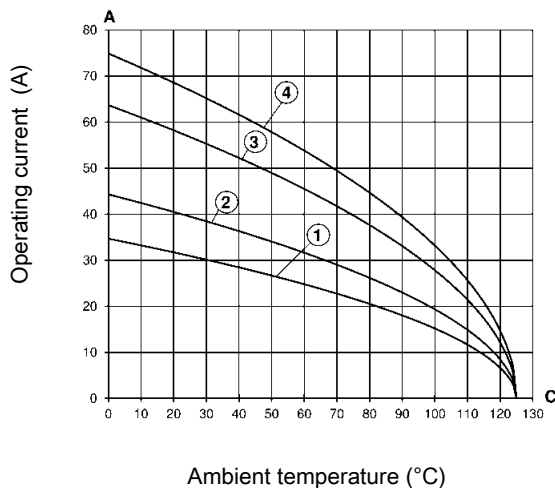
## Features

- High current insert in a compact design, suitable for plastic hoods/housings only in size Han® 3 A
- 4 coding options
- Use of standard Han® C crimp contacts
- Finger protected male and female contacts

## 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 according to DIN EN 60 512-5



- ① wire gauge: 2.5 mm<sup>2</sup>
- ② wire gauge: 4 mm<sup>2</sup>
- ③ wire gauge: 6 mm<sup>2</sup>
- ④ wire gauge: 10 mm<sup>2</sup>

## Technical characteristics

### Inserts

Number of contacts	4 without PE
Electrical data	
acc. to EN 61 984	<b>40 A 830 V 8 kV 3</b>
Rated current	40 A
Rated voltage	830 V
Rated impulse voltage	8 kV
Pollution degree	3
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life	
- mating cycles	≥ 500

### Contacts

Material	copper alloy
Surface	
- hard-silver plated	3 µm Ag
Contact resistance	≤ 1 mΩ
Crimp termination	
- mm <sup>2</sup>	1.5 ... 10 mm <sup>2</sup>
- AWG	16 ... 8

### Tools

see chapter 99  
in the main catalogue  
„Industrial Connectors Han®“

### Hoods/Housings

Detailed information and further hood/housing types see catalogue „Industrial Connectors Han®“, chapter 31

### Plastic hoods/housings

Material	polycarbonate
Flammability acc. to UL 94	V 0
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 67

Number of contacts

4

Available July 2013

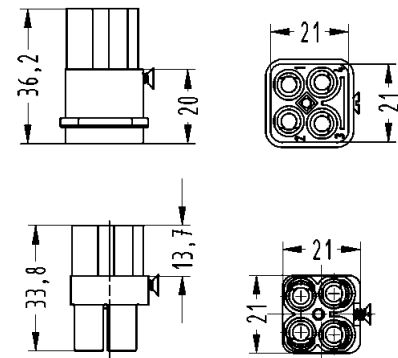


Identification	Part number		Drawing	Dimensions in mm
	Male insert (M)	Female insert (F)		

**Crimp terminal**  
Order crimp contacts separately

09 12 004 3051

09 12 004 3151



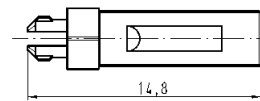
**Coding element**  
20 pieces per frame



09 12 000 9924

09 12 000 9924

Contact arrangement view from termination side



Identification	Wire gauge (mm²)	Part number		Drawing	Dimensions in mm
		Male contact	Female contact		

**Crimp contacts**

Power contacts

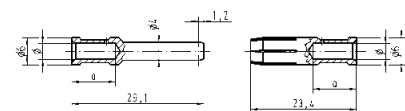
silver plated



1,5  
2,5  
4  
6  
10

09 32 000 6104  
09 32 000 6105  
09 32 000 6107  
09 32 000 6108  
09 32 000 6109

09 32 000 6204  
09 32 000 6205  
09 32 000 6207  
09 32 000 6208  
09 32 000 6209



Wire gauge			∅	Stripping length
1.5	mm²	AWG 16	1.75	9 mm
2.5	mm²	AWG 14	2.25	9 mm
4	mm²	AWG 12	2.85	9.6 mm
6	mm²	AWG 10	3.5	9.6 mm
10	mm²	AWG 8	4.3	12 mm



## Features

- Suitable for extreme environmental conditions
- Suitable for sensitive interfaces that have to be protected and shielded
- Robust metal version
- For sizes 6, 10, 16 and 24 with screw and toggle locking
- Captive cover due to fixing cord


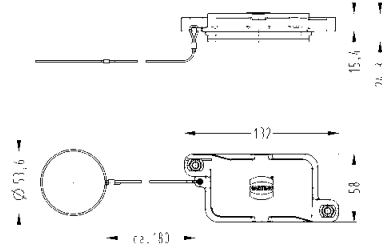

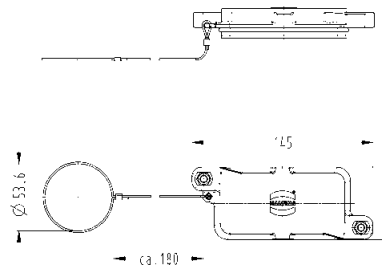

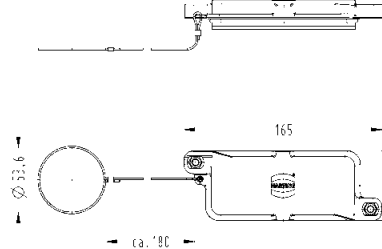

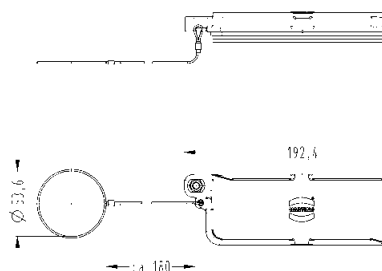
## Technical characteristics

Material	aluminium die-cast corrosion resistant
Colour	RAL 9005 (black)
Surface	powder-coated
Locking	
Screw locking	M6
- material	stainless steel
- tightening torque	4 Nm
Toggle locking	
- material	stainless steel
Fixing cord	stainless steel
Limiting temperatures	-40 °C ... +125 °C
Corrosion resistance	ASTM B117-09 (500 h)
Degree of protection acc. to EN 60 529 in locked position	IP 68

Available by May 2013



Cover for Han® HPR hood

Identification	Part-Number		Size	Drawing	Dimensions in mm
	Toggle	Screw			
 <p>Cover for Han® HPR hood</p>	09 40 006 5404	09 40 006 5414	6 B		
	09 40 010 5404	09 40 010 5414	10 B		
	09 40 016 5404	09 40 016 5414	16 B		
	09 40 024 5404	09 40 024 5414	24 B		

## General description

- Frame for Han® HC Modular 250 contacts suitable for Han® 24 HPR EasyCon

## Technical characteristics



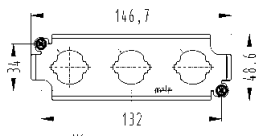
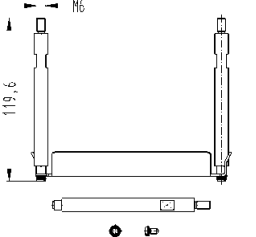
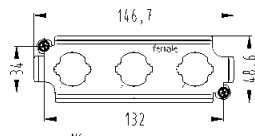
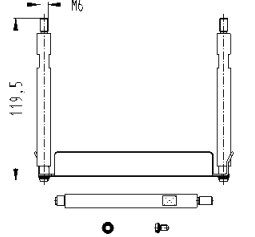


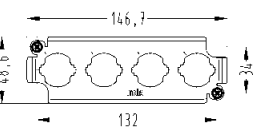
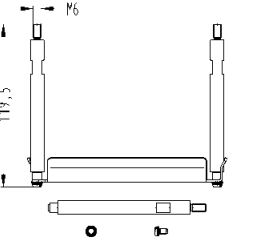
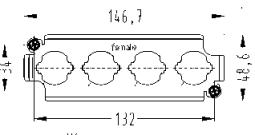
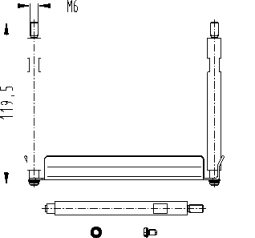
Material	Stainless steel
Frame	3 and 4 contacts for Han® HC Modular 250

# Han® 24 HPR EasyCon Frames

Available May 2013



Frame for Han® HC Modular 250 contacts

Identification	Part-Number	Drawing	Dimensions in mm
<p><b>Frames</b></p> <p>for 3 x Han® HC Modular 250 male</p>  <p>for 3 x Han® HC Modular 250 female</p> 	<p>09 40 024 9901</p> <p>09 40 024 9902</p>	<p><b>Male</b></p>   <p><b>Female</b></p>  	<p>Included in kit:</p> <ul style="list-style-type: none"> <li>2 x distance bolt (SW 7)</li> <li>2 x M4 screw</li> <li>2 x washer SK S4</li> <li>2 x M4 Countersunk screw</li> </ul>
<p>for 4 x Han® HC Modular 250 male</p>  <p>for 4 x Han® HC Modular 250 female</p> 	<p>09 40 024 9903</p> <p>09 40 024 9904</p>	<p><b>Male</b></p>   <p><b>Female</b></p>  	<p>Included in kit:</p> <ul style="list-style-type: none"> <li>4 x M4 screw</li> <li>4 x washer SK S4</li> <li>4 x washer SK S6</li> <li>4 x cheese-head screw M6 x 20</li> <li>4 x cheese-head screw M6 x 25</li> </ul>

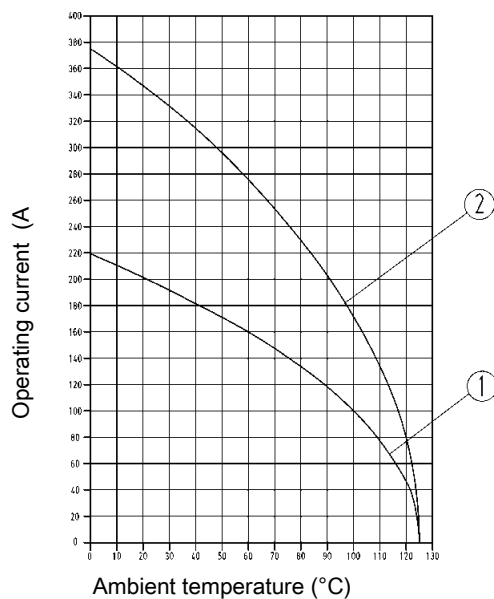
## Features

- Flexible high-current interface
- Low mating and unmating forces
- Stackable due to modular design
- Suitable for HC 350 crimp contacts
- On-board removal tool

## 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 according to DIN EN 60 512-5



① wire gauge: 35 mm<sup>2</sup>

② wire gauge: 95 mm<sup>2</sup>

HC Individual 3-poles

## Technical characteristics

### Inserts

Number of contacts	3
Electrical data	
acc. to EN 61 984	<b>350 A 4000 V 18 kV 3</b>
Rated current	350 A
Rated voltage	4000 V
Rated impulse voltage	18 kV
Pollution degree	3
Termination wire gauge	25 mm <sup>2</sup> ... 120 mm <sup>2</sup>
Insulation resistance	≥ 10 <sup>10</sup> Ω
Material	polyamide
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to	
UL 94	V 0
NFF 16-101/102	I2 / F3
GEN/TS 45545-2:2009	HL 2 / R24 outside HL1 / R23 inside
FprEN 45545-2:2012	HL 2 / R23 outside HL1 / R22 inside
Mechanical working life - mating cycles	500
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP 66 (IP 68 in preparation)
Cable gland thread	M 32

### Contacts

Material	copper alloy
Surface	3 μm Ag
Contact resistance	≤ 0.3 mΩ
Crimp terminal	25 mm <sup>2</sup> ... 120 mm <sup>2</sup>
Max. insulation diameter	20 mm
Crimp die	DIN 46 235
Pressing force requirement	130 kN

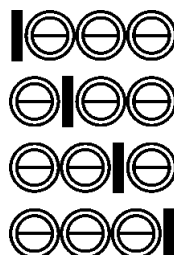
### Carrier plate and Locking modules

Material	aluminium
Locking	stainless steel

### Mechanical solidness

Vibration test	acc. to DIN EN 60 068-2-6 • 5 Hz ... 9 Hz: 15 mm • 9 Hz ... 150 Hz: 5 g
Shock test	acc. to DIN EN 61 373 • 30 g, 18 ms • 3 axis
Noise	acc. to DIN EN 61 373 • Cat. 2




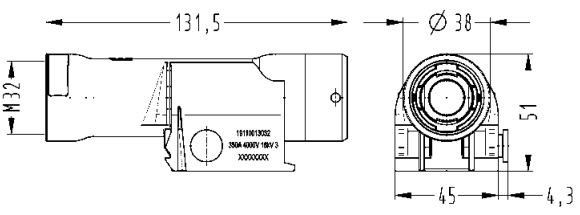
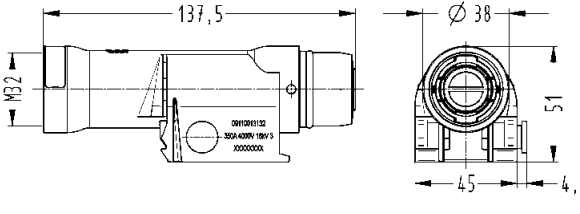
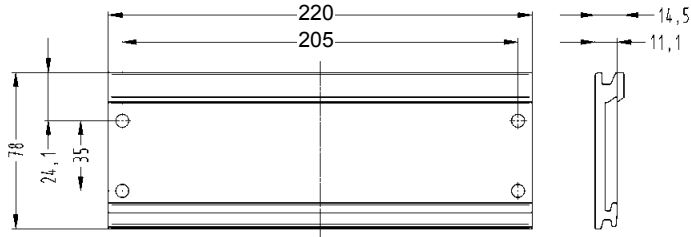


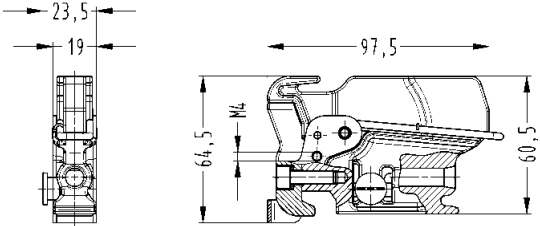
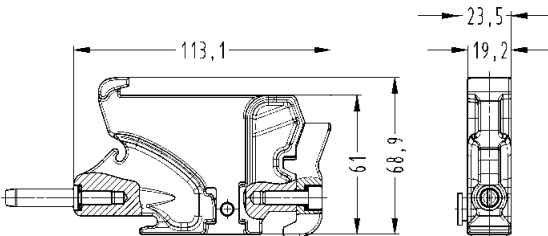
Coding possibilities with 1 coding element (3-poles set):



Other coding possibilities on request

Available August 2013



Identification	Part Number	Drawings	Dimensions in mm
<p><b>Han® HC Individual</b></p> <p>Carrier module, male</p> <p>350 A</p>  <p>Carrier module, female</p> <p>350 A</p>  <p>Carrier plate for 3x 350 A carrier modules</p>  <p>other lengths</p>	<p>19 11 001 3032</p> <p>19 11 001 3132</p> <p>09 11 000 9991</p> <p>on request</p>	  	
<p>Locking module, active</p>  <p>Locking module, passive</p> 	<p>09 11 000 9980</p> <p>09 11 000 9982</p>	 	

Identification Part Number Drawings Dimensions in mm

Cable entry protection with metric cable entries (IP 68)

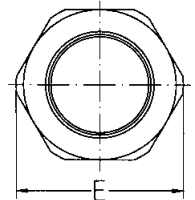
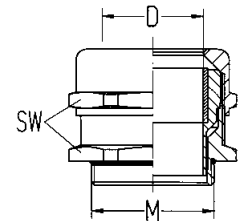
metal



**19 00 000 5080**  
19 00 000 5081  
**19 00 000 5082**  
**19 00 000 5084**  
**19 00 000 5090**  
19 00 000 5091

20  
20  
20  
20  
25  
25

SW	E	Outer cable Ø	Nm
22	24.4	5 ... 9 mm	10
22	24.4	5 ... 9 mm	10
		6 ... 12 mm	
22	24.4	6 ... 12 mm	10
24	26.5	10 ... 14 mm	10
30	33.5	9 ... 16 mm	15
30	33.5	9 ... 16 mm	15
		13 ... 18 mm	
30	33.5	13 ... 18 mm	15
40	44	13 ... 20 mm	15
40	44	13 ... 20 mm	15
		18 ... 25 mm	
40	44	18 ... 25 mm	15



plastic



19 00 000 5180  
19 00 000 5182  
19 00 000 5184  
19 00 000 5190  
19 00 000 5192  
19 00 000 5194  
19 00 000 5196

20  
20  
20  
25  
25  
32  
32

22	26.4	5 ... 9 mm	8
22	26.4	6 ... 12 mm	8
22	29.8	10 ... 14 mm	10
24	33.5	9 ... 16 mm	10
30	36.5	13 ... 18 mm	15
30	46.8	13 ... 20 mm	15
30	46.8	18 ... 25 mm	15

Reducer for metric cable entries (IP 68)

metal



M32 → M20

19 00 000 5066

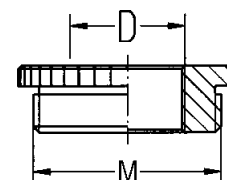
32


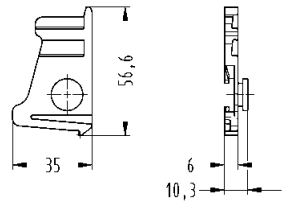

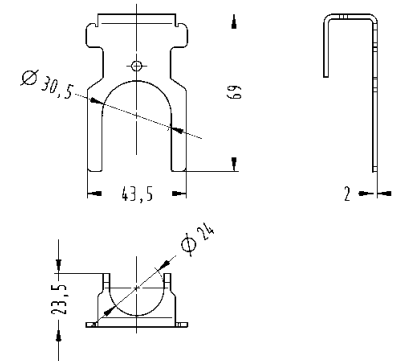

M32 → M25

19 00 000 5069

32

D
20
25



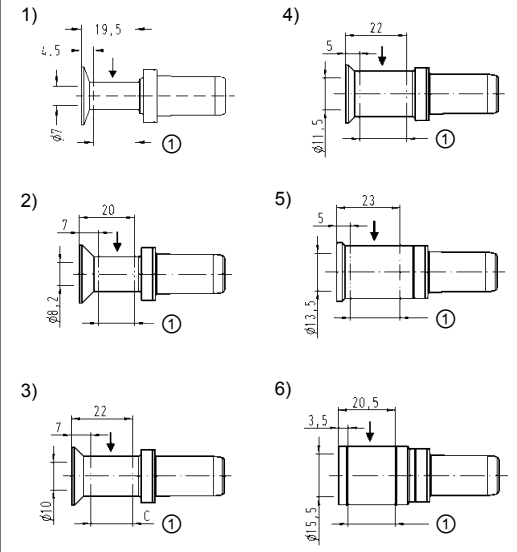
Identification	Part Number	Drawings	Dimensions in mm
<p>Coding element (set with 2 pieces)</p> 	<p>09 11 000 9987</p>		
<p>Unlocking tool</p> 	<p>09 99 000 0826</p>		
<p>Identification carrier module</p> 	<p>1 - 10 A 09 11 000 9996                      1 - 10 B 09 11 000 9997                      1 - 10 C 09 11 000 9998                      blank 09 11 000 9999</p>		



Identification	Wire gauge mm <sup>2</sup>	Part-Number		Drawings	Dimensions in mm
		Male contacts (M)	Female contacts (F)		



25 <sup>1)</sup>	09 11 000 6139	09 11 000 6239
35 <sup>2)</sup>	09 11 000 6140	09 11 000 6240
50 <sup>3)</sup>	09 11 000 6141	09 11 000 6241
70 <sup>4)</sup>	09 11 000 6142	09 11 000 6242
95 <sup>5)</sup>	09 11 000 6143	09 11 000 6243
120 <sup>6)</sup>	09 11 000 6144	09 11 000 6244



Wire gauge	Tool identification	Stripping length
25 mm <sup>2</sup>	10	26 mm
35 mm <sup>2</sup>	12	26 mm
50 mm <sup>2</sup>	14	28 mm
70 mm <sup>2</sup>	16	28 mm
95 mm <sup>2</sup>	18	30 mm
120 mm <sup>2</sup>	20	24 mm

\* Crimp zone (①) acc. to DIN EN 46 235

\* for stranded wire acc. to IEC 60 228 class 5



Set, 3-poles

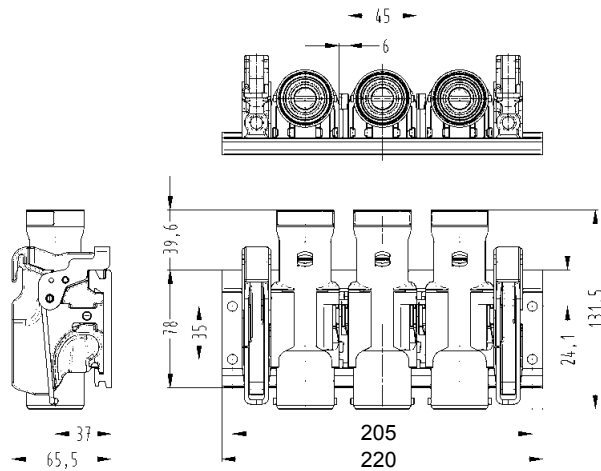
Identification	Part Number	Drawings	Dimensions in mm
----------------	-------------	----------	------------------

Set\*, 3-poles, male

- consists of:
- 3x carrier module, male (19 11 001 3032)
  - 1x carrier plate (09 11 000 9991)
  - 2x locking module, passive (09 11 000 9982)



19 11 003 3032

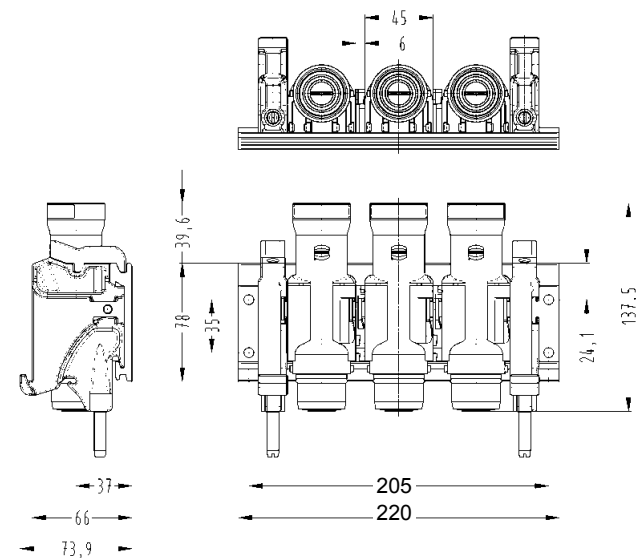


Set\*, 3-poles, female

- consists of:
- 3x carrier module, female (19 11 001 3132)
  - 1x carrier plate (09 11 000 9991)
  - 2x locking module, active (09 11 000 9980)



19 11 003 3132

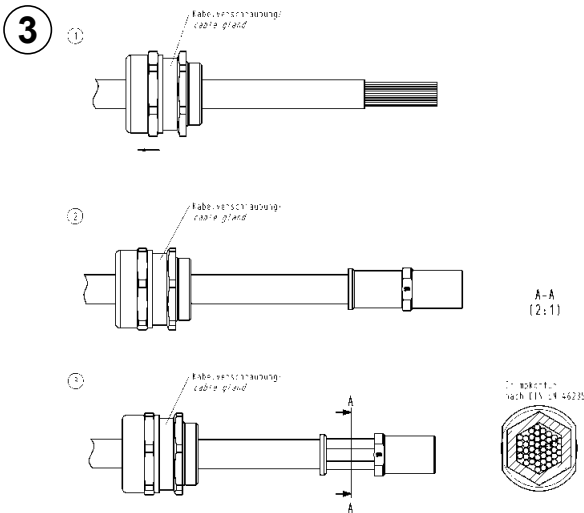
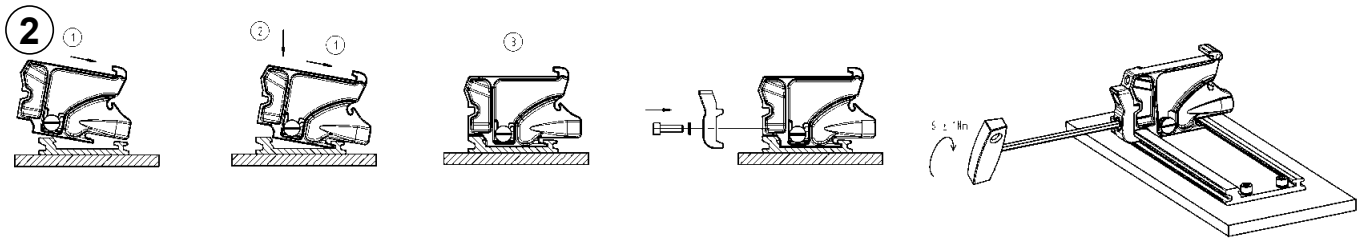
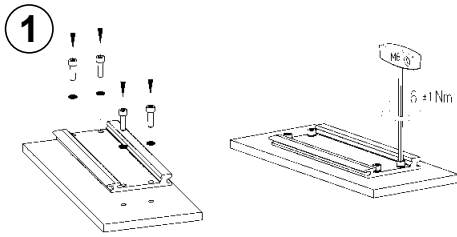


other sets

on request

- \* Order separately:
- coding elements
  - unlocking tool
  - cable glands
  - crimp contacts

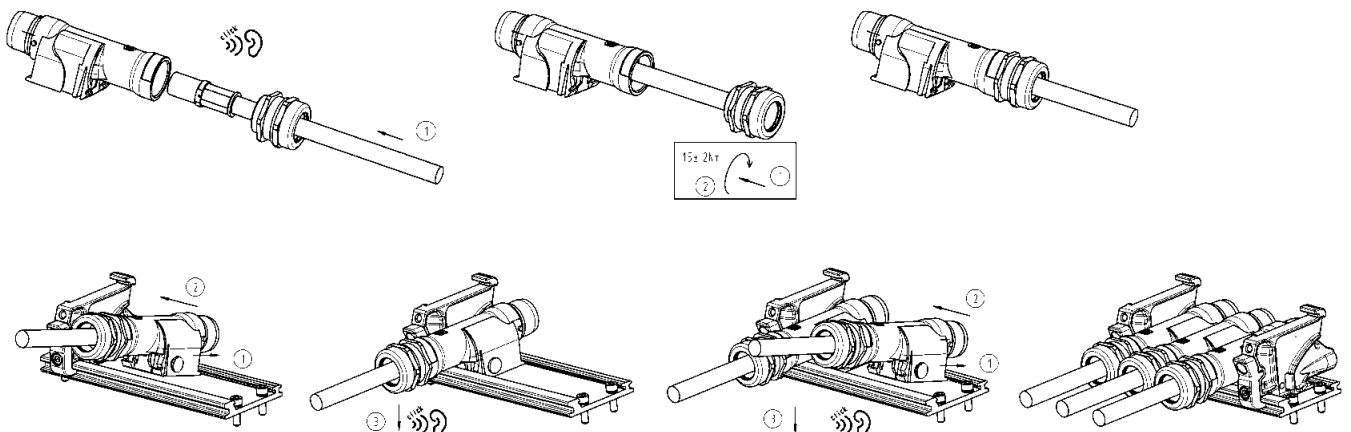
## Assembly and construction



Wire gauge	Tool identification	Stripping length
25 mm <sup>2</sup>	10	26 mm
35 mm <sup>2</sup>	12	26 mm
50 mm <sup>2</sup>	14	28 mm
70 mm <sup>2</sup>	16	28 mm
95 mm <sup>2</sup>	18	30 mm
120 mm <sup>2</sup>	20	24 mm

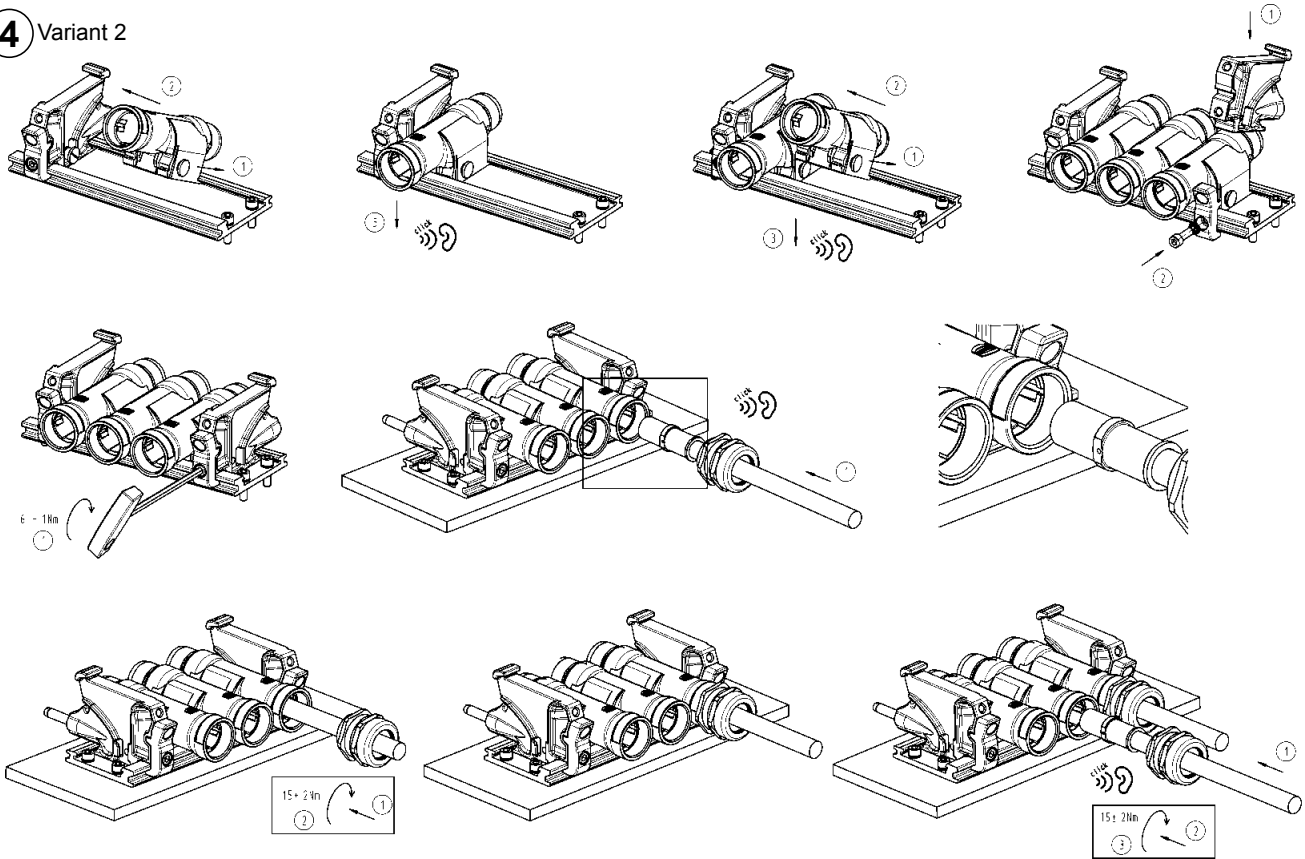
\* for stranded wire acc. to IEC 60 228 class 5

**4** Variant 1

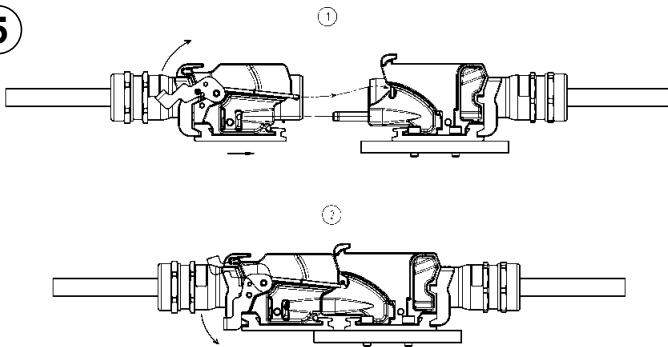


## Assembly and construction

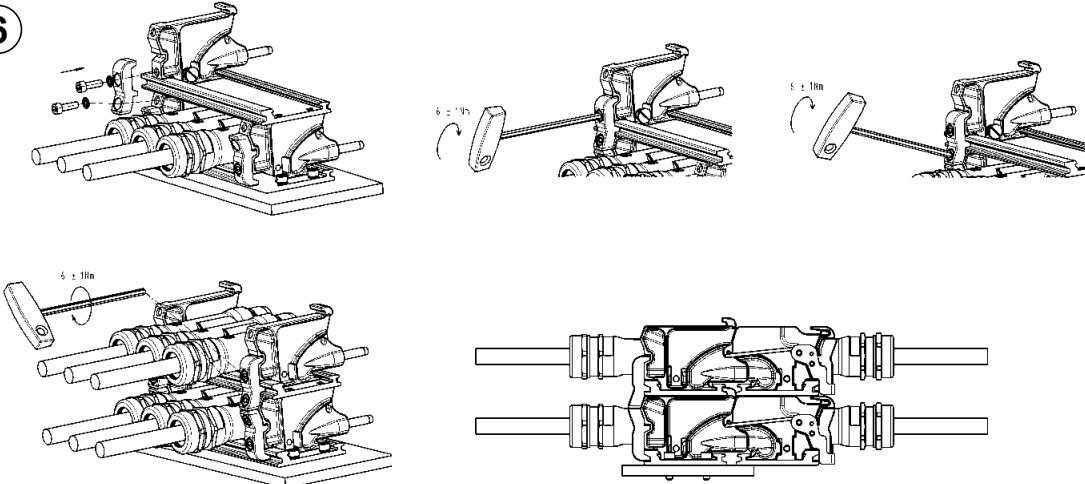
### 4 Variant 2



### 5



### 6



## Features

- Direct hall effect current sensor
- $I_{Pmax} = 300 \text{ A} \dots 1000 \text{ A}$
- Galvanic insulation between primary and secondary current
- Panel mounting
- Housing material and potting mass have a flammability rating UL94 V0
- Standard EN 50 178: Electronic equipment for use in power installations

## Advantages

- High accuracy
- Wide measuring range
- High current overload capability
- Very low susceptance to external magnetic fields

## Technical characteristics

### HCSE 100

$I_{PN}$	Nominal primary current	100 A
$I_P$	Measuring range	0 ... $\pm 300 \text{ A}$

### HCSE 300

$I_{PN}$	Nominal primary current	300 A
$I_P$	Measuring range	0 ... $\pm 900 \text{ A}$

### HCSE 500

$I_{PN}$	Nominal primary current	500 A
$I_P$	Measuring range	0 ... $\pm 1000 \text{ A}$

### HCSE 800

$I_{PN}$	Nominal primary current	800 A
$I_P$	Measuring range	0 ... $\pm 1000 \text{ A}$

$V_{out}$	Output voltage at $I_{PN}$	4 V
$R_L$	Load resistance	$> 1 \text{ k}\Omega$
$V_C$	Nominal power supply ( $\pm 5 \%$ )	$\pm 15 \text{ V}$

$I_C$	Supply current @ $V_C = 15 \text{ V}$	$< 25 \text{ mA}$
$R_{IN}$	Insulation resistance	$> 500 \text{ M}\Omega$

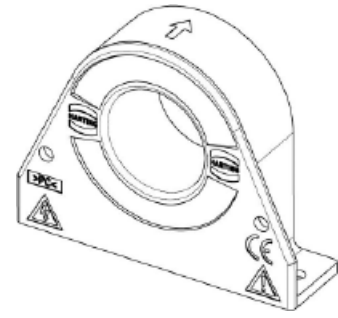
X	Accuracy at $I_{PN}$ $T_A = 25^\circ\text{C}$ without Offset	$\pm 1 \%$
$E_L$	Linearity	$< 0.5 \%$

$V_O$	Offset voltage at $I_P = 0$ , $T = 25^\circ\text{C}$	$\pm 10 \text{ mV}$
$V_{OOL}$	Offset after $I_{Pmax}$	$\pm 10 \text{ mV}$
$V_{OT}$	Thermal offset drift, $T = -25^\circ\text{C} \dots +85^\circ\text{C}$	$\pm 1 \text{ mV/K}$
$V_{outT}$	Thermal gain drift, $T = -25^\circ\text{C} \dots +85^\circ\text{C}$	$\pm 0.05 \%/K$
$t_r$	Delay time of $I_{PN}$	$< 3 \mu\text{s}$
$di/dt$	$di/dt$ correctly following	$> 50 \text{ A}/\mu\text{s}$
f	Bandwidth	DC ... 100 kHz

$T_A$	Operating temperature range	$-25 \dots +85^\circ\text{C}$
$T_S$	Storage temperature range	$-25 \dots +90^\circ\text{C}$
m	Weight	$\sim 0.2 \text{ kg}$
$V_D$	Proof stress voltage, effective, 50 Hz, 1 minute	3.5 kV
$V_B$	Rated voltage <sup>1)</sup>	690 V

<sup>1)</sup> Safe separation (Overvoltage Category III, pollution degree 2). Value applies for sensors with clamp terminal, for other secondary connections are higher values possible

Available September 2013



$I_{PN} = 100\text{ A} \dots 800\text{ A}$

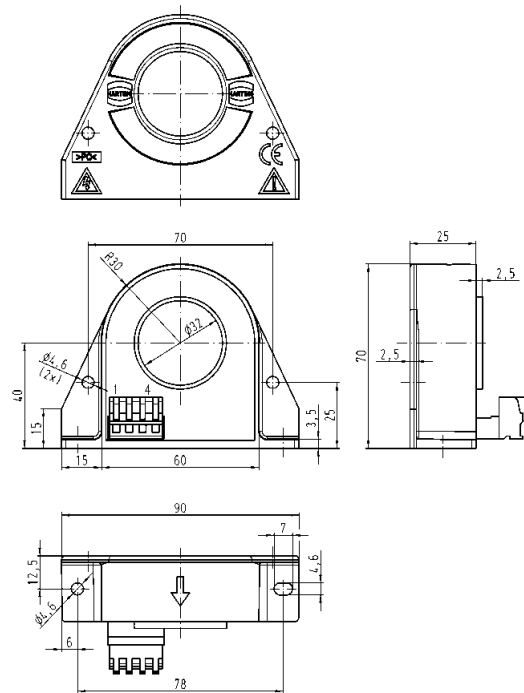
Measureable currents are AC, DC, pulsed ...

Identification	Part number	Drawing	Dimensions in mm
----------------	-------------	---------	------------------

HCSE 100 – HCSE 800

Sensor fastening:  
2 x M4 Steel screws  
(recommended fastening torque 3.2 Nm)

Tolerances  $\pm 0.5\text{ mm}$



HCSE 100

**20 32 010 0101**

HCSE 300

**20 32 030 0101**

HCSE 500

**20 32 050 0101**

HCSE 800

**20 32 080 0101**

Connections:  
Spring clamp terminal, pluggable  
Centerline 5.0 mm; 4pins

Pin output:

- 1 +15 V
- 2 -15 V
- 3 Signal
- 4 0 V

## Remarks

- If  $I_P$  flows in the direction of the Arrow  $I_{Sek}$  is positive
- Over currents ( $\gg I_{PN}$ ) or the missing of the supply voltage can cause an additional remaining magnetic offset
- The temperature of the primary conductor may not exceed 100 °C
- Protection degree of the standard interface is IP 20



- These sensors may only be used in electrical or electronic systems which fulfill the relevant regulations (Standards, EMC Requirements,...)



- Pay attention to protect non-insulated high-voltage current carrying parts against direct contact (e.g. with a protective housing)
- When installing this sensor you must ensure that the safe separation (between primary circuit and secondary circuit) is maintained over the whole circuits and their connections
- The sensor may only be connected to a power supply respecting the SELV/PELV protective regulations acc. to EN 50 178
- Disconnecting the main power must be possible

The Current Sensors support a Safe Separation. The creepage and clearance distances taken as a basis for the rated voltage are the shortest distance between the secondary connection and the transducer window. The actual rated voltage depends on the position of the primary conductor respectively on the actual distance between the primary conductor and the secondary connection



Crimping Tool for Han-Fast® Lock contacts

## Features

- Manual crimping tool for Han-Fast® Lock contacts for wire gauges of 4 mm<sup>2</sup>, 6 mm<sup>2</sup> and 10 mm<sup>2</sup>
- Integrated locator guarantees precise contact alignment
- Balanced grip force and optimised handle design
- Built in interlock to ensure a complete crimping cycle
- Easy exchange of crimp dies
- High quality crimping

## Technical characteristics

Specification	IEC 60 352-2
Dimensions	207.4 mm x 95.2 mm (length x diameter)
Wire gauge	4, 6 and 10 mm <sup>2</sup> AWG 12, 10 und 8
Wire retention force	4 mm <sup>2</sup> > 310 N 6 mm <sup>2</sup> > 360 N 10 mm <sup>2</sup> > 380 N

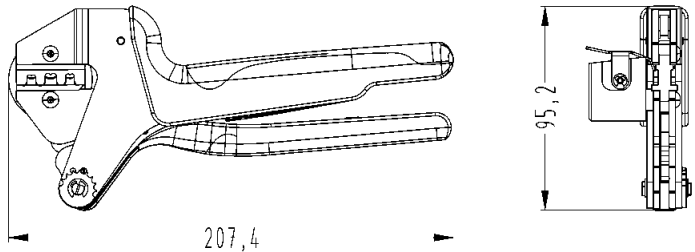
### Identification

### Part-Number

### Depiction

Crimping tool Han-Fast® Lock

09 99 000 0831





Identification	Part-Number	Depiction
Removal tool for Han-Modular®  plastic	09 99 000 0331	
metal	09 99 000 0828	

Suitable for	Part-Number	Depiction
Han-Modular® docking frame	09 14 0xx 1701 09 14 0xx 1711	<p>The removal tool is applicable to the plastic frames and housings for the Han-Modular® series, Han-Yellock® adapter frames and Han-Eco® hoods / housings</p>
Han-Yellock® adapter frame	11 00 x00 0101 11 00 x00 0301	
Han-Eco®	19 41 xxx xxxx	
<p>Modules without plastic latches i.e. Han® GigaBit module</p> <p>Modules with plastic latches i.e. Han® Pneumatic module</p> <p>Double modules i.e. Han® 100 A Axial module</p>		<p>The removal tool can be used for all Han-Modular® modules. It is compatible to modules with and without plastic latches.</p> <p>for double modules please use 4 x 09 99 000 0331 or 2 x 09 99 000 0331 + 1 x 09 99 000 0828</p>

**Part-Number: 09 99 000 0833**



Han® Torque Tool Set for High Current Axial Screw Contacts

## Features

- Numerical, digital display of torque values
- Torque value can be set stepless by means of a torque-setter (included with delivery)
- Comfortable T-handle with soft zones for optimal torque transmission
- Audible click signal when the pre-set torque value has been attained
- Including factory calibration certificate
- Interchangeable blades made of high quality chrome-vanadium-molybdenum steel

## Included with the set

- High quality metal box
- Variable tightening torque tool TorqueVario®-STplus\*
- Setting tool: torque-setter
- HARTING optimised interchangeable blades hexagonal SW 4 and SW 5

\* TorqueVario® is a registered trademark of Wiha Werkzeuge GmbH

## Technical characteristics

- Tightening torque is variable between 5 and 14 Nm
- Torque accuracy:  $\pm 6\%$
- Specifications: EN ISO 6789, BS EN 26789, ASME B107.14M.
- Dimensions: 273 x 153 mm (Length x Width)

## Suitable for HARTING products

- Han® 200 A Axial module
- Han® 100 A Axial module
- Han® 100 A single module
- Han® K 3/0
- Han® K 3/2
- Han® K 6/6 (power contacts)
- Han® K 8/0 (power contacts)
- Han® HC Modular 350 Axial (up to 95 mm<sup>2</sup>)

**Part-Number: 09 99 000 0834**



Han® Torque Tool Set for Power Contacts

## Features

- Torque value can be set via window scale
- Torque value can be set stepless by means of a torque-setter (included with delivery)
- Ergonomic multi-component handle, particularly light and compact
- Audible click signal when the pre-set torque value has been attained
- Including factory calibration certificate
- Interchangeable blades made of high quality chrome-vanadium-molybdenum steel

## Technical characteristics

- Tightening torque is variable between 1 and 5 Nm
- Torque accuracy:  $\pm 6\%$
- Specifications: EN ISO 6789, BS EN 26789, ASME B107.14M.
- Dimensions: 273 x 153 mm (Length x Width)

## Included with the set

- High quality metal box
- Variable tightening torque tool TorqueVario®-S\*
- Setting tool: torque-setter
- HARTING optimised interchangeable blades hexagonal SW 2 and SW 2.5
- Torque bit universal holder
- Bits: SW3, SW4, P 0, PH1, PH2, T10, T15, T20, slot 0.6 x 4.5, slot 0.8 x 4.5

## Suitable for HARTING products

- Han® 70 A Axial module
- Han® 40 A Axial module
- Han® C Axial module
- Han® C Axial module
- Han® K 4/4 (power contacts)
- Han® K 6/12 (power contacts)

\* TorqueVario® is a registered trademark of Wiha Werkzeuge GmbH

**Part-Number: 09 99 000 0835**



Han® Torque Tool Set for HARTING Screw Contacts and Fixing Screws

## Features

- Precise torque value by means of a fixed torque value pre-set by the manufacturer
- Ergonomic multi-component handle, particularly light and compact
- Audible click signal when the pre-set torque value has been attained
- Including factory calibration certificate
- Interchangeable blades made of high quality chrome-vanadium-molybdenum steel

## Technical characteristics

- Fixed torque value: 0.5 and 1.2 Nm
- Torque accuracy:  $\pm 6\%$
- Specifications EN ISO 6789, BS EN 26789, ASME B107.14M.
- Dimensions: 273 x 153 mm (Length x Width)

## Included with the set

- High quality metal box
- Two pre-set tightening torque screwdrivers TorqueFix®\*
- Interchangeable blades PH1, PH2, slot 0.5 x 3.0

## Suitable for HARTING products

- Han® 10 A – 32 A
- Han D® AV, Han E® AV,
- Han® K 6/6, K 6/12 (signal)
- Han® E
- Han Hv E®
- Han® HsB
- Han® fixing screws
- Han® PE contact: Han A®, Han E®, Han D®, Han DD®, K 8/24, K 6/6, K 8/0

\* TorqueVario® is a registered trademark of Wiha Werkzeuge GmbH

Part-Number: 09 99 000 0836



Han® VDE Screw Driver Set

## Features

- Safety when working with loaded equipment up to 1.000 V AC
- Tool complying with IEC security standards
- High quality chrome-vanadium-molybdenum steel, through-hardened, chrome-plated
- Protective insulation moulded directly onto the bit
- Ergonomic SoftFinish®\* multi-component handle with roll off protection

## Technical characteristics

- Specifications: DIN ISO 2380, DIN ISO 8764, manufactured acc. to IEC 60900:2004



- Dimensions (Tool length x diameter):
  - 0.4 x 2.5: 179 x 23 mm
  - 0.5 x 3.0: 204 x 23 mm
  - 0.6 x 3.5: 204 x 23 mm
  - 1.0 x 4.5: 236 x 30 mm
  - PH1: 191 x 23 mm
  - PH2: 218 x 23 mm

## Range of delivery

- SoftFinish®\* electric slim bit screw driver: 0.4 x 2.5, 0.5 x 3.0, 0.6 x 3.5, 1.0 x 4.5
- SoftFinish®\* electric Phillips screw driver: PH1, PH2,

## Suitable for HARTING products

- Han® A
- Han Staf®
- Han® D® AV, Han E® AV,
- Han® K 6/6, K 6/12 (signal)
- Han® E, Hv E®, Han® HsB
- Han® fixing screws
- Han® K 4/0 K 4/2 K 4/8 screw contacts
- Han® PE contacts: Han A®, Han E®, Han D®, Han DD®, K 8/24, K 6/6, K 8/0

\* SoftFinish® is a registered trademark of Wiha Werkzeuge GmbH





## Ha-VIS Middleware

### Advantages

- Easy integration of HARTING RFID Reader
- Collecting any kind of tag information
- Filtering, grouping and aggregation based on various tag information
- Application flow triggered by manual, digital IO or scheduled events
- Report of cumulated data in standardized or customized formats
- Central RFID Reader management
- Advanced reading, writing, locking and muting of RFID transponders
- Import of data e. g. passwords from different sources like caches, association table or random values is supported
- Conform to EPCglobal® ALE 1.1.1 standard

### General Description

The HARTING Ha-VIS Middleware is the intelligent software bridge between RFID Hardware and your company application. Scalable number of RFID Reader can easily be connected and configured. The connection is done with the connectors. Via configuration the Ha-VIS Middleware can filter, consolidate and group the raw data. The subscribers deliver the customized data to different sources/formats e. g. to files, databases or programmable interfaces. With the interface bidirectional interaction with the TAGs is easily realizable. The Ha-VIS Middleware Management is a client-software developed for configuration and management of the Middleware. For optimal functionality, the Ha-VIS middleware is delivered with service contract and training.

Identification	Part number	Drawing	Dimensions in mm
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<p>Ha-VIS Middleware</p> <p>incl XML subscriber and connector for one Ha-VIS RF-R500 RFID Reader</p> <p>Subscriber (Software side)</p> <p>MySQL Subscriber</p> <p>http Subscriber</p> <p>Connector (Hardware side)</p> <p>Connector for up to 5 RF-R500</p> <p>Connector for up to 15 RF-R500</p> <p>Connector for up to 25 RF-R500</p> <p>Connector for up to 50 RF-R500</p> <p>Connector for up to 5 RF-R200</p> <p>Connector for up to 15 RF-R200</p> <p>Connector for up to 25 RF-R200</p> <p>Connector for up to 50 RF-R200</p> <p>recommendation: Visit our special training</p> <p>optional: Installation and configuration service</p>	<p>26 99 210 1110 00</p> <p>26 99 220 4110 00</p> <p>26 99 220 5110 00</p> <p>26 99 230 1120 00</p> <p>26 99 230 1130 00</p> <p>26 99 230 1140 00</p> <p>26 99 230 1150 00</p> <p>26 99 230 3120 00*</p> <p>26 99 230 3130 00*</p> <p>26 99 230 3140 00*</p> <p>26 99 230 3150 00*</p>	<p><b>Connector RF-R500</b></p> <p>up to 5 reader</p> <p>up to 15 reader</p> <p>up to 25 reader</p> <p>up to 50 reader</p> <p><b>Middleware</b></p> <p>Middleware including connector for one RF-R500 and XML subscriber</p> <p><b>Subscribers</b></p> <p>XML file</p> <p>MySQL database</p> <p>http</p> <p><b>Note</b></p> <p>Please specify which connector and which subscriber you need (each component has a separate part no.). If you only order the middleware (part no. 26 99 210 1110 00) you receive the middleware, the XML subscriber and a connector for one Ha-VIS RF-R500 RFID reader. For example, you order the middleware and an additional connector for the Ha-VIS RF-R500 with up to 15 reader, you are allowed to use 16 reader in total.</p>	
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\* available quarter 3/2013

## Technical characteristics

### Functionality

- Simple connection and integration of HARTING RFID reader
- Data filtering, aggregation and grouping based on various tag data like PC, TID, user memory bank and user defined primary key.
- Easy reporting of new, current and deleted tags.
- Reducing the appearance of tags moving in and out of the reader field. (Tag Smoothing)
- Management of complex reader hierarchies with composite reader and antenna restriction support.
- Supporting read, write, lock and kill operations according to EPC Class-1 Generation-2
- Different ways to trigger report generation
  - On occurrence of digital Input and Output events.
  - On http trigger events.
  - Time controlled like time interval, time period or specific point of time.
  - Tag controlled like no new tags, first tag occurred or specific amount of processed tags.
- Easy management and configuration access with Ha-VIS Middleware Management

### System requirements

- Operating System
    - Microsoft® Windows Server 2008 R2 64 Bit (recommended) or Windows 7 64 Bit
  - Software
    - Microsoft® .NET 3.5
  - Minimum hardware
    - Processor: 2 GHz 64 Bit Dual-Core
    - RAM: 4 GB or more
    - Disk space: 64 GB or more
- (Recommended hardware depends on customer application)

### Architecture and concept

#### Middleware:

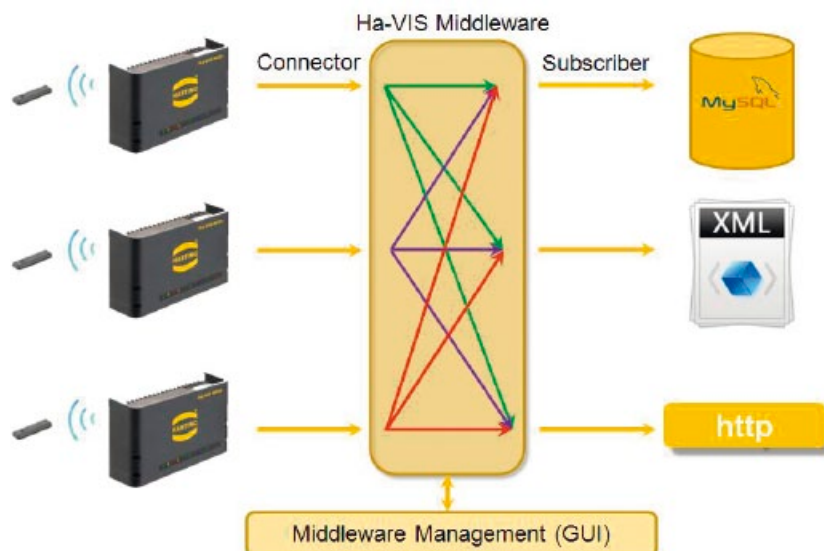
The middleware is the central data handling unit. Within the middleware, the data delivered from the connectors is filter, aggregated and grouped. The handled data can be consolidated and enriched with additional information.

#### Connector:

The connector bundles the full communication with the physical device. Changes in the hardware are fully handled by the connector without implications for the middleware. For every type of RFID reader, a different connector is needed.

#### Subscriber:

The subscriber delivers reports of the data processed by the middleware. There are different subscribers available for different output formats (e.g. XML). If a direct communication with another software is needed the http subscriber can be used.







Ha-VIS RFID RF-R200 Reader

## Advantages

- One internal antenna (up to 30 cm)
- One external antenna (SMA)
- Flexible through large external antenna portfolio
- Power over Ethernet
- For distributed identification points
- Small size and DIN rail mounting
- Easy integration in machines or cabinets

## General Description

The Ha-VIS RF-R200 is a cost-efficient mid range reader licensed according to ETSI, FCC und IC.

Due to its very compact design, the Ha-VIS RF-R200 is best suited for integration in machines as well as office applications

### Characteristics:

- very compact
- can easily be integrated in machines
- internal antenna for applications with limited space
- one external antenna makes numerous application possible
- 0.5 W transmission power
- Power over Ethernet

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS RFID RF-R200-PoE EU version	20 91 106 1101		
Ha-VIS RFID RF-R200-USB EU version	20 91 106 1102		
Ha-VIS RFID RF-R200-Serial module (no housing) EU version	20 91 106 1103		
Optional accessories			
DIN Rail mounting Kit for RF-R200	20 93 102 0202		
Mounting Kit (screwings)	20 93 102 0203		
Power supply	20 93 310 0203		

## Technical characteristics

<b>Transponder protocol</b>	EPC class Gen2 (ISO 18000-6-c)
<b>UHF RFID antenna interface</b>	
Antenna connection	1 x SMA connector (50 Ohm); internally multiplexed; one internal antenna 3 x SMA connector (50 Ohm) RF-R200 (module) only
Transmitting Power	max.0.5 W configurable
Frequency area	860 MHz ... 960 MHz (depending on specific reader)
<b>Interfaces</b>	<ul style="list-style-type: none"> <li>• RF-R200 (PoE) Ethernet (TCP/IP) 10/100 Mbit/s; Full Spec. 802.3</li> <li>• RF-R200 (module); RS 323 (serial)</li> </ul>
<b>Performance</b>	
Max.Operating Distance	Up to 2 m, depending on transponder & environmental conditions
<b>Protocol Modi</b>	<ul style="list-style-type: none"> <li>• Host Mode</li> <li>• Notification Mode (Ha-VIS RFID RF-R200-PoE only)</li> <li>• Scan Mode (Ha-VIS RFID RF-R200-USB only)</li> <li>• Buffered read mode</li> </ul>
<b>Power Supply</b>	
Power supply	12 V ... 24 V DC
Power consumption	max. 7 W
<b>Design features</b>	
Dimensions (W x H x D)	145 x 85 x 27 mm
Degree of protection acc. to DIN 60 529	IP 30
Installation on DIN rail	DIN rail mounting kit (optional accessories)
<b>Environmental conditions</b>	
Operating temperature	-25 °C ... +45 °C (PoE) -25 °C ... +50 °C (USB)
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 95 % (non-condensing)
Vibration	EN 60 068-2-6 10 Hz ... 150 Hz: 0.075 mm / 1 g
Shock	EN 60 068-2-27 Acceleration: 30 g

## Technical characteristics

### Norms & Safety

Radio license

- EN 302 208
- FCC 47 FCR Part 15
- IC RSS-GEN, RSS-210

EMC

EN 301 489

Safety

EN 60 950

RoHS compliant

Extras

- Internal overheating control
- Demo- and configuration software Ha-VIS RFID config

## Management functions

<b>Basic Functions</b>		
	Store and Forward Switching Mode	IEEE 802.3
	Manual and Dynamic IP Address Assignment	
Port-Settings	Auto-negotiation on / off	
	Port Speed 10 Mbit/s / 100 Mbit/s	
	Half / Full duplex	
	Port disable / enable	
	Link Up/Down Trap disable / enable	
	Flow Control disable / enable	
Network Discovery	Link Layer Discovery Protocol (LLDP)	802.1AB, 2005
Rate Control	Rate Control per port (Broadcast, Multicast, Unicast)	
File Transfer	Firmware import and export via TFTP and HTTP	
	Configuration import and export via TFTP and HTTP	
Time Settings	Manual time setting	
	Simple Network Time Protocol (SNTP)	RFC 1305, RFC 4330
User Management	Admin, Guest and Service Level	
Service	Service Mode via port 1	
<b>PROFINET</b>		
	PROFINET IO Device Stack <sup>1)</sup>	
<b>Time Synchronization</b>		
	Precision Time Protocol <sup>1)</sup>	IEEE 1588, 2008
<b>QoS</b>		
	Quality of Service (QoS)	IEEE 802.1p
	Differentiated services (DiffServ)	RFC 2474, 2475
<b>VLAN</b>		
	Port protocol based VLANs VLAN ID Range: 1 – 4094 Max. Anzahl aktiver VLANs: 256	IEEE 802.1Q Rev D5.0, 2005
<b>Redundancy</b>		
	Spanning Tree (STP)	IEEE 802.1D (2004)
	Rapid Spanning Tree (RSTP)	IEEE 802.1D (2004)
	Media redundancy protocol <sup>1) 2)</sup>	DIN EN 62 439-2
<b>Security</b>		
	Port-Based Network Access Control Port Based Authentication with EAP	802.1X (2004)
	RADIUS Client	RFC 2138
	IP authorized manager	
<b>Link Aggregation</b>		
	Link Aggregation (LACP)	IEEE 802.3ad (2005)
<b>Multicast</b>		
	IGMP Snooping (v1, v2, v3) with support for querier	RFC 1112, 2236, 3376

## Management functions

DHCP		
	DHCP Client	RFC 2131
	DHCP relay agent	RFC 2131
	DHCP Option 82	RFC 3046
Alarm		
	Alarms via E-mail (SMTP) and SNMP Traps	
	Signalling contact for low voltage detection or Link break	
Diagnostic		
	Port diagnostic	
	Port Mirroring	
	Switch History	
	MAC Address Table	
	RMON (1,2,3 & 9 groups)	RFC 2819
Management		
	Password protected Web-Management interface	
	SNMP (v1, v2c, v3) agent & MIB support	RFC 1155, 1157, 1212, 1213, 1215, 2089, 2578, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3584
	Command Line Interface (CLI)	
	Pluggable SD card for saving of configuration <sup>1)</sup>	
	Multifunction button <sup>1)</sup>	

1) ... Available for Ha-VIS mCon 3000 Next Generation

2) ... Licensing via separately available SD card

**Ethernet Switch**  
**Ha-VIS mCon 3000 Next Generation**  
 Ethernet Switches, managed,  
 for mounting onto top-hat mounting rail  
 in control cabinets



General Description	Features
---------------------	----------

The fully Managed Ethernet Switches of the product family Ha-VIS mCon 3000 enable the connection of up to 10 network devices (according to type) over RJ45 ports or SFP modules on lowest area.

Degree of protection, mechanical stability and the comprehensive management software provide for high operation safety and meet highest demands.

The Ha-VIS mCon 3000 Ethernet Switches are designed for an effective, industrial and individual use.

The configuraton via SD card or via the Multifunction button enables an easy and fast commisioning in the field.

Comprehensive possibilities of configuration and diagnostic are provided easy via web interface or standardized via SNMP.

The Ethernet Switches of the Ha-VIS mCon 3000 Next Generation family can be used as PROFINET IO devices.

- Full managed Ethernet Switch acc. to IEEE 802.3
- Up to 10 ports, managed, non-blocking
- Store and Forward Switching Mode
- Gigabit Uplink ports, RJ45 and SFP modules
- Auto-crossing, Auto-negotiation, Auto-polarity
- Temperature range -40 °C ... +70 °C
- PROFINET IO device
- Time synchronization via IEEE 1588v2
- Multifunction button for fast commisioning
- SD card slot for storage of the configuration
- Management functions see pages 120 and 121

Advantages	Application fields
------------	--------------------

- Small, robust metal housing
- External SD card for storage of the configuration
- Individual pre-configuration via Multifunction button
- Fast removable Ethernet data links via SFP „Hot-Swap“
- Optimised DIN rail fitting
- EMC, temperature range and mechanical stability meet the highest demands
- Universally applicable: PROFINET, Ethernet/IP or profile neutral

- Industrial automation
- Automotive industry
- Wind power, Solar Power
- Maritime

## Technical characteristics

### Ethernet interface RJ45

#### Number of ports

Ha-VIS mCon 3080-A	8x 10/100Base-T(X)
Ha-VIS mCon 3102-AASFP	8x 10/100Base-T(X) 2x 10/100/1000Base-T(X) (Combo ports with SFP slot)

#### Cable types according to IEEE 802.3

Shielded Twisted Pair (STP) or Unshielded Twisted Pair (UTP), Category 5

#### Data rate

10 Mbit/s, 100 Mbit/s or 1000 Mbit/s (RJ45)

#### Maximum cable length

100 m (Twisted Pair; with Category 5 cable acc. to DIN EN 50 173-1)

#### Termination

RJ45 (Twisted Pair)

#### Diagnostics (via LED)

- Status Link – Green
- Data transfer (Act) – Green flashing
- Data transfer rate (Speed) – 1000 Mbit/s: Green  
100 Mbit/s: Yellow  
10 Mbit/s: OFF

#### Topology

Ring, Line, Star or mixed

### Ethernet Interface SFP (mini-GBIC) Fibre Optic and copper

#### Number of ports

Ha-VIS mCon 3102-AASFP	2x 100/1000Base (Combo ports with SFP slot)
------------------------	---

#### Data rate

100 Mbit/s, 1000 Mbit/s

#### Termination

SFP modules according to MSA (Multi Source Agreement)  
(see catalogue „HARTING Ethernet Network Solutions Automation IT“)

#### Diagnostics (via LED)

- Status Link – Green
- Data transfer (Act) – Green flashing

### Power supply

#### Nominal input voltage

24/48 V DC ---

#### Termination

5-pole screw terminal, pluggable  
for redundant power supply

### Switch

#### Diagnostics (via LED)

- Device operates without failures – Green
- Power supply in the admissible range – Green
- Low voltage – Red
- Diagnostics failure – Red
- PROFINET failure / diagnosis – Red/Green flashing

### Configuration

Slot for SD cards (back side)	<ul style="list-style-type: none"> <li>• Saving and loading of configuration files</li> <li>• Licence management for MRP</li> </ul>
Multifunction button	Individual pre-configuration of software functions

## Technical characteristics

### Design features

Housing material	Aluminium, anodized
Dimensions (W x H x D)	44 x 130 x 100 mm (without connectors)
Degree of protection acc. to DIN 60529	IP 30
Mounting	<ul style="list-style-type: none"><li>• 35 mm top-hat rail acc. to EN 60715</li><li>• Panel mounting, vertical assembly</li></ul>

### Environmental conditions

Operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Relative humidity	10 % ... 95 % (non-condensing)

### Management software

Full managed via web interface and SNMP  
Range of functions and detailed description see pages 120 and 121





## Ethernet Switch Ha-VIS mCon 3080-A

8-port Ethernet Switch, full managed  
for mounting onto top-hat mounting rail in control cabinets

Managed	IP 30	PROFINET compatible <input checked="" type="checkbox"/>	EtherNet/IP compatible <input checked="" type="checkbox"/>
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Number of ports, Copper / Termination 8x 10/100Base-T(X) / RJ45 (Twisted Pair)

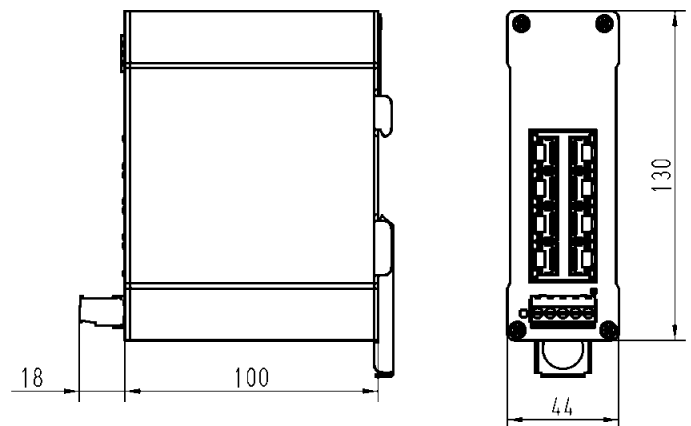
Nominal input voltage range 24/48 V DC ---  
 Permissible range (min/max) 12 V ... 60 V DC ---  
 Termination 5-pole screw terminal, pluggable redundant power supply  
 Input current approx. 130 mA (at 24 V ---)

Housing material Aluminium, anodized  
 Dimensions (W x H x D) 44 x 130 x 100 mm (without connectors)  
 Weight approx. 0.450 kg  
 Operating temperature -40 °C ... +70 °C  
 MTBF 678.372 h  
 Approvals (in preparation) UL 508; UL 60 950-1; DNV  
 Management fully Managed via Web interface and SNMP  
 Functions see pages 120 and 121

Identification	Part number	Drawing	Dimensions in mm
----------------	-------------	---------	------------------

Ha-VIS mCon 3080-A  
 Ethernet Switch, full managed  
 8 RJ45 ports  
 including  
 Set for assembly on standard rail

20 76 108 4000





## Ethernet Switch Ha-VIS mCon 3102-AASFP

10-port Ethernet Switch with 2 ports Gigabit Ethernet, full managed for mounting onto top-hat mounting rail in control cabinets

Managed	IP 30	PROFINET compatible <input checked="" type="checkbox"/>	EtherNet/IP compatible <input checked="" type="checkbox"/>
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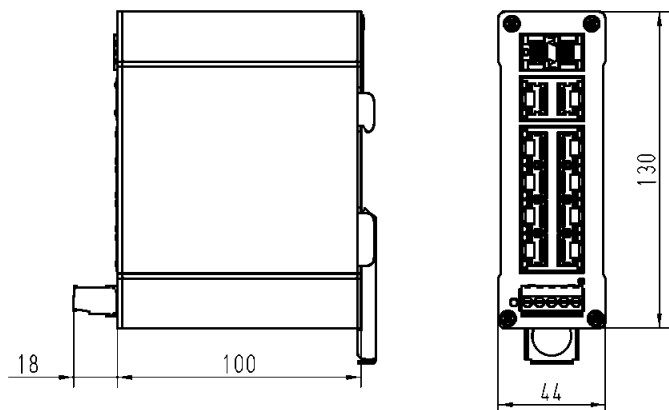
Number of ports, Copper / Termination	8x 10/100Base-T(X) / RJ45 (Twisted Pair) 2x 10/100/1000Base-T(X) / RJ45 (Twisted Pair)
Number of slots SFP / Termination	2x 100/1000Base / Combo ports
Nominal input voltage range	24/48 V DC ---
Permissible range (min/max)	12 V ... 60 V DC ---
Termination	5-pole screw terminal, pluggable redundant power supply
Input current	approx. 250 mA (at 24 V ---)
Housing material	Aluminium, eloxiert
Dimensions (W x H x D)	44 x 130 x 100 mm (incl. cap, without connectors)
Weight	approx. 0.485 kg
Operating temperature	-40 °C ... +70 °C
MTBF	597.974 h
Approvals (in preparation)	UL 508; UL 60 950-1; DNV
Management	fully Managed via Web interface and SNMP Functions see pages 120 and 121

Identification	Part number	Drawing	Dimensions in mm
----------------	-------------	---------	------------------

Ha-VIS mCon 3102-AASFP  
Ethernet Switch, full managed  
8 ports Fast Ethernet RJ45  
2 ports Gigabit Ethernet  
(combo SFP)

including  
Set for assembly on standard rail

20 76 112 4300





## Accessories Ha-VIS Memory cards

The HARTING SD cards are used for saving the switch configuration. The web interface can be used to save the current configuration to the SD card.

If an SD card is inserted in the back of the switch, the switch will use the configuration saved on the card when it boots.

So it's quite easy when replacing a switch to transfer the entire configuration to the new switch. The old SD card with your current configuration is simply pushed into the new switch which then boots with these settings. No special network expertise is required.

**Note:** The HARTING Ethernet Switches are not compatible with conventional memory cards.

MRP memory cards allow you to activate the MRP functionality (media redundancy protocol) when using switches from the FTS 3000 and mCon 3000 series (with firmware ver. 3.0.0.1 and later). For example, in order to operate the device as an MRP slave, you need only have the corresponding MRP slave card inserted during operations.

Operating temperature      -40 °C ... +70 °C

Memory space                      128 MB

### SD Memory cards

Configuration memory	20 89 900 1000
MRP Slave	20 89 900 1001
MRP Master	20 89 900 1002



## Accessories Ha-VIS SFP modules

### General description

SFPs (Small Form-factor Pluggable) are small standardized modules for network connections.

These modules are a specification for a new generation of modular optical transceivers. The devices are constructed as connecting plugs for extremely quick network connections.

The SFPs are available in a variety of models, depending on the cable type (multi-mode or single-mode), the wave length (850 nm, 1300 nm, 1550 nm or CWDM), data rate or range.

Copper-based SFP are also available.

### Features

- Highly flexible
- Easily swapped out in event of malfunction
- Hot swappable
- Variants:

	SM fibre	MM fibre
100 Mbit/s	X	X
1000 Mbit/s	X	X

### Advantages

- SFP used as connecting plug for extremely quick network connections
- Standardized modules for network connections

### Application fields

- Railway applications
- Industrial automation
- Automotive industry
- Wind power



## Accessories

Ha-VIS SFP modules 100 Mbit/s

### SFP:

Type	SFP Fast Ethernet Transceiver 155 Mbit/s MM	SFP Fast Ethernet Transceiver 155 Mbit/s SM	SFP Fast Ethernet Transceiver 155 Mbit/s SM	SFP Fast Ethernet Transceiver 155 Mbit/s SM
Wave length	1310 nm	1310 nm	1310 nm	1550 nm
Mode	Multimode	Singlemode	Singlemode	Singlemode
Fiber	50 / 125 µm or 62.5 / 125 µm	9 / 125 µm	9 / 125 µm	9 / 125 µm
Max. cable length*	2 km	15 km	40 km	80 km
Connector	LC connector duplex	LC connector duplex	LC connector duplex	LC connector duplex
Optical budget	min. 8.2 dB	min. 8.2 dB	min. 10 dB	min. 10 dB
Data rate	155 Mbit/s	155 Mbit/s	155 Mbit/s	155 Mbit/s

\* Typical cable length depending on attenuation of each specific application.

Identification	Part number	Drawing	Dimensions in mm
----------------	-------------	---------	------------------

### SFP modules

SFP Fast Ethernet Transceiver 155 Mbit/s MM	20 76 000 0300	
SFP Fast Ethernet Transceiver 155 Mbit/s SM	20 76 020 0300	
SFP Fast Ethernet Transceiver L40 155 Mbit/s SM	20 76 024 0300	
SFP Fast Ethernet Transceiver L80 155 Mbit/s SM	20 76 028 0300	
other types on request		



## Accessories Ha-VIS SFP modules 1000 Mbit/s

### SFP:

Type	SFP Gigabit Ethernet Transceiver 1.25 Gbit/s MM	SFP Gigabit Ethernet Transceiver 1.25 Gbit/s SM	SFP Gigabit Ethernet Transceiver 1.25 Gbit/s SM	SFP Gigabit Ethernet Transceiver 1.25 Gbit/s SM
Wave length	850 nm	1310 nm	1310 nm	1310 nm
Mode	Multimode	Singlemode	Singlemode	Singlemode
Fiber	50 / 125 µm or 62.5 / 125 µm	9 / 125 µm	9 / 125 µm	9 / 125 µm
Max. cable length*	550 m (50 / 125) 275 m (62.5 / 125)	10 km	40 km	80 km
Connector	LC connector duplex	LC connector duplex	LC connector duplex	LC connector duplex
Optical budget	min. 9 dB	min. 9 dB	min. 9 dB	min. 9 dB
Data rate	1250 Mbit/s	1250 Mbit/s	1250 Mbit/s	1250 Mbit/s

\* Typical cable length depending on attenuation of each specific application.

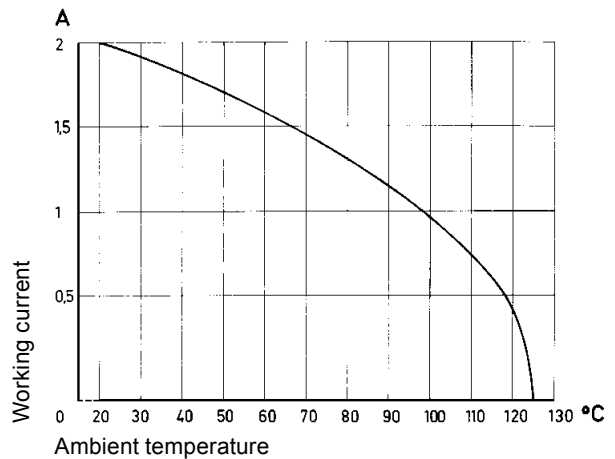
Identification	Part number	Drawing	Dimensions in mm
<b>SFP modules</b>			
SFP Gigabit Ethernet Transceiver 1,25 Gbit/s MM	20 76 010 0300		
SFP Gigabit Ethernet Transceiver 1,25 Gbit/s SM	20 76 030 0300		
SFP Gigabit Ethernet Transceiver L40 1,25 Gbit/s SM	20 76 034 0300		
SFP Gigabit Ethernet Transceiver L80 1,25 Gbit/s SM	20 76 038 0300		
other types on request			

Number of contacts	20-30
Contact spacing (mm)	2.54
Working current see current carrying capacity chart	2 A max.
Clearance	≥ 1.2 mm
Creepage	≥ 1.2 mm
Working voltage The working voltage also depends on the clearance and creepage dimensions of the pcb itself, and the associated wiring	according to the safety regulations of the equipment
Test voltage $U_{r.m.s.}$	1 kV
Contact resistance	≤ 20 mΩ
Insulation resistance	≥ 10 <sup>12</sup> Ω
Temperature range The higher temperature limit includes the local ambient and heating effects of the contacts under load During reflow soldering	- 55 °C ... + 125 °C - 40 °C ... + 105 °C for press-in connector  max. + 240 °C for 15 s for SMC connectors
Electrical termination  Compliant press-in terminations PCB thickness Recommended PCB holes for press-in technology	Solder pins for pcb connections Ø 1.0 ± 0.1 mm according to IEC 60 326-3 wrap posts 0.6 x 0.6 mm diagonal 0.79-0.86 mm  ≥ 1.6 mm in acc. to EN 60 352-5
Insertion and withdrawal force	20way ≤ 20 N 30way ≤ 30 N
Materials Mouldings Contacts	Thermoplastic resin, glass-fibre filled, UL 94-V0 Copper alloy
Contact surface Contact zone	Selectively plated according to performance level

## Current carrying capacity

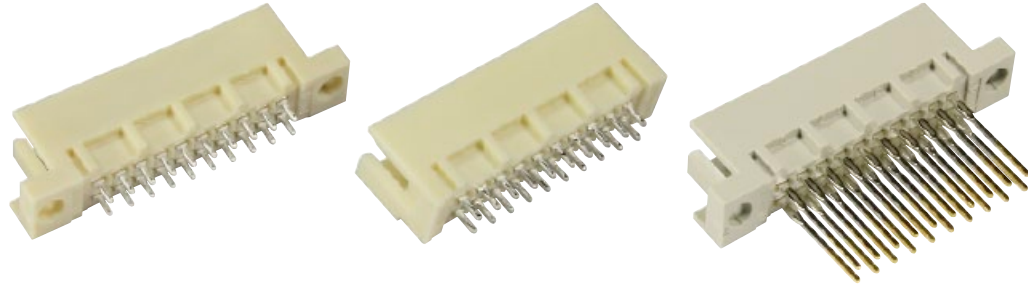
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60512



Number of contacts

**20**



Male connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60603-2.	
			3	2	1
Male connector with solder pins 2.5 mm	with fixing flange		Performance level 3 on request	09 75 120 6902	Performance level 1 on request
	with fixing flange, SMC			09 75 120 6519 <sup>d)</sup>	
	without fixing flange			09 75 120 6592	
	without fixing flange, SMC			09 75 120 6569 <sup>d)</sup>	
Male connector with solder pins 4.0 mm	with fixing flange			09 75 120 6903	
	with fixing flange, SMC			09 75 120 6520 <sup>d)</sup>	
	without fixing flange			09 75 120 6593	
	without fixing flange, SMC			09 75 120 6570 <sup>d)</sup>	
Male connector with solder pins 13 mm	with fixing flange			09 75 120 6577	
	with fixing flange, SMC			09 75 120 6521 <sup>d)</sup>	
Male connector with wrap posts <sup>1)</sup> 13 mm	with fixing flange			09 75 120 6907	
Male connector with press-in pins 5.0 mm	with fixing flange			09 75 120 6904	
	without fixing flange		09 75 120 6504		
Male connector with press-in pins 13 mm	with fixing flange		09 75 120 6985 09 75 120 6974*		
	without fixing flange		09 75 120 6574*		

\* Wrap posts for interfacing selectively gold plated (performance level 3)

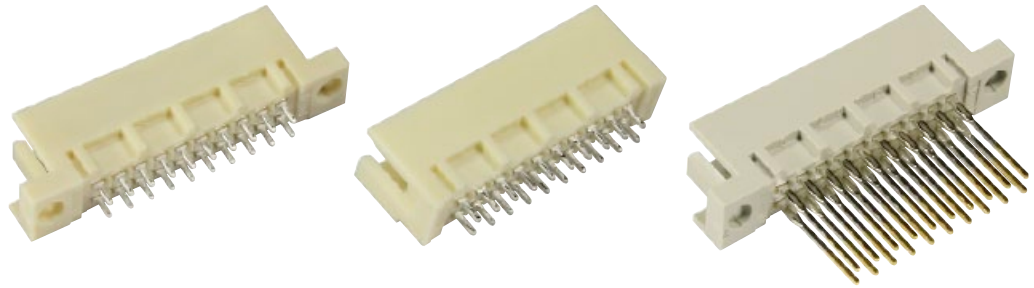
<sup>1)</sup> To be used only for wire wrap termination

<sup>d)</sup> CTI > 400



Number of contacts

20



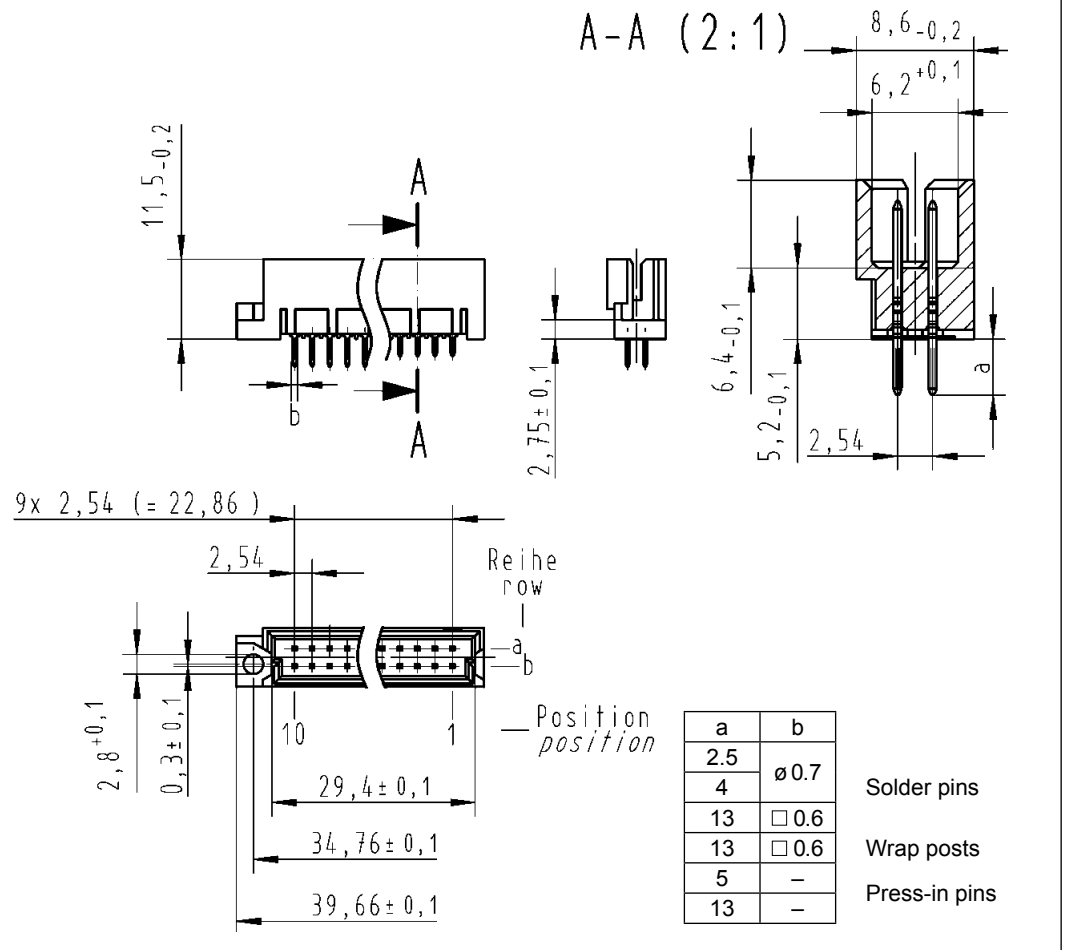
Male connectors

Identification

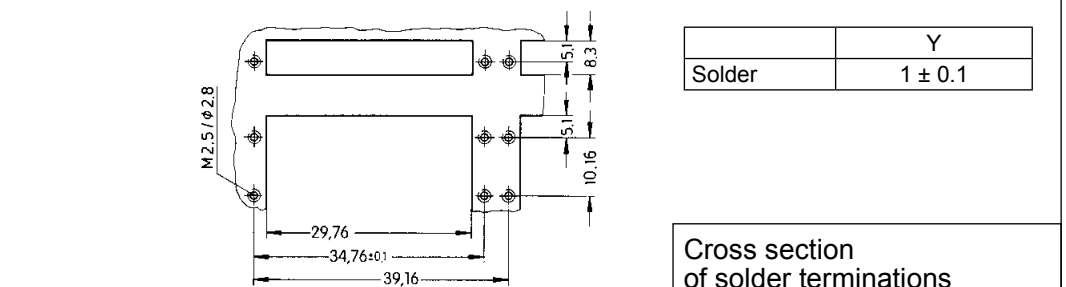
Drawing

Dimensions in mm

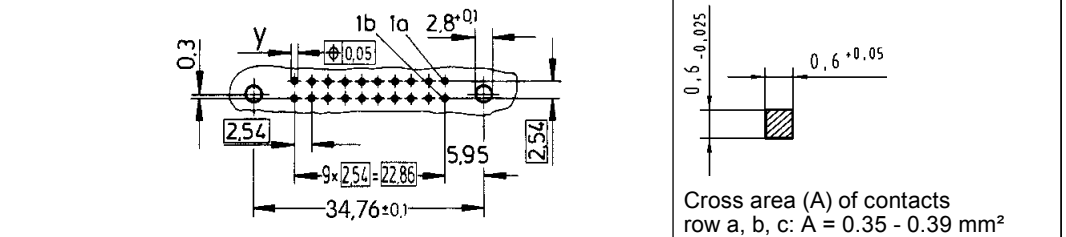
Dimensions



Panel cut out

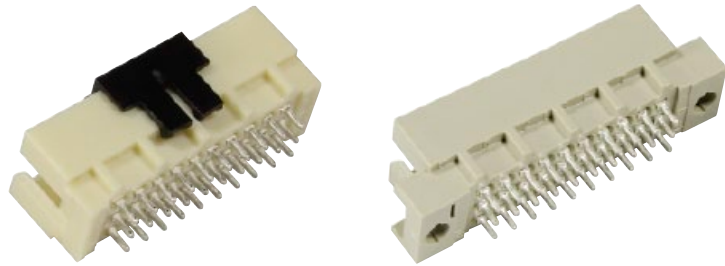


Board drillings  
Mounting side



Number of contacts

30, 20



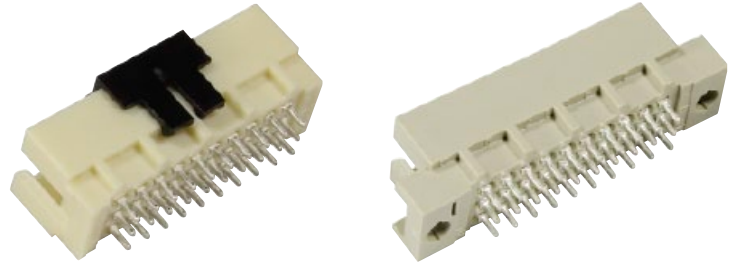
Male connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60603-2.	
			3	2	1
Male connector with solder pins 2.5 mm	with fixing flange		Performance level 3 on request	09 29 130 6902	Performance level 1 on request
	with fixing flange, SMC			09 29 120 6902	
	without fixing flange			09 29 130 6519 <sup>d)</sup>	
	without fixing flange, SMC			09 29 130 6592	
Male connector with solder pins 4.0 mm	without fixing flange, SMC			09 29 130 6569 <sup>d)</sup>	
	with solder pins 4.0 mm			09 29 130 6903	
	with fixing flange			09 29 120 6903	
	with fixing flange, SMC			09 29 130 6520 <sup>d)</sup>	
	without fixing flange			09 29 130 6593	
Male connector with solder pins 13 mm	without fixing flange, SMC			09 29 130 6570 <sup>d)</sup>	
	with solder pins 13 mm			09 29 130 6577	
	with fixing flange			09 29 120 6577	
Male connector with fixing flange, SMC	with fixing flange		09 29 130 6521 <sup>d)</sup>		
	with fixing flange, SMC				
Male connector with wrap posts <sup>1)</sup> 13 mm	with fixing flange		09 29 130 6907		
Male connector with press-in pins 5.0 mm	with press-in pins 5.0 mm		09 29 130 6904		
	with fixing flange		09 29 120 6904		
	without fixing flange		09 29 130 6504		
Male connector with press-in pins 13 mm	with press-in pins 13 mm		09 29 130 6985 09 29 130 6974*		
	with fixing flange		09 29 120 6974*		
	without fixing flange		09 29 130 6574*		

\* Wrap posts for interfacing selectively gold plated (performance level 3)  
<sup>1)</sup> To be used only for wire wrap termination  
<sup>d)</sup> CTI > 400

Number of contacts

30, 20



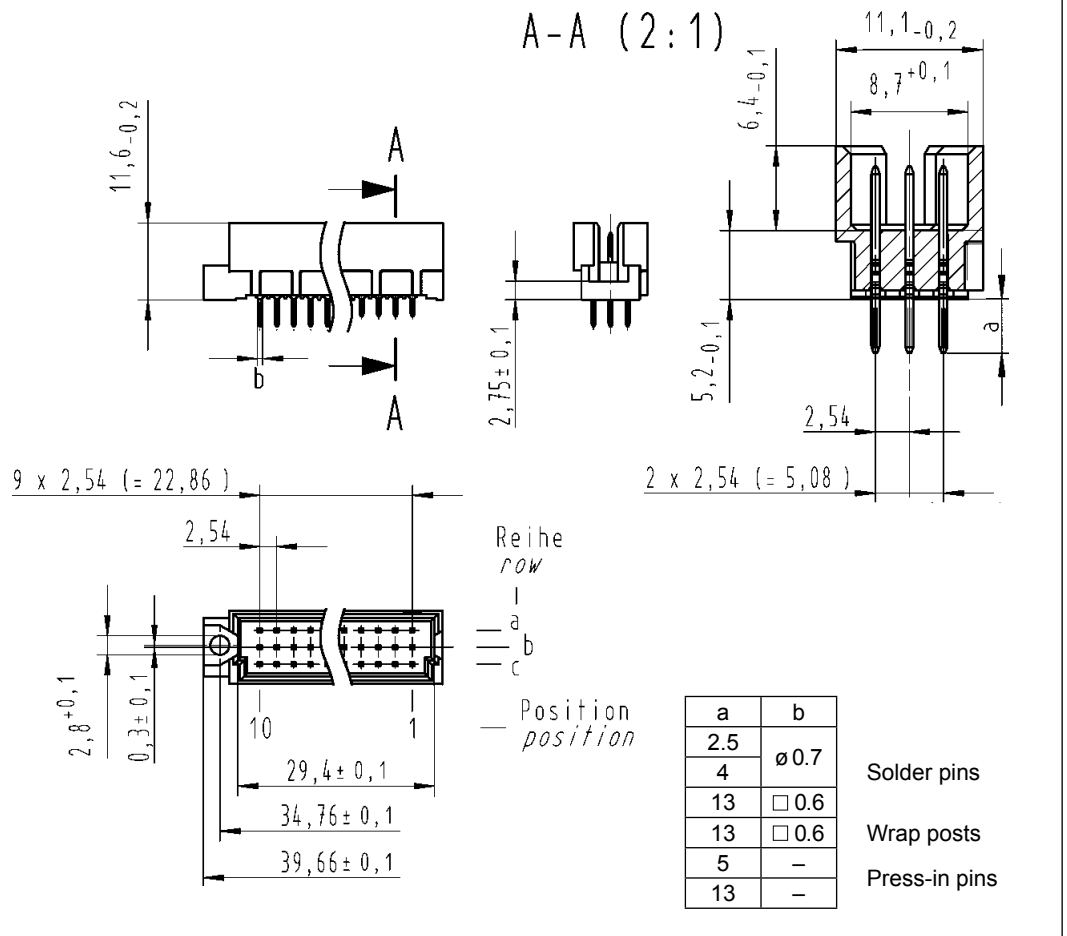
Male connectors

Identification

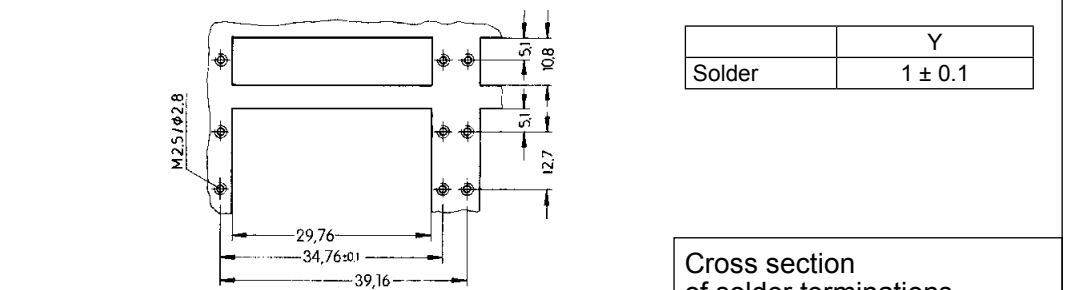
Drawing

Dimensions in mm

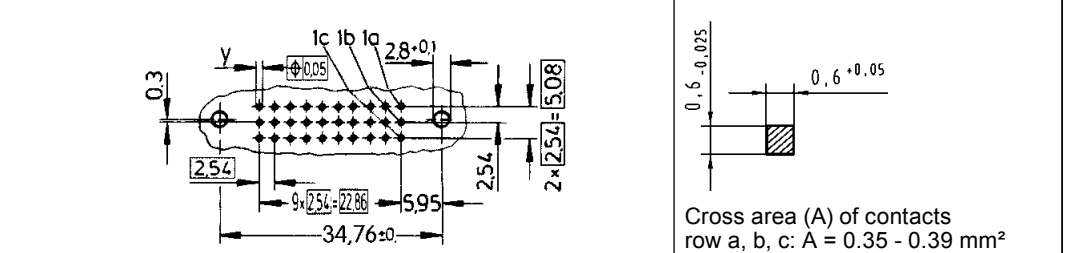
Dimensions



Panel cut out



Board drillings  
Mounting side



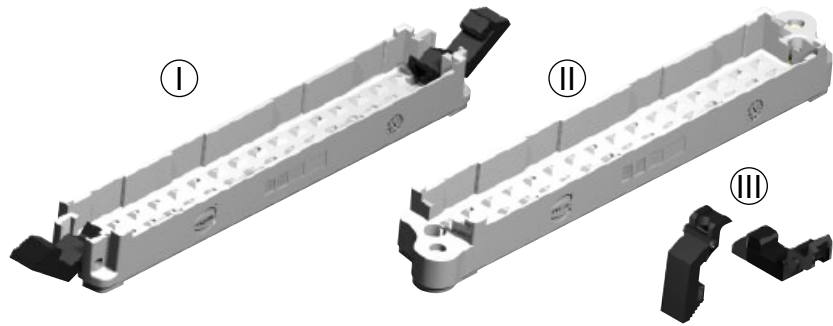
# Pin shroud



Number of contacts

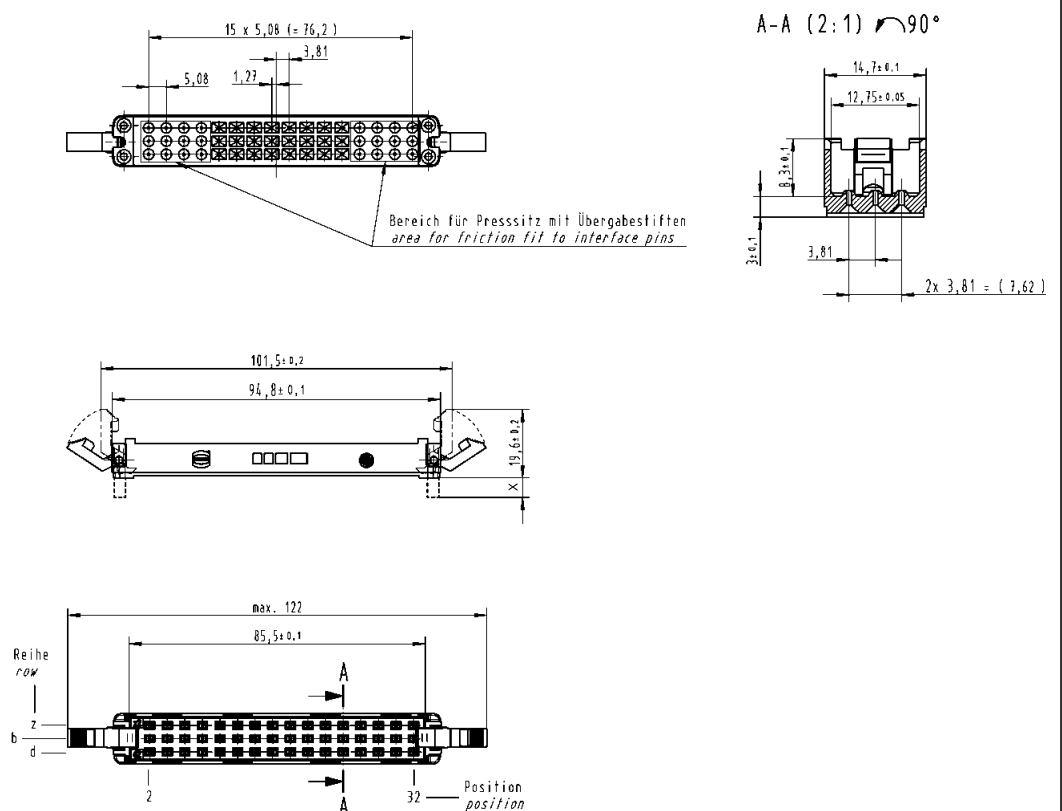
# 48

Pin shrouds  
for type F "low profile"  
with press-in pins 13 mm



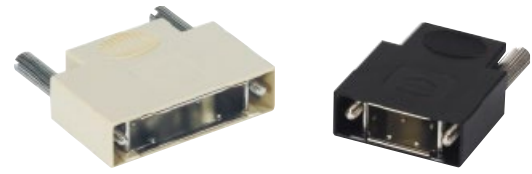
Identification	pcb-thickness ± 10 %	Dimension X ± 0.1	Part No.
Pin shrouds			
Ⓘ with locking levers and press-in fixing	1.6 - 2.4	1.6	09 06 002 9902
Ⓘ without locking levers for screw fixing	1.6 - 2.4	1.6	09 06 002 9912
Ⓙ without locking levers with press-in nuts	1.6 - 2.4	1.6	09 06 002 9922
Ⓘ with locking levers and press-in fixing	3.2 - 4.0	0	09 06 002 9901
Ⓘ without locking levers for screw fixing	3.2 - 4.0	0	09 06 002 9911
Ⓙ without locking levers with press-in nuts	3.2 - 4.0	0	09 06 002 9921
Ⓚ Locking lever for female connector type F <sup>1)</sup>			09 06 001 9946

Dimensions,  
valid for types  
with locking lever  
and for screw fixing



Dimensions in mm

<sup>1)</sup> order 2 pieces per connector



Top entry hoods

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

Plastic hood with internal screen and knurled screws

Colour: Beige

14

60 13 014 0146 351<sup>1)</sup>

26

60 13 026 0146 351<sup>1)</sup>

36

60 13 036 0146 351<sup>1)</sup>

Colour: Black

14

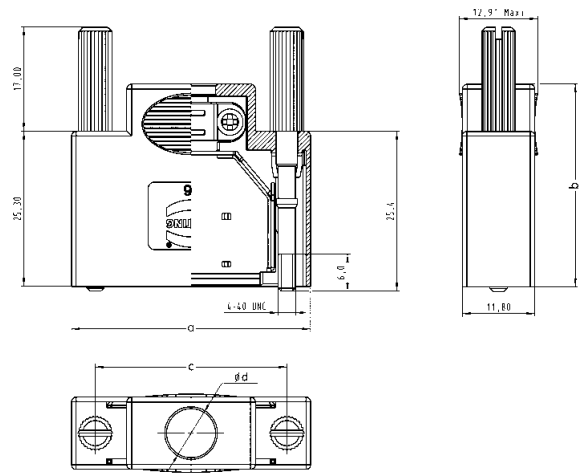
60 13 014 0146 110<sup>1)</sup>

26

60 13 026 0146 110<sup>1)</sup>

36

60 13 036 0146 110<sup>1)</sup>



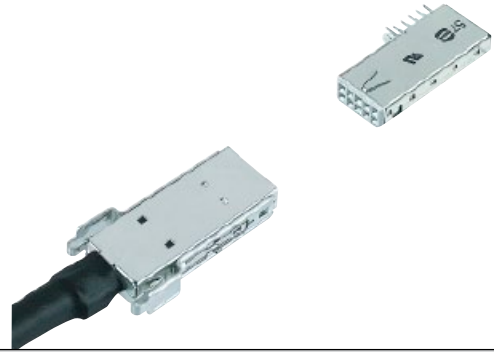
	a	b	c	d
14	31.40	37.00	23.64	7.2
26	39.00	33.00	31.26	8.0
36	45.40	33.00	37.61	9.2

<sup>1)</sup> Temperature range: - 55 °C ... + 85 °C

Number of contacts	10
Approvals	IEC 61076-4-107 UL recognized: E102079
Contact pitch Connector pitch	2 mm 6 mm
Working current	1.5 A at 70 °C
Test voltage $U_{r.m.s.}$	750 V
Contact resistance Insulation resistance	$\leq 35 \text{ m}\Omega$ $\geq 10^{10} \Omega$
Temperature range during reflow soldering	-55 °C ... +125 °C female: max. + 260 °C for 60 s
Mating cycles	250, performance level 2
Terminations	Insulation displacement (male), AWG 28/7 - 30/7, AWG 30 solid Solder buckets (male), AWG 24-30, outer insulation $\varnothing$ $5.33 \pm 0.25 \text{ mm}$ Solder pins for $\varnothing 0.6 \text{ mm}$ min. (female)
Insertion force Withdrawal force	10 N max. / module 2 N min. / module (without locking levers)
Latching system	Locking levers
Materials	
Mouldings	Male connector: Polyester, UL 94-V0 Female connector: High temperature plastic material, UL 94-V0
Contacts	Copper alloy
Shells	Male connector: Stainless steel Female connector: Silver nickel
Contact surface Contact zone	Selectively gold-plated

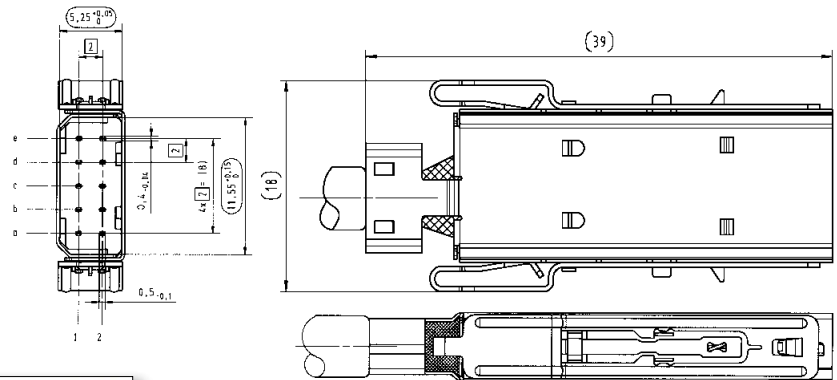


Male connectors, straight  
Female connectors, angled



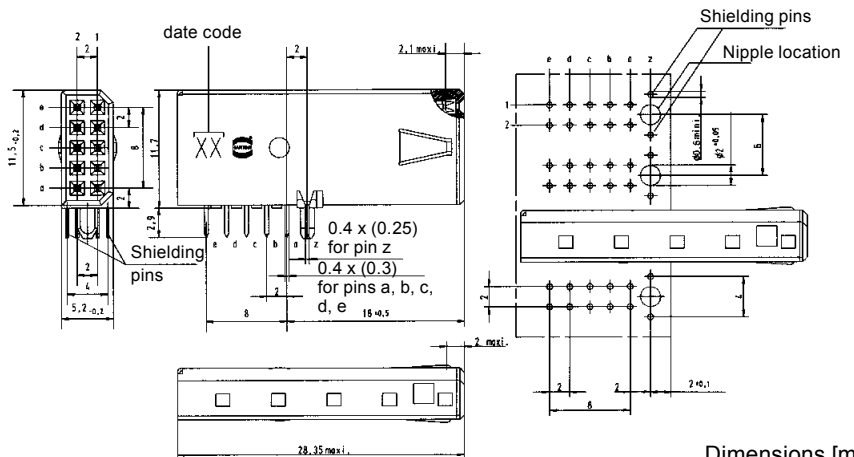
Identification	No. of contacts	Colour	Part No.
Male connector for insulation displacement with solder buckets	10	Black	27 11 161 8001
	10	Black	27 11 122 2001
Female connector with solder pins	10	Beige (standard)	27 21 121 8000
	10	Red	27 21 121 8002
	10	Yellow	27 21 121 8004
	10	Green	27 21 121 8005
	10	Blue	27 21 121 8006
	10	Black	27 21 121 8010

Male connector  
(delivered in piece parts)



Manuals for the *har-link*® cable free connector assemblies are available in our online catalogue *HARKIS*® or on demand at your local HARTING representative.

Female connector



Dimensions [mm]

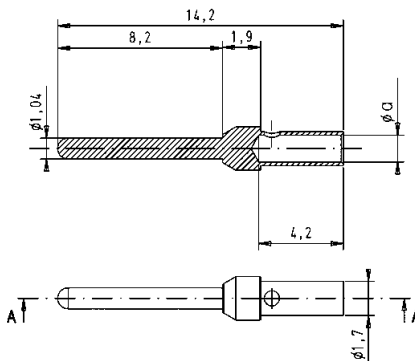


Turned crimp contacts

Identification	Wire gauge (mm <sup>2</sup> )	Part No.		
		Male contacts	Female contacts	High-end female contacts
		Performance level 1*	Performance level 1*	Performance level 1*
Individual contacts <sup>1)</sup>	AWG 22-18 0.33-0.82	09 67 000 3576	09 67 000 3476	09 67 000 3676
	AWG 24-20 0.25-0.52	09 67 000 8576	09 67 000 8476	09 67 000 8676
	AWG 26-22 0.13-0.33	09 67 000 5576	09 67 000 5476	09 67 000 5676
	AWG 28-24 0.09-0.25	09 67 000 7576	09 67 000 7476	09 67 000 7676

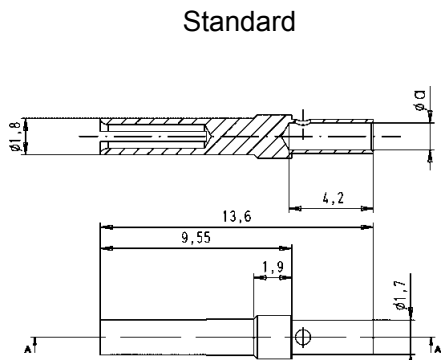
<sup>1)</sup> Minimum order 100 pieces or multiples of 100

Male contacts

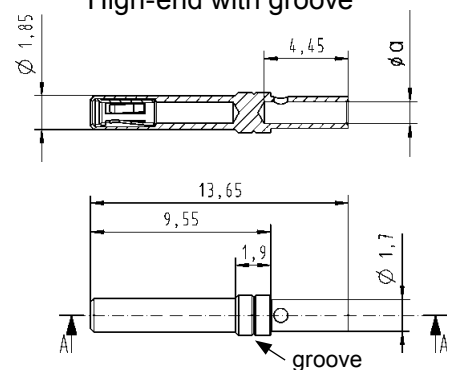


	a	groove
AWG 22-18	1.34	none
AWG 24-20	1.13	1
AWG 26-22	0.88	2
AWG 28-24	0.64	3

Female contacts



High-end with groove

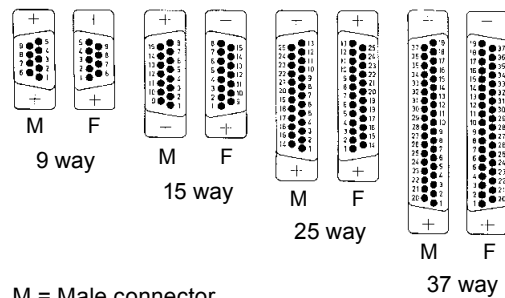


\* Performance level 1 as per CECC 75301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60512  
Use crimp tool with the part no. 09 99 000 0501 and the locator with the part no. 09 99 000 0531.



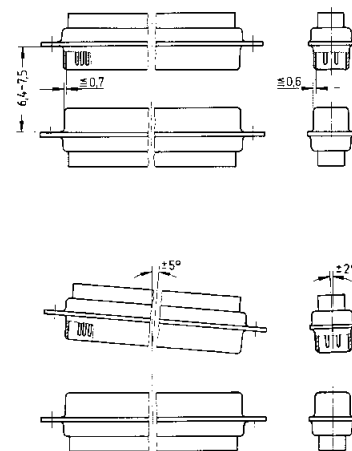
Number of contacts	9, 15, 25, 37
Working current	5 A
Test voltage $U_{r.m.s.}$	1 kV
Clearance and creepage	$\geq 1.0$ mm
Contact resistance	$< 25$ m $\Omega$
Insulation resistance	$> 5$ G $\Omega$
Temperature range	as per profile JEDEC 020 D
Terminations	Solder pins for P.C.B. pads
<b>Materials</b>	
Mouldings	LCP black UL 94-V0
Contacts	Phosphorus bronze
Grounding die	Zamac
Shell	Steel
<b>Contact surface</b>	
Contact zone	selectively plated acc. to performance level <sup>1)</sup>
Grounding die	Pure tin
Shell	Nickel plated
<b>Mating force</b>	
	9 way $\leq 30$ N
	15 way $\leq 50$ N
	25 way $\leq 83$ N
	37 way $\leq 123$ N

Contact arrangement View from termination side



M = Male connector  
F = Female connector

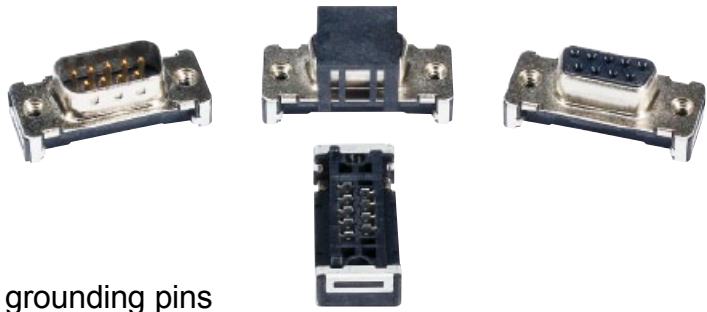
Mating conditions as per DIN 41 652



<sup>1)</sup> Performance level 3, 50 mating cycles, no gas test  
Performance level 2 as per CECC 75301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60512

Number of contacts

9–37



SMT stamped solder pins, straight without grounding pins

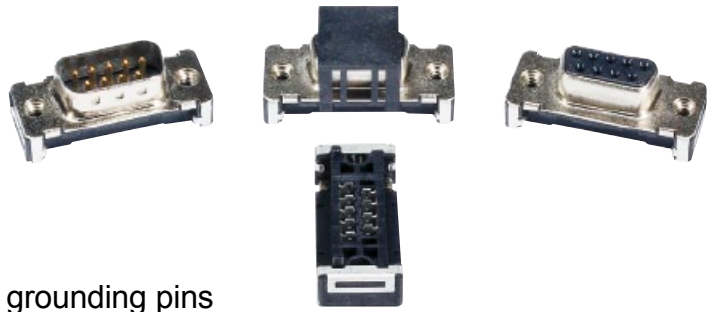
Identification	No. of contacts	Part No.	
Performance levels Other performance levels on request <span style="float: right;">▶</span>		Performance level 3	Performance level 2
Male connector metal shell with dimples	9 15 25 37	09 55 129 78 ... 741 09 55 229 78 ... 741 09 55 329 78 ... 741 09 55 429 78 ... 741	09 55 129 68 ... 741 09 55 229 68 ... 741 09 55 329 68 ... 741 09 55 429 68 ... 741
Female connector metal shell	9 15 25 37	09 55 115 76 ... 741 09 55 215 76 ... 741 09 55 315 76 ... 741 09 55 415 76 ... 741	09 55 115 66 ... 741 09 55 215 66 ... 741 09 55 315 66 ... 741 09 55 415 66 ... 741
Please insert digit for flange thread or fitted female screw locks			
M3 ▶ 11 4-40 UNC ▶ 12 fixed screw locks M3 ▶ 21 fixed screw locks 4-40 UNC ▶ 22			

# D-Sub



Number of contacts

# 9-37



SMT stamped solder pins, straight without grounding pins

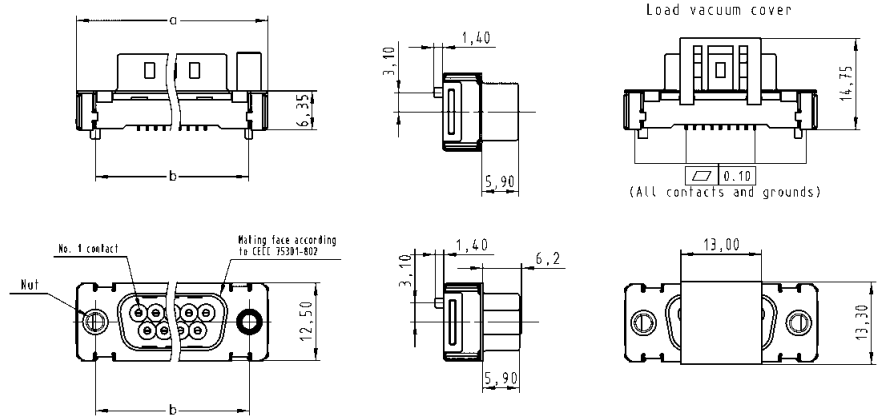
Identification

Drawing

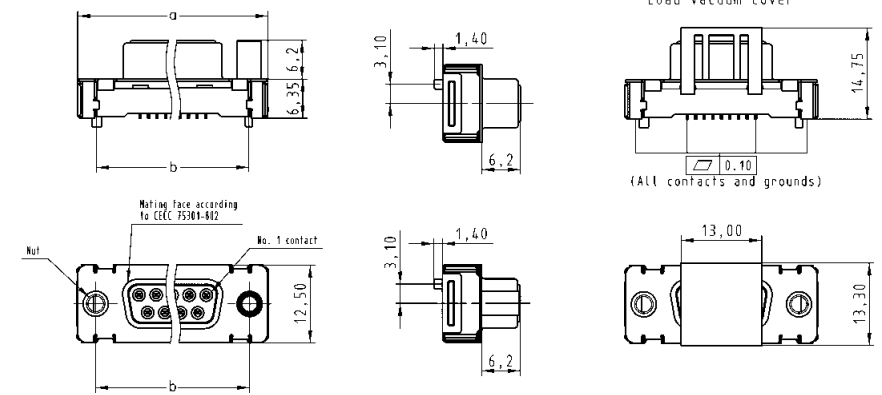
Dimensions in mm

Male connector

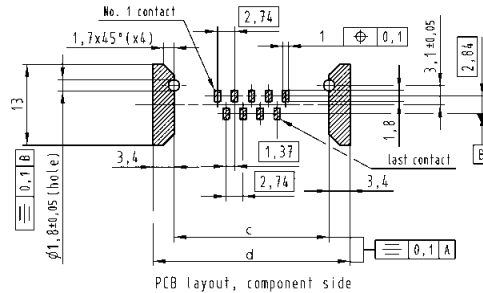
M3 or 4-40 UNC non-removable fitted screw locks M3 or 4-40 UNC



Female connector



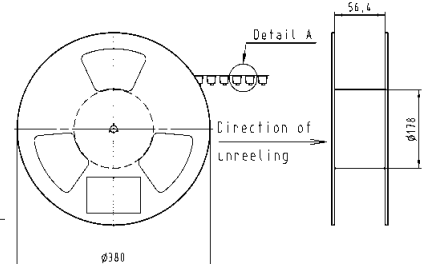
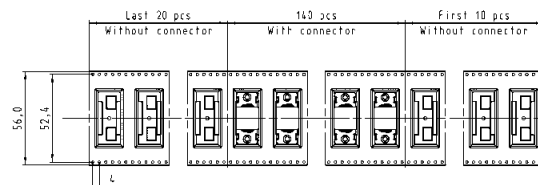
pcb layout



	a	b	c	d
9	31.12	25.00	25.0	31.8
15	39.45	33.33	33.3	40.1
25	53.35	47.04	47.0	53.8
37	69.62	63.50	63.5	70.3

Packaging

(1 reel = 140 pieces)  
Reel diameter = 380 mm



Number of contacts

9–37



SMT stamped solder pins, straight with grounding pins

Identification	No. of contacts	Part No.	
Performance levels Other performance levels on request <span style="float: right;">▶</span>		Performance level <b>3</b>	Performance level <b>2</b>
Male connector metal shell with dimples	9 15 25 37	09 55 169 78 .. 741 09 55 269 78 .. 741 09 55 369 78 .. 741 09 55 469 78 .. 741	09 55 169 68 .. 741 09 55 269 68 .. 741 09 55 369 68 .. 741 09 55 469 68 .. 741
Female connector metal shell	9 15 25 37	09 55 155 76 .. 741 09 55 255 76 .. 741 09 55 355 76 .. 741 09 55 455 76 .. 741	09 55 155 66 .. 741 09 55 255 66 .. 741 09 55 355 66 .. 741 09 55 455 66 .. 741
Please insert digit for flange thread or fitted female screw locks			
M3 ▶ 11 4-40 UNC ▶ 12 fixed screw locks M3 ▶ 21 fixed screw locks 4-40 UNC ▶ 22			

# D-Sub



Number of contacts

# 9-37



SMT stamped solder pins, straight with grounding pins

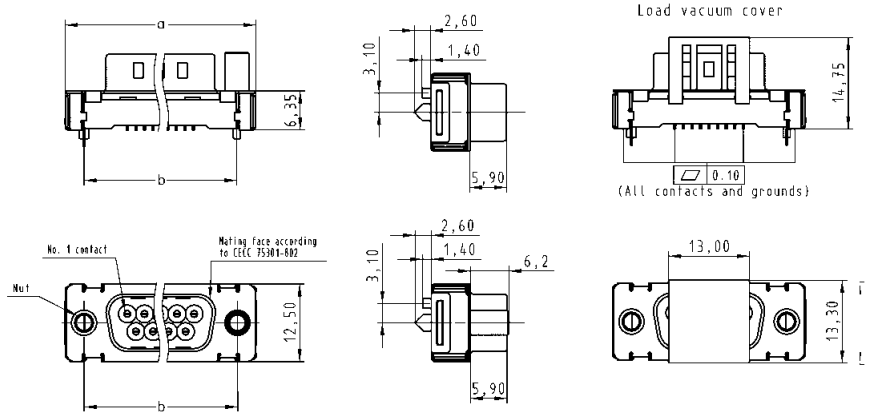
Identification

Drawing

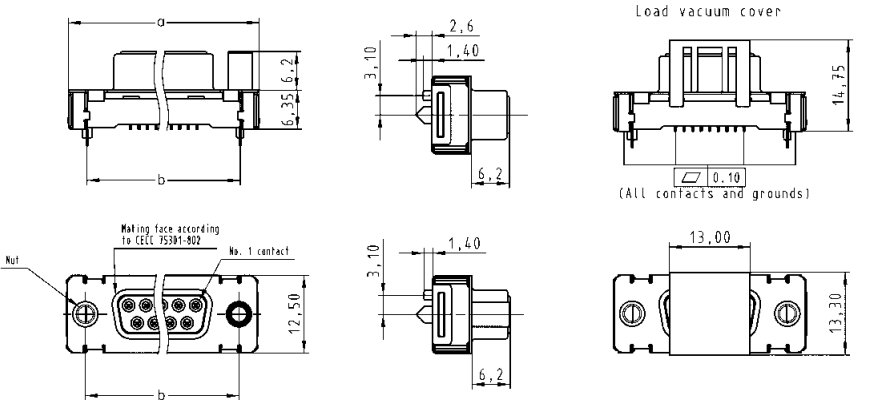
Dimensions in mm

Male connector

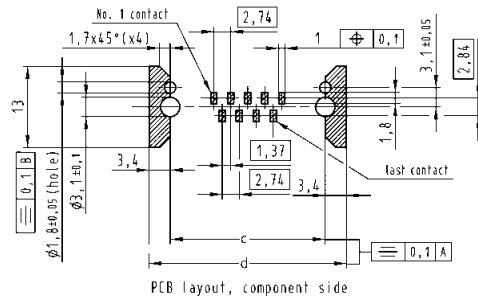
M3 or 4-40 UNC non-removable fitted screw locks M3 or 4-40 UNC



Female connector



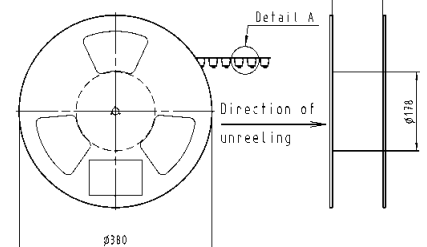
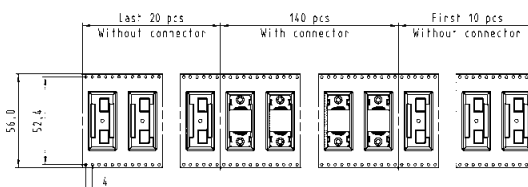
pcb layout



	a	b	c	d
9	31.12	25.00	25.0	31.8
15	39.45	33.33	33.3	40.1
25	53.35	47.04	47.0	53.8
37	69.62	63.50	63.5	70.3

Packaging

(1 reel = 140 pieces)  
Reel diameter = 380 mm



Cables for insulation displacement termination

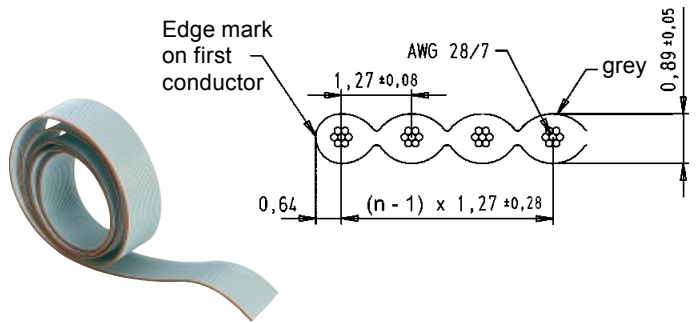
Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
----------------	-----------------	----------	---------	------------------

Flat cable grey non-halogenated UL style 21447 for VW-1	6	09 18 006 700 □ 900
	9	09 18 009 700 □ 900
	10	09 18 010 700 □ 900
	14	09 18 014 700 □ 900
	15	09 18 015 700 □ 900
	16	09 18 016 700 □ 900
	18	09 18 018 700 □ 900
	20	09 18 020 700 □ 900
	24	09 18 024 700 □ 900
	25	09 18 025 700 □ 900
	26	09 18 026 700 □ 900
	28	09 18 028 700 □ 900
	34	09 18 034 700 □ 900
	37	09 18 037 700 □ 900
	40	09 18 040 700 □ 900
	50	09 18 050 700 □ 900
60	09 18 060 700 □ 900	
64	09 18 064 700 □ 900	

Length per reel

30.48 m  
(100 feet)

1



Conductor material	Copper tinned
Gauge	AWG 28/7 0.089 mm <sup>2</sup>
Voltage rating	300 V <sub>r.m.s.</sub>
Current rating	1.3 A
Capacity unbalanced	42.6 pF/m at 1 MHz
Impedance unbalanced	100 Ω
Inductance	0.56 μH/m
Propagation delay	4.8 ns/m
Insulation material	Non-halogenated flame retardent Polyolefin
Temperature rating	-40 °C ... +80 °C
Insulation resistance	10000 MΩ/km

Ha-VIS data bus cable  
2-wire, elastic



## Advantages

- Halogen free
- Electron-beam cross-linked cable
- Improved fire performance
- High resistance to temperature
- Conform to MVB standard according IEC 61375-3-1

## Applications

For fixed and moveable installation inside and outside of rail vehicles and buses. For symmetrical signal and data transmission with impedance of 120 Ohm. Suitable for use in MVB (Multifunction Vehicle Bus) as part of the TCN (Train Communication Network). Especially designed for termination with HARTING D-Sub InduCom and Han-Quintax® and other railway-specific Han® connectors and housings.

### Identification

### Part No.

Ha-VIS data bus cable  
2-wire, elastic

Sheath material:  
Elastomer, electron-beam cross-linked,  
COMP 603  
Color: black

Nominal voltage: 300 V  
Testing voltage:  
conductor/conductor 2 kV AC  
conductor/shielding 2 kV AC

Maximum conductor resistance at 20 °C: < 40.1 mΩ / m  
Impedance at 0.75 – 3 MHz: 120 Ω ±12 Ω  
Transfer impedance at 20 MHz: ≤ 20 mΩ / m  
Attenuation:  
1 MHz: ≤ 12 dB / km  
3 MHz: ≤ 17 dB / km  
4 MHz: ≤ 22 dB / km

Maximum conductor temperature:  
fixed installed -40 °C ... +90 °C  
short circuit +160 °C

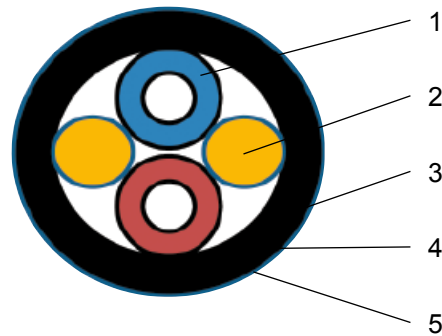
Minimum bending radius:  
fixed installed > 6 x diameter

Cable sheath diameter: (Ø 7.8 ± 0.2) mm

Cable weight: 77 kg / km

100 m ring  
500 m drum

09 45 600 0160  
09 45 600 0170



#### 1. Pair

Conductor: tinned copper strands according to VDE 0295 / IEC 60228 class 5 construction 16 x 0.20 mm, Ø 0.85 mm  
Insulation: Polyethylene (PE), electron-beam cross-linked, Comp 655 Ø 2.85 mm  
colors: red, blue

#### 2. Filler

#### 3. Wrapping

Plastic tape

#### 4. Shielding

Tinned fine copper braid, Ø 6.4 mm

#### 5. Jacket

Elastomer electron-beam cross-linked Comp 603, Ø 7.8 mm  
Color: black

Ha-VIS data bus cable  
2-wire, elastic



## Advantages

- Halogen free
- Electron-beam cross-linked cable
- Improved fire performance
- High resistance to temperature
- Conform to UIC 558 standard
- Conform to WTB standard according IEC 61375-2-1

## Applications

For fixed and moveable installation inside and outside of rail vehicles and buses. For symmetrical signal and data transmission with impedance of 120 Ohm. Suitable for use in WTB (Wire Train Bus) as part of the TCN (Train Communication Network) according UIC 558. Especially designed for termination with HARTING D-Sub InduCom and Han-Quintax® and other railway- specific Han® connectors and housings.

### Identification

### Part No.

Ha-VIS data bus cable  
2-wire, elastic

Sheath material:  
Elastomer, electron-beam cross-linked,  
COMP 603  
Color: black

Nominal voltage: 300 V

Testing voltage:  
conductor/conductor 2 kV AC  
conductor/shielding 2 kV AC

Maximum conductor  
resistance at 20 °C: < 26.7 mΩ / m

Capacitance at 1 MHz:  
wire/wire: < 65 pF / m  
wire/screen: < 120 pF / m

Impedance at  
0.75 – 3 MHz: 120 Ω ±12 Ω

Transfer impedance  
at 30 MHz: ≤ 30 mΩ / m

Attenuation:  
1 MHz: ≤ 10 dB / km  
4 MHz: ≤ 14 dB / km  
5 MHz: ≤ 18 dB / km

Maximum conductor temperature:  
fixed installed -40 °C ... +90 °C  
short circuit +160 °C

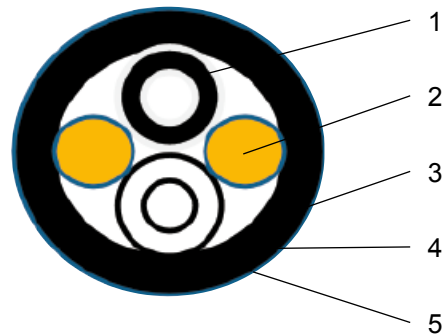
Minimum bending radius:  
fixed installed > 6 x diameter

Cable sheath diameter: (Ø 9.7 ± 0.2) mm

Cable weight: 106 kg / km

500 m drum  
1000 m drum

09 45 600 0180  
09 45 600 0190



#### 1. Pair

Conductor: tinned copper strands according to VDE 0295 / IEC 60228 class 5 construction 24 x 0.20 mm, Ø 1.1 mm  
Insulation: Polyethylene (PE), electron-beam cross-linked, Comp 655 Ø 3.9 mm  
colors: black, white

#### 2. Filler

Polyolefine copolymer

#### 3. Wrapping

Plastic tape

#### 4. Shielding

Tinned fine copper braid, Ø 8.5 mm

#### 5. Jacket

Elastomer electron-beam cross-linked Comp 603, Ø 9.7 mm  
Color: black



Ha-VIS data bus cable  
2-wire FOAM, elastic



### Advantages

- Halogen free
- Electron-beam cross-linked cable
- Improved fire performance
- High resistance to temperature
- Reduced outer diameter
- Conform to UIC 558 standard
- Conform to WTB standard according IEC 61375-2-1

### Applications

Primary for fixed but also moveable installation inside and outside of rail vehicles and buses. For symmetrical signal and data transmission with impedance of 120 Ohm. Suitable for use in WTB (Wire Train Bus) as part of the TCN (Train Communication Network) according UIC 558. Especially designed for termination with HARTING D-Sub InduCom and Han-Quintax<sup>®</sup> and other railway-specific Han<sup>®</sup> connectors and housings.

#### Identification

#### Part No.

Ha-VIS data bus cable  
2-wire FOAM, elastic

Sheath material:  
Elastomer, electron-beam cross-linked,  
COMP 603  
Color: black

Nominal voltage: 300 V  
Testing voltage:  
conductor/conductor 1.5 kV AC  
conductor/shielding 1.5 kV AC

Maximum conductor  
resistance at 20 °C: < 26.7 mΩ / m  
Capacitance at 1 MHz:  
wire/wire: < 65 pF / m  
wire/screen: < 120 pF / m

Impedance at  
0.5 – 2 MHz: 120 Ω ±12 Ω  
Transfer impedance  
at 30 MHz: ≤ 30 mΩ / m  
Attenuation:  
1 MHz: ≤ 10 dB / km  
2 MHz: ≤ 14 dB / km

Maximum conductor temperature:  
fixed installed -25 °C ... +90 °C  
temperature load  
sporadically  
temporary +100 °C

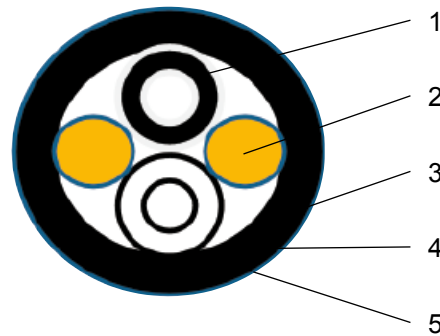
Minimum bending radius:  
fixed installed > 6 x diameter

Cable sheath diameter: (Ø 8.0 ± 0.2) mm

Cable weight: 79 kg / km

500 m drum  
1000 m drum

09 45 600 0181  
09 45 600 0191



#### 1. Pair

Conductor: tinned copper strands construction 19 x 0.20 mm, Ø 1.1 mm  
Insulation: foam-skin polyolefin Ø 2.7mm  
colors: black, white

#### 2. Filler

Polyolefine copolymer

#### 3. Wrapping

Plastic tape

#### 4. Shielding

Tinned fine copper braid, Ø 6.4 mm

#### 5. Jacket

Elastomer electron-beam cross-linked Comp 603, Ø 8.0 mm  
Color: black



**PROFINET 4TP type A cable**  
8 wires, Cat. 6<sub>A</sub>, PVC

For fixed laying or to build up PROFINET system cables

## Technical characteristics

Cable construction:	4 x 2, twisted pair, shielded, PIMF
Conductor construction:	4 x 2 x AWG 23/1, solid copper
Conductor insulation:	PE Ø 1.4 mm
Sheath material:	PVC
Cable diameter:	7.9 mm
Transmission performance:	Category 6 <sub>A</sub> / class E <sub>A</sub> up to 500 MHz Acc. to ISO/IEC 11 801:2002, EN 50 173-1
Transmission rate:	10/100 Mbit/s, 1/10 Gbit/s
Shielding:	Twisted shielding and additional overall shielding
Temperature range:	-20 °C ... +60 °C
Standard length:	20 m / 50 m / 100 m / 500 m
Colour:	Green
Printing:	HARTING specific printing
Advantages:	<ul style="list-style-type: none"> <li>• Robust design</li> <li>• PROFINET conform</li> <li>• RoHS conform</li> <li>• Flame retardant</li> </ul>

## Identification

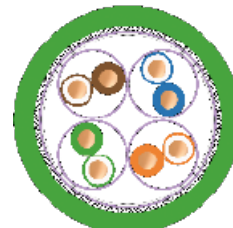
## Part number

## Drawing

PROFINET 4TP type A cable  
8 wires, Cat. 6<sub>A</sub>, PVC, green

20 m	ring
50 m	ring
100 m	ring
500 m	drum

09 45 600 1200
09 45 600 1210
09 45 600 1220
09 45 600 1230



- Conductor: Solid copper AWG 23/1



**PROFINET 4TP type B cable**  
**8 wires, Cat. 6<sub>A</sub>, PVC**

For flexible laying or to build up PROFINET system cables

## Technical characteristics

Cable construction:	4 x 2, twisted pair, shielded, PIMF
Conductor construction:	4 x 2 x AWG 23/7, stranded tinned copper braid
Conductor insulation:	PE Ø 1.59 mm
Sheath material:	PVC
Cable diameter:	8.7 mm
Transmission performance:	Category 6 <sub>A</sub> / class E <sub>A</sub> up to 500 MHz Acc. to ISO/IEC 11 801:2002, EN 50 173-1
Transmission rate:	10/100 Mbit/s, 1/10 Gbit/s
Shielding:	Twisted shielding and additional overall shielding
Temperature range:	-40 °C ... +80 °C
Standard length:	20 m / 50 m / 100 m / 500 m
Colour:	Green
Printing:	HARTING specific printing
Advantages:	<ul style="list-style-type: none"> <li>• Robust design</li> <li>• PROFINET conform</li> <li>• RoHS conform</li> <li>• Flame retardant</li> </ul>

## Identification

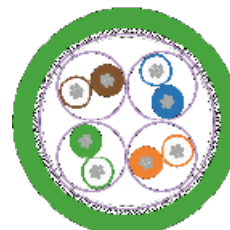
## Part number

## Drawing

**PROFINET 4TP type B cable**  
**8 wires, Cat. 6<sub>A</sub>, PVC, green**

20 m	ring
50 m	ring
100 m	ring
500 m	drum

09 45 600 1211
09 45 600 1221
09 45 600 1231
09 45 600 1241



- Conductor: Stranded tinned copper braid  
 4x2xAWG 23/7



Identification

Part No.

Drawing

Dimensions in mm

Fibre optic cable,  
double ended, single mode  
Han<sup>®</sup> SFP LC duplex to LC duplex

- Length: a = 1.0 m  
a = 2.0 m  
a = 5.0 m  
a = 10.0 m  
a = 15.0 m  
a = 20.0 m

- 33 54 451 0010 010  
33 54 451 0020 010  
33 54 451 0050 010  
33 54 451 0100 010  
33 54 451 0150 010  
33 54 451 0200 010

Fibre optic cable, double ended,  
multi mode 50/125 µm  
Han<sup>®</sup> SFP LC duplex to LC duplex

- Length: a = 1.0 m  
a = 2.0 m  
a = 5.0 m  
a = 10.0 m  
a = 15.0 m  
a = 20.0 m

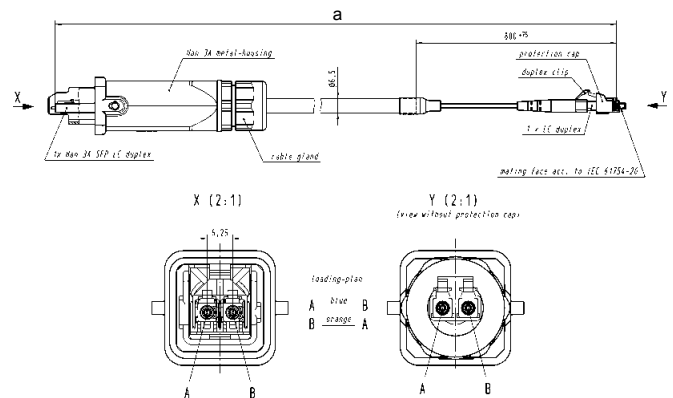
- 33 54 451 0010 012  
33 54 451 0020 012  
33 54 451 0050 012  
33 54 451 0100 012  
33 54 451 0150 012  
33 54 451 0200 012

Fibre optic cable, double ended,  
multi mode 62.5/125 µm  
Han<sup>®</sup> SFP LC duplex to LC duplex

- Length: a = 1.0 m  
a = 2.0 m  
a = 5.0 m  
a = 10.0 m  
a = 15.0 m  
a = 20.0 m

- 33 54 451 0010 007  
33 54 451 0020 007  
33 54 451 0050 007  
33 54 451 0100 007  
33 54 451 0150 007  
33 54 451 0200 007

double ended



a = length



**Advantages**

- For blind mating on various optical SFP transceivers
- Direct compensation of largest transceiver tolerances
- Direct connection to SFP transceivers
- Mechanical keying – no mismatching possible

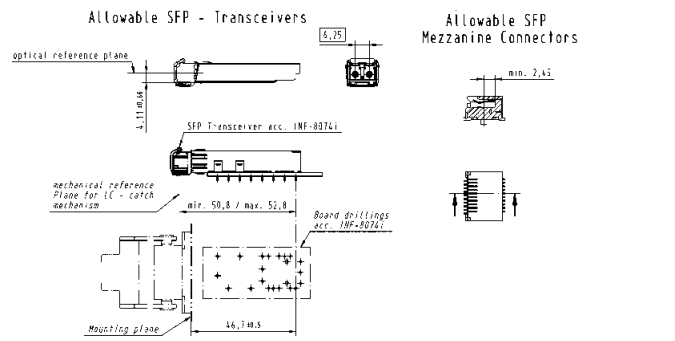
**Technical characteristics**

Degree of protection	IP 65 / IP 67
Mating face	LC acc. to IEC 61 754-20
Mating cycles	50
Temperature range	-40 °C ... +85 °C
Housing material	Zinc die-cast, powder coating black
Glas optical fibre	Single mode, multi mode 50/125 and multi mode 62.5/125

Identification	Part No.	Drawing	Dimensions in mm
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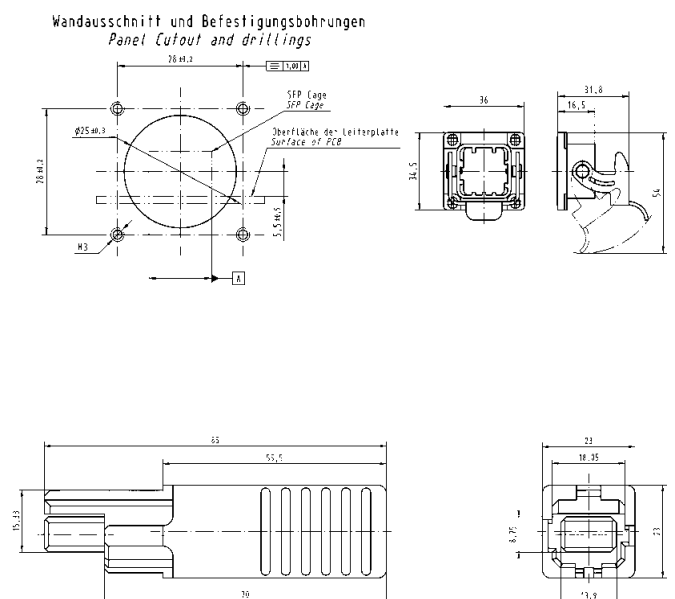
Han® SFP  
Receptacle housing  
device side

09 57 474 0500 001



Assembly aid

09 57 000 0000 200





preLink® Extender

**Application**

- Structured cabling for industrial premises
- Extension of cables for data communication
- Connection of cables with different cross-sections
- Linking of fire compartments

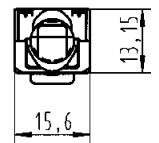
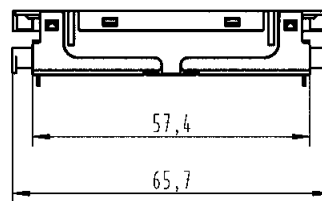
**Advantages**

- preLink® termination
- Simple, fast and reliable connection of data cables
- Flexible in the application
- Future proof, Category 6A, transmission rate up to 10 Gbit/s

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

**preLink® Extender**  
 Wire termination: Ha-VIS preLink®  
 Number of contacts: 8  
 Transmission: Cat. 6A  
 Transmission rate: 10 Gbit/s  
 Shielding: fully shielded 360° flexible shielding termination  
 Cable diameter: Ø 5 – 9 mm  
 Wire cross-section: AWG22 ... AWG27  
 Single wire diameter: Ø 0.8 mm ... 1,6 mm depending on termination module  
 Degree of protection: IP 20  
 Operating temperature range: -40 °C ... +70 °C  
 Housing material: zinc die-cast, nickel plated

20 82 101 0001



**preLink® terminal module**  
 (package with 10 pcs.)  
 Contact block with IDC termination

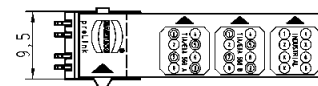
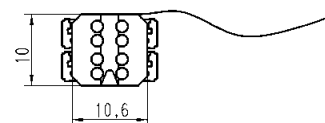
Number of contacts: 8

Wire cross-section: AWG 22/23 (24) solid and stranded  
 Single wire diameter: Ø 1.3 – 1.6 mm  
 Colour: yellow

20 82 000 0001

Wire cross-section: AWG 26/27 solid and stranded  
 Single wire diameter: Ø 0.8 – 1.1 mm  
 Colour: white

20 82 000 0003





## HARTING RJ Industrial® RJ45 jacks with transformer

### Advantages

- Compact design
- Integrated optical fibres
- Excellent EMC behaviour due to integrated transformers and filters for 10/100 Mbit or 1 Gbit Ethernet
- SMC compatible
- Versions from 10/100 Mbit up to 10 Gbit Ethernet and PoE

### Technical characteristics

Mating face	RJ45 acc. to IEC 60603-7
Number of contacts	8
Degree of protection	IP 20
Rated voltage	30 V DC
Rated current	8 mA DC
Mating cycles	min. 750
Temperature range	-25 °C ... +70 °C

#### Identification

#### Part No.

#### Drawing

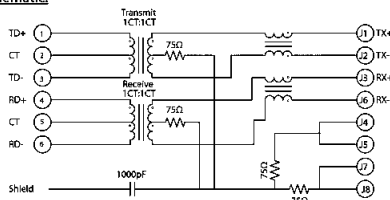
#### Dimensions in mm

#### Components device side

#### RJ45 jack with transformer (low profile)

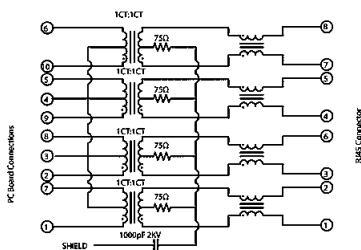
90° angled, THT  
 10/100 Mbit Ethernet  
 10/100 Mbit Ethernet and PoE

##### Schematic:



90° angled, THT  
 1 Gbit Ethernet  
 1 Gbit Ethernet and PoE

##### Schematic:

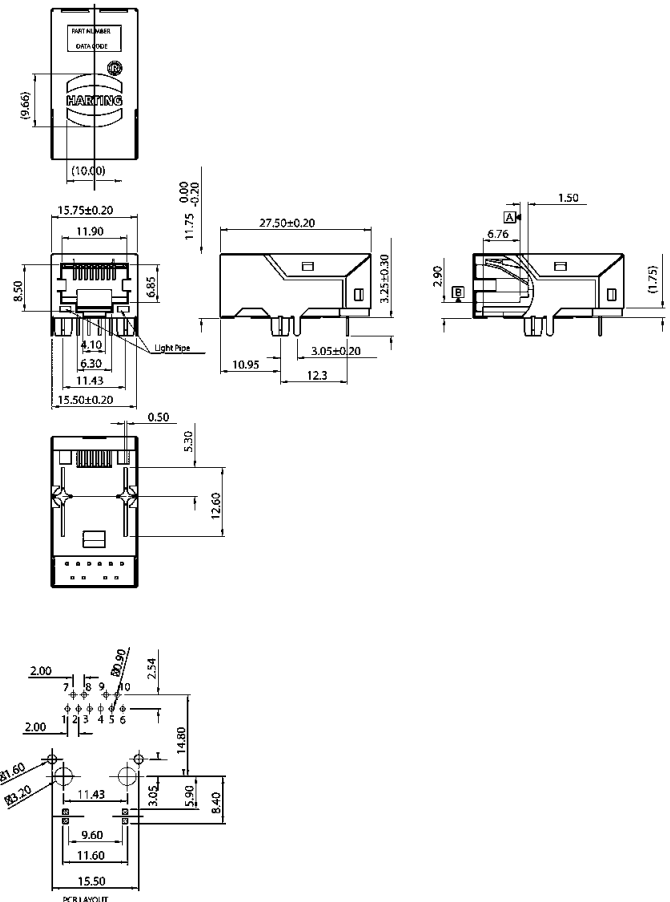


90° angled, THT  
 10 Gbit Ethernet

09 45 551 1130<sup>1)</sup>  
 09 45 551 1131<sup>1)</sup>

09 45 551 1530<sup>1)</sup>  
 09 45 551 1531<sup>1)</sup>

09 45 551 1560<sup>1)</sup>



Customer specific versions on request

<sup>1)</sup> Packaging: Blister à 56 pieces

# Circular connector *har-speed* M12



Identification

Part No.

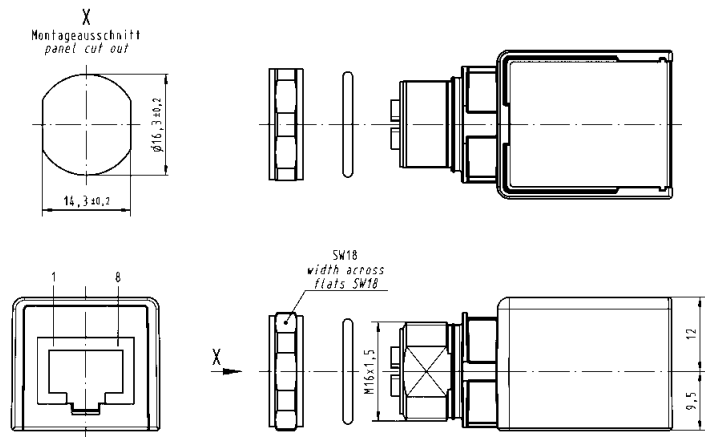
Drawing

Dimensions in mm

*har-speed* M12  
adapter M12-RJ45

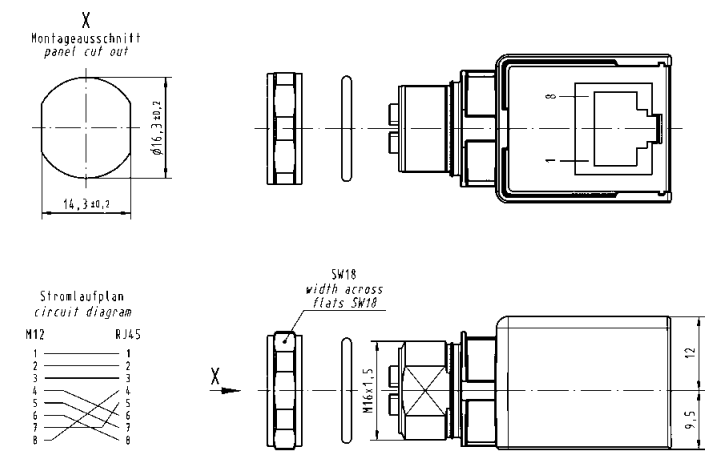
straight, Cat. 6A

21 03 381 2800



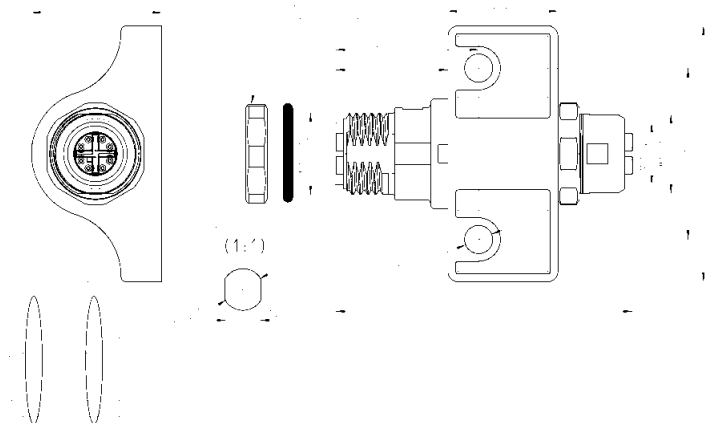
angled, Cat. 6A

21 03 381 4800



Gender changer, Cat. 6A

21 03 381 6815





# Circular connector slim design M12



Identification

Part No.

Drawing

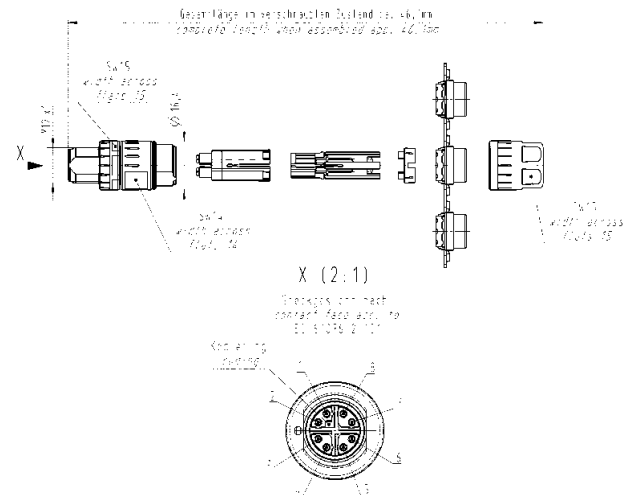
Dimensions in mm

## har-speed M12

8 poles, X-coded, Cat. 6A

Cable: 4.4 - 8.8 mm outer diameter

21 03 881 1804

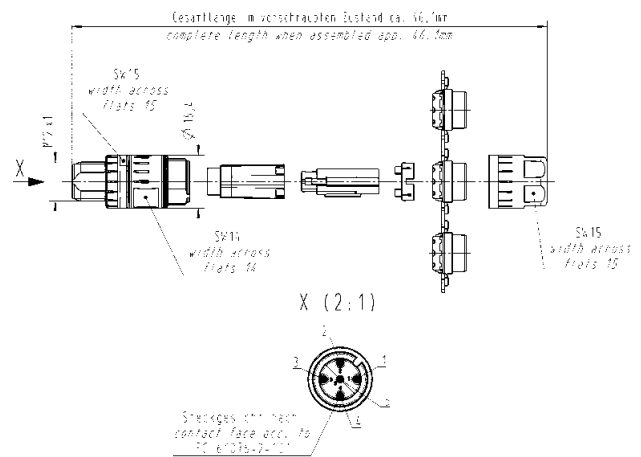


## har-speed M12 Crimp

5 poles, A-coded

Cable: 4.4 - 8.8 mm outer diameter

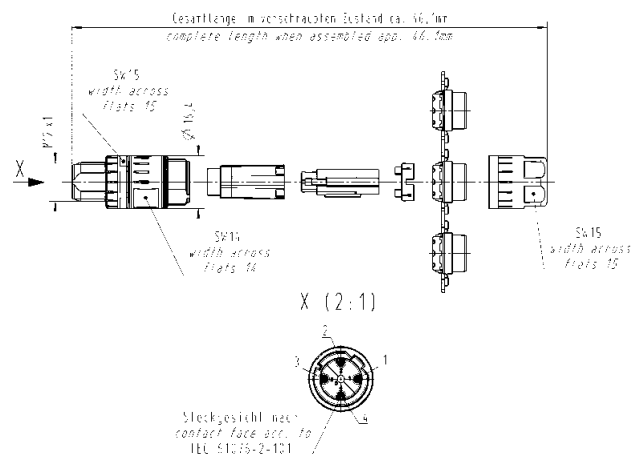
21 03 881 1505

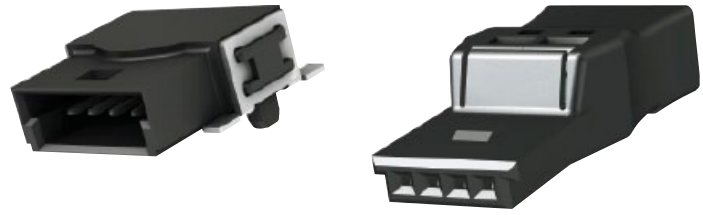


4 poles, D-coded

Cable: 4.4 - 8.8 mm outer diameter

21 03 881 1405

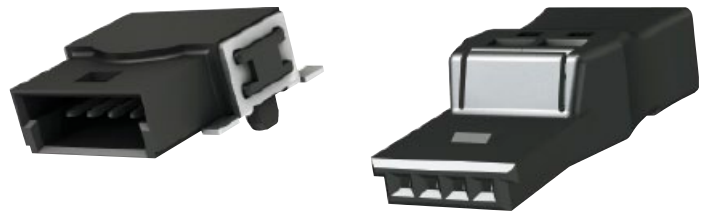




PCB connectors with IDC termination  
for SMT reflow soldering  
pitch 1.27 mm

Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB connectors with IDC termination			
Female	4	14 31 041 0301 000	50
Male	4	14 11 041 0002 000	560

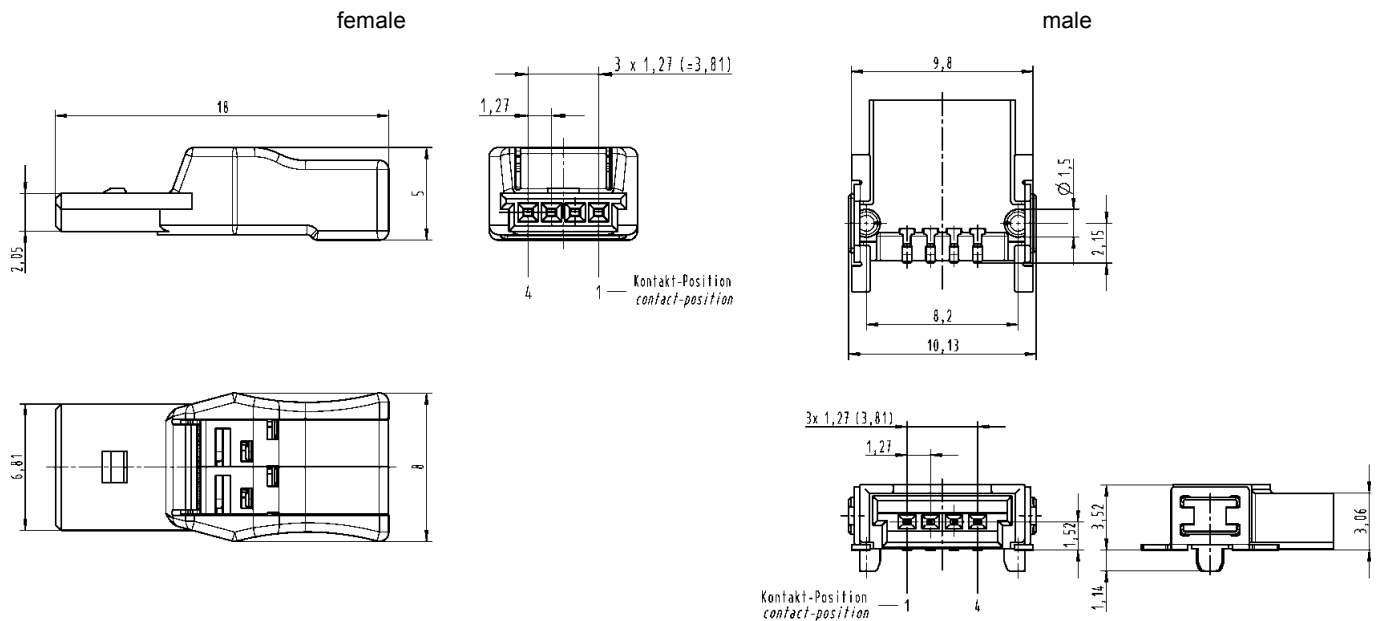


PCB connectors with IDC termination  
for SMT reflow soldering  
pitch 1.27 mm

Drawing

Dimensions in mm

Dimensions



Technical characteristics

Technical data

Rated current 2 A  
Pitch 1.27 mm

Surge voltage category / pollution degree	III/3	III/2	II/2
Rated voltage	-	-	16 V
Rated surge voltage	-	-	0.5 kV

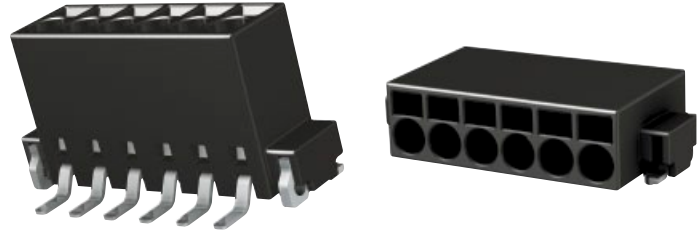
Conductor data

Connection technology wire IDC termination  
Conductor size solid / stranded - / 0.05 - 0.14 mm<sup>2</sup>  
Conductor size AWG 28 - 26  
Stripping length 0 mm

Material data

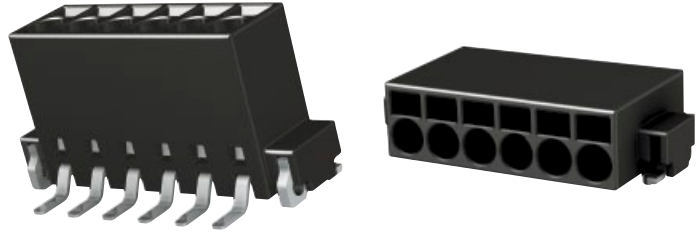
Group of insulation material III a  
Type of insulation material LCP  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +125 °C  
Contact material Copper alloy  
Contact plating Nickel plated

PCB terminal blocks,  
vertical/horizontal  
with push-in-spring-cage termination  
for SMT reflow soldering  
pitch 2.54 mm



Identification	No. of contacts	Part No.	Packaging unit
PCB terminal blocks, vertical/horizontal with push-in-spring-cage termination			vertical / horizontal
	2	14 01 021 310 . . . .	250 / 500
	3	14 01 031 310 . . . .	250 / 500
	4	14 01 041 310 . . . .	250 / 500
	5	14 01 051 310 . . . .	250 / 500
	6	14 01 061 310 . . . .	250 / 500
	7	14 01 071 310 . . . .	250 / 500
	8	14 01 081 310 . . . .	250 / 500
	9	14 01 091 310 . . . .	250 / 500
	10	14 01 101 310 . . . .	250 / 500
	11	14 01 111 310 . . . .	250 / 500
	12	14 01 121 310 . . . .	250 / 500
	Please insert digit for vertical ► 1 horizontal ► 2		

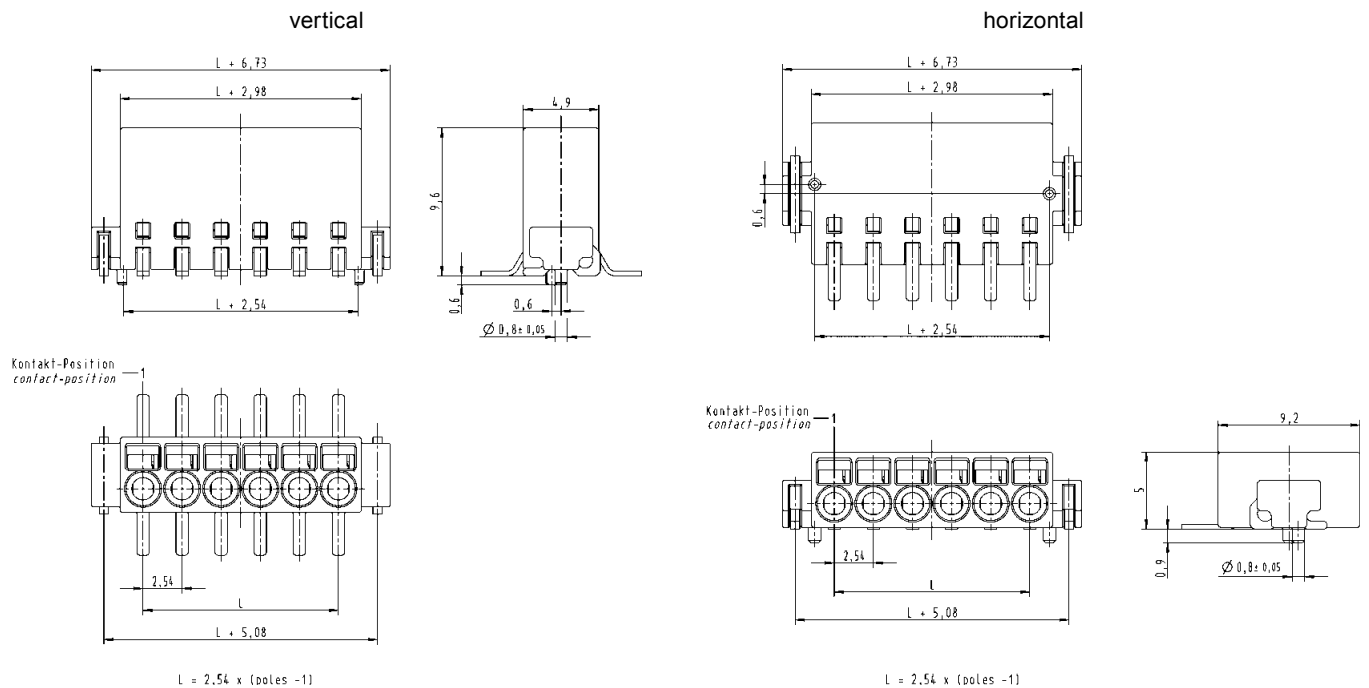
PCB terminal blocks,  
vertical/horizontal  
with push-in-spring-cage termination  
for SMT reflow soldering  
pitch 2.54 mm



Drawing

Dimensions in mm

Dimensions



Technical characteristics

Technical data

Rated current 6 A  
Pitch 2.54 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
32 V	160 V	160 V
2.5 kV	2.5 kV	2.5 kV

Rated voltage

Rated surge voltage

Material data

Group of insulation material III a  
Type of insulation material LCP  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +125 °C  
Contact material copper alloy  
Contact plating tin plated

Conductor data

Connection technology wire push-in-spring-cage termination  
Conductor size solid / stranded 0.14 - 0.5 / 0.2 - 0.5 mm<sup>2</sup>  
Conductor size AWG 24 - 20  
Stripping length 6 mm

PCB connectors female,  
vertical  
with push-in-spring-cage termination  
pitch 2.54 mm



Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB connectors female, vertical with push-in-spring-cage termination			
---	--	--	--

2	14 31 021 3101 000	200
3	14 31 031 3101 000	200
4	14 31 041 3101 000	200
5	14 31 051 3101 000	150
6	14 31 061 3101 000	150
7	14 31 071 3101 000	150
8	14 31 081 3101 000	100
9	14 31 091 3101 000	100
10	14 31 101 3101 000	100
11	14 31 111 3101 000	50
12	14 31 121 3101 000	50

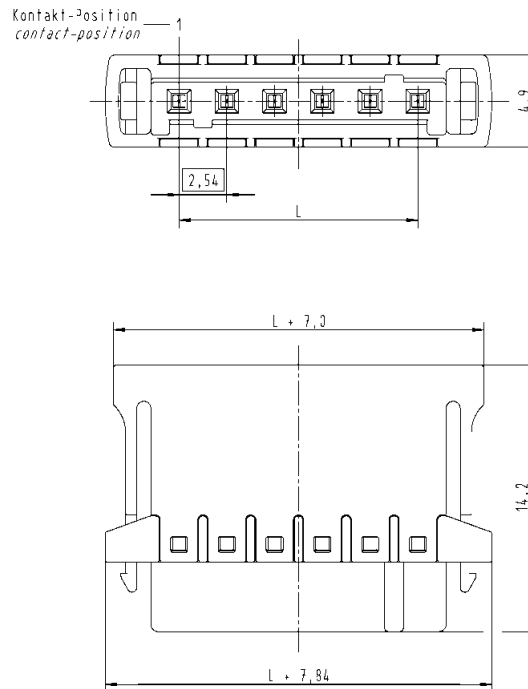
PCB connectors female,  
vertical  
with push-in-spring-cage termination  
pitch 2.54 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x (poles - 1)

### Technical characteristics

#### Technical data

Rated current 6 A  
Pitch 2.54 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
32 V	160 V	160 V
2.5 kV	2.5 kV	2.5 kV

Rated voltage

Rated surge voltage

#### Material data

Group of insulation material III a  
Type of insulation material LCP  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +125 °C  
Contact material copper alloy  
Contact plating tin plated

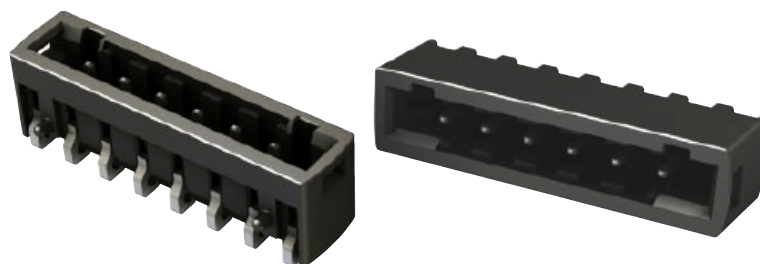
#### Conductor data

Connection technology wire push-in-spring-cage  
termination  
Conductor size solid / stranded 0.14 - 0.5 / 0.2 - 0.5 mm<sup>2</sup>  
Conductor size AWG 24 - 20  
Stripping length 6 mm





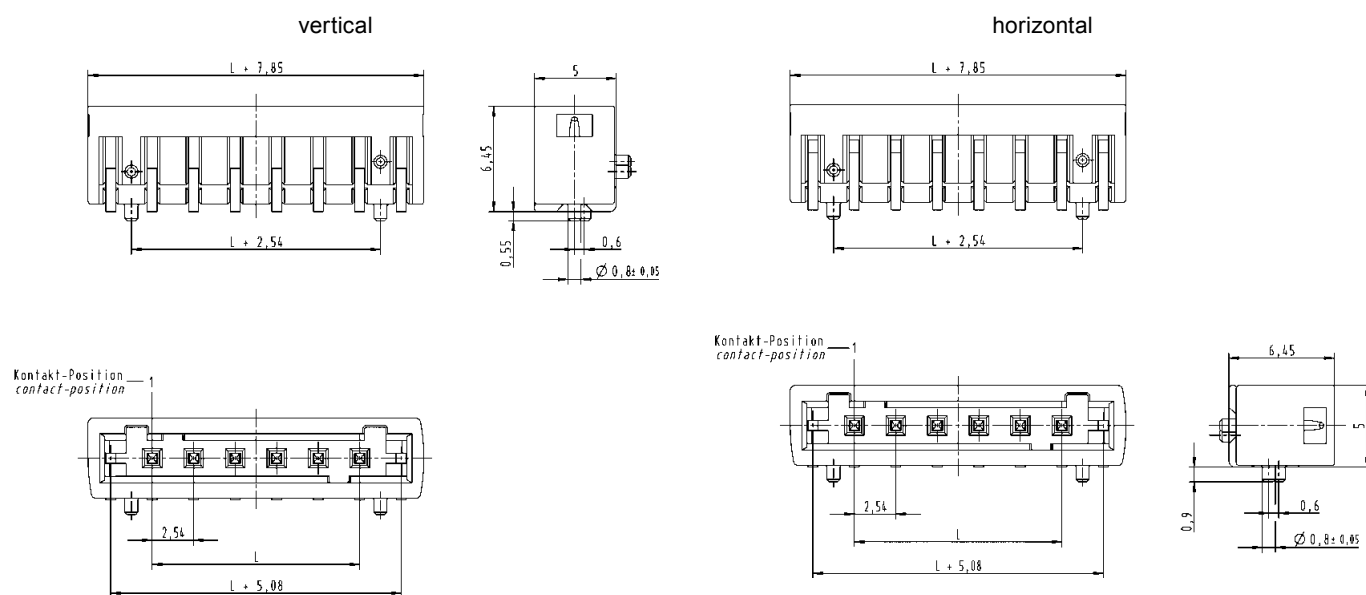
PCB connectors male,  
vertical/horizontal  
for SMT reflow soldering  
pitch 2.54 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x (poles - 1)

Technical characteristics

Technical data

Rated current 6 A  
Pitch 2.54 mm

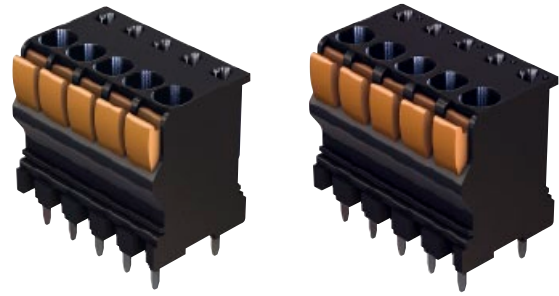
Surge voltage category /  
pollution degree  
Rated voltage  
Rated surge voltage

III/3	III/2	II/2
32 V	160 V	160 V
2.5 kV	2.5 kV	2.5 kV

Material data

Group of insulation material III a  
Type of insulation material LCP  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +125 °C  
Contact material copper alloy  
Contact plating tin plated

PCB terminal blocks,  
vertical with push-in-spring-cage  
termination for reflow soldering  
pitch 3.50 / 3.81 mm



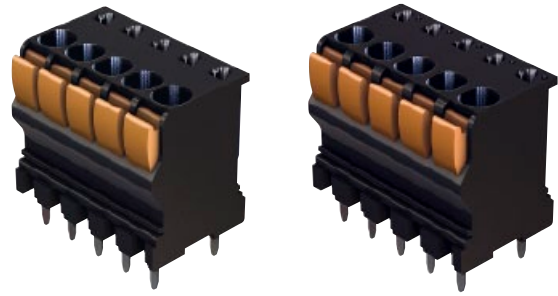
Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB terminal blocks, vertical with push-in-spring-cage termination	2	14 02 021 . 101 000	300
	3	14 02 031 . 101 000	200
	4	14 02 041 . 101 000	150
	5	14 02 051 . 101 000	150
	6	14 02 061 . 101 000	100
	7	14 02 071 . 101 000	100
	8	14 02 081 . 101 000	100
	9	14 02 091 . 101 000	100
	10	14 02 101 . 101 000	100
	11	14 02 111 . 101 000	100
	12	14 02 121 . 101 000	100
	13	14 02 131 . 101 000	50
	14	14 02 141 . 101 000	50
	15	14 02 151 . 101 000	50
	16	14 02 161 . 101 000	50

Please insert digit for

- pitch 3.50 mm ▶ 4
- pitch 3.81 mm ▶ 5

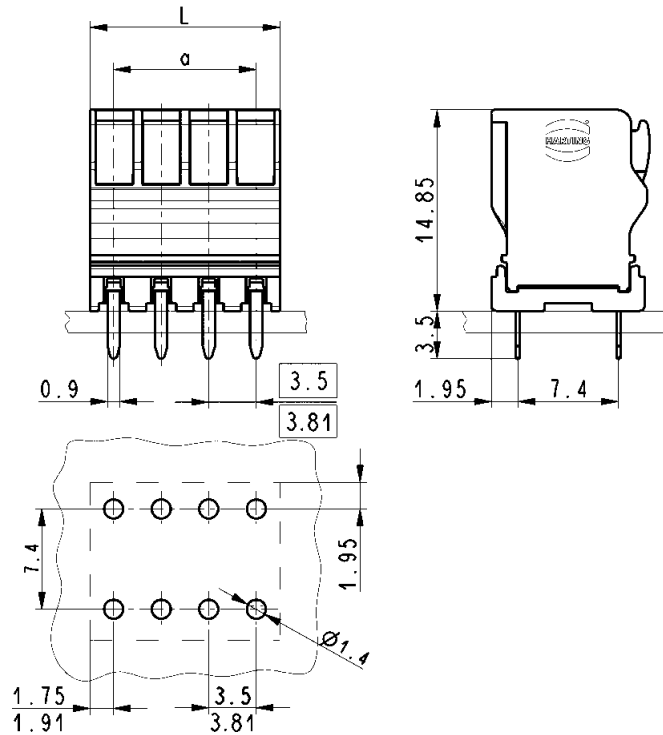
PCB terminal blocks,  
vertical with push-in-spring-cage  
termination for reflow soldering  
pitch 3.50 / 3.81 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

## Technical characteristics

### Technical data

Rated current 10 A  
Pitch 3.50 mm / 3.81 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
220 V	300 V	600 V
4 kV	4 kV	4 kV

Rated voltage

Rated surge voltage

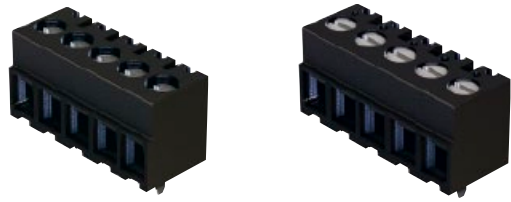
### Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

### Conductor and solder pin data

Connection technology wire push-in-spring-cage  
termination  
Conductor size solid / stranded 0.14 - 1.5 / 0.14 - 1.5 mm<sup>2</sup>  
Conductor size AWG 30 - 16  
Stripping length 9 - 10 mm  
Solder pin: drilled hole diameter 1.4 mm

PCB terminal blocks,  
horizontal with screw termination  
for reflow soldering  
pitch 3.50 / 3.81 mm



Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB terminal blocks, horizontal with screw termination	2	14 02 021 . 402 000	300
	3	14 02 031 . 402 000	200
	4	14 02 041 . 402 000	150
	5	14 02 051 . 402 000	150
	6	14 02 061 . 402 000	100
	7	14 02 071 . 402 000	100
	8	14 02 081 . 402 000	100
	9	14 02 091 . 402 000	100
	10	14 02 101 . 402 000	100
	11	14 02 111 . 402 000	100
	12	14 02 121 . 402 000	100

Please insert digit for

- pitch 3.50 mm ► 4
- pitch 3.81 mm ► 5

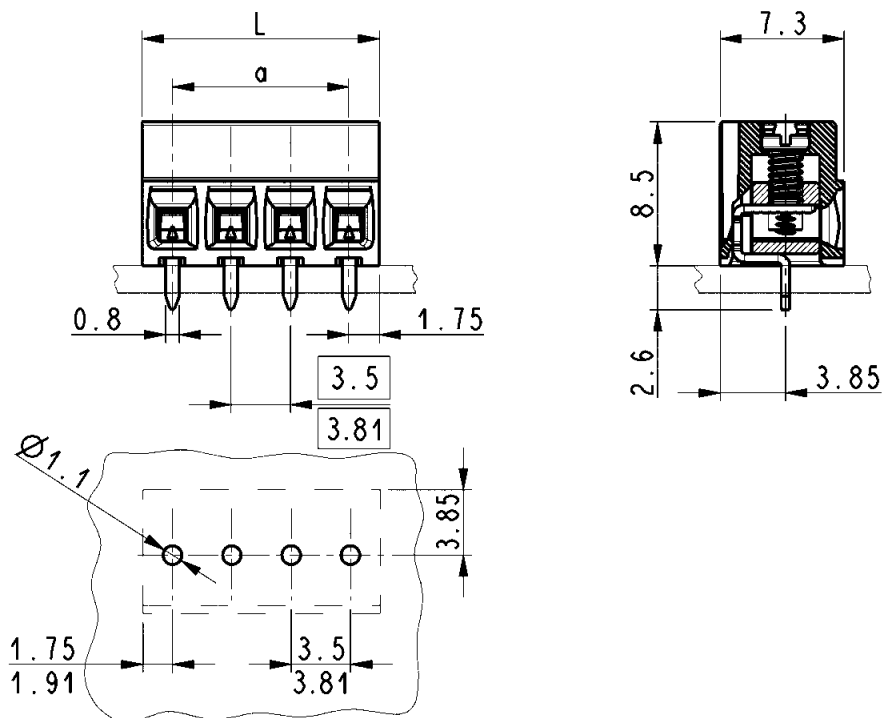
PCB terminal blocks,  
horizontal with screw termination  
for reflow soldering  
pitch 3.50 / 3.81 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

## Technical characteristics

### Technical data

Rated current 12 A  
Pitch 3.50 mm / 3.81 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
150 V	150 V	300 V
2.5 kV	2.5 kV	2.5 kV

Rated voltage

Rated surge voltage

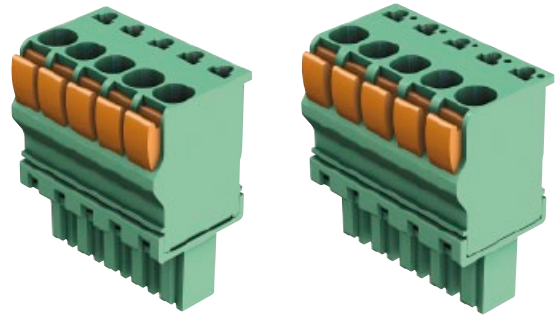
### Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

### Conductor and solder pin data

Connection technology wire screw termination  
Conductor size solid / stranded 0.05 - 1.5 / 0.05 - 1 mm<sup>2</sup>  
Conductor size AWG 28 - 16  
Screw thread M2  
Tightening torque 0.2 - 0,25 Nm  
Stripping length 5 - 6 mm  
Solder pin: drilled hole diameter 1.1 mm

PCB connectors female,  
horizontal  
with push-in-spring-cage termination  
pitch 3.50 / 3.81 mm



Identification	No. of contacts	Part No.	Packaging unit
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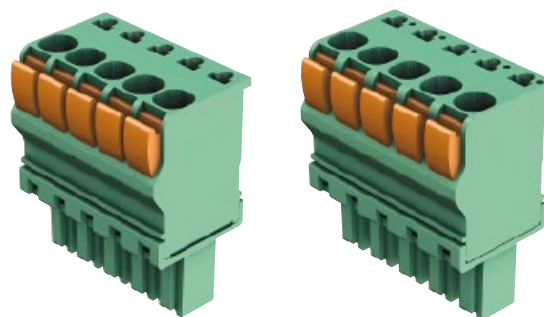
PCB connectors female, horizontal with push-in-spring-cage termination	2	14 31 021 . 102 000	300
	3	14 31 031 . 102 000	200
	4	14 31 041 . 102 000	150
	5	14 31 051 . 102 000	150
	6	14 31 061 . 102 000	100
	7	14 31 071 . 102 000	100
	8	14 31 081 . 102 000	100
	9	14 31 091 . 102 000	100
	10	14 31 101 . 102 000	100
	11	14 31 111 . 102 000	100
	12	14 31 121 . 102 000	100
	13	14 31 131 . 102 000	50
	14	14 31 141 . 102 000	50
	15	14 31 151 . 102 000	50
	16	14 31 161 . 102 000	50
	17	14 31 171 . 102 000	50
	18	14 31 181 . 102 000	50
	19	14 31 191 . 102 000	50
	20	14 31 201 . 102 000	50
	21*	14 31 211 . 102 000	25
	22*	14 31 221 . 102 000	25
	23*	14 31 231 . 102 000	25
	24*	14 31 241 . 102 000	25
	25*	14 31 251 . 102 000	25

Please insert digit for

- pitch 3.50 mm ► 4
- pitch 3.81 mm ► 5

\* Pitch 3.50 mm only available with 2-20 contacts

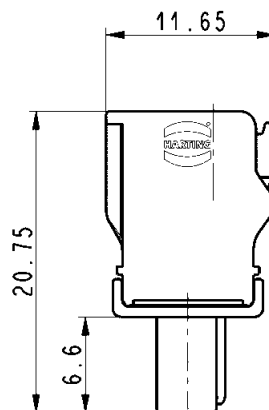
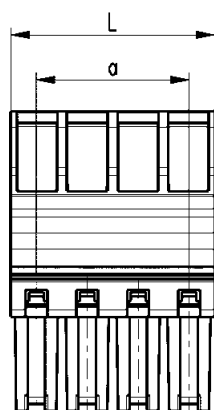
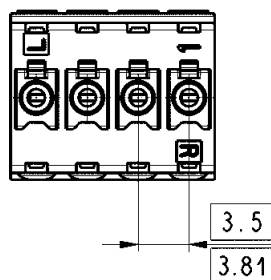
PCB connectors female,  
horizontal  
with push-in-spring-cage termination  
pitch 3.50 / 3.81 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

## Technical characteristics

### Technical data

Rated current 11 A  
Pitch 3.50 mm / 3.81 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
150 V	150 V	300 V
2.5 kV	2.5 kV	2.5 kV

Rated voltage

Rated surge voltage

### Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

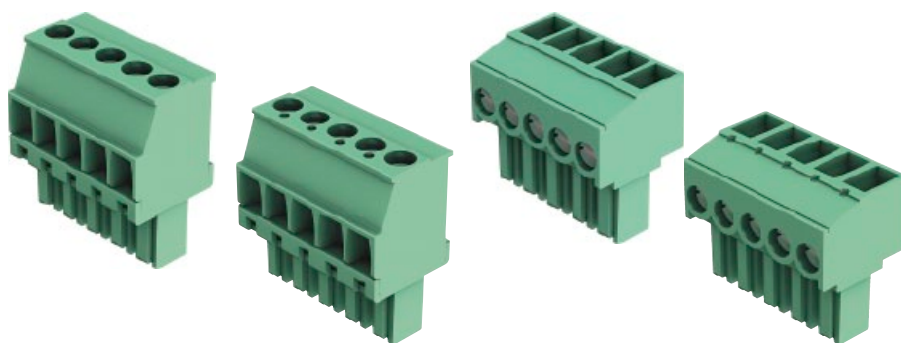
### Conductor data

Connection technology wire push-in-spring-cage  
termination  
Conductor size solid / stranded 0.14 - 1.5 / 0.14 - 1.5 mm<sup>2</sup>  
Conductor size AWG 30 - 14  
Stripping length 9 - 10 mm





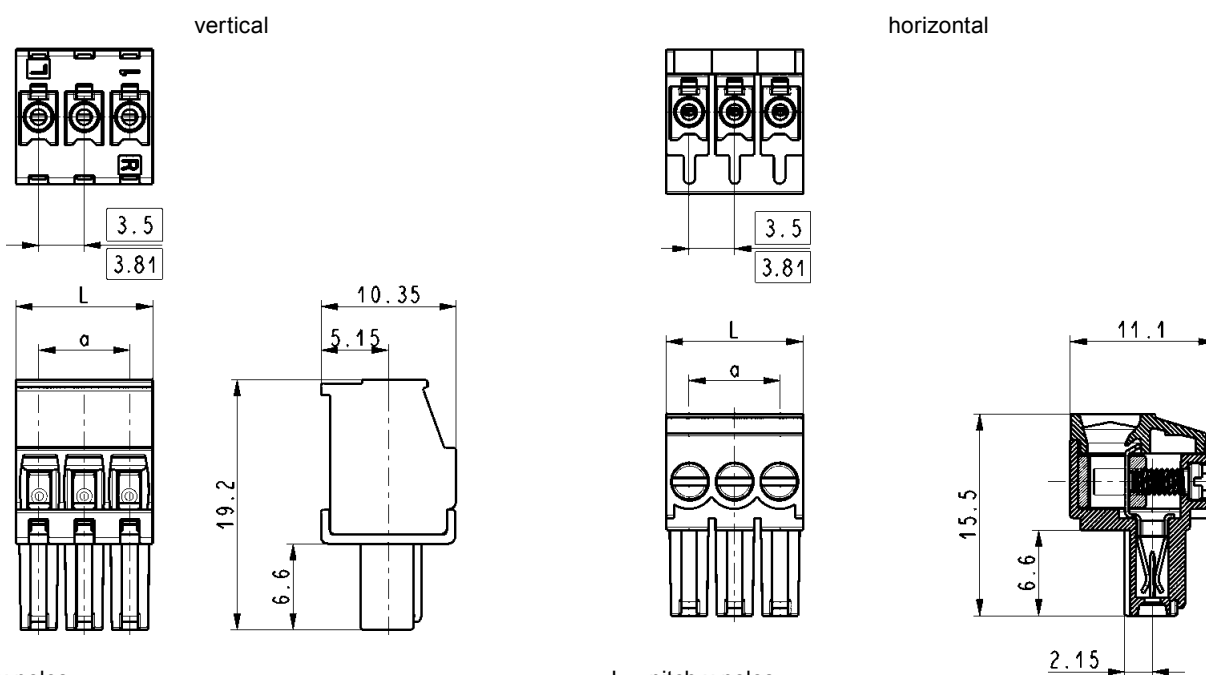
PCB connectors female,  
vertical/horizontal  
with screw termination  
pitch 3.50 / 3.81 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

L = pitch x poles  
a = pitch x (poles - 1)

Technical characteristics

Technical data

Rated current 10 A  
Pitch 3.50 mm / 3.81 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
150 V	150 V	300 V
2.5 kV	2.5 kV	2.5 kV

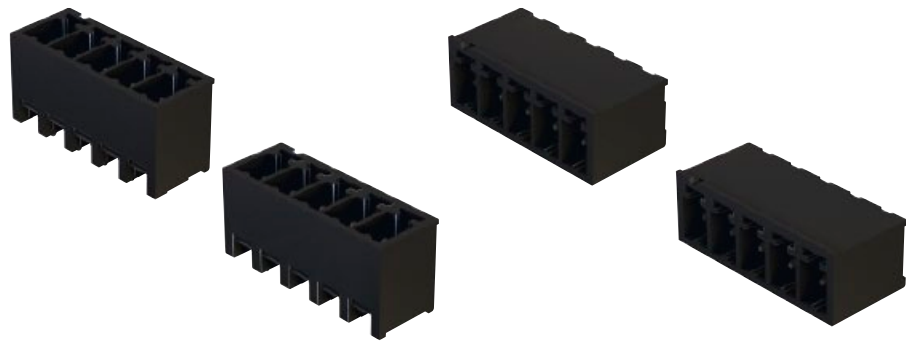
Rated voltage  
Rated surge voltage

Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

Conductor data

Connection technology wire screw termination  
Conductor size solid / stranded 0.05 - 1.5 / 0.05 - 1.5 mm<sup>2</sup>  
Conductor size AWG 30 - 14  
Screw thread M2  
Tightening torque 0.2 - 0.25 Nm  
Stripping length 5.0 - 6.0 mm



PCB connectors male,  
vertical/horizontal  
for SMT reflow soldering  
pitch 3.50 / 3.81 mm

Identification	No. of contacts	Part No.	Packaging unit
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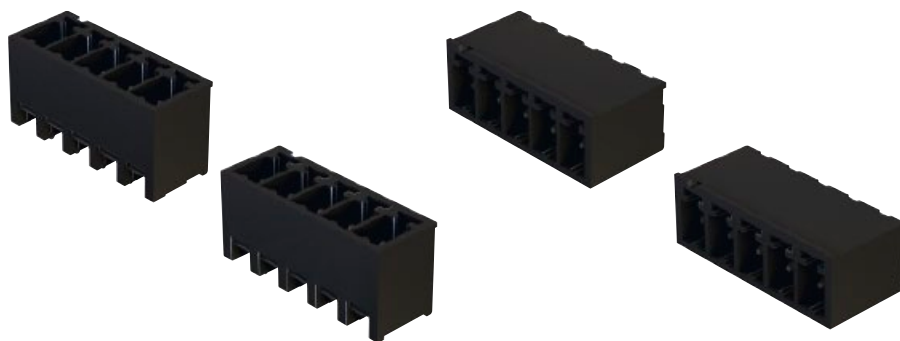
Connectors, male, vertical/horizontal			
	2	14 12 021 . 00 . 000	300
	3	14 12 031 . 00 . 000	200
	4	14 12 041 . 00 . 000	150
	5	14 12 051 . 00 . 000	150
	6	14 12 061 . 00 . 000	100
	7	14 12 071 . 00 . 000	100
	8	14 12 081 . 00 . 000	100
	9	14 12 091 . 00 . 000	100
	10	14 12 101 . 00 . 000	100
	11	14 12 111 . 00 . 000	100
	12	14 12 121 . 00 . 000	100
	13	14 12 131 . 00 . 000	50
	14	14 12 141 . 00 . 000	50
	15	14 12 151 . 00 . 000	50
	16	14 12 161 . 00 . 000	50
	17	14 12 171 . 00 . 000	50
	18	14 12 181 . 00 . 000	50
	19	14 12 191 . 00 . 000	50
	20	14 12 201 . 00 . 000	50
	21	14 12 211 . 00 . 000	25
	22	14 12 221 . 00 . 000	25
	23	14 12 231 . 00 . 000	25
	24	14 12 241 . 00 . 000	25
	25	14 12 251 . 00 . 000	25

Please insert digit for

pitch 3.50 mm ▶ 4  
pitch 3.81 mm ▶ 5

vertical ▶ 1  
horizontal ▶ 2

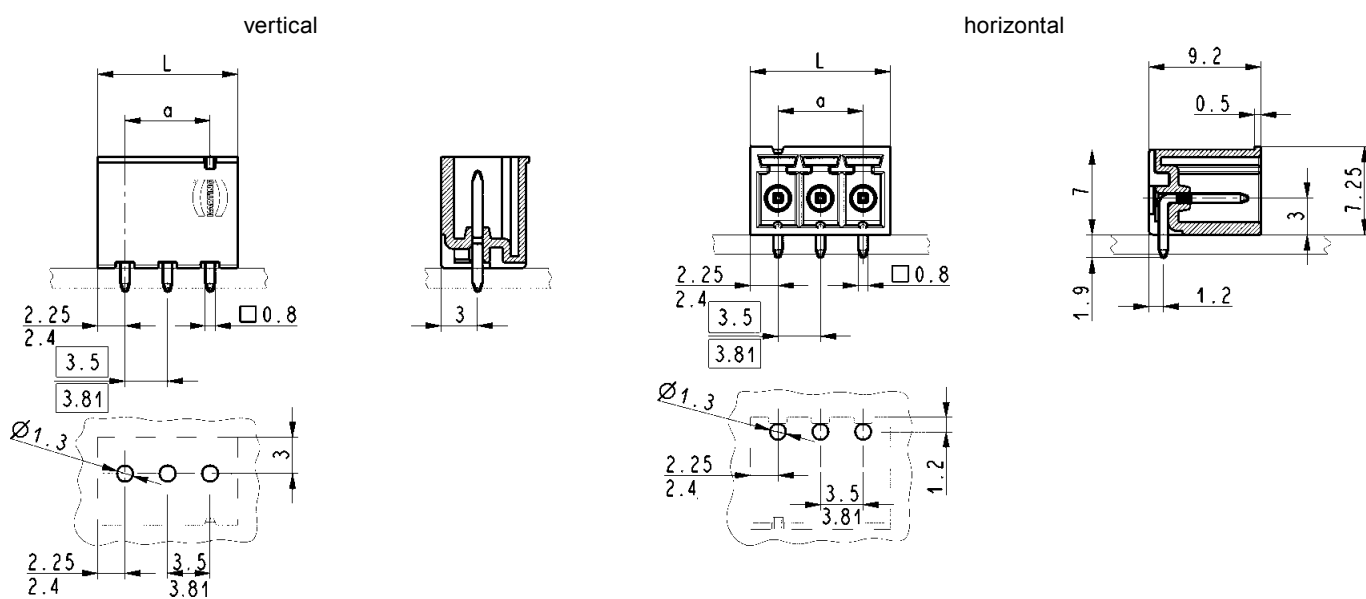
PCB connectors male, vertical/horizontal for SMT reflow soldering pitch 3.50 / 3.81 mm



Drawing

Dimensions in mm

Dimensions



$L = (\text{pitch} \times \text{poles}) + 1$   
 $a = \text{pitch} \times (\text{poles} - 1)$

$L = (\text{pitch} \times \text{poles}) + 1$   
 $a = \text{pitch} \times (\text{poles} - 1)$

Technical characteristics

Technical data

Rated current 11 A  
 Pitch 3.50 mm / 3.81 mm

Surge voltage category / pollution degree

III/3	III/2	II/2
150 V	150 V	300 V
2.5 kV	2.5 kV	2.5 kV

Rated voltage

Rated surge voltage

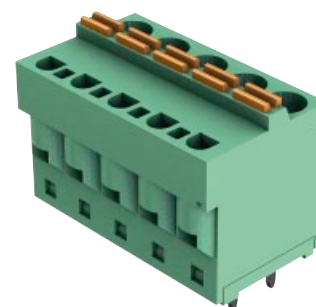
Material data

Group of insulation material I  
 Type of insulation material PA / PPA  
 Flammability rating per UL 94 V0  
 Operating temperature -40 °C ... +110 °C  
 Contact material copper alloy  
 Contact plating tin plated

Solder pin data

Solder pin: drilled hole diameter 1.2 mm

PCB terminal blocks,  
vertical with push-in-spring-cage  
termination  
for wave soldering  
pitch 5.00 mm

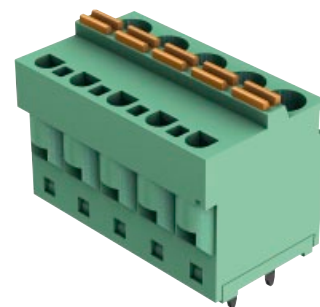


Identification	No. of contacts	Part No.	Packaging unit
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PCB terminal blocks, vertical with push-in-spring-cage termination			
--	--	--	--

2	14 03 021 6101 000	300
3	14 03 031 6101 000	200
4	14 03 041 6101 000	150
5	14 03 051 6101 000	150
6	14 03 061 6101 000	100
7	14 03 071 6101 000	100
8	14 03 081 6101 000	100
9	14 03 091 6101 000	100
10	14 03 101 6101 000	100
11	14 03 111 6101 000	100
12	14 03 121 6101 000	100
13	14 03 131 6101 000	50
14	14 03 141 6101 000	50
15	14 03 151 6101 000	50
16	14 03 161 6101 000	50
17	14 03 171 6101 000	50
18	14 03 181 6101 000	50

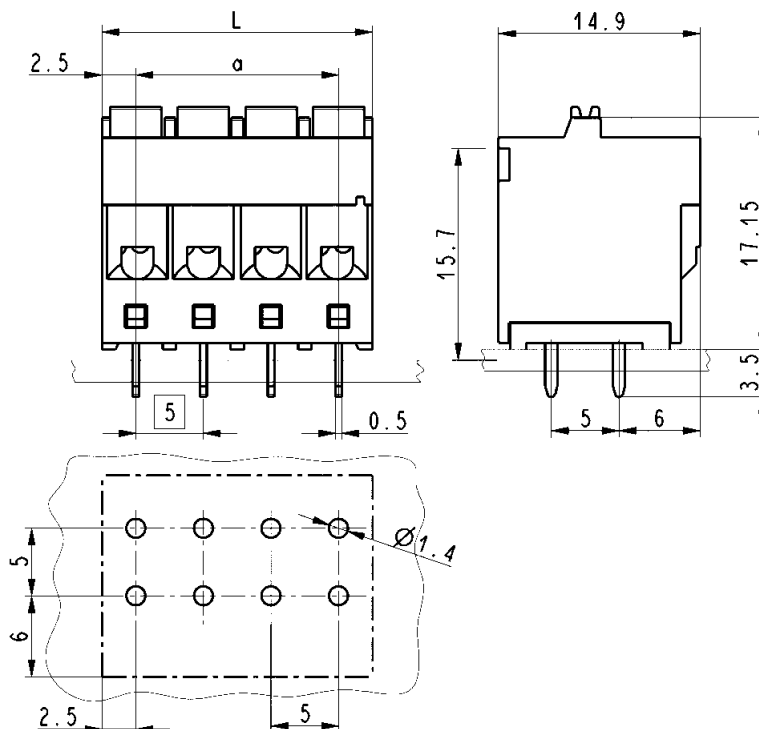
PCB terminal blocks,  
vertical with push-in-spring-cage  
termination for wave soldering  
pitch 5.00 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

### Technical characteristics

#### Technical data

Rated current 12 A  
Pitch 5.00 mm

Surge voltage category /  
pollution degree

Rated voltage  
Rated surge voltage

III/3	III/2	II/2
300 V	300 V	600 V
4 kV	4 kV	4 kV

#### Material data

Group of insulation material I  
Type of insulation material PA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

#### Conductor and solder pin data

Connection technology wire push-in-spring-cage  
termination  
Conductor size solid / stranded 0.2 - 2.5 / 0.2 - 2.5 mm<sup>2</sup>  
Conductor size AWG 30 - 12  
Stripping length 10 mm  
Solder pin: drilled hole diameter 1.4 mm

PCB terminal blocks,  
horizontal with screw termination  
for reflow soldering  
pitch 5.00 mm



Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB terminal blocks, horizontal with screw termination			
---	--	--	--

for wire gauge 2.5 mm <sup>2</sup>	2	14 02 021 6404 000	300
------------------------------------	---	--------------------	-----

	3	14 02 031 6404 000	200
--	---	--------------------	-----

	4	14 02 041 6404 000	150
--	---	--------------------	-----

	5	14 02 051 6404 000	150
--	---	--------------------	-----

	6	14 02 061 6404 000	100
--	---	--------------------	-----

	7	14 02 071 6404 000	100
--	---	--------------------	-----

	8	14 02 081 6404 000	100
--	---	--------------------	-----

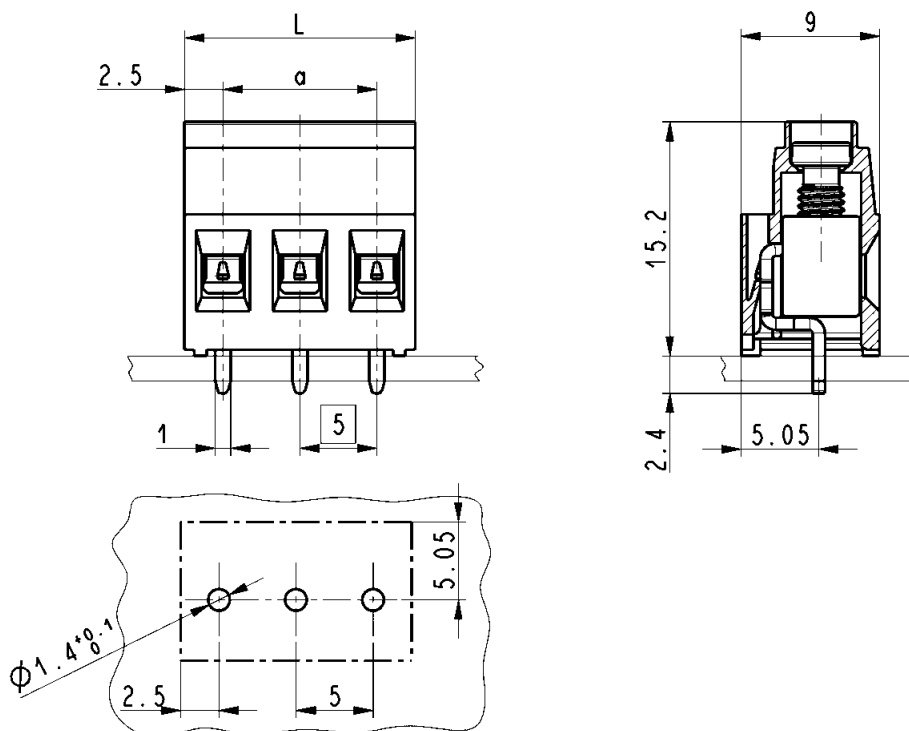
PCB terminal blocks,  
horizontal with screw termination  
for reflow soldering  
pitch 5.00 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

### Technical characteristics

#### Technical data

Rated current 17.5 A  
Pitch 5.00 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
300 V	300 V	600 V
4 kV	4 kV	4 kV

Rated voltage

Rated surge voltage

#### Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

#### Conductor and solder pin data

Connection technology wire screw termination  
Conductor size solid / stranded 0.05 - 2.5 / 0.05 - 2.5 mm<sup>2</sup>  
Conductor size AWG 30 - 12  
Screw thread M3  
Tightening torque 0.5 - 0.6 Nm  
Stripping length 5.5 - 6.5 mm  
Solder pin: drilled hole diameter 1.4 mm

PCB terminal blocks,  
horizontal with screw termination  
for reflow soldering  
pitch 5.00 mm



Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB terminal blocks, horizontal with screw termination			
for wire gauge 1.5 mm <sup>2</sup>	2	14 02 021 6402 000	300
	3	14 03 031 6402 000	200
	4	14 03 041 6402 000	150
	5	14 03 051 6402 000	150
	6	14 03 061 6402 000	100
	7	14 03 071 6402 000	100
	8	14 03 081 6402 000	100
	9	14 03 091 6402 000	100
	10	14 03 101 6402 000	100
	11	14 03 111 6402 000	100
	12	14 03 121 6402 000	100



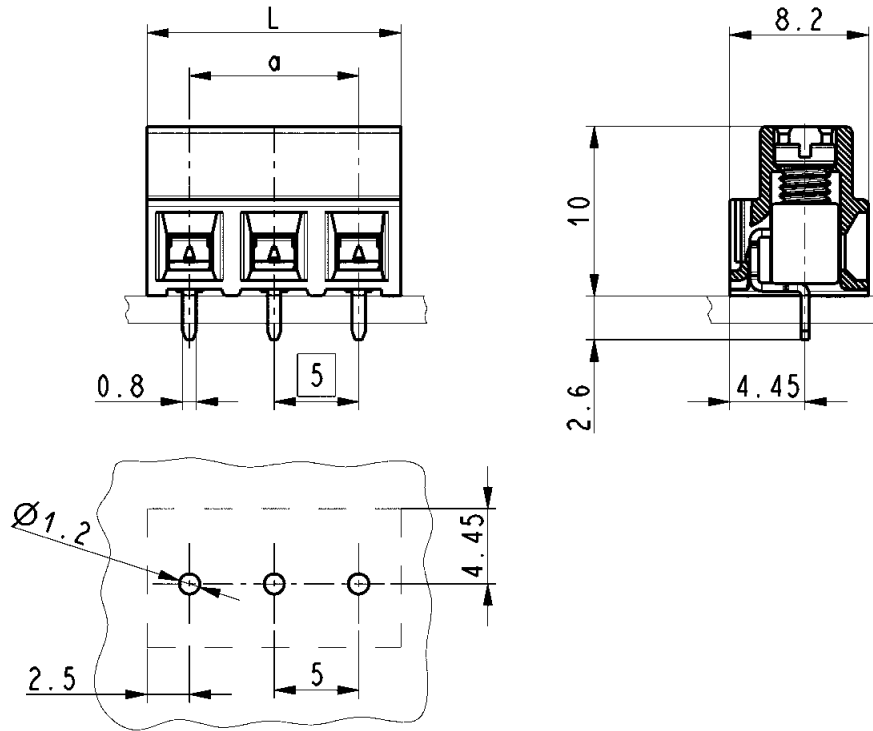
PCB terminal blocks,  
horizontal with screw termination  
for reflow soldering  
pitch 5.00 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

### Technical characteristics

#### Technical data

Rated current 13.5 A  
Pitch 5.00 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
220 V	300 V	600 V
4 kV	4 kV	4 kV

Rated voltage

Rated surge voltage

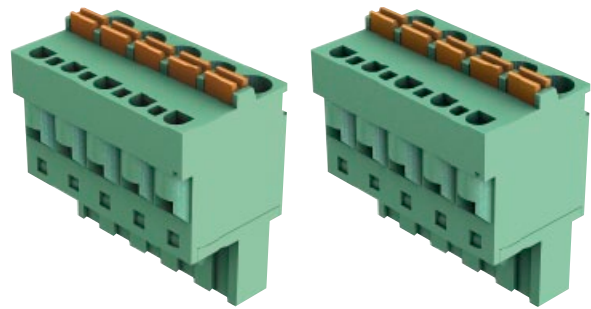
#### Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

#### Conductor and solder pin data

Connection technology wire screw termination  
Conductor size solid / stranded 0.05 - 1.5 / 0.05 - 1.5 mm<sup>2</sup>  
Conductor size AWG 30 - 16  
Screw thread M3  
Tightening torque 0.5 - 0.6 Nm  
Stripping length 5.0 - 6.0 mm  
Solder pin: drilled hole diameter 1.1 mm

PCB connectors female,  
horizontal  
with push-in-spring-cage termination  
pitch 5.00 / 5.08 mm



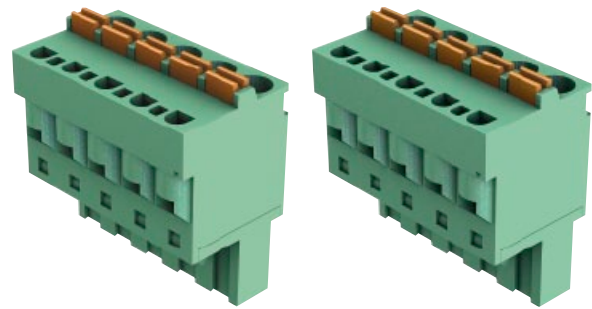
Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB connectors female, horizontal with push-in-spring-cage termination	2	14 31 021 . 102 000	300
	3	14 31 031 . 102 000	200
	4	14 31 041 . 102 000	150
	5	14 31 051 . 102 000	150
	6	14 31 061 . 102 000	100
	7	14 31 071 . 102 000	100
	8	14 31 081 . 102 000	100
	9	14 31 091 . 102 000	100
	10	14 31 101 . 102 000	100
	11	14 31 111 . 102 000	100
	12	14 31 121 . 102 000	100
	13	14 31 131 . 102 000	50
	14	14 31 141 . 102 000	50
	15	14 31 151 . 102 000	50
	16	14 31 161 . 102 000	50
	17	14 31 171 . 102 000	50
	18	14 31 181 . 102 000	50

Please insert digit for

- pitch 5.00 mm ▶ 6
- pitch 5.08 mm ▶ 7

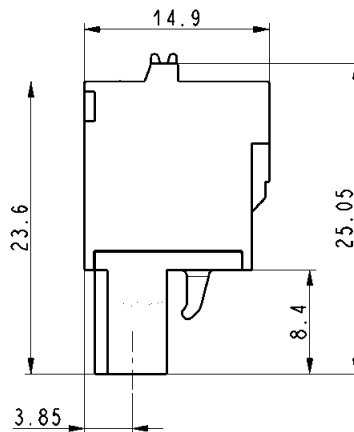
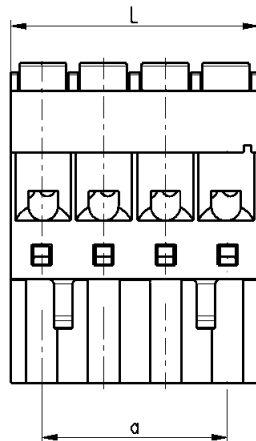
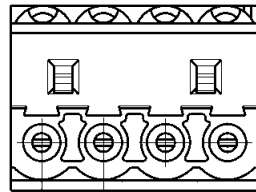
PCB connectors female,  
horizontal  
with push-in-spring-cage termination  
pitch 5.00 / 5.08 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

## Technical characteristics

### Technical data

Rated current 12 A  
Pitch 5.00 mm / 5.08 mm

Surge voltage category /  
pollution degree

	III/3	III/2	II/2
Rated voltage	250 V	300 V	600 V
Rated surge voltage	4 kV	4 kV	4 kV

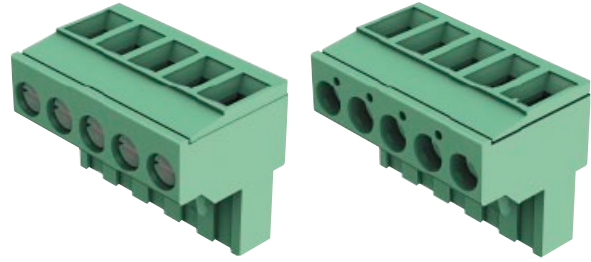
### Conductor data

Connection technology wire push-in-spring-cage  
termination  
Conductor size solid / stranded 0.2 - 2.5 / 0.2 - 2.5 mm<sup>2</sup>  
Conductor size AWG 30 - 12  
Stripping length 10 mm

### Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

PCB connectors female,  
horizontal  
with screw termination  
pitch 5.00 / 5.08 mm



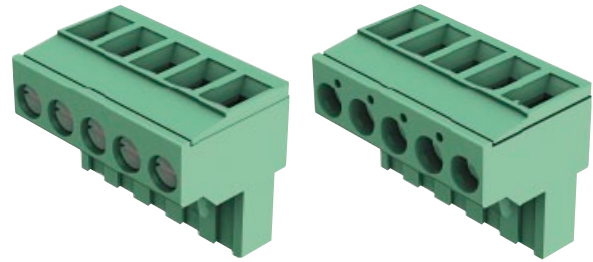
Identification	No. of contacts	Part No.	Packaging unit
----------------	-----------------	----------	----------------

PCB connectors female, horizontal with screw termination	2	14 31 021 . 402 000	300
	3	14 31 031 . 402 000	200
	4	14 31 041 . 402 000	150
	5	14 31 051 . 402 000	150
	6	14 31 061 . 402 000	100
	7	14 31 071 . 402 000	100
	8	14 31 081 . 402 000	100
	9	14 31 091 . 402 000	100
	10	14 31 101 . 402 000	100
	11	14 31 111 . 402 000	100
	12	14 31 121 . 402 000	100
	13	14 31 131 . 402 000	50
	14	14 31 141 . 402 000	50
	15	14 31 151 . 402 000	50
	16	14 31 161 . 402 000	50
	17	14 31 171 . 402 000	50
	18	14 31 181 . 402 000	50
	19	14 31 191 . 402 000	50
	20	14 31 201 . 402 000	50
	21	14 31 211 . 402 000	25
	22	14 31 221 . 402 000	25
	23	14 31 231 . 402 000	25
	24	14 31 241 . 402 000	25
	25	14 31 251 . 402 000	25

Please insert digit for

- pitch 5.00 mm ► 6
- pitch 5.08 mm ► 7

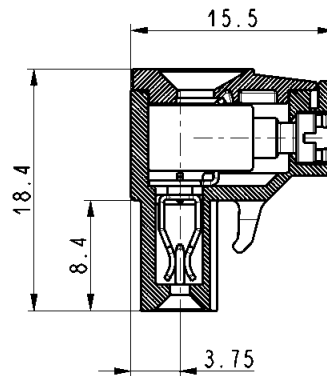
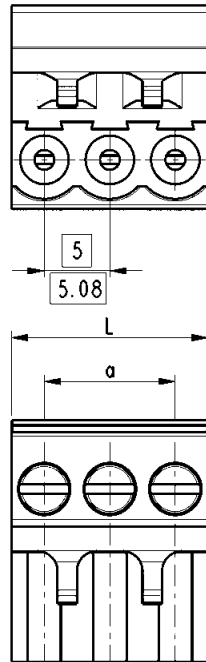
PCB connectors female,  
horizontal  
with screw termination  
pitch 5.00 / 5.08 mm



Drawing

Dimensions in mm

Dimensions



L = pitch x poles  
a = pitch x (poles - 1)

### Technical characteristics

#### Technical data

Rated current 15 A  
Pitch 5.00 mm / 5.08 mm

Surge voltage category /  
pollution degree

III/3	III/2	II/2
250 V	300 V	600 V
4 kV	4 kV	4 kV

Rated voltage

Rated surge voltage

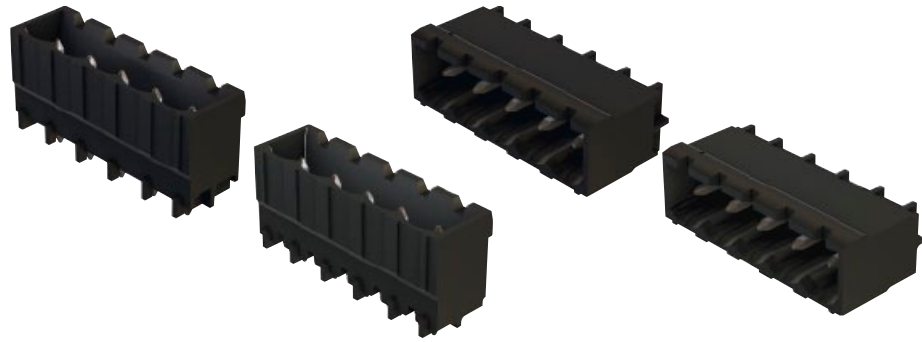
#### Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

#### Conductor data

Connection technology wire screw termination  
Conductor size solid / stranded 0.05 - 2.5 / 0.05 - 2.5 mm<sup>2</sup>  
Conductor size AWG 30 - 12  
Screw thread M3  
Tightening torque 0.5 - 0.6 Nm  
Stripping length 6.0 - 7.5 mm

PCB connectors male,  
vertical/horizontal  
for reflow soldering  
pitch 5.00 / 5.08 mm



Identification	No. of contacts	Part No.	Packaging unit
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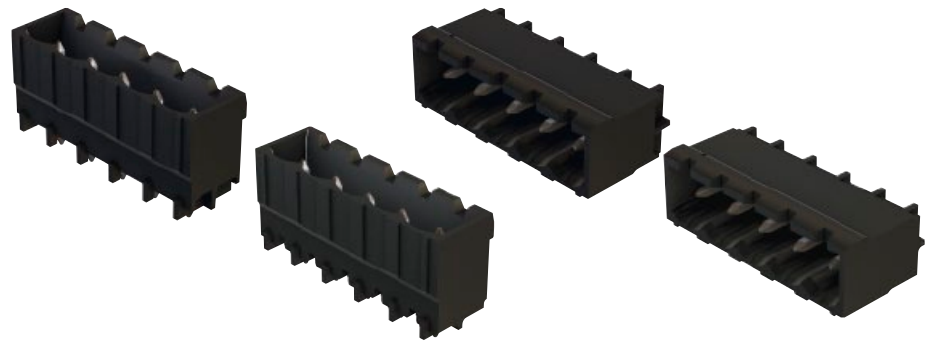
PCB connectors male, vertical/horizontal	2	14 12 021 . 00 . 000	300
	3	14 12 031 . 00 . 000	200
	4	14 12 041 . 00 . 000	150
	5	14 12 051 . 00 . 000	150
	6	14 12 061 . 00 . 000	100
	7	14 12 071 . 00 . 000	100
	8	14 12 081 . 00 . 000	100
	9	14 12 091 . 00 . 000	100
	10	14 12 101 . 00 . 000	100
	11	14 12 111 . 00 . 000	100
	12	14 12 121 . 00 . 000	100
	13*	14 12 131 . 00 . 000	50
	14*	14 12 141 . 00 . 000	50
	15*	14 12 151 . 00 . 000	50
	16*	14 12 161 . 00 . 000	50
	17*	14 12 171 . 00 . 000	50
	18*	14 12 181 . 00 . 000	50
	19*	14 12 191 . 00 . 000	50

Please insert digit for

pitch 5.00 mm ▶ 6  
pitch 5.08 mm ▶ 7

vertical ▶ 1  
horizontal ▶ 2

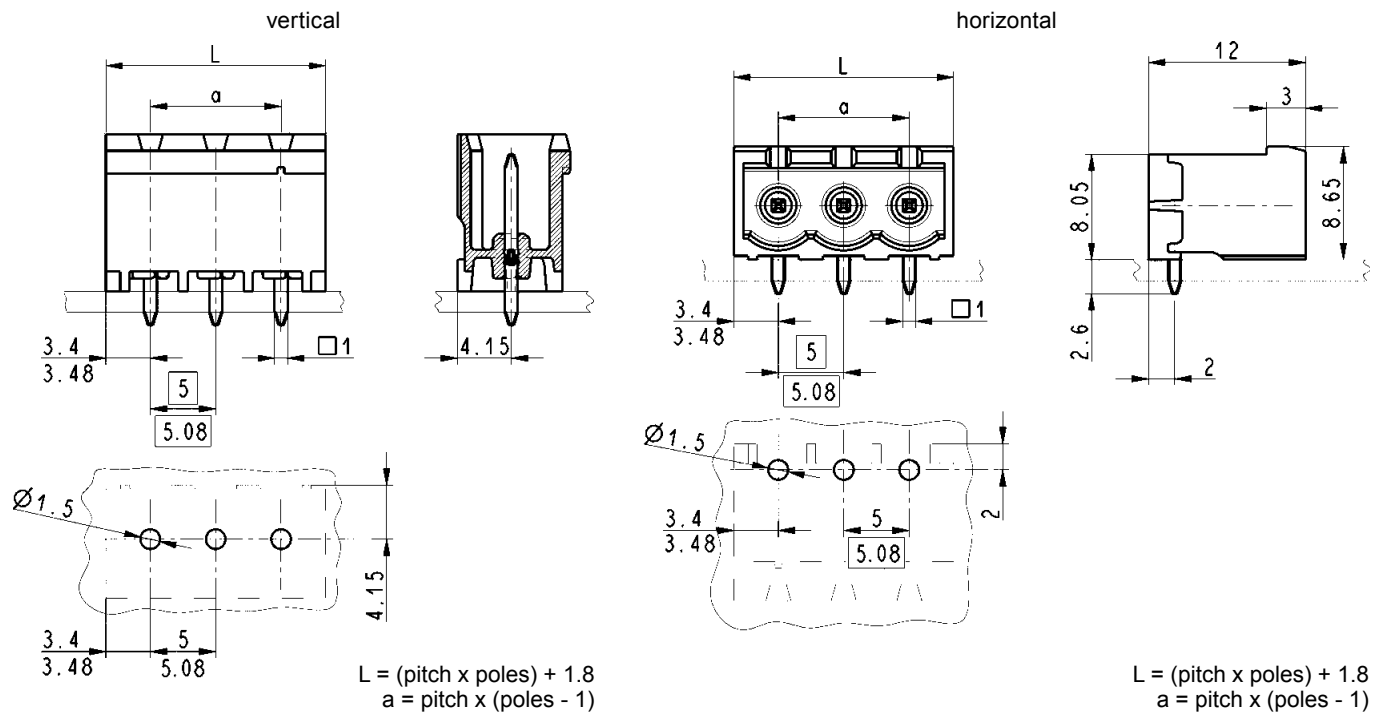
PCB connectors male, vertical/horizontal for reflow soldering pitch 5.00 / 5.08 mm



Drawing

Dimensions in mm

Dimensions



Technical characteristics

Technical data

Rated current 15 A  
Pitch 5.00 mm / 5.08 mm

Surge voltage category / pollution degree  
Rated voltage  
Rated surge voltage

	III/3	III/2	II/2
Rated voltage	250 V	300 V	600 V
Rated surge voltage	4 kV	4 kV	4 kV

Material data

Group of insulation material I  
Type of insulation material PA / PPA  
Flammability rating per UL 94 V0  
Operating temperature -40 °C ... +110 °C  
Contact material copper alloy  
Contact plating tin plated

Solder pin data

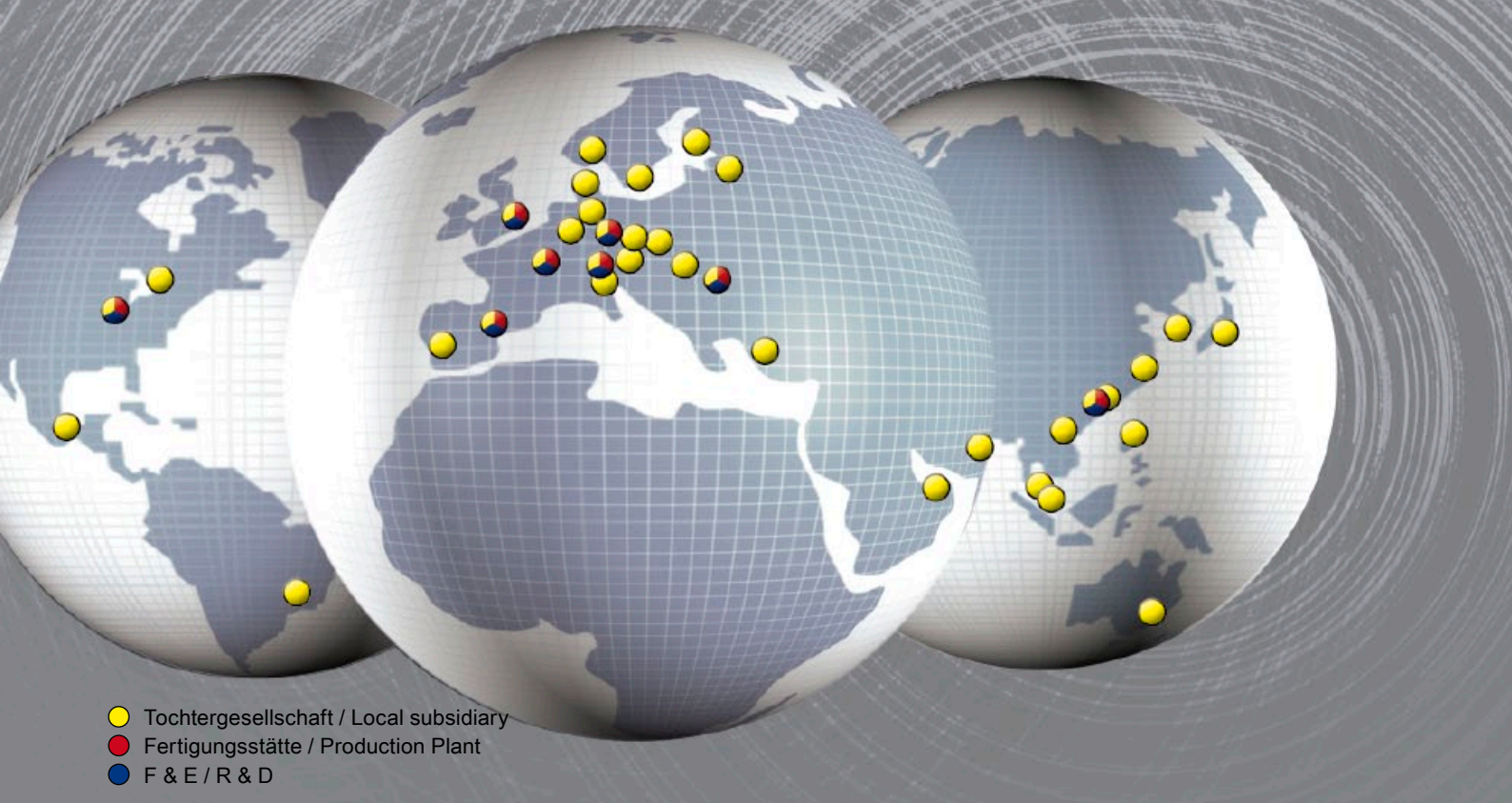
Solder pin: drilled hole diameter 1.4 mm

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

The **HARTING eCatalogue** is an electronic catalogue with a product configurator. Here you can choose a connector according to your requirements. Afterwards you are able to send your inquiry directly to a HARTING sales partner. The drawings to every single part are available in PDF format. The parts are downloadable in 2D format (DXF) and 3D format (IGES, STEP). The 3D models can be viewed with a VRML-viewer.

## Product configurator





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Pushing Performance

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