



Pushing Performance



People | Power | Partnership

HARTING News 2021

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General information

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

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

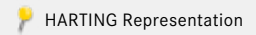
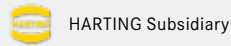
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Transforming customer wishes into concrete solutions



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

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



We aspire to top performance.

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

Wherever our customers are, we're there.

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

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

Our claim: Pushing Performance.

HARTING provides more than optimally attuned components. In order to offer our customers the best possible solutions, on request **HARTING** contributes a great deal more and is tightly integrated into the value-creation process.

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

Quality creates reliability – and warrants trust.

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

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



HARTING technology creates added value for customers. Technologies by **HARTING** are at work worldwide. **HARTING's** presence stands for smoothly functioning systems powered by intelligent connectors, smart infrastructure solutions and sophisticated network systems. Over the course of many years of close, trust-based cooperation with its customers, the **HARTING** Technology Group has become one of the leading specialists globally for connector technology. We offer individual customers specific and innovative solutions that go beyond the basic standard functionalities. These tailored solutions deliver sustained results, ensure investment security and enable customers to achieve significant added value.

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

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

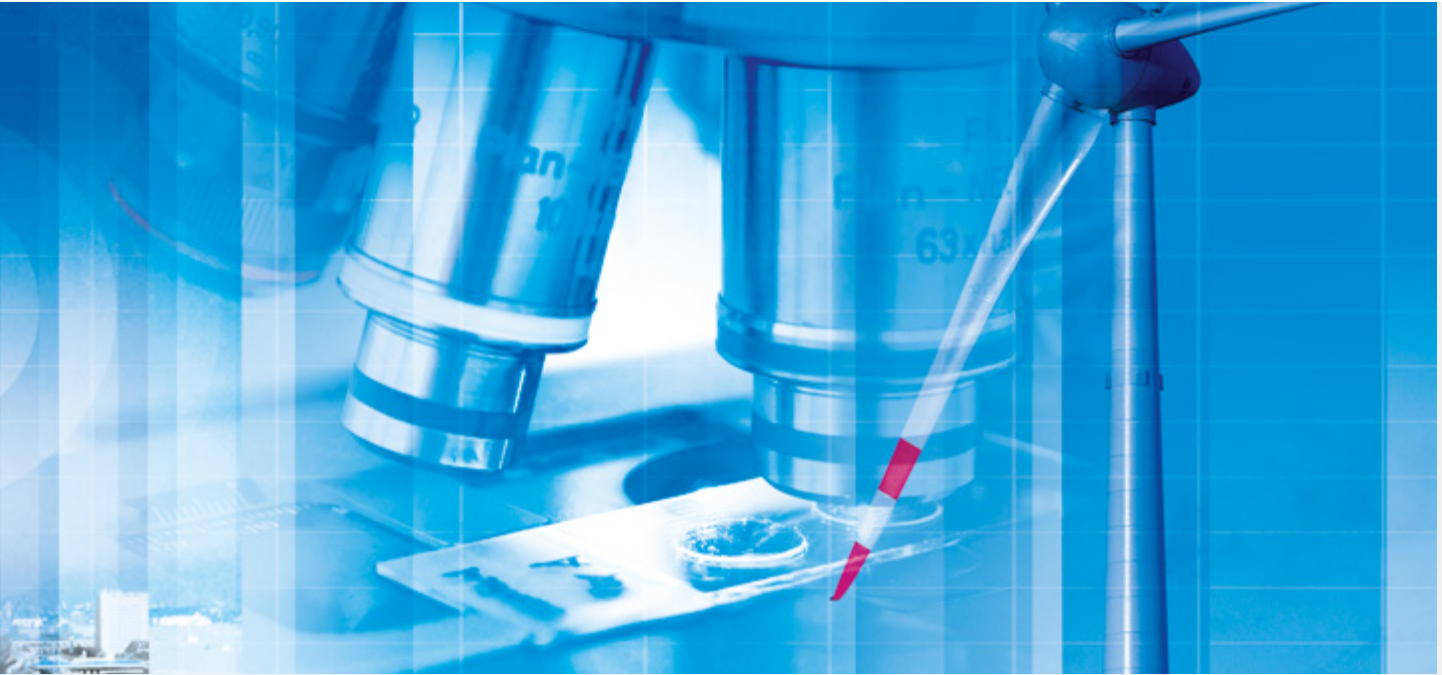
Salient examples of these sources of innovative knowledge include microstructure technologies, 3D design and connection technolo-

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

HARTING overcomes technological limitations.

Drawing on the comprehensive resources of the group's technology pool, **HARTING** devises practical solutions for its customers. Whether this involves industrial networks for manufacturing automation, or hybrid interface solutions for wireless telecommunication infrastructures, 3D circuit carriers with microstructures, or cable assemblies for high-temperature applications in the automotive industry – **HARTING** technologies offer not only components, but comprehensive solutions attuned to individual customer requirements and preferences. The range of cost-effective solutions covers ready-to-use cable configurations, completely assembled backplanes and board system carriers, as well as fully wired and tested control panels.

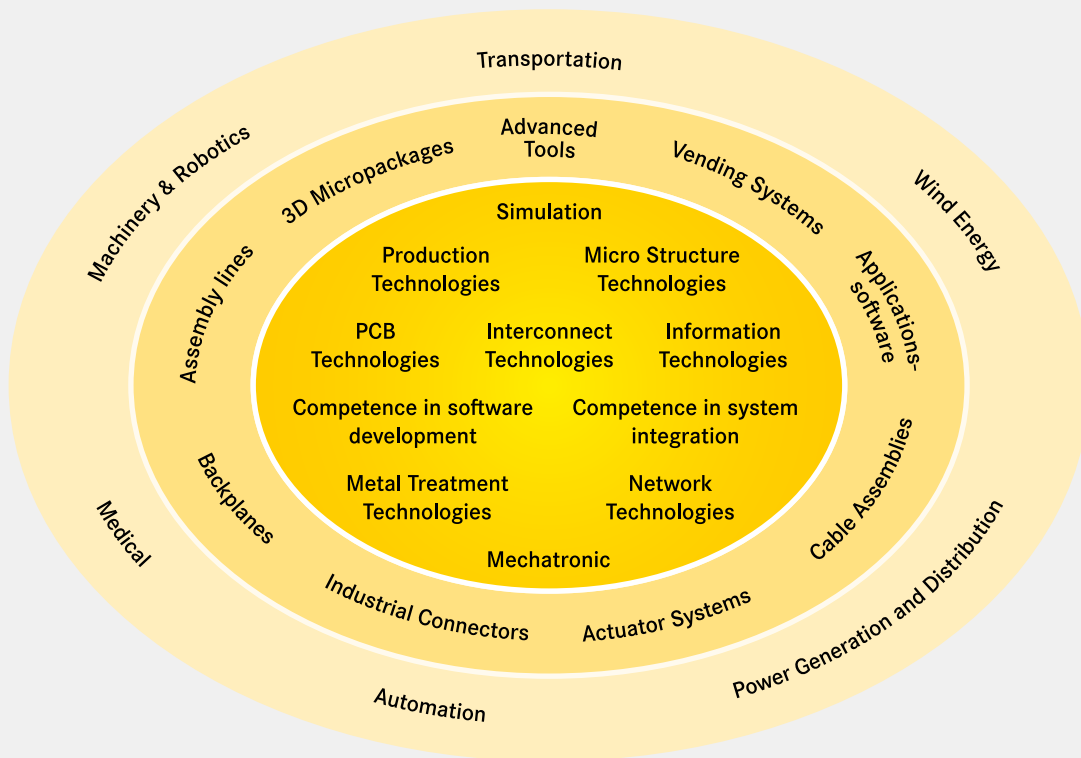
In order to ensure the future-proof design of RF and EMC-compatible interface solutions, the central **HARTING** laboratory (certified to EN 45001) employs simulation tools, as well as experimental, testing and diagnostics facilities all the way to scanning electron microscopes. In addition to product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



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

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

conversant with the specific application areas in all of these technology fields. In every solution approach, the key focus is on the application. In this context, uncompromising, superior quality is our hallmark. Every new solution found invariably flows back into the HARTING technology pool, thereby enriching our resources. And every new solution we go on to create will draw on this wealth of resources in order to optimize each and every individual solution. HARTING is synergy in action.



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Features

- Han® C power contacts
- Han D® signal contacts
- Finger safe male and female contacts
- Leading PE crimp contact
- Suitable for standard plastic hoods/housings or metal hoods/housings with additional PE terminating contact on the hoods/housings from the Han-Compact® series

Technical characteristics

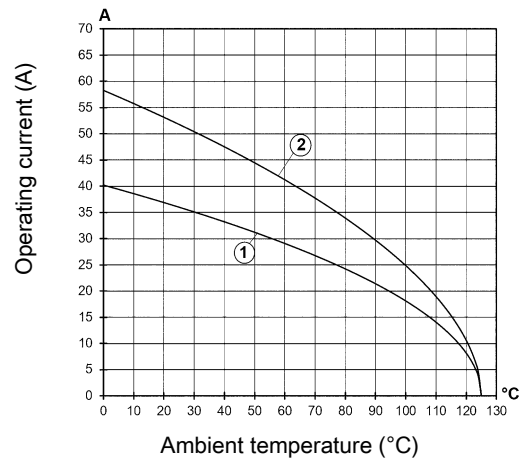
Number of contacts	3
further contacts	+ 4 additional signal contacts
Rated current	40 A
Rated voltage conductor-earth	400 V
Rated voltage conductor-conductor	690 V
Rated impulse voltage	6 kV
Pollution degree	3
Rated current (signal)	10 A
Rated voltage (signal)	250 V
Rated impulse voltage (signal)	4 kV
Pollution degree (signal)	3
Insulation resistance	>10 ¹⁰ Ω
Contact resistance	≤1 mΩ, ≤3 mΩ
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

Derating

Current carrying capacity

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

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



- ① Conductor cross-section 2.5 mm²
- ② Conductor cross-section 6 mm²

Specifications and approvals

EN 60664-1
IEC 61984
DNV GL

Details

Contact resistance Han D® crimp contact: ≤ 3 mΩ

Contact resistance Han® C crimp contact: ≤ 1 mΩ

Crimping tools see chapter Han 90

Remarks on the crimp technique


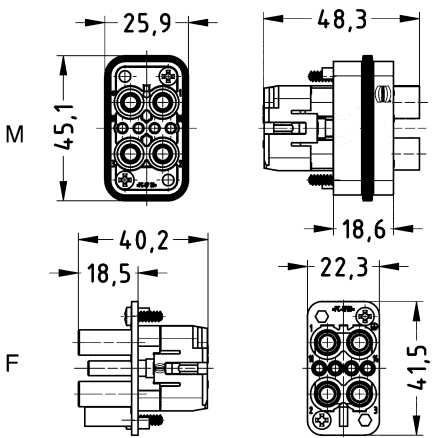

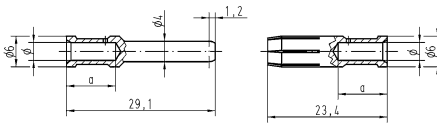

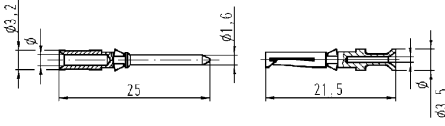
The wire gauges mentioned in the catalogue refer to geometric wire gauges of cables.

Number of contacts


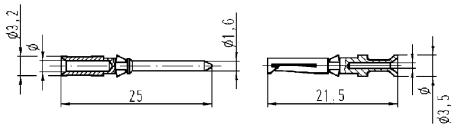
3+

40 A 400/690 V 6 kV 3
 10 A 250 V 4 kV 3
 + 4 additional signal contacts

Han

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)																					
		Male	Female																						
Han® Q, Crimp termination  <p>Please order crimp contacts separately.</p>		09 12 007 3041	09 12 007 3141																						
Han® C, Crimp contact, Contact surface: Silver plated 	1.5 2.5 4 6	09 32 000 6104 09 32 000 6105 09 32 000 6107 09 32 000 6108	09 32 000 6204 09 32 000 6205 09 32 000 6207 09 32 000 6208	 <table border="1" data-bbox="997 1310 1444 1467"> <thead> <tr> <th>Conductor cross-section</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>1.5 mm² AWG 16</td> <td>1.75 mm</td> <td>9.5 mm</td> </tr> <tr> <td>2.5 mm² AWG 14</td> <td>2.25 mm</td> <td>9.5 mm</td> </tr> <tr> <td>4 mm² AWG 12</td> <td>2.85 mm</td> <td>9.5 mm</td> </tr> <tr> <td>6 mm² AWG 10</td> <td>3.5 mm</td> <td>9.5 mm</td> </tr> <tr> <td>10 mm² AWG 8</td> <td>4.3 mm</td> <td>12 mm</td> </tr> </tbody> </table>	Conductor cross-section	Ø	Stripping length	1.5 mm ² AWG 16	1.75 mm	9.5 mm	2.5 mm ² AWG 14	2.25 mm	9.5 mm	4 mm ² AWG 12	2.85 mm	9.5 mm	6 mm ² AWG 10	3.5 mm	9.5 mm	10 mm ² AWG 8	4.3 mm	12 mm			
Conductor cross-section	Ø	Stripping length																							
1.5 mm ² AWG 16	1.75 mm	9.5 mm																							
2.5 mm ² AWG 14	2.25 mm	9.5 mm																							
4 mm ² AWG 12	2.85 mm	9.5 mm																							
6 mm ² AWG 10	3.5 mm	9.5 mm																							
10 mm ² AWG 8	4.3 mm	12 mm																							
Han D®, Crimp contact, Contact surface: Silver plated 	0.14 ... 0.37 0.5 0.75 1 1.5 2.5	09 15 000 6104 09 15 000 6103 09 15 000 6105 09 15 000 6102 09 15 000 6101 09 15 000 6106	09 15 000 6204 09 15 000 6203 09 15 000 6205 09 15 000 6202 09 15 000 6201 09 15 000 6206	 <table border="1" data-bbox="997 1668 1444 1848"> <thead> <tr> <th>Conductor cross-section</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm² AWG 26-22</td> <td>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm² AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm² AWG 18</td> <td>1.3 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm² AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm² AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm² AWG 14</td> <td>2.25 mm</td> <td>6 mm</td> </tr> </tbody> </table>	Conductor cross-section	Ø	Stripping length	0.14-0.37 mm ² AWG 26-22	0.9 mm	8 mm	0.5 mm ² AWG 20	1.1 mm	8 mm	0.75 mm ² AWG 18	1.3 mm	8 mm	1 mm ² AWG 18	1.45 mm	8 mm	1.5 mm ² AWG 16	1.75 mm	8 mm	2.5 mm ² AWG 14	2.25 mm	6 mm
Conductor cross-section	Ø	Stripping length																							
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1.5 mm ² AWG 16	1.75 mm	8 mm																							
2.5 mm ² AWG 14	2.25 mm	6 mm																							

Han

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Han D®, Crimp contact, Contact surface: Gold plated 	0.14 ... 0.37	09 15 000 6124	09 15 000 6224	
	0.5	09 15 000 6123	09 15 000 6223	
	0.75	09 15 000 6125	09 15 000 6225	
	1	09 15 000 6122	09 15 000 6222	
	1.5	09 15 000 6121	09 15 000 6221	
	2.5	09 15 000 6126	09 15 000 6226	

Conductor cross-section		Ø	Stripping length
0.14-0.37 mm ²	AWG 26-22	0.9 mm	8 mm
0.5 mm ²	AWG 20	1.1 mm	8 mm
0.75 mm ²	AWG 18	1.3 mm	8 mm
1 mm ²	AWG 18	1.45 mm	8 mm
1.5 mm ²	AWG 16	1.75 mm	8 mm
2.5 mm ²	AWG 14	2.25 mm	6 mm

New
1
: 4

Features

- D-coded Han® M12 version for Ethernet/Profinet applications
- Two separate data connections with 360° shielding in a single module
- Possibility to use different bus systems within one module, also D-coded and X-coded versions
- Significant reduction in required space by 50%
- Each Han® M12 insert can be preassembled and installed separately
- X-coded Han® 12 version for Ethernet applications up to 10 Gbit/s

Technical characteristics

Number of contacts	4, 8
further contacts	+ shielding
Rated current	4 A, 0.5 A
Rated voltage	32 V
Rated impulse voltage	0.8 kV
Pollution degree	3
Transmission characteristics	Cat. 5, Class D up to 100 MHz Cat. 6A, Class E _A up to 500 MHz
Insulation resistance	>10 ⁸ Ω
Contact resistance	≤10 mΩ
Contact resistance, shielding	≤100 mΩ
Limiting temperature	-40 ... +85 °C
Mating cycles	≥500
Wire outer diameter	≤2.3 mm, ≤1.4 mm
Material (insert)	Liquid crystal polymer (LCP) Polycarbonate (PC)
Material (shielding)	Copper alloy, nickel plated
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

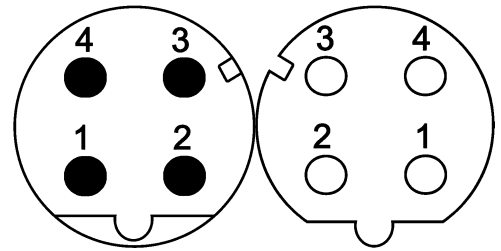
Specifications and approvals

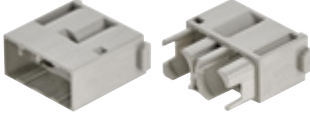
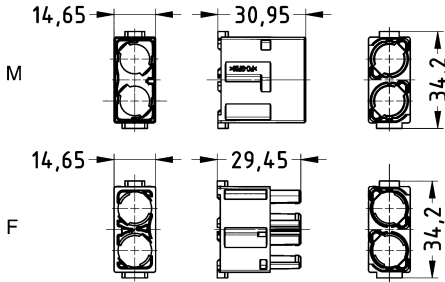

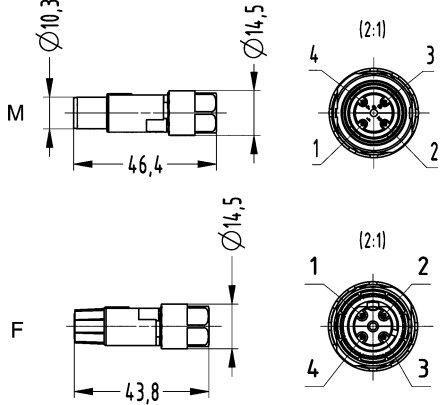

EN 60664-1
IEC 61984

Number of contacts

4

4 A 32 V 0.8 kV 3
+ shielding



Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)															
		Male	Female																
Han-Modular®, Han® M12 module 		09 14 002 3061	09 14 002 3161																
Han-Modular®, Crimp termination  Please order crimp contacts separately.	0.13 ... 0.82	09 14 881 1405	09 14 881 2405	 <p>Cable diameter 5.7 ... 8.8 mm</p>															
D-Sub, Crimp contact 	0.13 ... 0.33 0.25 ... 0.52 0.33 ... 0.82	09 67 000 5576 09 67 000 8576 09 67 000 3576	09 67 000 5476 09 67 000 8476 09 67 000 3476	<table border="1"> <thead> <tr> <th>Conductor cross-section</th> <th>∅</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.09-0.25 mm²</td> <td>0.64 mm</td> <td>4 mm</td> </tr> <tr> <td>0.13-0.33 mm²</td> <td>0.88 mm</td> <td>4 mm</td> </tr> <tr> <td>0.25-0.52 mm²</td> <td>1.13 mm</td> <td>4 mm</td> </tr> <tr> <td>0.33-0.82 mm²</td> <td>1.34 mm</td> <td>4 mm</td> </tr> </tbody> </table> <p>for stranded wire according IEC 60228 Class 5</p>	Conductor cross-section	∅	Stripping length	0.09-0.25 mm ²	0.64 mm	4 mm	0.13-0.33 mm ²	0.88 mm	4 mm	0.25-0.52 mm ²	1.13 mm	4 mm	0.33-0.82 mm ²	1.34 mm	4 mm
Conductor cross-section	∅	Stripping length																	
0.09-0.25 mm ²	0.64 mm	4 mm																	
0.13-0.33 mm ²	0.88 mm	4 mm																	
0.25-0.52 mm ²	1.13 mm	4 mm																	
0.33-0.82 mm ²	1.34 mm	4 mm																	

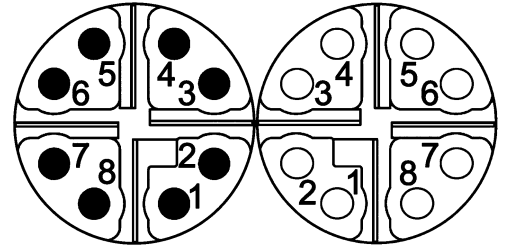
Han® M12 module



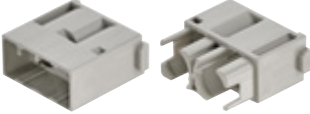
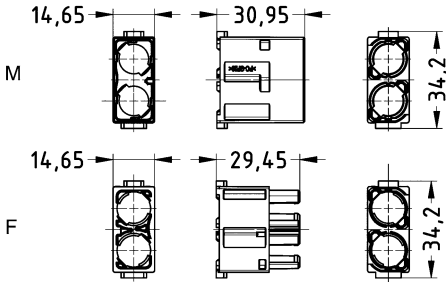

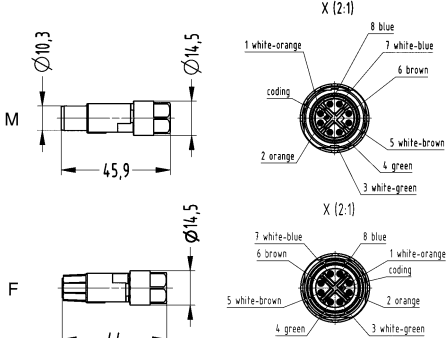

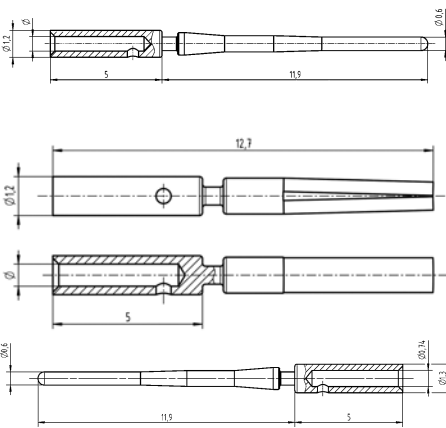
Number of contacts

8

0.5 A 32 V 0.8 kV 3
+ shielding



Han

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Han-Modular®, Han® M12 module</p> 		09 14 002 3061	09 14 002 3161	
<p>Han-Modular®, Crimp termination</p>  <p>Please order crimp contacts separately.</p>	0.08 ... 0.25	09 14 881 1805	09 14 881 2805	 <p>Cable diameter 5.7 ... 8.8 mm</p>
<p>har-speed, Crimp contact, Contact surface: Gold plated</p> 	0.08 ... 0.22 0.13 ... 0.25	21 01 100 9014 21 01 100 9019	21 01 100 9023 21 01 100 9021	

New
1
: 7

Number of contacts

1

300 A 1.000 V 8 kV 3

Features

- Power module for big wire gauges up to 120 mm²
- High rated voltage up to 1300 V
- Compatible to the Han® 200 A crimp module
- Easy removal of the contacts
- Separate axial screw contacts can be terminated without any special tools directly to the wire

Technical characteristics

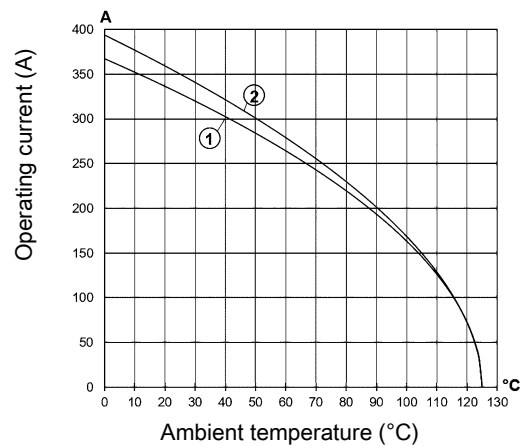
Number of contacts	1
Rated current	300 A
Rated voltage	1000 V
Rated impulse voltage	8 kV
Pollution degree	3
Rated voltage	1000 V AC, 1300 V DC
Insulation resistance	>10 ¹⁰ Ω
Contact resistance	≤0.3 mΩ
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC)
Colour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

Derating

Current carrying capacity

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

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



- ① 24 B hoods/housings with 3 modules Conductor cross-section 95 mm²
- ② 24 B hoods/housings with 3 modules Conductor cross-section 120 mm²


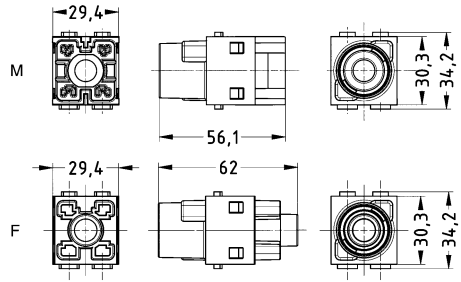

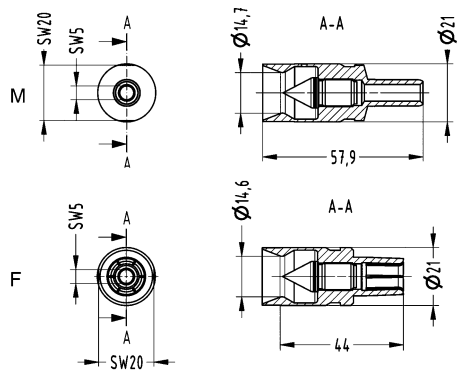
Specifications and approvals

EN 50124-1
EN 60664-1
IEC 61984

Details

Remarks on the axial screw technique

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

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Han-Modular®, Han® 300 A module, Crimp termination, Axial screw termination</p>  <p>Please order contacts separately.</p>	95 ... 120	09 14 001 3004	09 14 001 3104	
<p>TC 300, Axial screw contact, Contact surface: Silver plated</p> 	95 ... 120	09 11 000 6539	09 11 000 6639	 <p>Stripping length 19 ... 20 mm Tightening torque 14 Nm @ 95 mm², 16 Nm @ 120 mm²</p>

Han

Number of contacts

1

Features

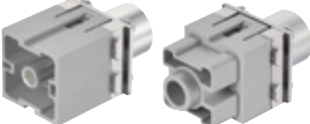
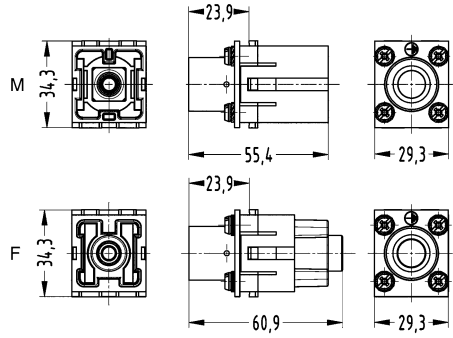
- PE module to connect large cable diameters within the Han-Modular® hinged frames
- Leading PE contact within the insert
- Electrically conductive connection of the PE contact to the hinged frames and the hoods and housings acc. to EN 61984
- Compatible to the Han® 200 A PE module

Technical characteristics

Number of contacts	1
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 0.2 \text{ m}\Omega$
Limiting temperature	-40 ... +125 °C
Mating cycles	≥ 500
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

Specifications and approvals

EN 60664-1
IEC 61984

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Han-Modular®, Han® 300 A PE module, Axial screw termination, Contact surface: Silver plated 	95 ... 120	09 14 001 2681	09 14 001 2781	 <p>Hex key with grip 09 99 000 0364 Adapter 3/8" 09 99 000 0371 See chapter Han 90 Stripping length 19 ... 20 mm Tightening torque 14 Nm @ 95 mm², 16 Nm @ 120 mm²</p>

Features

- Short and space saving contacts
- Termination to busbar or cable lug (the provision of protection against electric shock is the responsibility of the user)
- IP20 protection for female and male module (by using male contacts with protective cap)
- High rated voltage up to 1300 V
- Compatible to the Han® 200 A crimp module

Technical characteristics

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

Specifications and approvals

EN 50124-1
EN 60664-1
IEC 61984

Han® 300 A module, for busbar

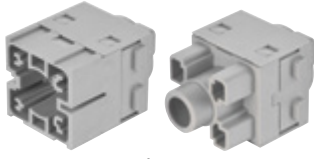
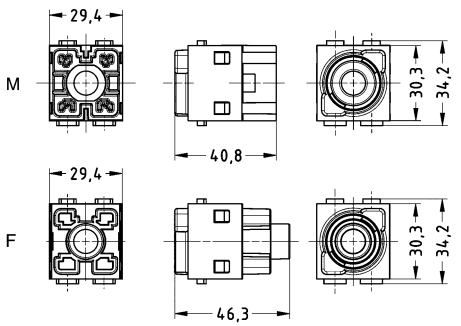

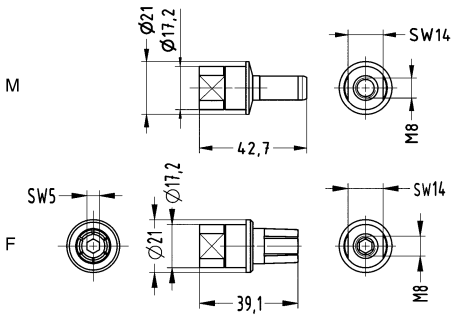


Number of contacts

1

300 A 1.000 V 8 kV 3

Han

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
<p>Han-Modular®, Han® 300 A module, for busbar, Screw termination</p>  <p>Please order contacts separately.</p>	09 14 001 3005	09 14 001 3105	
<p>TC 300, Screw contact, M8, Short version, Contact surface: Silver plated</p> 	09 11 000 7579	09 11 000 6679	

New
1
·
12

Number of contacts

2



Han

Features

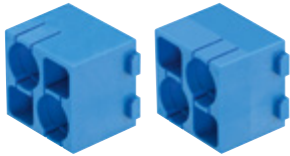
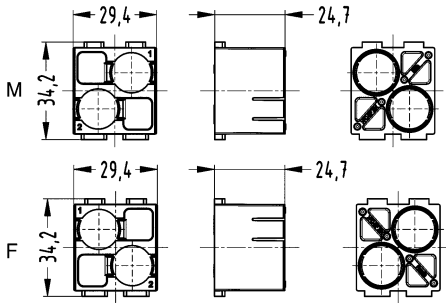
- for the transmission of clean and dry compressed air
- Operating pressure up to 10 bar (145 psi)
- Female contacts with / without shut-off
- Removal of tubes from pre-assembled pneumatic contacts is possible

Technical characteristics

Number of contacts	2
Limiting temperature	-40 ... +85 °C
Mating cycles	≥10000
Material (insert)	Polycarbonate (PC)
Colour (insert)	Blue
Material flammability class acc. to UL 94	V-0

Specifications and approvals

IEC 61984
EN 60664-1

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Han-Modular®, Han® Pneumatic module  Please order contacts separately.	09 14 002 3501	09 14 002 3502	


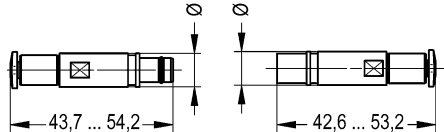

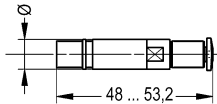

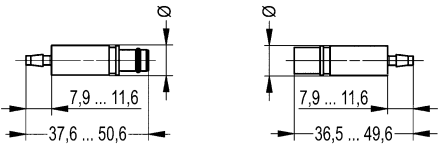

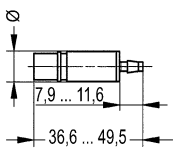
Han

Technical characteristics

Limiting temperature -20 ... +85 °C Tube outer diameter -40 ... +85 °C

Technical characteristics

Tube inner diameter 8 mm, 10 mm
 Tube outer diameter 8 mm, 10 mm
 Material (seal) NBR
 Material (contacts) Brass

Identification		Part number		Drawing (dimensions in mm)
		Male	Female	
Pneumatic contact, Without shut-off, Straight, Tube outer diameter 	10 mm 8 mm	09 14 000 6350	09 14 000 6450	
		09 14 000 6358	09 14 000 6458	
Pneumatic contact, With shut-off, Straight, Tube outer diameter 	10 mm 8 mm		09 14 000 6460	
			09 14 000 6468	
Pneumatic contact, Without shut-off, Straight, Tube inner diameter 	10 mm 8 mm	09 14 000 6310	09 14 000 6410	
		09 14 000 6308	09 14 000 6408	
Pneumatic contact, With shut-off, Straight, Tube inner diameter 	10 mm 8 mm		09 14 000 6411	
			09 14 000 6418	

Number of contacts

8

10 A 50 V 0.8 kV 3
+ shielding

Han

Features

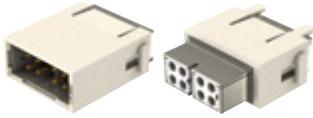
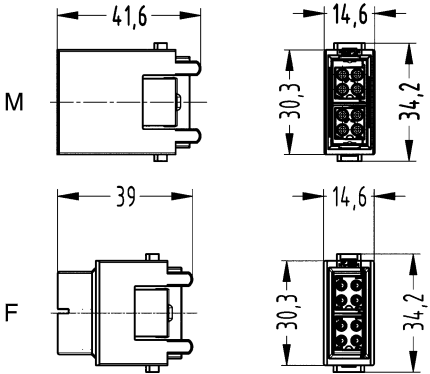
- Shielding bus separate from housing potential
- Usable for Megabit Ethernet cat. 5e
- Robust design
- Low wiring costs
- No installation effort

Technical characteristics

Number of contacts	8
further contacts	+ shielding
Rated current	10 A, 7.5 A
Rated voltage	50 V, 250 V
Rated impulse voltage	0.8 kV, 4 kV
Pollution degree	3
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Data rate	10 Mbit/s, 100 Mbit/s
Contact resistance, shielding	≤100 mΩ
Limiting temperature	-40 ... +85 °C -40 ... +125 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC) Liquid crystal polymer (LCP)
Material (shielding)	Zinc die-cast, nickel-plated
Colour (insert)	RAL 7032 (pebble grey)
Material flammability class acc. to UL 94	V-0

Specifications and approvals

EN 60664-1
IEC 61984

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Han® Megabit insert, 2x 4 contacts, Fast termination 	09 14 008 3041	09 14 008 3141	

Han

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
PCB adapter for PCB's up to 1.6 mm		09 16 000 9922	
PCB adapter for PCB's up to 2.4 mm		09 16 000 9923	

Hoods/housings for harsh outdoor environments

Han

Technical characteristics

Limiting temperature	-40 ... +125 °C
Degree of protection acc. to IEC 60529	IP66 IP67
Material (hood/housing)	Aluminium die-cast Corrosion resistant
Surface (hood/housing)	Powder-coated
Colour (hood/housing)	RAL 9005 (jet black)
Material (seal)	NBR
Material (locking)	Stainless steel

Specifications and approvals

CE

Details

Please note the installation manual.

Identification	Cable entry	Part number	Drawing (dimensions in mm)
<p>Han® HPR VarioShell, Complete set, Angled, Pack contents: Bulkhead mounted housing, Mounting cover, Fixing screws</p> 	for 2x 24 HPR	10 40 124 1000	
<p>Han® HPR VarioShell, Complete set, Angled, Pack contents: Bulkhead mounted housing, Mounting cover, 2x Bulkhead mounted housing 24 HPR enlarged, Fixing screws</p> 	for 2x 24 HPR	10 40 124 1001	
<p>Han® HPR VarioShell, Complete set, Angled, Pack contents: Bulkhead mounted housing, Mounting cover, 1x Bulkhead mounted housing 24 HPR enlarged, Fixing screws</p>	for 1x 24 HPR, 4x M32	10 40 124 1002	

400 A 1.800 V 10 kV 4
Hoods/housings for harsh outdoor environments

Han

Technical characteristics


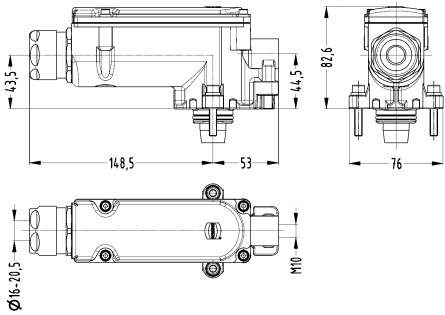

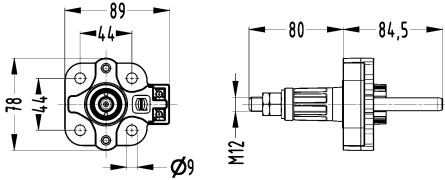
Rated current	400 A
Rated voltage	1800 V
Rated impulse voltage	10 kV
Pollution degree	4
Limiting temperature	-40 ... +125 °C
Mating cycles	≥25
Degree of protection acc. to IEC 60529	IP65 IP67
Material (insert)	Polyamide (PA)
Material (hood/housing)	Aluminium die-cast

Technical characteristics

RoHS compliant with exemption

Specifications and approvals

EN 50467
EN 50124-1
IEC 61373 Category 1 Class B
EN 45545
EN 60137

Identification	Cable entry	Conductor cross-section (mm²)	Part number	Drawing (dimensions in mm)
Han® HPR HPTC, Complete set, Cable side, Copper cable (round), 360° shielding 	1x M40	120	10 40 271 2136	
Han® HPR HPTC, Complete set, Device side, Copper cable (round), 360° shielding 			10 40 271 1006	

850 A 3.600 V 20 kV 4
Hoods/housings for harsh outdoor environments

Technical characteristics


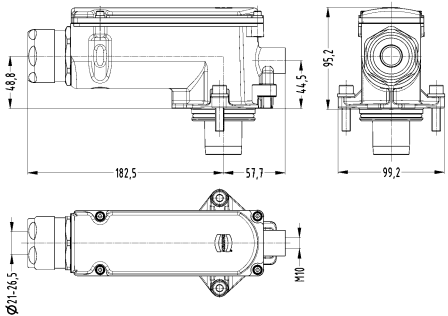

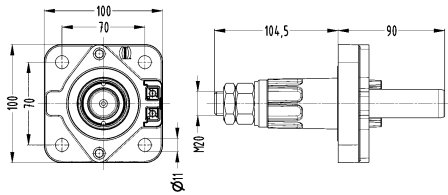
Rated current	850 A
Rated voltage	3600 V
Rated impulse voltage	20 kV
Pollution degree	4
Limiting temperature	-40 ... +125 °C
Mating cycles	≥25
Degree of protection acc. to IEC 60529	IP65 IP67
Material (insert)	Polyamide (PA)
Material (hood/housing)	Aluminium die-cast

Technical characteristics

RoHS compliant with exemption

Specifications and approvals

EN 50467
EN 50124-1
IEC 61373 Category 1 Class B
EN 45545
EN 60137

Identification	Cable entry	Conductor cross-section (mm ²)	Part number	Drawing (dimensions in mm)
<p>Han® HPR HPTC, Complete set, Cable side, Copper cable (round), 360° shielding</p> 	1x M50	240	10 40 281 2159	
<p>Han® HPR HPTC, Complete set, Device side, Copper cable (round), 360° shielding</p> 			10 40 281 1009	

1.400 A 3.600 V 20 kV 4
Hoods/housings for harsh outdoor environments

Han

Technical characteristics


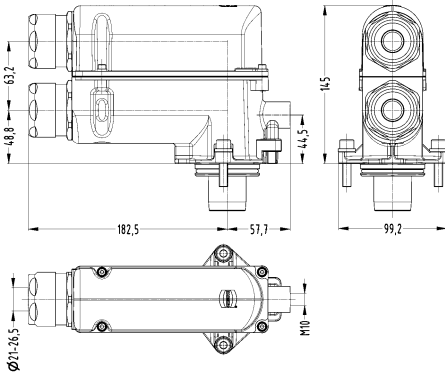

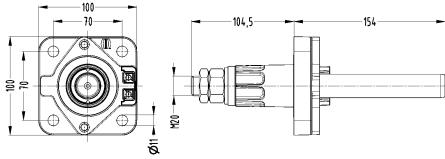
Rated current	1400 A
Rated voltage	3600 V
Rated impulse voltage	20 kV
Pollution degree	4
Limiting temperature	-40 ... +125 °C
Mating cycles	≥25
Degree of protection acc. to IEC 60529	IP65 IP67
Material (insert)	Polyamide (PA)
Material (hood/housing)	Aluminium die-cast

Technical characteristics

RoHS compliant with exemption

Specifications and approvals

EN 50467
EN 50124-1
IEC 61373 Category 1 Class B
EN 45545
EN 60137

Identification	Cable entry	Conductor cross-section (mm²)	Part number	Drawing (dimensions in mm)
Han® HPR HPTC, Complete set, Cable side, Copper cable (round), 360° shielding 	2x M50	240	10 40 291 2159	
Han® HPR HPTC, Complete set, Device side, Copper cable (round), 360° shielding 			10 40 291 1009	

New
1
·
20

Number of contacts

3

Hoods/housings for harsh outdoor environments


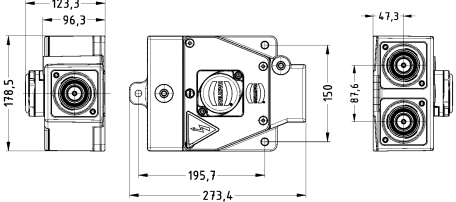

Han

Technical characteristics

Number of contacts	3, 1
Rated current	800 A
Rated voltage	5100 V DC, 3000 V AC
Material (hood/housing)	Aluminium die-cast Corrosion resistant

Specifications and approvals

EN 50124-1
EN 50467
IEC 61373 Category 1 Class B
UIC 550
UIC 552

Identification	Conductor cross-section (mm ²)	Part number	Drawing (dimensions in mm)
Han® HPR TrainPowerLine, Y-distributor 	95 ... 185	09 40 033 0901	
Han® HPR TrainPowerLine, Connector sets	95 185	10 40 331 1218 10 40 331 1118	
Han® HPR TrainPowerLine, Connector sets, With cable gland, Shielded 	185	10 40 331 1115	

Technical characteristics

Limiting temperature	-40 ... +125 °C
Tightening torque (screw locking)	3 Nm, 10 Nm
Degree of protection acc. to IEC 60529	IP65 IP68
Type rating acc. to UL 50 / UL 50E	4 4X 12
Material (hood/housing)	Aluminium die-cast Corrosion resistant
Surface (hood/housing)	Powder-coated
Colour (hood/housing)	RAL 9005 (jet black)

Technical characteristics

Material (seal)	NBR
Material (locking)	Stainless steel

Specifications and approvals

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



Han

Hoods/housings for harsh outdoor environments
Screw locking


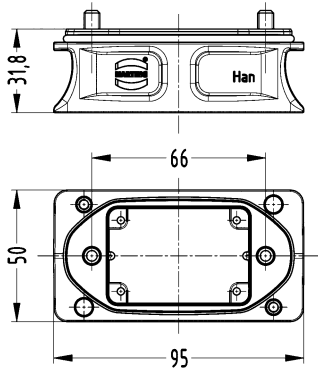

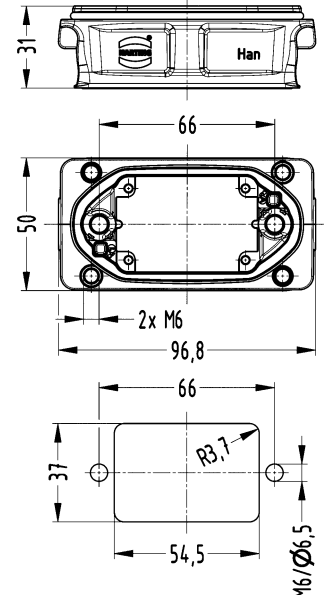
Han


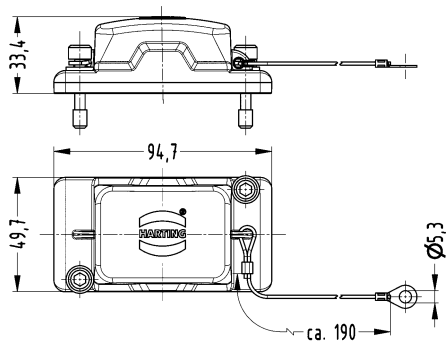
Identification	Cable entry	Part number High construction	Drawing (dimensions in mm)
Han® HPR Compact, Hood, Top entry, Screw locking	1x M25 1x M32 1x M40	19 40 506 0411 19 40 506 0412 19 40 506 0413	
Han® HPR Compact, Hood, Side entry, Screw locking	1x M25 1x M32 1x M40	19 40 506 0511 19 40 506 0512 19 40 506 0513	



Hoods/housings for harsh outdoor environments
Hexagonal screw

Han

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR Compact, Extender, Hexagonal screw</p> 	<p>09 40 506 9910</p>	
<p>Han® HPR Compact, Bulkhead mounted housing, Screw locking</p> 	<p>09 40 506 0311</p>	 <p>Panel cut out</p>

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR Compact, Protection cover, for bulkhead mounted housings, Screw locking</p> 	<p>09 40 506 5411</p>	

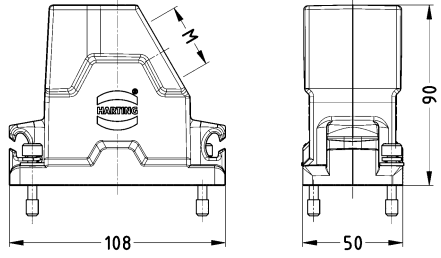
Han

Hoods/housings for harsh outdoor environments
Screw locking

Han

Identification	Cable entry	Part number		Drawing (dimensions in mm)	
		Low construction	High construction		
Han® HPR Compact, Hood, Top entry, Screw locking	1x M25 1x M32 1x M40	19 40 510 1411	19 40 510 0411		
		19 40 510 1412	19 40 510 0412		
		19 40 510 1413	19 40 510 0413		
Han® HPR Compact, Hood, Side entry, Screw locking	1x M25 1x M32 1x M40	19 40 510 1511	19 40 510 0511		
		19 40 510 1512	19 40 510 0512		
		19 40 510 1513	19 40 510 0513		


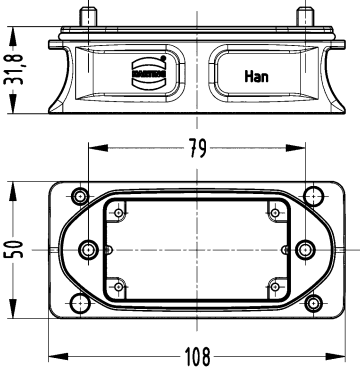

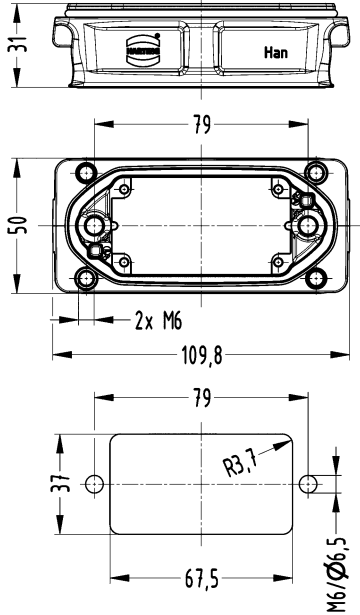



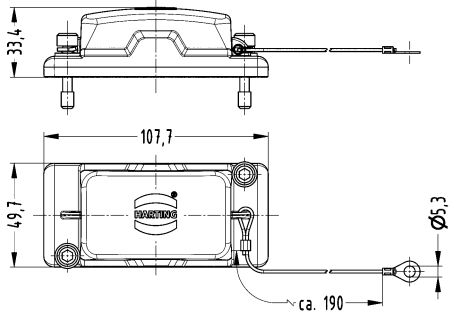
Identification	Cable entry	Part number		Drawing (dimensions in mm)
		Low construction	High construction	
Han® HPR Compact, Hood, 45° side entry, Screw locking	1x M25 1x M32 1x M40	19 40 510 1611 19 40 510 1612 19 40 510 1613		

Han

Hoods/housings for harsh outdoor environments
Hexagonal screw

Han

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR Compact, Extender, Hexagonal screw</p> 	<p>09 40 510 9910</p>	
<p>Han® HPR Compact, Bulkhead mounted housing, Screw locking</p> 	<p>09 40 510 0311</p>	 <p>Panel cut out</p>

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR Compact, Protection cover, for bulkhead mounted housings, Screw locking</p> 	<p>09 40 510 5411</p>	

Han

Hoods/housings for harsh outdoor environments
Screw locking

Han

Identification	Cable entry	Part number		Drawing (dimensions in mm)	
		Low construction	High construction		
Han® HPR Compact, Hood, Top entry, Screw locking	1x M25 1x M32 1x M40 2x M25 2x M32	19 40 516 1411	19 40 516 0411		
		19 40 516 1412	19 40 516 0412		
Han® HPR Compact, Hood, Side entry, Screw locking	1x M25 1x M32 1x M40 2x M25 2x M32 2x M40	19 40 516 1511	19 40 516 0511		
		19 40 516 1512	19 40 516 0512		
		19 40 516 1513	19 40 516 0513		
			19 40 516 0521		
			19 40 516 0522		
			19 40 516 0523		




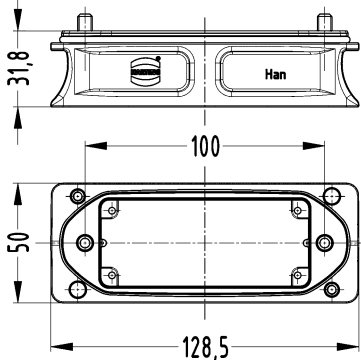

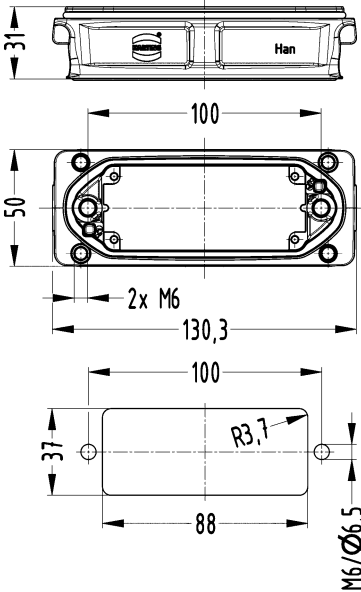



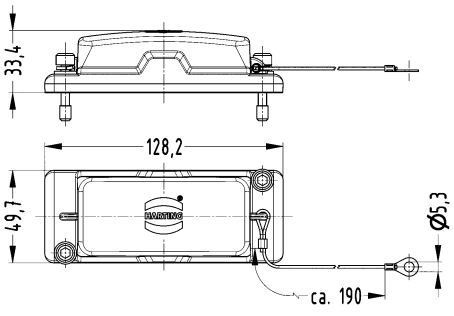
Identification	Cable entry	Part number		Drawing (dimensions in mm)
		Low construction	High construction	
Han® HPR Compact, Hood, 45° side entry, Screw locking	1x M25 1x M32 1x M40	19 40 516 1611 19 40 516 1612 19 40 516 1613		

Han

Hoods/housings for harsh outdoor environments
Hexagonal screw

Han

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR Compact, Extender, Hexagonal screw</p> 	<p>09 40 516 9910</p>	
<p>Han® HPR Compact, Bulkhead mounted housing, Screw locking</p> 	<p>09 40 516 0311</p>	 <p>Panel cut out</p>

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR Compact, Protection cover, for bulkhead mounted housings, Screw locking</p> 	<p>09 40 516 5411</p>	

Han

Hoods/housings for harsh outdoor environments
Screw locking


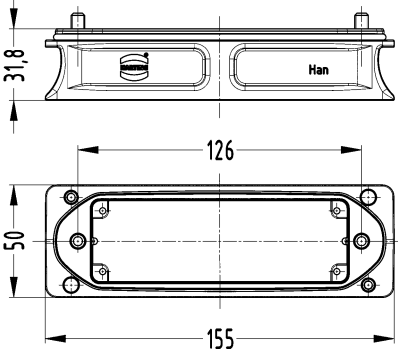

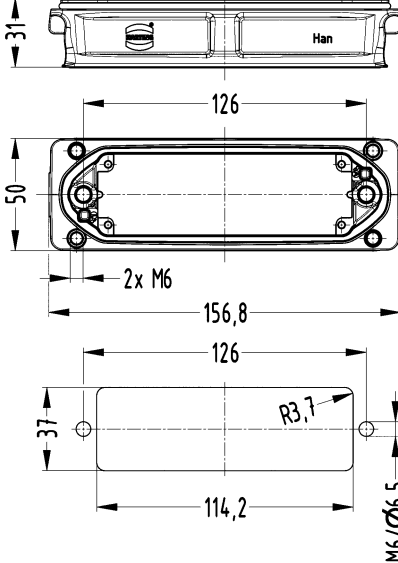

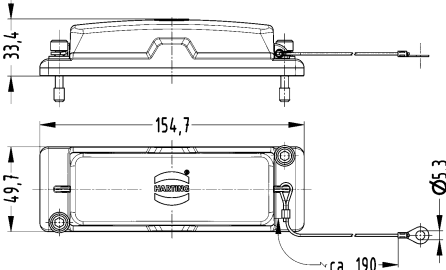
Han

Identification	Cable entry	Part number		Drawing (dimensions in mm)	
		Low construction	High construction		
Han® HPR Compact, Hood, Top entry, Screw locking	1x M25 1x M32 1x M40 2x M25 2x M32 2x M40 3x M25 3x M32	19 40 524 1411	19 40 524 0411		
		19 40 524 1412	19 40 524 0412		
Han® HPR Compact, Hood, Side entry, Screw locking	1x M25 1x M32 1x M40 2x M25 2x M32 2x M40	19 40 524 1413	19 40 524 0413		
		19 40 524 1421	19 40 524 0422		
Han® HPR Compact, Hood, Side entry, Screw locking	1x M25 1x M32 1x M40 2x M25 2x M32 2x M40	19 40 524 1422	19 40 524 0423		
			19 40 524 0431		
Han® HPR Compact, Hood, 45° side entry, Screw locking	1x M25 1x M32 1x M40	19 40 524 1511	19 40 524 0511		
		19 40 524 1512	19 40 524 0512		
Han® HPR Compact, Hood, 45° side entry, Screw locking	1x M25 1x M32 1x M40	19 40 524 1513	19 40 524 0513		
			19 40 524 0521		
Han® HPR Compact, Hood, 45° side entry, Screw locking	1x M25 1x M32 1x M40	19 40 524 1611	19 40 524 0522		
		19 40 524 1612	19 40 524 0523		
Han® HPR Compact, Hood, 45° side entry, Screw locking	1x M25 1x M32 1x M40	19 40 524 1613			



Hoods/housings for harsh outdoor environments
Hexagonal screw

Han

Identification	Part number	Drawing (dimensions in mm)
Han® HPR Compact, Extender, Hexagonal screw 	09 40 524 9910	
Han® HPR Compact, Bulkhead mounted housing, Screw locking 	09 40 524 0311	 <p>Panel cut out</p>
Han® HPR Compact, Protection cover, for bulkhead mounted housings, Screw locking 	09 40 524 5411	







Han

Technical characteristics

Limiting temperature -40 ... +125 °C


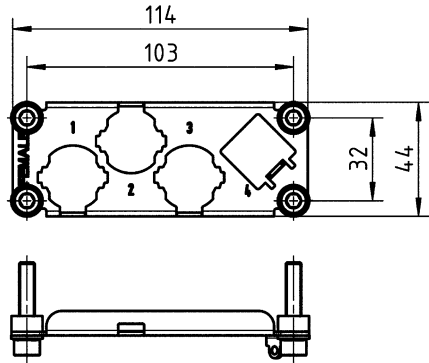

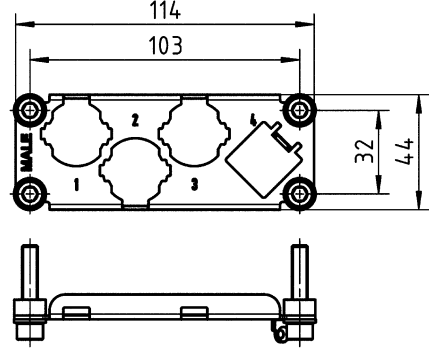

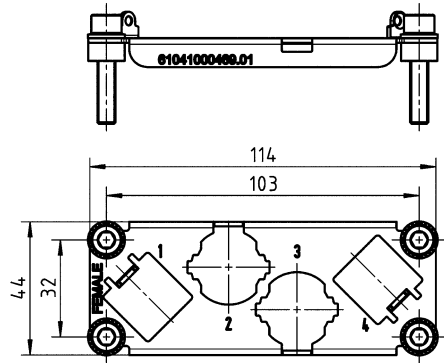
Technical characteristics

Material (accessories) Aluminium die-cast
Corrosion resistant

Identification	Part number	Drawing (dimensions in mm)
Mounting frames, Han® HPR Compact, 06 B 	09 40 506 9901	
Mounting frames, Han® HPR Compact, 10 B 	09 40 510 9901	
Mounting frames, Han® HPR Compact, 16 B 	09 40 516 9901	
Mounting frames, Han® HPR Compact, 24 B 	09 40 524 9901	

Technical characteristics

Material (accessories) Stainless steel

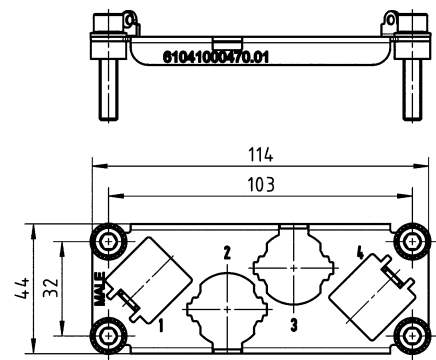
Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR enlarged, Frame, for female inserts, 3x Han® HC Modular 250, 1x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 30, 4x washer SK S6, 4x Distance bush</p> 	<p>61 04 100 0444 01</p>	
<p>Han® HPR enlarged, Frame, for male inserts, 3x Han® HC Modular 250, 1x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 30, 4x washer SK S6, 4x Distance bush</p> 	<p>61 04 100 0445 01</p>	
<p>Han® HPR enlarged, Frame, for female inserts, 2x Han® HC Modular 250, 2x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 30, 4x washer SK S6, 4x Distance bush</p> 	<p>61 04 100 0469 01</p>	

Han

Identification	Part number	Drawing (dimensions in mm)
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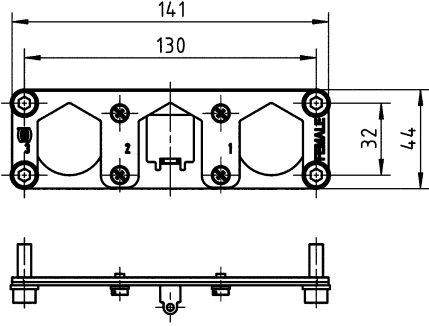

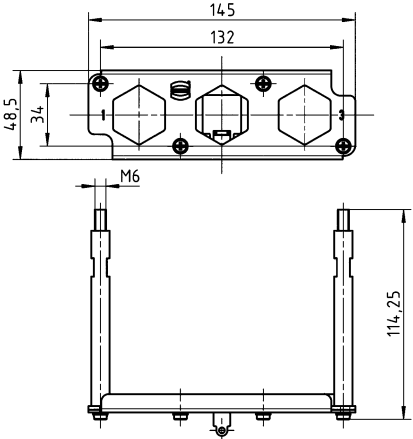
Han® HPR enlarged,
Frame,
for male inserts,
2x Han® HC Modular 250,
2x Han® Q 5/0,
Pack contents:
4x cheese-head screw M6 x 20,
4x cheese-head screw M6 x 30,
4x washer SK S6,
4x Distance bush

61 04 100 0470 01


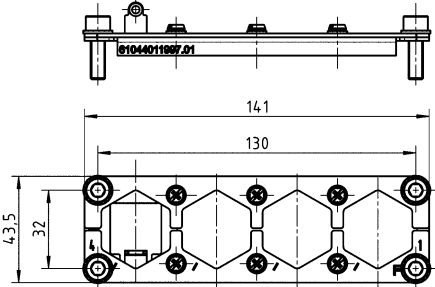

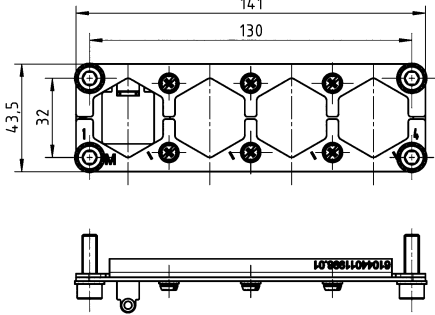

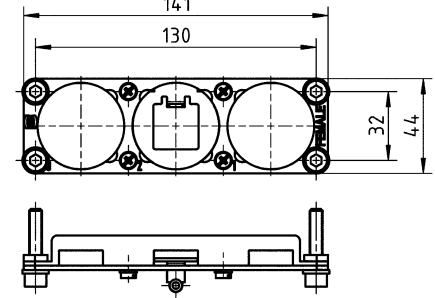



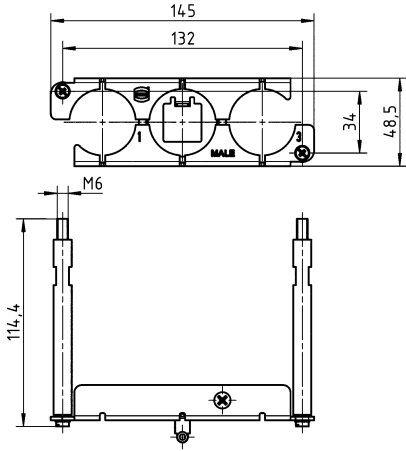

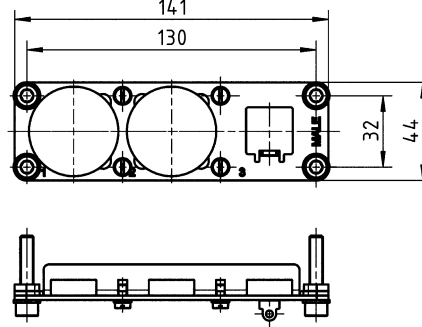

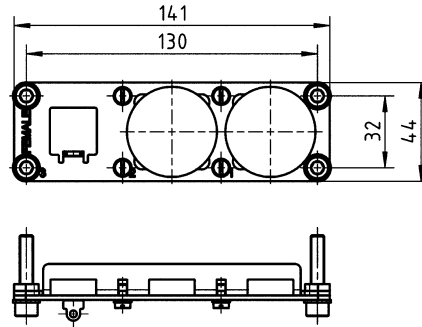

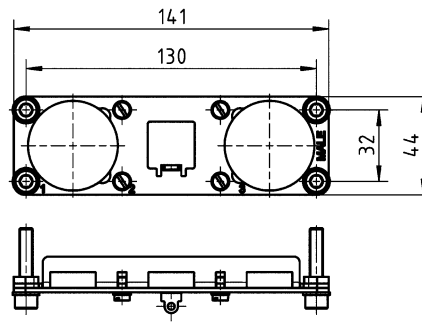
Technical characteristics

Material (accessories) Metal

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR enlarged, Frame, for female inserts, 2x Han® HC Modular 350, 1x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 25, 4x M4 screw, 4x washer SK S6, 4x washer SK S4</p> 	<p>61 04 401 1806 01</p>	
<p>Han® HPR EasyCon, Frame, for male inserts, 2x Han® HC Modular 350, 1x Han® Q 5/0,</p> <p>Pack contents: 2x M6 distance bolt, 4x M4 screw, 4x washer SK S4</p> 	<p>61 04 401 1807 01</p>	


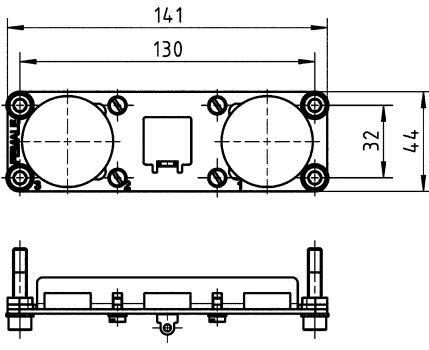
Han

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR enlarged, Frame, for female inserts, 3x Han® HC Modular 350, 1x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 25, 6x M4 screw, 4x washer SK S6, 4x washer SK S4, 4x heat shrink tube</p> 	<p>61 04 401 1997 01</p>	
<p>Han® HPR enlarged, Frame, for male inserts, 3x Han® HC Modular 350, 1x Han® Q 2/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 25, 6x M4 screw, 4x washer SK S6, 6x washer SK S4, 4x heat shrink tube</p> 	<p>61 04 401 1998 01</p>	
<p>Han® HPR enlarged, Frame, for female inserts, 2x Han® HC Modular 650, 1x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 25, 4x M4 screw, 4x washer SK S6, 4x washer SK S4</p> 	<p>61 04 100 0347 01</p>	

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR EasyCon, Frame, for male inserts, 2x Han® HC Modular 650, 1x Han® Q 5/0,</p> <p>Pack contents: 2x M6 distance bolt, 2x M4 screw, 2x M4 countersunk screw, 2x washer SK S4</p> 	61 04 100 0348 01	
<p>Han® HPR enlarged, Frame, for male inserts, 2x Han® HC Modular 650, 1x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 30, 4x M4 screw, 4x washer SK S6, 4x washer SK S4</p> 	61 04 401 2268 02	
<p>Han® HPR enlarged, Frame, for female inserts, 2x Han® HC Modular 650, 1x Han® Q 5/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 30, 4x M4 screw, 4x washer SK S6, 4x washer SK S4</p> 	61 04 401 2269 02	
<p>Han® HPR enlarged, Frame, for male inserts, 2x Han® HC Modular 650, 1x Han® Q 5/0 / Han® Q 7/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 30, 4x M4 screw, 4x washer SK S6, 4x washer SK S4</p> 	61 04 401 2489 01	

Han

Han

Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR enlarged, Frame, for female inserts, 2x Han® HC Modular 650, 1x Han® Q 5/0 / Han® Q 7/0,</p> <p>Pack contents: 4x cheese-head screw M6 x 20, 4x cheese-head screw M6 x 30, 4x M4 screw, 4x washer SK S6, 4x washer SK S4</p> 	<p>61 04 401 2490 01</p>	

Hoods/housings for harsh outdoor environments
Screw locking

Technical characteristics

Limiting temperature	-40 ... +125 °C
Tightening torque (screw locking)	2 Nm, 4 Nm
Degree of protection acc. to IEC 60529	IP54
Material (hood/housing)	Polyamide (PA) Fibre-glass reinforced
Colour (hood/housing)	RAL 9005 (jet black)
Material (locking)	Stainless steel
Material flammability class acc. to UL 94	V-0

Technical characteristics

RoHS compliant

Specifications and approvals

IEC 61984
EN 45545-2 R22: HL1, HL2, HL3
EN 45545-2 R23: HL1, HL2, HL3
EN 45545-2 R24: HL1, HL2, HL3

Identification

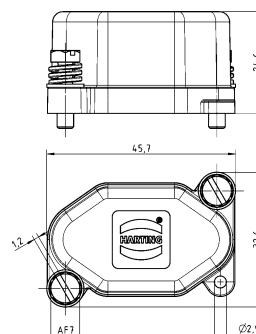
Part number

Drawing (dimensions in mm)

Han® HPR,
Protection cover,
for bulkhead mounted housings,
for surface mounted housings,
Screw locking,
3 HPR



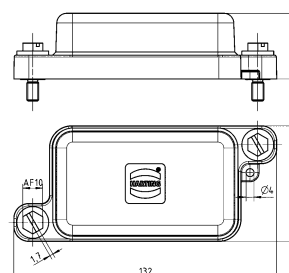
74 09 407 0354 110




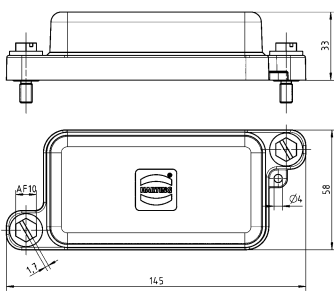

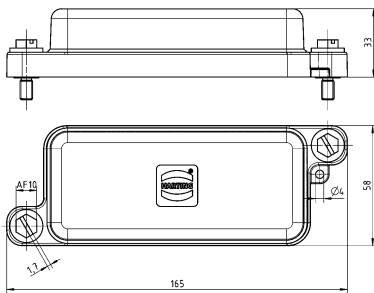

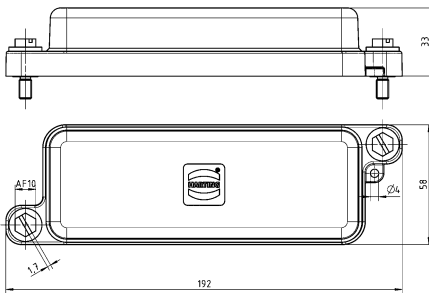
Han® HPR,
Protection cover,
for bulkhead mounted housings,
for surface mounted housings,
Screw locking,
6 HPR



74 09 400 0654 110



Han


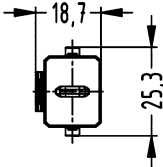
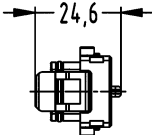

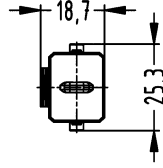
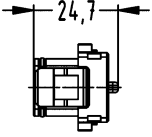

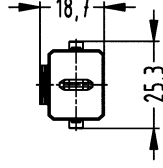
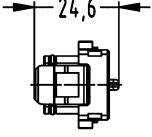
Identification	Part number	Drawing (dimensions in mm)
<p>Han® HPR, Protection cover, for bulkhead mounted housings, for surface mounted housings, Screw locking, 10 HPR</p> 	<p>74 09 400 1054 110</p>	
<p>Han® HPR, Protection cover, for bulkhead mounted housings, for surface mounted housings, Screw locking, 16 HPR</p> 	<p>74 09 400 1654 110</p>	
<p>Han® HPR, Protection cover, for bulkhead mounted housings, for surface mounted housings, Screw locking, 24 HPR</p> 	<p>74 09 400 2454 110</p>	

Features




- IP65 in locked condition
- Suitable for snap-in latch and lever

Technical characteristics

Limiting temperature	-30 ... +90 °C
Degree of protection acc. to IEC 60529	IP65
Material (cover)	Polyamide (PA)
Colour (accessories)	RAL 9005 (jet black)
Material flammability class acc. to UL 94	V-0

Identification	Size	Part number	Drawing (dimensions in mm)	
Protection cover, for male inserts, 09 10 012 300X, Available as from Q3/2021 	1 A	09 10 000 5400		
Protection cover, for male inserts, 09 10 003 320X, 09 10 003 300X, 09 10 005 300X, Available as from Q3/2021 	1 A	09 10 000 5401		
Protection cover, for male inserts, 09 10 004 300X, 09 10 008 300X, 09 10 002 260X, Available as from Q3/2021 	1 A	09 10 000 5402		

Han

Identification	Size	Part number	Drawing (dimensions in mm)	
Protection cover, for female inserts, 09 10 012 310X, Available as from Q3/2021	1 A	09 10 000 5500		
				
Protection cover, for female inserts, 09 10 003 330X, 09 10 003 310X, 09 10 005 310X, Available as from Q3/2021	1 A	09 10 000 5501		
				
Protection cover, for female inserts, 09 10 004 310X, 09 10 008 310X, 09 10 003 270X, 09 10 003 270X, Available as from Q3/2021	1 A	09 10 000 5502		
				

Features


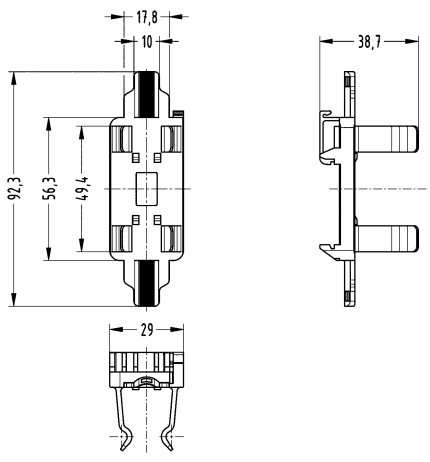

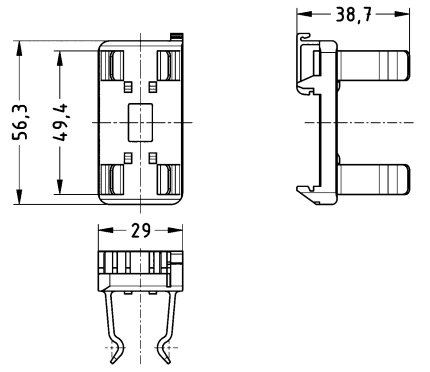
- Toolless assembly of Han® contact inserts
- Practical and easy handling
- Compact design saves space
- Optional with and without strain relief
- Suitable for standard rail TS 35

Technical characteristics


Material (accessories) Polyamide (PA)
 Colour (accessories) Black
 Material flammability class acc. to UL 94 V-0

Details

A Han® 1A configuration that only consists of inserts (with or without adapter 09 10 000 9911 / 09 10 000 9912) is an unenclosed connector according to IEC 61984. In this case protection against electric shock must be provided by the installation methods of the user.

Identification	Part number	Drawing (dimensions in mm)
Han® 1A, Adapter, With strain relief, Available as from Q3/2021 	09 10 000 9911	
Han® 1A, Adapter, Available as from Q3/2021 	09 10 000 9912	

Number of contacts

17+ 

10 A 400 V 6 kV 3



Technical characteristics

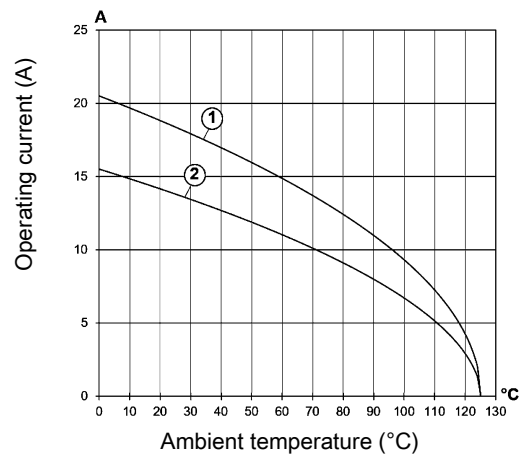
Number of contacts	17
Rated current	10 A
Rated voltage	400 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 3 \text{ m}\Omega$
Limiting temperature	-40 ... +125 °C
Mating cycles	≥ 500
Mating cycles with other HMC components	≥ 3000
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material (accessories)	Polyamide (PA)
Colour (accessories)	Red
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption compliant

Derating

Current carrying capacity

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

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



- ① Han® F+B 17 D 2.5 mm²
 ② Han® F+B 17 D 1.5 mm²

Specifications and approvals

EN 60664-1
 IEC 61984

Details


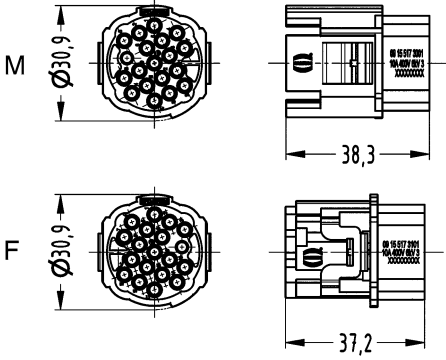

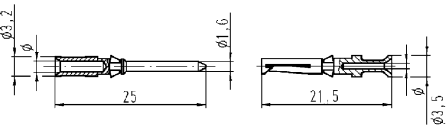

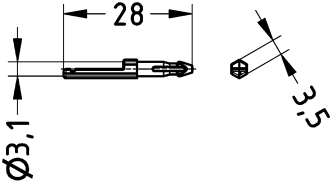
Crimping tools see chapter Han 90

Remarks on the crimp technique

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

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.

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)																					
		Male	Female																						
<p>Han® F+B, Crimp termination</p>  <p>Please order crimp contacts separately.</p>	0.14 ... 2.5	09 15 517 3001	09 15 517 3101																						
<p>Han D®, Crimp contact, Contact surface: Silver plated</p> 	0.14 ... 0.37 0.5 0.75 1 1.5 2.5	09 15 000 6104 09 15 000 6103 09 15 000 6105 09 15 000 6102 09 15 000 6101 09 15 000 6106	09 15 000 6204 09 15 000 6203 09 15 000 6205 09 15 000 6202 09 15 000 6201 09 15 000 6206	 <table border="1" data-bbox="1002 947 1449 1120"> <thead> <tr> <th>Conductor cross-section</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm² AWG 26-22</td> <td>0.9 mm</td> <td>8 mm</td> </tr> <tr> <td>0.5 mm² AWG 20</td> <td>1.1 mm</td> <td>8 mm</td> </tr> <tr> <td>0.75 mm² AWG 18</td> <td>1.3 mm</td> <td>8 mm</td> </tr> <tr> <td>1 mm² AWG 18</td> <td>1.45 mm</td> <td>8 mm</td> </tr> <tr> <td>1.5 mm² AWG 16</td> <td>1.75 mm</td> <td>8 mm</td> </tr> <tr> <td>2.5 mm² AWG 14</td> <td>2.25 mm</td> <td>6 mm</td> </tr> </tbody> </table>	Conductor cross-section	Ø	Stripping length	0.14-0.37 mm ² AWG 26-22	0.9 mm	8 mm	0.5 mm ² AWG 20	1.1 mm	8 mm	0.75 mm ² AWG 18	1.3 mm	8 mm	1 mm ² AWG 18	1.45 mm	8 mm	1.5 mm ² AWG 16	1.75 mm	8 mm	2.5 mm ² AWG 14	2.25 mm	6 mm
Conductor cross-section	Ø	Stripping length																							
0.14-0.37 mm ² AWG 26-22	0.9 mm	8 mm																							
0.5 mm ² AWG 20	1.1 mm	8 mm																							
0.75 mm ² AWG 18	1.3 mm	8 mm																							
1 mm ² AWG 18	1.45 mm	8 mm																							
1.5 mm ² AWG 16	1.75 mm	8 mm																							
2.5 mm ² AWG 14	2.25 mm	6 mm																							
<p>Coding element, Pack contents: 20 pieces per frame</p> 		09 12 000 9927	09 12 000 9927																						

Han

Number of contacts

5+

16 A 600 V 6 kV 3



Technical characteristics

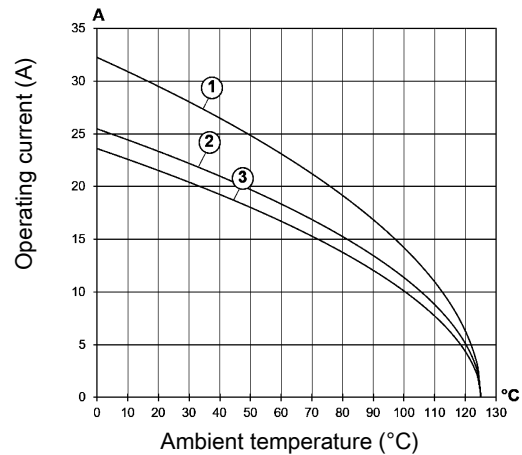
Number of contacts	5
Rated current	16 A
Rated voltage	600 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 ¹⁰ Ω
Limiting temperature	-40 ... +125 °C
Mating cycles	≥500
Material (insert)	Polycarbonate (PC)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Material (accessories)	Polyamide (PA)
Colour (accessories)	Red
Material flammability class acc. to UL 94	V-0
RoHS	compliant

Derating

Current carrying capacity

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

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





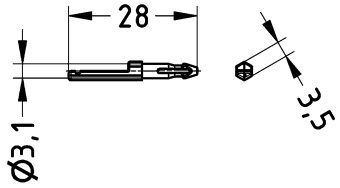
- ① Han® F+B 5 E 2.5 mm²
- ② Han® F+B 5 E 1.5 mm²
- ③ Han® F+B 5 E 1 mm²

Details

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.

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Han® F+B, Screw termination, With wire protection, Contact surface: Silver plated 	0.75 ... 2.5	09 15 505 2601	09 15 505 2701	

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Coding element, Pack contents: 20 pieces per frame 		09 12 000 9927	09 12 000 9927	

Han

Han

Details

Fast, light, efficient – that's what crimping is all about today.

Identification	Conductor cross-section (mm ²)	Part number	
Battery crimping tool set, Han D®: 0.14 ... 1.5 mm ² , Han E®: 0.5 ... 4 mm ² , Han® C: 1.5 ... 4 mm ² , Pack contents: Locator Han® C, Locator Han E®, Locator Han D®, Power supply	0.14 ... 4	09 99 000 0990	
Locator, Spare part, Han D®, for part number 09 99 000 0990	0.14 ... 1.5	09 99 000 0991	
Locator, Spare part, Han E®, for part number 09 99 000 0990	0.5 ... 4	09 99 000 0992	
Locator, Spare part, Han® C, for part number 09 99 000 0990	1.5 ... 4	09 99 000 0993	
Additional battery, for part number 09 99 000 0990		09 99 000 0994	

Contents

Page

Ha-VIS eCon 4000

New 2.2

Switch

Total number of ports

8



Switch

Technical characteristics

Series	Ha-VIS eCon 4000
Element	Industrial Ethernet Switches
Specification	Unmanaged
Type of Ethernet	Gigabit Ethernet
Total number of ports	8
Pollution degree	2
Operating temperature	-40 ... +70 °C
Storage temperature	-40 ... +85 °C
Degree of protection acc. to IEC 60529	IP65 / IP67, mated condition
Nominal voltage	24 V AC, 48 V AC
Power consumption	≤3.3 W @ 24 V DC
10/100/1000 Mbit/s (M12-ports X-coding)	8
Transmission standard	10BASE-T 100BASE-TX 1000BASE-T
Auto-negotiation	Yes
Auto-polarity	Yes
Auto-MDI(X)	Yes
Transmission physics	Twisted Pair
Data rate	10 Mbit/s, 100 Mbit/s, 1000 Mbit/s
Transmission length	100 m

Technical characteristics

Material (hood/housing) Aluminium

Specifications and approvals

EN 50155 Railway applications
 EN 50121-3-2 Railway applications EMC
 EN 61000-6-2 EMC Interference immunity
 EN 55035 EMC Interference immunity
 EN 61000-4-2 Electrostatic discharge (ESD)
 EN 61000-4-3 Electromagnetic field
 EN 61000-4-4 Rapid transients (burst)
 EN 61000-4-5 Surge voltages
 EN 61000-4-6 conducted disturbances
 EN 61000-6-4 emission standard
 EN 55032 emission standard
 IEC 60721-3 Mechanical stability
 IEC 60068-2-6 Vibration (sinusoidal)
 IEC 60068-2-27 Shock
 IEEE 802.3
 UL in preparation
 E1 in preparation



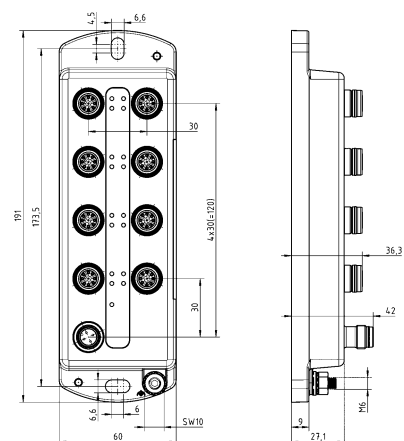
Identification

Ha-VIS eCon 4080GBT-BXT,
 Wall mounting,
 Pack contents:
 Assembly instructions

Part number

20 77 408 0000

Drawing
 (dimensions in mm)



New
 2
 ·
 2

Contents	Page
<i>har-modular</i> [®]	New 3.2
<i>har-modular</i> [®] C9 module	New 3.4
<i>har-modular</i> [®] F4 module	New 3.6
<i>har-modular</i> [®] H3 module	New 3.8
<i>har-modular</i> [®] M1 power module	New 3.10
<i>har-modular</i> [®] M1 coax module	New 3.17
<i>har-modular</i> [®] M1 high-voltage module	New 3.23
<i>har-modular</i> [®] M1 FO module	New 3.26
<i>har-modular</i> [®] P module	New 3.30
<i>har-modular</i> [®] T module	New 3.32
<i>har-modular</i> [®] fixing rails	New 3.34
<i>har-flex</i> [®] Power	New 3.35
<i>har-flex</i> [®] Hybrid	New 3.43
<i>har-flex</i> [®] HD-Card Edge	New 3.51
<i>har-drive</i> [®]	New 3.53

New products for modular PCB connectors.

PCB

HARTING har-modular®
The new modular solution for your Board-to-Board application.

CREATE YOUR OWN!

Developers know this. A good idea for a new product fails because of the availability of suitable components. Several lifelines of data, power and signals are to be routed from one PCB to another and no supplier has a suitable connector ready on the shelf. A special solution can be developed, but it usually takes too long and the minimum order quantity is too large for worthwhile prototyping. So in the end it becomes a stopgap solution from the best fitting connector available. So why not simply invent a connector that developers can assemble as they need it? Exactly. We call it *har-modular*®. A connector that is perfectly tailored to the individual application and can be configured online from numerous modules, offering an almost infinite number of individual solutions. From batch size 1, developers can always find the right connection using the modular principle.

Any arrangement, no matter how innovative and creative, within a device design is no longer dependent on whether there is a suitable standard strip or variant. The developer adapts the connector to his requirements. Not the other way round.



3 steps to your individual connector

With the *har-modular*® online configurator, you can now find your individual solution even more easily and quickly. Every conceivable combination can be configured here in three simple steps.

STEP 1 - Which modules and how many?

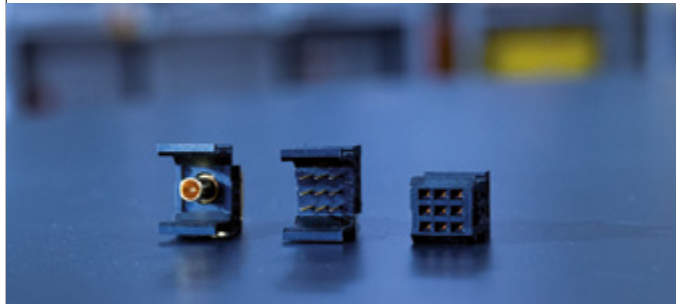
The *har-modular*® modular system offers modules for all three lifelines: power, signals and data. In the first step, you select the appropriate modules and their required number for your application.

The modules in detail:

Signal Modules

Two modules are available for the transmission of signals:

- 9 contacts with a maximum current of 2A / contact
- 1 coax contact with 50 Ohm or 75 Ohm



Power modules

Three modules are available for the transmission of power:

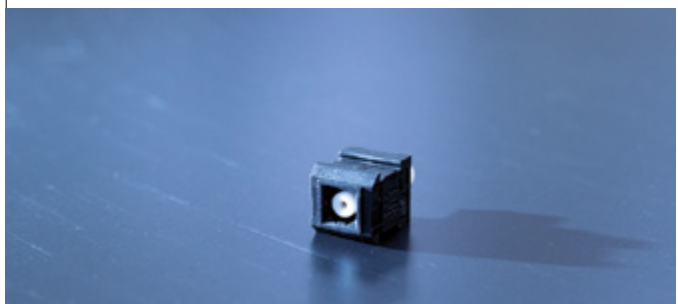
- 1 contact with a maximum current of 40 A / contact
- 3 contacts with a maximum current of 15 A / contact
- 4 contacts with a maximum current of 6 A / contact



High-voltage modules

A module is available for the transmission of high voltage:

- 1 contact at a maximum of 2,800 V at 1.5 A

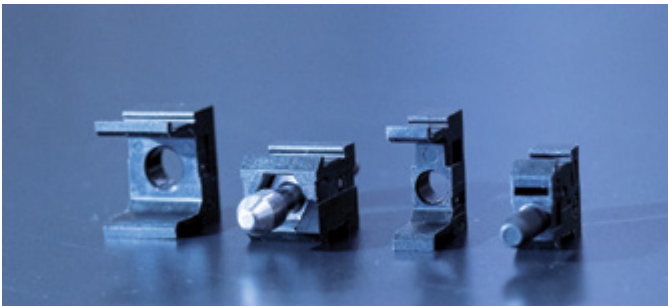


New products for modular PCB connectors.

PCB

STEP 2 - The guiding pin

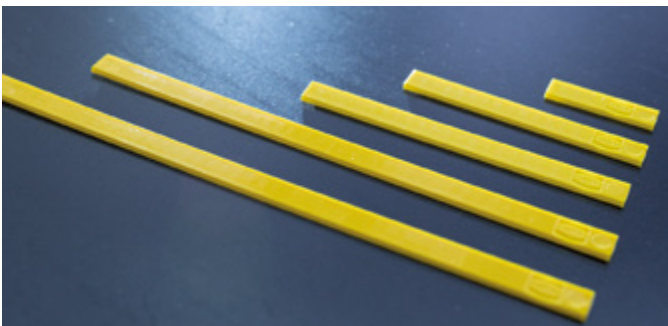
For the secure connection of all modules, each *har-modular*® connector requires two guide pins. Depending on your application, you can choose guide pins in plastic or metal. If you ask us, the best position for the guide pins is always the end of the connector. But any other position is also possible.



STEP 3 - The connecting rail

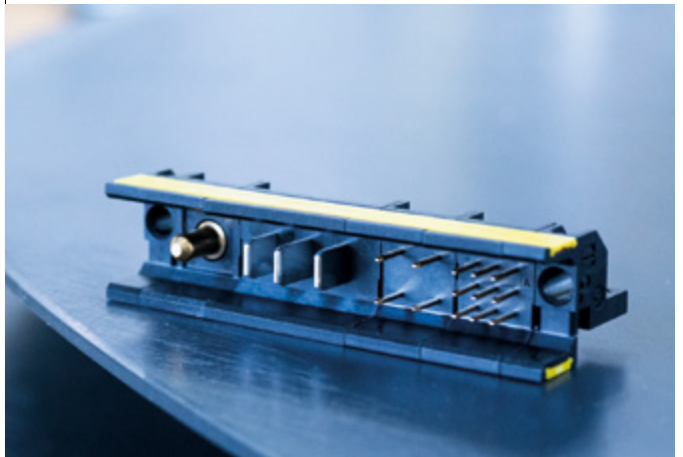
Select the appropriate yellow fastening rail for this step. It must have the same length as all the modules together. In the next step, take the mounting tool and put your modules side by side on the module. Depending on your modules, use the MALE or FEMALE side up. Now press the top edge of the mounting strip into the top slot of the module. Start this at one of the two ends and connect one module at a time. Do the same on the opposite side.

DONE!



All modules can be freely combined in widths from 20 to 172 millimetres. The principle always remains the same. Select modules, select guide pins, insert connecting rails and the connector is ready. The position of the elements among each other is completely free and can be recombined again and again. In just a few steps, an absolutely customised connection solution is created for rack systems and PCB applications of all kinds.

Who needs a modular connector?



First and foremost, those users who cannot find the right solution for their application from the wide range of DIN 41612 connectors. Here, too, special solutions are possible, but not as quickly, and with *har-modular*® it is possible to respond even more specifically to every customer request. This also makes *har-modular*® the perfect solution for prototyping and small series. Here, the interface can be reconfigured quickly and developers are much freer in their design.

Good to know:

Of course, the *har-modular*® is suitable for pick&place, can be soldered on wave soldering systems as well as in the reflow process and arrives fully assembled at your premises from an order quantity of 200 pieces.

Technical characteristics

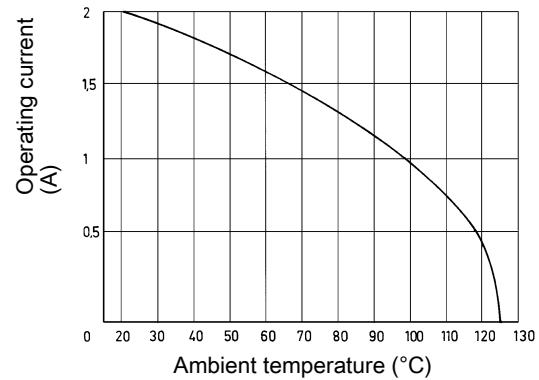
PCB	Contact spacing (mating side)	2.54 mm
	Rated current	2 A
	Test voltage $U_{r.m.s.}$	1 kV
	Insulation resistance	$>10^{11} \Omega$
	Contact resistance	$\leq 20 \text{ m}\Omega$
	Limiting temperature	-55 ... +125 °C (during reflow soldering max. +240 °C for 15 s)
	Mating cycles	≥ 500
	Clearance distance	1 mm in the module 1.9 mm to module edge
	Creepage distance	1 mm in the module 1.8 mm to module edge
	Termination length	3 mm, 4.8 mm, 4.5 mm
	Railway classification	F1/I2, acc. to NFF 16-101/102
	Performance level	1
	Mating cycles	acc. to IEC 60603-2
	Material (insert)	≥ 500
	Material (insert)	Polyamide (PA)
	Isolation group	I, ($600 \leq \text{CTI}$)
	Colour (insert)	Black
	Material (contacts)	Copper alloy
	Surface (contacts)	Noble metal, Mating side Sn over Ni, Termination side
	Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

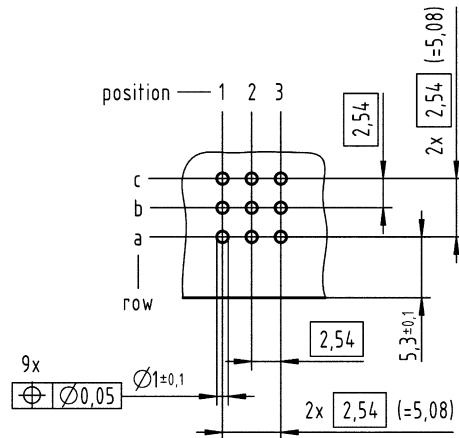
The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the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

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



Details

Board drillings


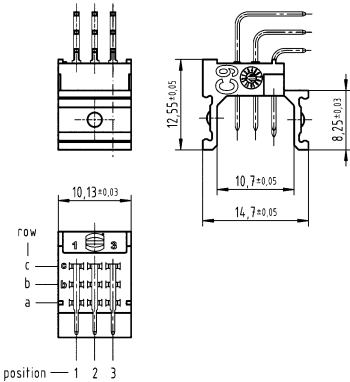

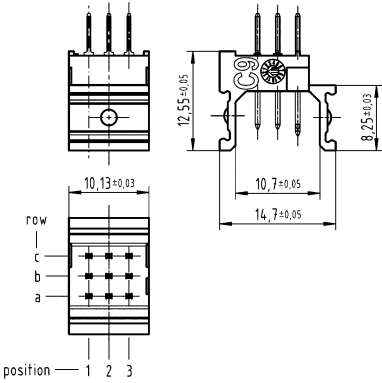

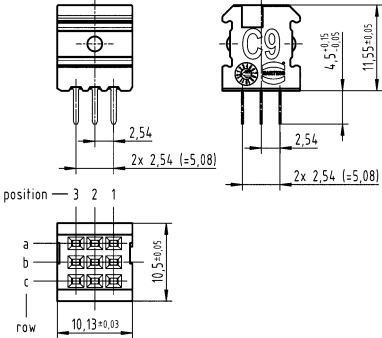


Width of the module

10.16 mm



PCB

Identification	Number of contacts	Leading contact	Part number	Drawing (dimensions in mm)
<p>har-modular®, C9 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Angled</p> 	<p>9 9 9</p>	<p>a1 a3</p>	<p>02 51 909 1101 02 51 909 1102 02 51 909 1103</p>	
<p>har-modular®, C9 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Straight</p> 	<p>9 9 9</p>	<p>a1 a3</p>	<p>02 53 909 1101 02 53 909 1102 02 53 909 1103</p>	
<p>har-modular®, C9 module, Female connector, Reflow soldering termination (THR), Wave soldering termination, Straight</p> 	<p>9</p>		<p>02 52 909 1101</p>	

Technical characteristics

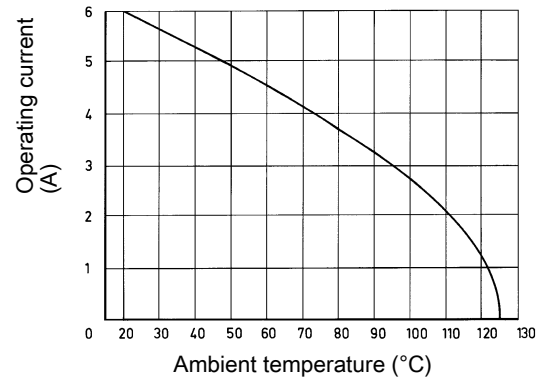
PCB	Contact spacing (mating side)	5.08 mm
	Rated current	6 A
	Test voltage $U_{r.m.s.}$	1.55 kV
	Insulation resistance	$>10^{11} \Omega$
	Contact resistance	$\leq 15 \text{ m}\Omega$
	Limiting temperature	-55 ... +125 °C (during reflow soldering max. +240 °C for 15 s)
	Mating cycles	≥ 500
	Clearance distance	3 mm in the module 1.6 mm to module edge
	Creepage distance	3 mm in the module 1.6 mm to module edge
	Termination length	3 mm, 4.8 mm, 4.5 mm
	Railway classification	F1/I2, acc. to NFF 16-101/102
	Performance level	1
	Mating cycles	acc. to IEC 60603-2
	Mating cycles	≥ 500
	Material (insert)	Polyamide (PA)
	Isolation group	I, ($600 \leq \text{CTI}$)
	Colour (insert)	Black
	Material (contacts)	Copper alloy
	Surface (contacts)	Noble metal, Mating side Sn over Ni, Termination side
	Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

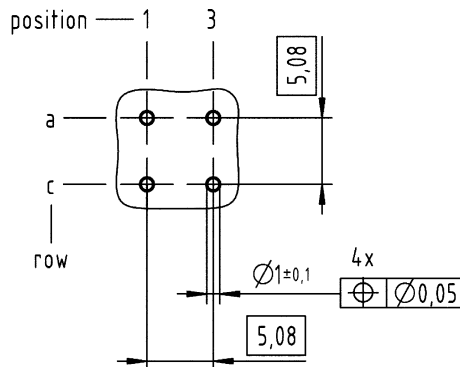
The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the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

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



Details

Board drillings


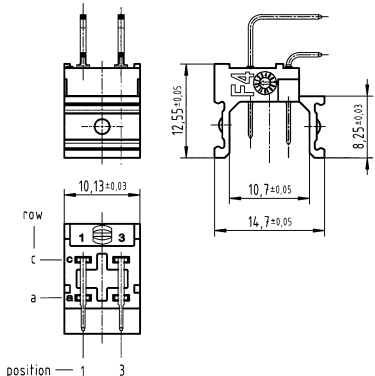

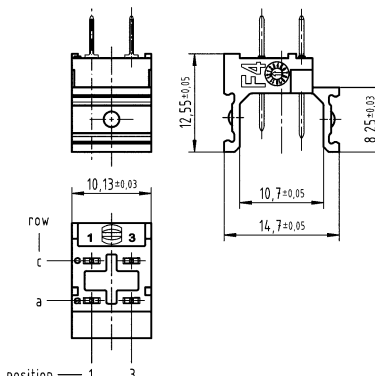

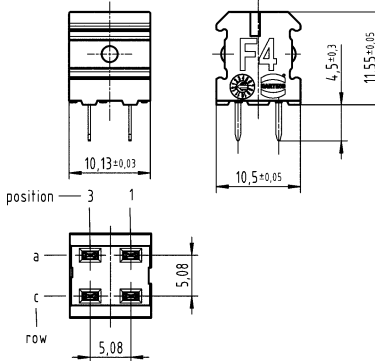


Width of the module

10.16 mm



PCB

Identification	Number of contacts	Leading contact	Part number	Drawing (dimensions in mm)
<p>har-modular®, F4 module, Male connector, Rows a and c, positions 1 and 3, Reflow soldering termination (THR), Wave soldering termination, Angled</p> 	4 4	a1	02 51 904 1201 02 51 904 1202	
<p>har-modular®, F4 module, Male connector, Rows a and c, positions 1 and 3, Reflow soldering termination (THR), Wave soldering termination, Straight</p> 	4 4	a1	02 53 904 1201 02 53 904 1202	
<p>har-modular®, F4 module, Female connector, Rows a and c, positions 1 and 3, Reflow soldering termination (THR), Wave soldering termination, Straight</p> 	4		02 52 904 1201	

Technical characteristics

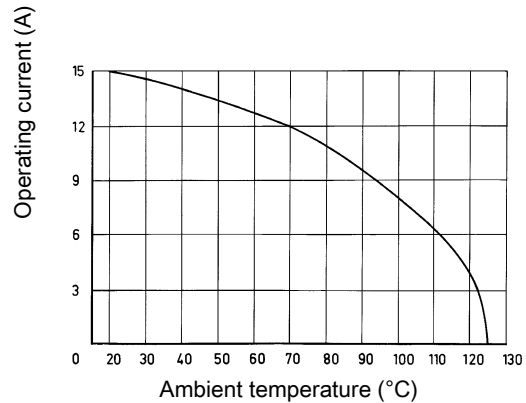
PCB	Contact spacing (mating side)	5.08 mm
	Rated current	15 A
	Test voltage $U_{r.m.s.}$	2.5 kV
	Insulation resistance	$>10^{11} \Omega$
	Contact resistance	$\leq 8 \text{ m}\Omega$
	Limiting temperature	-55 ... +125 °C (during reflow soldering max. +240 °C for 15 s)
	Mating cycles	≥ 500
	Clearance distance	4 mm in the module 4.4 mm to module edge
	Creepage distance	4.4 mm in the module 4.6 mm to module edge
	Termination length	2.8 mm, 4.8 mm, 4.1 mm
	Railway classification	F1/I2, acc. to NFF 16-101/102
	Performance level	1
		acc. to IEC 60603-2
	Mating cycles	≥ 500
	Material (insert)	Polyamide (PA)
	Isolation group	I, ($600 \leq \text{CTI}$)
	Colour (insert)	Black
	Material (contacts)	Copper alloy
	Surface (contacts)	Silver plated, Mating side
	Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

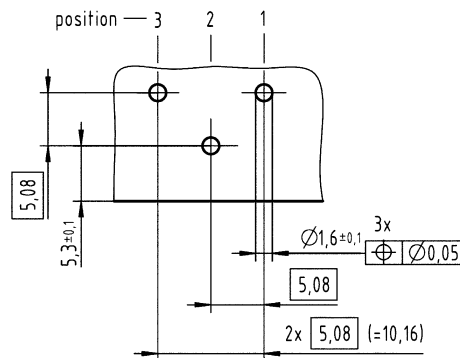
The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the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

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



Details

Board drillings


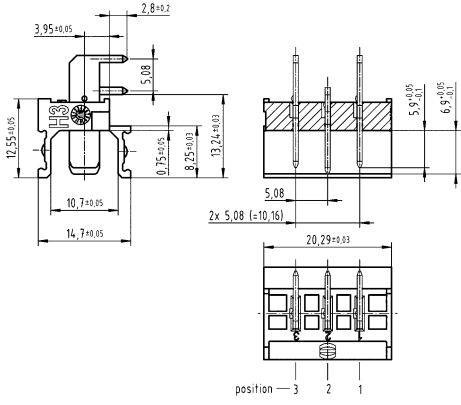

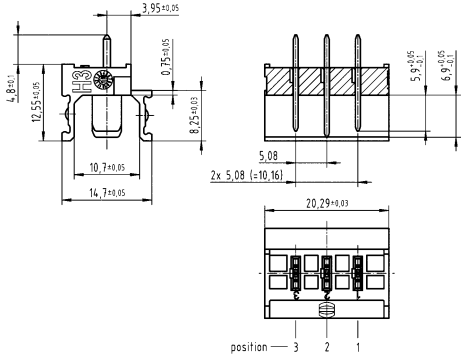

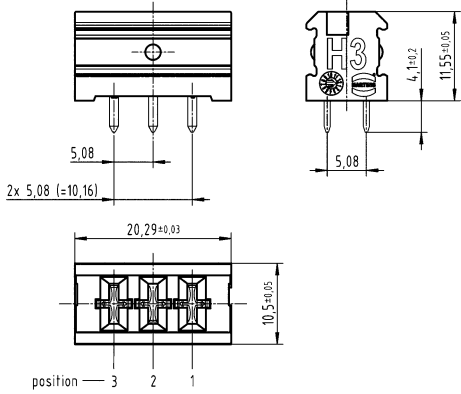


Width of the module

20.32 mm



PCB

Identification	Number of contacts	Leading contact	Part number	Drawing (dimensions in mm)
<p>har-modular®, H3 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Angled</p> 	3	2	02 51 903 1301	
<p>har-modular®, H3 module, Male connector, Reflow soldering termination (THR), Wave soldering termination, Straight</p> 	3	2	02 53 903 1301	
<p>har-modular®, H3 module, Female connector, Reflow soldering termination (THR), Wave soldering termination, Straight</p> 	3	2	02 52 903 1301	

Technical characteristics

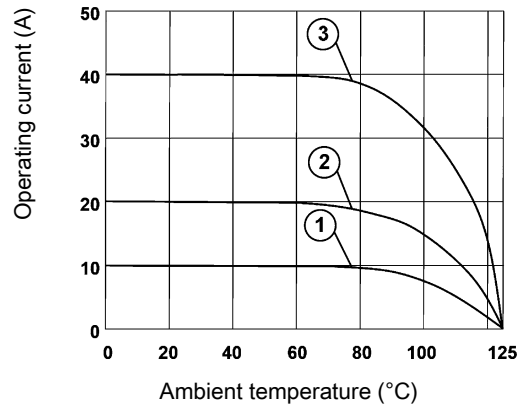
Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11} \Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Conductor cross-section	1.5 mm ² 4 mm ² 10 mm ²
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1
Mating cycles	≥ 500
Material (insert)	Polyamide (PA)
Isolation group	I, (600 \leq CTI)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

Derating

Current carrying capacity

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

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



- ① 10 A
- ② 20 A
- ③ 40 A

Specifications and approvals

DIN 41626


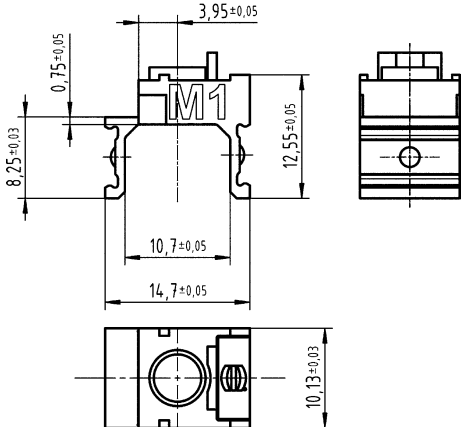

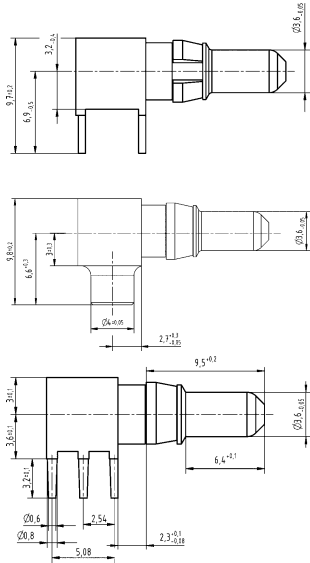

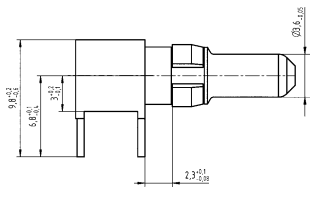
Width of the module

10.16 mm

Male connectors



PCB

Identification	Number of contacts	Conductor cross-section (mm ²)	Operating current	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Male connector, Angled</p>  <p>Please order contacts separately.</p>	1			02 51 901 0401	
<p>PCB solder contact, Angled, Male contact for male connectors</p> 			<p>≤20 A ≤40 A ≤40 A</p>	<p>09 03 000 6104 09 03 000 6110 09 03 000 6127</p>	
<p>PCB solder contact, Angled, Leading contact, Male contact for male connectors</p> 			≤40 A	09 03 000 6134	

PCB

Identification	Number of contacts	Conductor cross-section (mm ²)	Operating current	Part number	Drawing (dimensions in mm)
Crimp contact, Male contact for male connectors	1.5	≤10 A ≤20 A ≤40 A	09 03 000 6113 09 03 000 6114 09 03 000 6115		
	4				
	10				
Solder contact, Straight, Male contact for male connectors		≤10 A ≤20 A ≤40 A	09 03 000 6101 09 03 000 6102 09 03 000 6103		
Solder contact, Straight, Leading contact, Male contact for male connectors		≤40 A	09 03 000 6133		


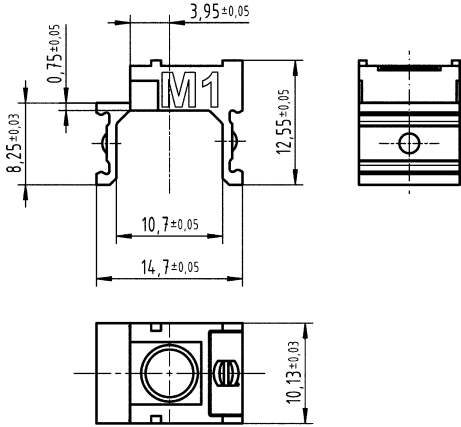

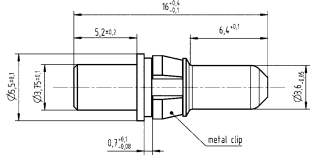
Width of the module

10.16 mm

Male connectors Low construction type



PCB

Identification	Number of contacts	Operating current	Part number	Drawing (dimensions in mm)
<p>har-modular[®], M1 module, flat, Male connector, Straight</p>  <p>Please order contacts separately.</p>	<p>1</p>		<p>02 53 901 0451</p>	
<p>PCB solder contact, Straight, Male contact for male connectors</p> 		<p>≤40 A</p>	<p>09 03 000 6136</p>	


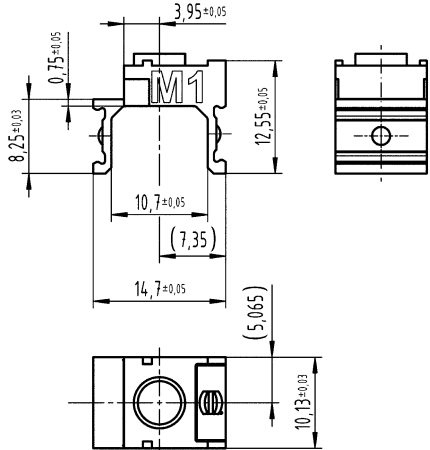

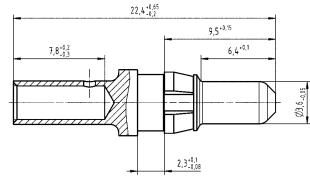

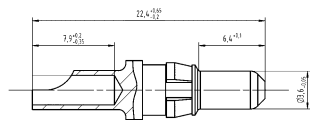

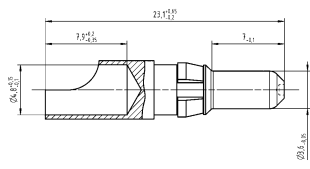
Width of the module

10.16 mm

Male connectors



PCB

Identification	Number of contacts	Conductor cross-section (mm²)	Operating current	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Male connector, Straight</p>  <p>Please order contacts separately.</p>	1			02 53 901 0401	
<p>Crimp contact, Male contact for male connectors</p> 		1.5 4 10	≤10 A ≤20 A ≤40 A	09 03 000 6113 09 03 000 6114 09 03 000 6115	
<p>Solder contact, Straight, Male contact for male connectors</p> 			≤10 A ≤20 A ≤40 A	09 03 000 6101 09 03 000 6102 09 03 000 6103	
<p>Solder contact, Straight, Leading contact, Male contact for male connectors</p> 			≤40 A	09 03 000 6133	



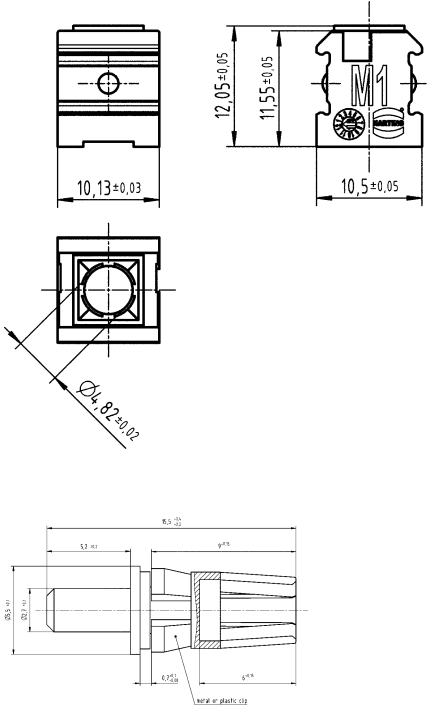
Width of the module

10.16 mm

Female connectors Low construction type



PCB

Identification	Number of contacts	Operating current	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, flat, Female connector, Straight</p>  <p>Please order contacts separately.</p> <p>PCB solder contact, Straight, Female contact for female connectors</p> 	<p>1</p>	<p>≤40 A</p>	<p>02 52 901 0451</p> <p>09 03 000 6225</p>	


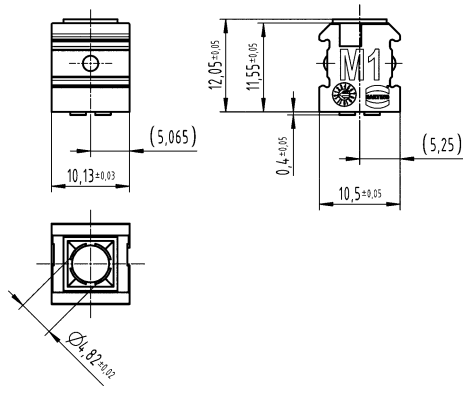

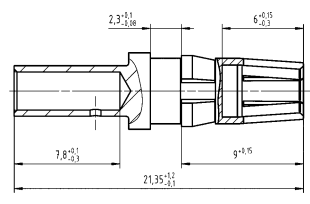

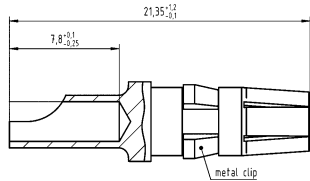
Width of the module

10.16 mm

Female connectors



PCB

Identification	Number of contacts	Conductor cross-section (mm²)	Operating current	Part number	Drawing (dimensions in mm)
har-modular®, M1 module, Female connector, Straight  <p>Please order contacts separately.</p>	1			02 52 901 0401	
Crimp contact, Straight, Female contact for female connectors 		1.5 4 10	≤10 A ≤20 A ≤40 A	09 03 000 6213 09 03 000 6214 09 03 000 6215	
Solder contact, Straight, Female contact for female connectors 			≤10 A ≤20 A ≤40 A	09 03 000 6201 09 03 000 6202 09 03 000 6203	

New
3
·
16

Technical characteristics

Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11} \Omega$
Impedance	50 Ω , 75 Ω
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1
Mating cycles	≥ 500
Material (insert)	Polyamide (PA)

Technical characteristics

Isolation group	I, (600 \leq CTI)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

Specifications and approvals

DIN 41626





PCB


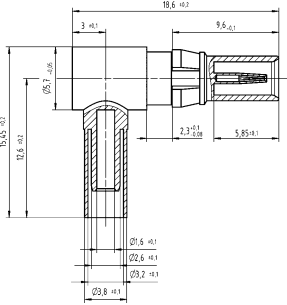
Width of the module

10.16 mm

Male connectors



Identification	Number of contacts	Impedance	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Male connector, Angled</p>  <p>Please order contacts separately.</p>	1		02 51 901 0401	
<p>Coaxial contact, PCB solder termination, Angled, Female contact for male connectors</p> 		50 Ω 75 Ω	09 03 000 6262 09 03 000 6269	
<p>Coaxial contact, Solder/crimp termination, Straight, Female contact for male connectors</p> 		50 Ω 75 Ω	09 03 000 6260 09 03 000 6281	
<p>Coaxial contact, Solder/crimp termination, Straight, With knurled area, Female contact for male connectors</p> 		50 Ω	09 03 000 6274	

Identification	Number of contacts	Impedance	Part number	Drawing (dimensions in mm)
<p>Coaxial contact, Solder/crimp termination, Angled, Female contact for male connectors</p> 		50 Ω	09 03 000 6261	





PCB

Width of the module

10.16 mm

Male connectors



Identification	Number of contacts	Impedance	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Male connector, Straight</p>  <p>Please order contacts separately.</p>	1		02 53 901 0401	
<p>Coaxial contact, Solder/crimp termination, Straight, Female contact for male connectors</p> 		50 Ω 75 Ω	09 03 000 6260 09 03 000 6281	
<p>Coaxial contact, Solder/crimp termination, Straight, With knurled area, Female contact for male connectors</p> 		50 Ω	09 03 000 6274	
<p>Coaxial contact, Solder/crimp termination, Angled, Female contact for male connectors</p> 		50 Ω	09 03 000 6261	



Width of the module

10.16 mm

Female connectors Low construction type



PCB


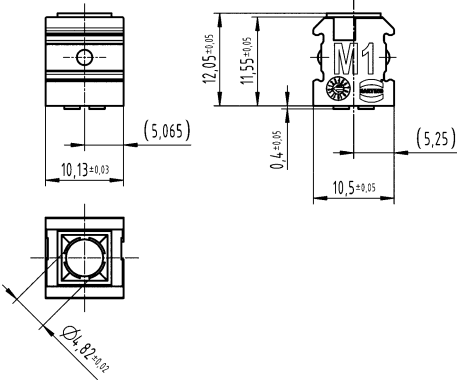

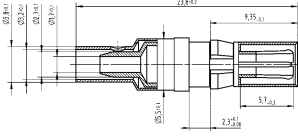

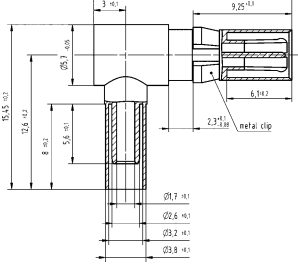
Identification	Number of contacts	Impedance	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, flat, Female connector, Straight</p>  <p>Please order contacts separately.</p> <p>Coaxial contact, PCB solder termination, Straight, Male contact for female connectors</p> 	<p>1</p>	<p>50 Ω</p>	<p>02 52 901 0451</p> <p>09 03 000 6182</p>	

Width of the module

10.16 mm

Female connectors



Identification	Number of contacts	Impedance	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Female connector, Straight</p>  <p>Please order contacts separately.</p>	1		02 52 901 0401	
<p>Coaxial contact, Solder/crimp termination, Straight, Male contact for female connectors</p> 		50 Ω 75 Ω	09 03 000 6160 09 03 000 6181	
<p>Coaxial contact, Solder/crimp termination, Angled, Male contact for female connectors</p> 		50 Ω	09 03 000 6161	

Technical characteristics

Rated voltage	2800 V
Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11} \Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge
Railway classification	F1/I2, acc. to NFF 16-101/102
Performance level	1
Mating cycles	≥ 500
Material (insert)	Polyamide (PA)

Technical characteristics

Isolation group	I, (600 \leq CTI)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

Specifications and approvals

DIN 41626


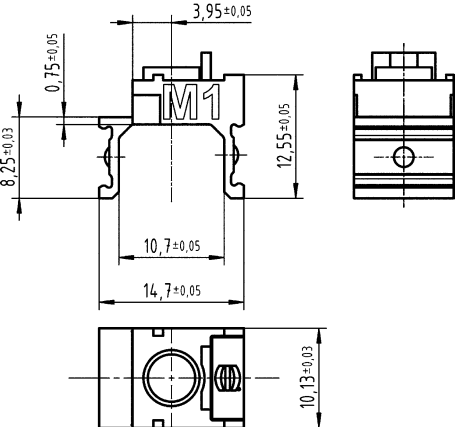

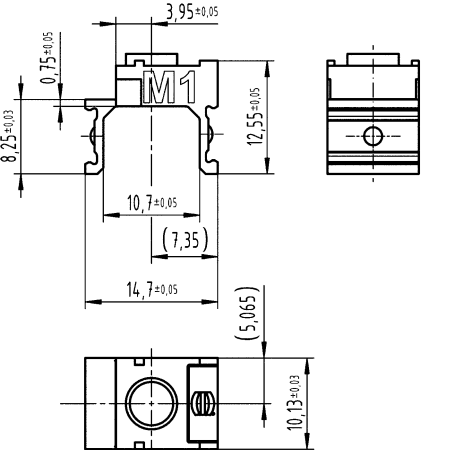

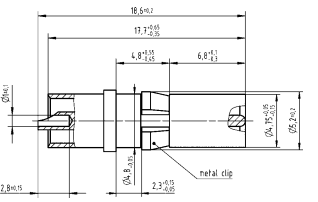
PCB

Width of the module

10.16 mm

Male connectors



Identification	Number of contacts	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Male connector, Angled</p>  <p>Please order contacts separately.</p>	1	02 51 901 0401	
<p>har-modular®, M1 module, Male connector, Straight</p>  <p>Please order contacts separately.</p>	1	02 53 901 0401	
<p>Solder contact, Straight, Male contact for male connectors</p> 		09 03 000 6140	


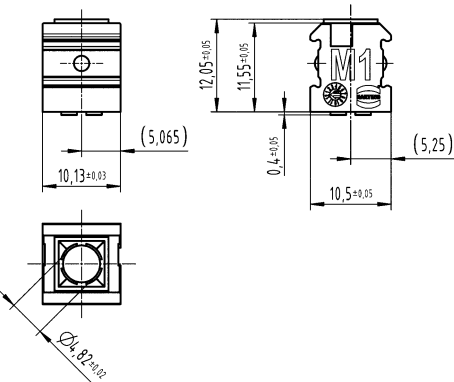

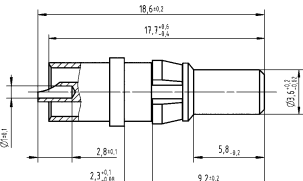
Width of the module

10.16 mm

Female connectors



PCB

Identification	Number of contacts	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Female connector, Straight</p>  <p>Please order contacts separately.</p>	<p>1</p>	<p>02 52 901 0401</p>	
<p>Solder contact, Straight, Female contact for female connectors</p> 		<p>09 03 000 6240</p>	

Technical characteristics

Test voltage $U_{r.m.s.}$	1.55 kV
Insulation resistance	$>10^{11} \Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	4 mm in the module 2 mm to module edge
Creepage distance	4 mm in the module 2 mm to module edge

Technical characteristics

Railway classification	F1/I2, acc. to NFF 16-101/102
Mating cycles	≥ 500
Material (insert)	Polyamide (PA)
Isolation group	I, ($600 \leq CTI$)
Colour (insert)	Black
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption compliant

PCB




Width of the module

10.16 mm

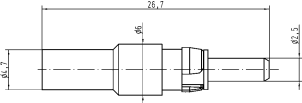
Male connectors



PCB

Identification	Num-ber of contacts	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Male connector, Angled</p>  <p>Please order contacts separately.</p>	1	02 51 901 0401	
<p>har-modular®, M1 module, Male connector, Straight</p>  <p>Please order contacts separately.</p>	1	02 53 901 0401	
<p>DIN 41626, FO contact, for 1 mm plastic fibre, Male contact for male connectors</p> 		20 10 001 4211	
<p>DIN 41626, FO contact, for GI fibre 50/125 µm, for ceramic ferrule 62.5/125 µm, Male contact for male connectors</p>		20 10 125 4212	

PCB

Identification	Num- ber of contacts	Part number	Drawing (dimensions in mm)
DIN 41626, FO contact, for SI fibre (HCS®) 200/230 µm, Male contact for male connectors		20 10 230 4211	


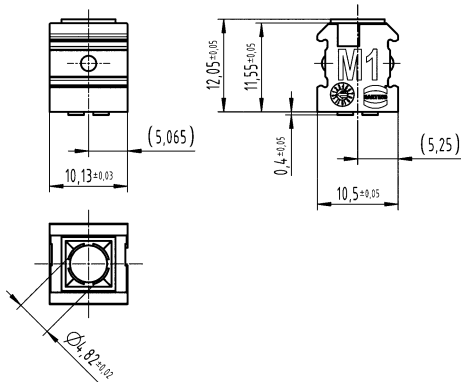

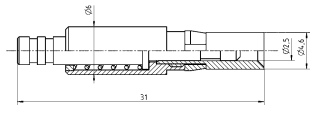

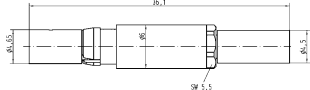
Width of the module

10.16 mm

Female connectors



PCB

Identification	Num-ber of contacts	Part number	Drawing (dimensions in mm)
<p>har-modular®, M1 module, Female connector, Straight</p>  <p>Please order contacts separately.</p>	1	02 52 901 0401	
<p>DIN 41626, FO contact, for 1 mm plastic fibre, Female contact for female connectors</p> 		20 10 001 4221	
<p>DIN 41626, FO contact, for GI fibre 50/125 µm, for ceramic ferrule 62.5/125 µm, Female contact for female connectors</p>		20 10 125 4222	
<p>DIN 41626, FO contact, for SI fibre (HCS®) 200/230 µm, Female contact for female connectors</p>		20 10 230 4221	

Width of the module

5.08 mm


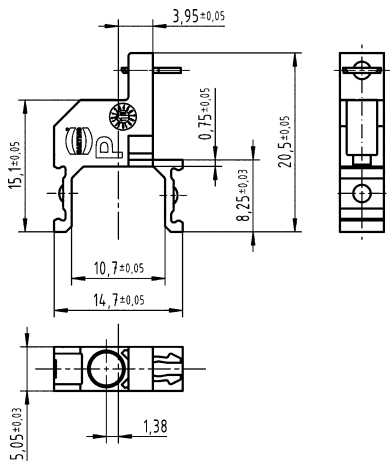

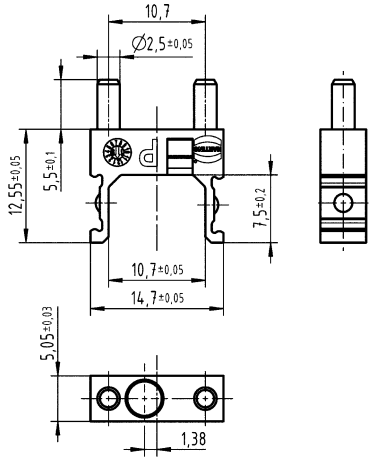



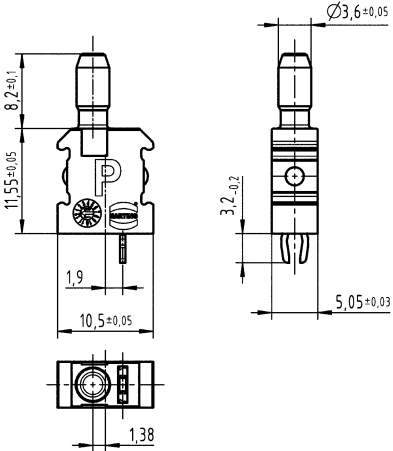

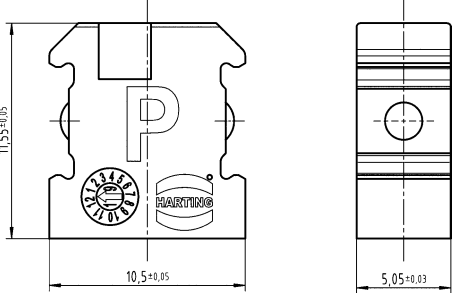
Technical characteristics

Insulation resistance	$>10^{11} \Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Railway classification	F1/2, acc. to NFF 16-101/102
Mating cycles	≥ 500

Technical characteristics

Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Material flammability class acc. to UL 94	V-0

Identification	Part number	Drawing (dimensions in mm)
<p>har-modular®, P module, Male connector, Angled</p> 	<p>With board locks</p> <p>02 51 900 0002 02 51 900 0004</p>	
<p>har-modular®, P module, Male connector, Straight</p> 	<p>With fixing pin With guiding</p> <p>02 53 900 0002 02 53 900 0005 02 53 900 0006</p>	

Identification		Part number	Drawing (dimensions in mm)
<p>har-modular®, P module, Female connector, Straight</p> 	<p>With board locks</p>	<p>02 52 900 0001 02 52 900 0002</p>	
<p>har-modular®, P module, Female connector, Straight, Empty module</p>  <p>Pluggable with male connector</p>		<p>02 52 900 0004</p>	

PCB

Width of the module

10.16 mm



Technical characteristics

Insulation resistance	$>10^{11} \Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Railway classification	F1/2, acc. to NFF 16-101/102
Mating cycles	≥ 500

Technical characteristics

Material (insert)	Polyamide (PA)
Isolation group	I, (600 ≤ CTI)
Colour (insert)	Black
Material (accessories)	Metal
Material flammability class acc. to UL 94	V-0

Identification

har-modular®,
T module,
Male connector,
Angled

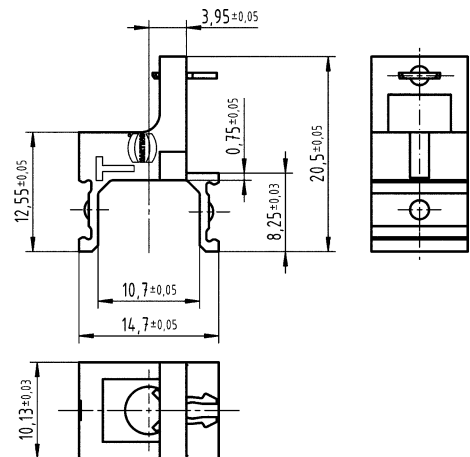


With board locks

Part number

02 51 900 0001
02 51 900 0003

Drawing (dimensions in mm)

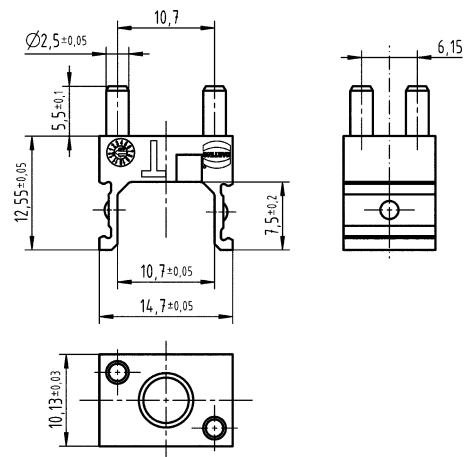


har-modular®,
T module,
Male connector,
Straight



With fixing pin
With guiding

02 53 900 0001
02 53 900 0003
02 53 900 0004

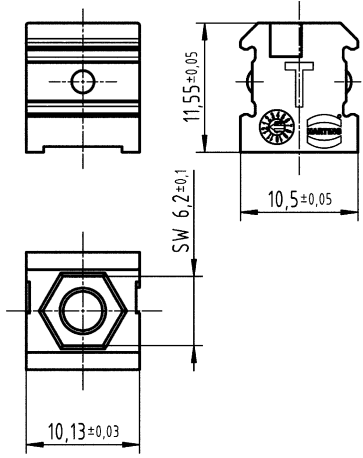


Identification	Part number	Drawing (dimensions in mm)
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har-modular®,
T module,
Female connector,
Straight



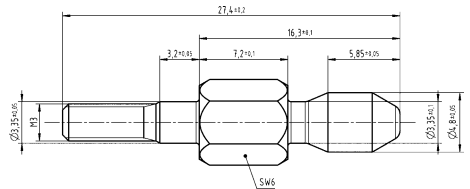
02 52 900 0003



har-modular®,
T module,
Coding pin,
for female connectors,
with selflocking nut



02 09 500 0004



PCB

PCB


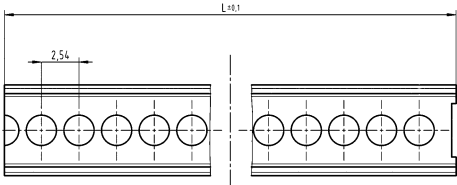


Technical characteristics

Material	Polyamide (PA)
Colour	Yellow
Isolation group	I, (600 ≤ CTI)

Details

The fixing rail must be 0.1 mm shorter than the module widths added together.

Identification	Length	Part number	Drawing (dimensions in mm)
har-modular®, Fixing rail 	20.22 mm	02 09 500 1004	
	25.3 mm	02 09 500 1005	
	30.38 mm	02 09 500 1006	
	35.46 mm	02 09 500 1007	
	40.54 mm	02 09 500 1008	
	45.62 mm	02 09 500 1009	
	50.7 mm	02 09 500 1010	
	55.78 mm	02 09 500 1011	
	60.86 mm	02 09 500 1012	
	65.94 mm	02 09 500 1013	
	71.02 mm	02 09 500 1014	
	76.1 mm	02 09 500 1015	
	81.18 mm	02 09 500 1016	
	86.26 mm	02 09 500 1017	
	91.34 mm	02 09 500 1018	
	96.42 mm	02 09 500 1019	
	101.5 mm	02 09 500 1020	
	106.58 mm	02 09 500 1021	
	111.66 mm	02 09 500 1022	
	116.74 mm	02 09 500 1023	
	121.82 mm	02 09 500 1024	
	126.9 mm	02 09 500 1025	
	131.98 mm	02 09 500 1026	
	137.06 mm	02 09 500 1027	
	142.14 mm	02 09 500 1028	
	147.22 mm	02 09 500 1029	
	152.3 mm	02 09 500 1030	
	157.38 mm	02 09 500 1031	
	162.46 mm	02 09 500 1032	
	167.54 mm	02 09 500 1033	
	172.62 mm	02 09 500 1034	

Male connectors Reflow soldering termination (SMT)



PCB

Technical characteristics

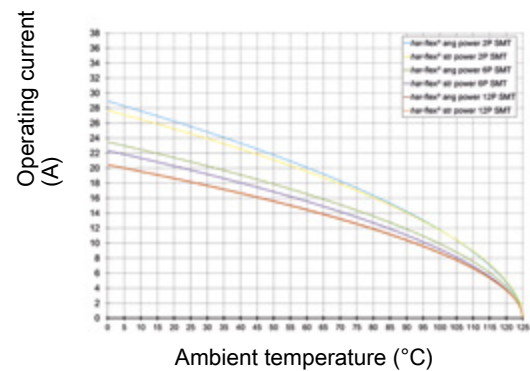
Contact spacing (mating side)	2.54 mm
Stacking height	3.25 mm
Rated current	25 A, 20 A, 18 A, 26 A, 21 A
Rated voltage	180 V
Rated impulse voltage	1.5 kV
Pollution degree	2
Test voltage $U_{r.m.s.}$	1.39 kV
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 1.74 \text{ mm}$
Creepage distance	$\geq 1.74 \text{ mm PCB}$ $\geq 1.89 \text{ mm Connector}$
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

According to IEC 61984, it is an unencapsulated connector. Protection against electric shock must be ensured by the type of installation by the user.

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

PCB

Identification	Number of contacts		Part number	Drawing (dimensions in mm)
har-flex®, Power, Male connector, Reflow soldering termination (SMT), Straight, Pack contents: 280 pieces on reel	2	25 A	15 52 002 2601 000	<p>Example of a 4-pin variant. For other pole numbers see eShop.</p>
	3	20 A	15 52 003 2601 000	
	4	20 A	15 52 004 2601 000	
	5	20 A	15 52 005 2601 000	
	6	20 A	15 52 006 2601 000	
	12	18 A	15 52 012 2601 000	
	har-flex®, Power, Male connector, Reflow soldering termination (SMT), Angled, Pack contents: 400 pieces on reel	2	26 A	
3		21 A	15 55 003 2601 000	
4		21 A	15 55 004 2601 000	
5		21 A	15 55 005 2601 000	
6		21 A	15 55 006 2601 000	
12		18 A	15 55 012 2601 000	

Male connectors Reflow soldering termination (THR)



PCB

Technical characteristics

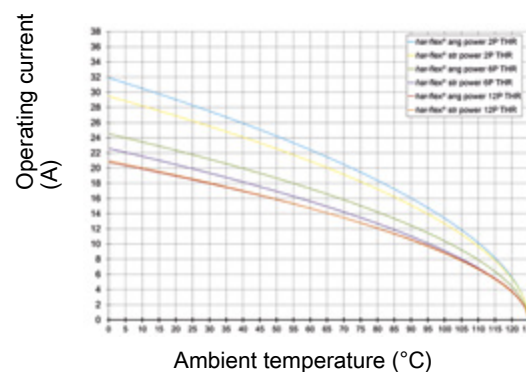
Contact spacing (mating side)	2.54 mm
Stacking height	3.25 mm
Rated current	26.5 A, 20 A, 19 A, 29 A, 22 A
Rated voltage	180 V
Rated impulse voltage	1.5 kV
Pollution degree	2
Test voltage $U_{r.m.s.}$	0.84 kV
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 0.94 \text{ mm}$
Creepage distance	$\geq 0.94 \text{ mm PCB}$ $\geq 1.89 \text{ mm Connector}$
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

According to IEC 61984, it is an unencapsulated connector. Protection against electric shock must be ensured by the type of installation by the user.

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

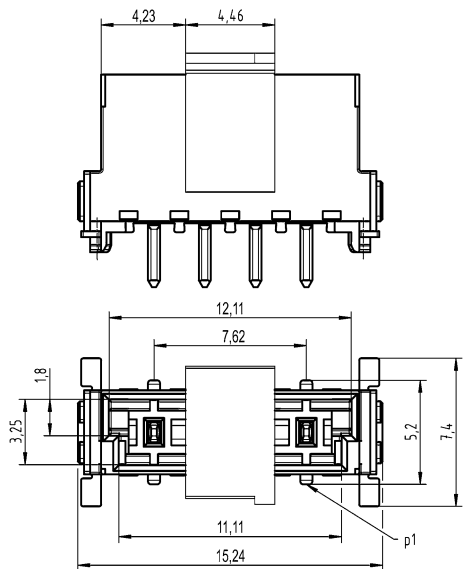
PCB

Identification Number of contacts Part number Drawing (dimensions in mm)

har-flex®,
Power,
Male connector,
Reflow soldering termination
(THR),
Straight,
Pack contents:
200 pieces on reel



2	26.5 A	15 52 002 2701 000
3	20 A	15 52 003 2701 000
4	20 A	15 52 004 2701 000
5	20 A	15 52 005 2701 000
6	20 A	15 52 006 2701 000
12	19 A	15 52 012 2701 000

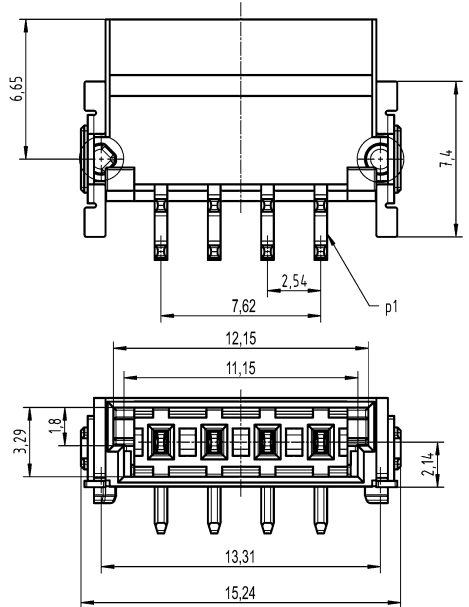


Example of a 4-pin variant. For other pole numbers see eShop.

har-flex®,
Power,
Male connector,
Reflow soldering termination
(THR),
Angled,
Pack contents:
400 pieces on reel

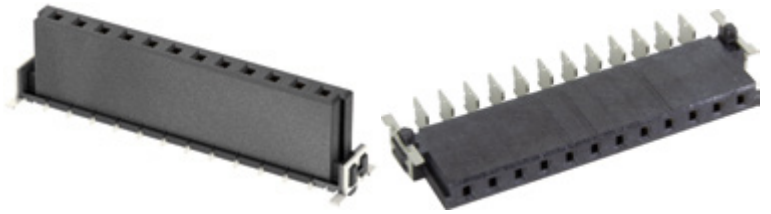


2	29 A	15 55 002 2701 000
3	22 A	15 55 003 2701 000
4	22 A	15 55 004 2701 000
5	22 A	15 55 005 2701 000
6	22 A	15 55 006 2701 000
12	19 A	15 55 012 2701 000



Example of a 4-pin variant. For other pole numbers see eShop.

Female connectors Reflow soldering termination (SMT)



PCB

Technical characteristics

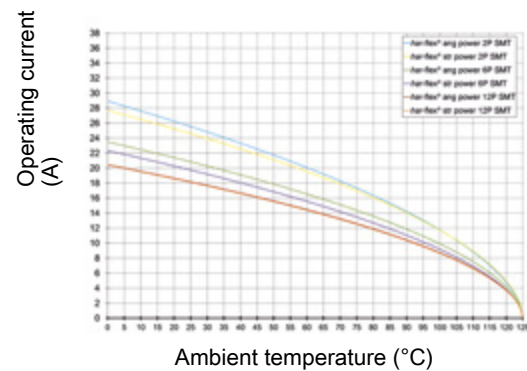
Contact spacing (mating side)	2.54 mm
Stacking height	9.05 mm
Rated current	25 A, 20 A, 18 A, 26 A, 21 A
Rated voltage	180 V
Rated impulse voltage	1.5 kV
Pollution degree	2
Test voltage $U_{r.m.s.}$	1.39 kV
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 1.74 \text{ mm}$
Creepage distance	$\geq 1.74 \text{ mm PCB}$ $\geq 1.89 \text{ mm Connector}$
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

According to IEC 61984, it is an unencapsulated connector. Protection against electric shock must be ensured by the type of installation by the user.

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

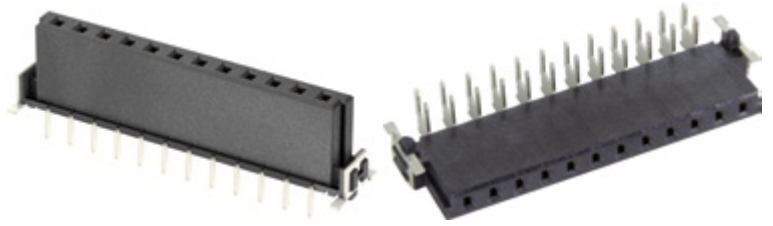
15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

PCB

Identification	Number of contacts		Part number	Drawing (dimensions in mm)
<i>har-flex®</i> , Power, Female connector, Reflow soldering termination (SMT), Straight, Pack contents: 280 pieces on reel	2	25 A	15 62 002 2601 000	<p>Example of a 4-pin variant. For other pole numbers see eShop.</p>
	3	20 A	15 62 003 2601 000	
	4	20 A	15 62 004 2601 000	
	5	20 A	15 62 005 2601 000	
	6	20 A	15 62 006 2601 000	
	12	18 A	15 62 012 2601 000	
 <i>har-flex®</i> , Power, Female connector, Reflow soldering termination (SMT), Angled, Pack contents: 400 pieces on reel	2	26 A	15 65 002 2601 000	<p>Example of a 4-pin variant. For other pole numbers see eShop.</p>
	3	21 A	15 65 003 2601 000	
	4	21 A	15 65 004 2601 000	
	5	21 A	15 65 005 2601 000	
	6	21 A	15 65 006 2601 000	
	12	18 A	15 65 012 2601 000	

Female connectors Reflow soldering termination (THR)



PCB

Technical characteristics

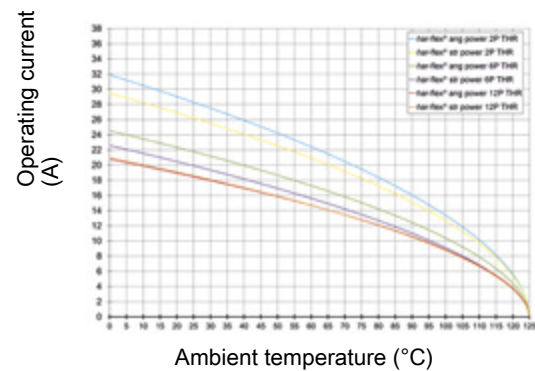
Contact spacing (mating side)	2.54 mm
Stacking height	9.05 mm
Rated current	26.5 A, 20 A, 19 A, 29 A, 22 A
Rated voltage	180 V
Rated impulse voltage	1.5 kV
Pollution degree	2
Test voltage $U_{r.m.s.}$	0.84 kV
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 0.94 \text{ mm}$
Creepage distance	$\geq 0.94 \text{ mm PCB}$ $\geq 1.89 \text{ mm Connector}$
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

According to IEC 61984, it is an unencapsulated connector. Protection against electric shock must be ensured by the type of installation by the user.

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

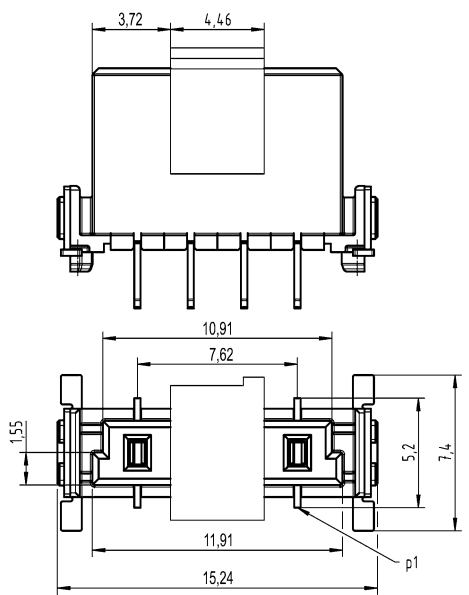
PCB

Identification Number of contacts Part number Drawing (dimensions in mm)

har-flex®,
Power,
Female connector,
Reflow soldering termination
(THR),
Straight,
Pack contents:
200 pieces on reel



2	26.5 A	15 62 002 2701 000
3	20 A	15 62 003 2701 000
4	20 A	15 62 004 2701 000
5	20 A	15 62 005 2701 000
6	20 A	15 62 006 2701 000
12	19 A	15 62 012 2701 000

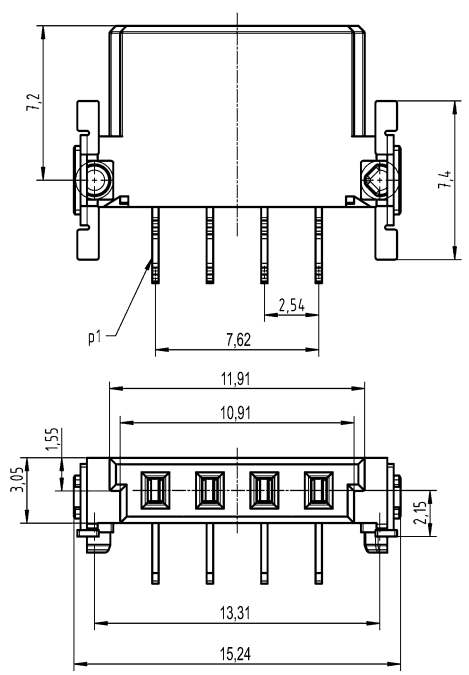


Example of a 4-pin variant. For other pole numbers see eShop.

har-flex®,
Power,
Female connector,
Reflow soldering termination
(THR),
Angled,
Pack contents:
400 pieces on reel



2	29 A	15 65 002 2701 000
3	22 A	15 65 003 2701 000
4	22 A	15 65 004 2701 000
5	22 A	15 65 005 2701 000
6	22 A	15 65 006 2701 000
12	19 A	15 65 012 2701 000



Example of a 4-pin variant. For other pole numbers see eShop.

Male connectors Reflow soldering termination (SMT)



PCB

Technical characteristics

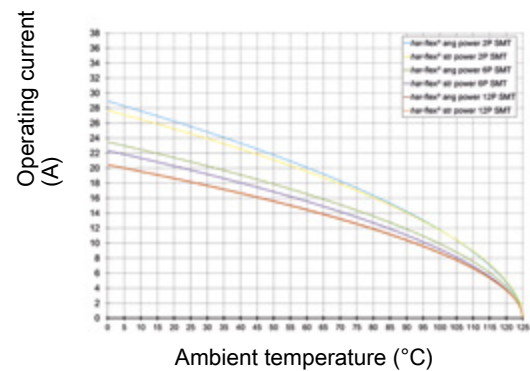
Contact spacing (mating side)	1.27 mm, 2.54 mm
Stacking height	3.25 mm
Rated current	20 A, 22.5 A
Rated impulse voltage	1.5 kV
Pollution degree	2
Rated voltage	50 V AC, 120 V DC
Test voltage $U_{r.m.s.}$	0.5 kV Signal 1.39 kV Signal / Power 1.39 kV Power / Power
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 0.4 \text{ mm}$ Signal contacts $\geq 1.74 \text{ mm}$ Power contacts $\geq 1.11 \text{ mm}$ Signal to power contacts
Creepage distance	$\geq 0.4 \text{ mm}$ PCB: Signal contacts $\geq 1.74 \text{ mm}$ PCB: Power contacts $\geq 1.11 \text{ mm}$ PCB: Signal to power contacts $\geq 0.4 \text{ mm}$ Connector: Signal contacts $\geq 1.89 \text{ mm}$ Connector: Power contacts $\geq 1.94 \text{ mm}$ Connector: Signal to power contacts $\geq 1.99 \text{ mm}$ Connector: Signal to power contacts
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

15 11 006 2601 333

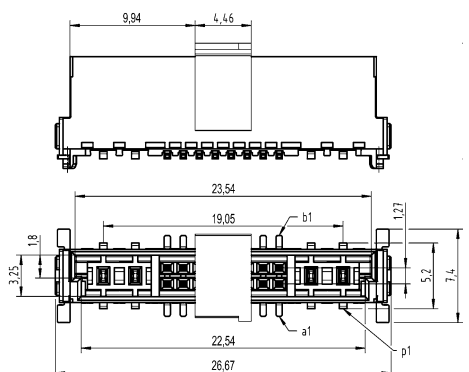
The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

PCB

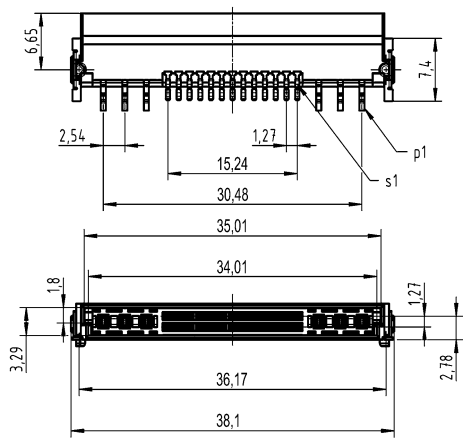
Identification	Number of contacts	Signal	Power	Part number
har-flex®, Hybrid, Male connector, Reflow soldering termination (SMT), Straight, Pack contents: 280 pieces on reel	10	8	2	15 72 208 2601 000
	20	16	4	15 72 416 2601 000
	32	26	6	15 72 626 2601 000
	44	36	8	15 72 836 2601 000
har-flex®, Hybrid, Male connector, Reflow soldering termination (SMT), Angled, Pack contents: 400 pieces on reel	10	8	2	15 75 208 2601 000
	20	16	4	15 75 416 2601 000
	32	26	6	15 75 626 2601 000
	44	36	8	15 75 836 2601 000



Drawing (dimensions in mm)

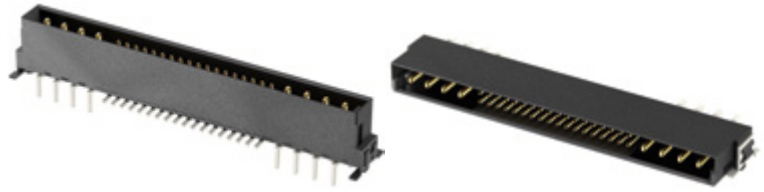


Example of a 20-pin variant. For other pole numbers see eShop.



Example of a 32-pin variant. For other pole numbers see eShop.

Male connectors Reflow soldering termination (THR)



PCB

Technical characteristics

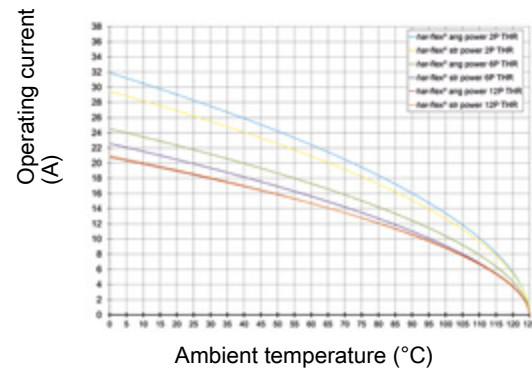
Contact spacing (mating side)	1.27 mm, 2.54 mm
Stacking height	3.25 mm
Rated current	21.5 A
Rated impulse voltage	1.5 kV
Pollution degree	2
Rated voltage	50 V AC, 120 V DC
Test voltage $U_{r.m.s.}$	0.5 kV Signal 0.84 kV Signal / Power 0.84 kV Power / Power
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 0.4 \text{ mm}$ Signal contacts $\geq 0.94 \text{ mm}$ Power contacts $\geq 0.7 \text{ mm}$ Signal to power contacts
Creepage distance	$\geq 0.4 \text{ mm}$ PCB: Signal contacts $\geq 0.94 \text{ mm}$ PCB: Power contacts $\geq 0.7 \text{ mm}$ PCB: Signal to power contacts $\geq 0.4 \text{ mm}$ Connector: Signal contacts $\geq 1.89 \text{ mm}$ Connector: Power contacts $\geq 1.94 \text{ mm}$ Connector: Signal to power contacts $\geq 1.99 \text{ mm}$ Connector: Signal to power contacts
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

PCB

Identification	Number of contacts	Signal	Power	Part number	Drawing (dimensions in mm)
<i>har-flex®</i> , Hybrid, Male connector, Reflow soldering termination (SMT), Straight, Pack contents: 200 pieces on reel	10	8	2	15 72 208 2701 000	<p>Example of a 20-pin variant. For other pole numbers see eShop.</p>
	20	16	4	15 72 416 2701 000	
	32	26	6	15 72 626 2701 000	
	44	36	8	15 72 836 2701 000	
 <i>har-flex®</i> , Hybrid, Male connector, Reflow soldering termination (SMT), Angled, Pack contents: 400 pieces on reel	10	8	2	15 75 208 2701 000	<p>Example of a 32-pin variant. For other pole numbers see eShop.</p>
	20	16	4	15 75 416 2701 000	
	32	26	6	15 75 626 2701 000	
	44	36	8	15 75 836 2701 000	

Female connectors Reflow soldering termination (SMT)



PCB

Technical characteristics

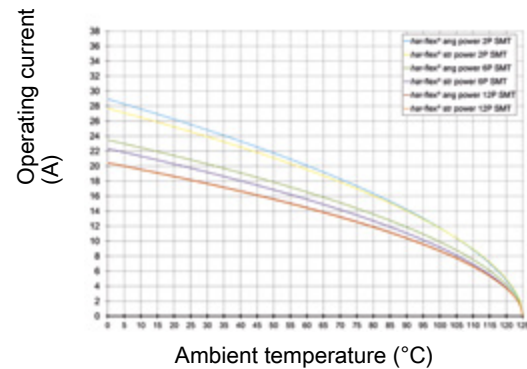
Contact spacing (mating side)	1.27 mm, 2.54 mm
Stacking height	9.05 mm
Rated current	20 A, 22.5 A
Rated impulse voltage	1.5 kV
Pollution degree	2
Rated voltage	50 V AC, 120 V DC
Test voltage $U_{r.m.s.}$	0.5 kV Signal 1.39 kV Signal / Power 1.39 kV Power / Power
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 0.4 \text{ mm}$ Signal contacts $\geq 1.74 \text{ mm}$ Power contacts $\geq 1.11 \text{ mm}$ Signal to power contacts Connector: Power contacts $\geq 0.4 \text{ mm}$ PCB: Signal contacts $\geq 1.74 \text{ mm}$ PCB: Power contacts $\geq 1.11 \text{ mm}$ PCB: Signal to power contacts $\geq 0.4 \text{ mm}$ Connector: Signal contacts $\geq 1.89 \text{ mm}$ Connector: Power contacts $\geq 2.09 \text{ mm}$ Connector: Signal to power contacts
Creepage distance	
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

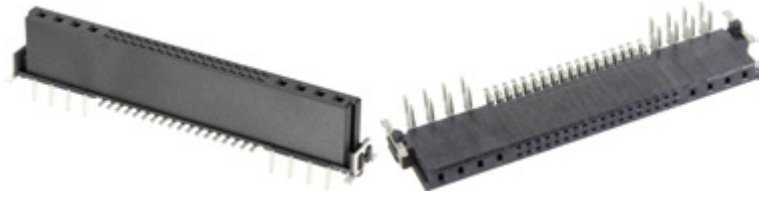
15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

PCB

Identification	Number of contacts	Signal	Power	Part number	Drawing (dimensions in mm)
<i>har-flex®</i> , Hybrid, Female connector, Reflow soldering termination (SMT), Straight, Pack contents: 280 pieces on reel	10	8	2	15 82 208 2601 000	<p>Example of a 20-pin variant. For other pole numbers see eShop.</p>
	20	16	4	15 82 416 2601 000	
	32	26	6	15 82 626 2601 000	
	44	36	8	15 82 836 2601 000	
 <i>har-flex®</i> , Hybrid, Female connector, Reflow soldering termination (SMT), Angled, Pack contents: 400 pieces on reel	10	8	2	15 85 208 2601 000	<p>Example of a 32-pin variant. For other pole numbers see eShop.</p>
	20	16	4	15 85 416 2601 000	
	32	26	6	15 85 626 2601 000	
	44	36	8	15 85 836 2601 000	

Female connectors Reflow soldering termination (THR)



PCB

Technical characteristics

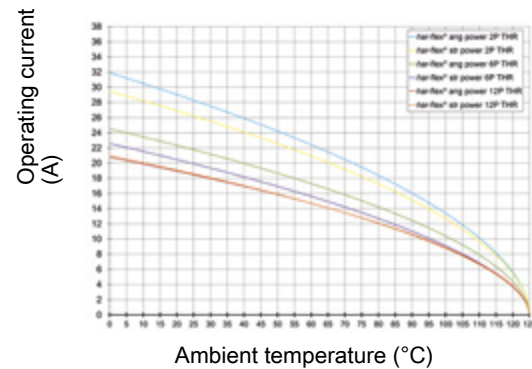
Contact spacing (mating side)	1.27 mm, 2.54 mm
Stacking height	9.05 mm
Rated current	21.5 A
Rated impulse voltage	1.5 kV
Pollution degree	2
Rated voltage	50 V AC, 120 V DC
Test voltage $U_{r.m.s.}$	0.5 kV Signal 0.84 kV Signal / Power 0.84 kV Power / Power
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 25 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	≥ 500
Clearance distance	$\geq 0.4 \text{ mm}$ Signal contacts $\geq 0.94 \text{ mm}$ Power contacts $\geq 0.7 \text{ mm}$ Signal to power contacts
Creepage distance	$\geq 0.4 \text{ mm}$ PCB: Signal contacts $\geq 0.94 \text{ mm}$ PCB: Power contacts $\geq 0.7 \text{ mm}$ PCB: Signal to power contacts $\geq 0.4 \text{ mm}$ Connector: Signal contacts $\geq 1.89 \text{ mm}$ Connector: Power contacts $\geq 2.09 \text{ mm}$ Connector: Signal to power contacts
Performance level	1
Mating cycles	≥ 500
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, ($175 \leq \text{CTI} < 400$)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side
Material flammability class acc. to UL 94	V-0

Derating

Current carrying capacity

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

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



Derating curve 80%

Details

Selection of the performance level


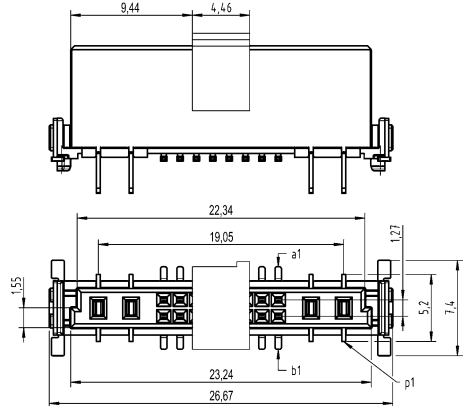

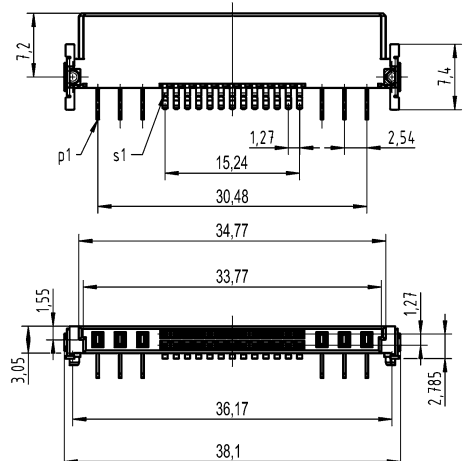
The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples

15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

PCB

Identification	Number of contacts	Signal	Power	Part number	Drawing (dimensions in mm)
har-flex®, Hybrid, Female connector, Reflow soldering termination (SMT), Straight, Pack contents: 200 pieces on reel 	10	8	2	15 82 208 2701 000	 <p>Example of a 20-pin variant. For other pole numbers see eShop.</p>
	20	16	4	15 82 416 2701 000	
	32	26	6	15 82 626 2701 000	
	44	36	8	15 82 836 2701 000	
har-flex®, Hybrid, Female connector, Reflow soldering termination (SMT), Angled, Pack contents: 400 pieces on reel 	10	8	2	15 85 208 2701 000	 <p>Example of a 32-pin variant. For other pole numbers see eShop.</p>
	20	16	4	15 85 416 2701 000	
	32	26	6	15 85 626 2701 000	
	44	36	8	15 85 836 2701 000	



Technical characteristics

Contact rows	2
Contact spacing (termination side)	0.8 mm
Data rate	25 Gbit/s
Limiting temperature	-55 ... +125 °C
Mating cycles	≥200
Clearance distance	≥0.2 mm Backplane ≥0.53 mm Connector ≥0.1 mm Daughtercard
Creepage distance	≥0.2 mm Backplane ≥0.53 mm Connector ≥0.1 mm Daughtercard
Performance level	1
Mating cycles	≥200
Material (insert)	Liquid crystal polymer (LCP)
Isolation group	IIIa, (175 ≤ CTI < 400)
Colour (insert)	Black
Material (contacts)	Copper alloy
Surface (contacts)	Au over Pd/Ni, Mating side Tin plated, Termination side

Technical characteristics

Material flammability class acc. V-0 to UL 94

Details

Selection of the performance level

The part numbers shown meet performance level 1 (≥ 500 mating cycles). Other performance levels are available on request.

Ordering samples


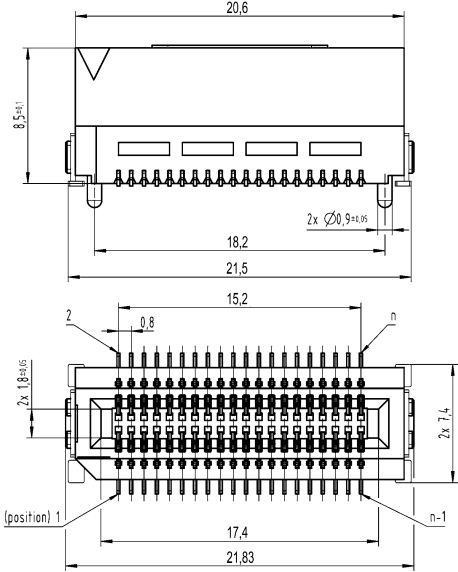
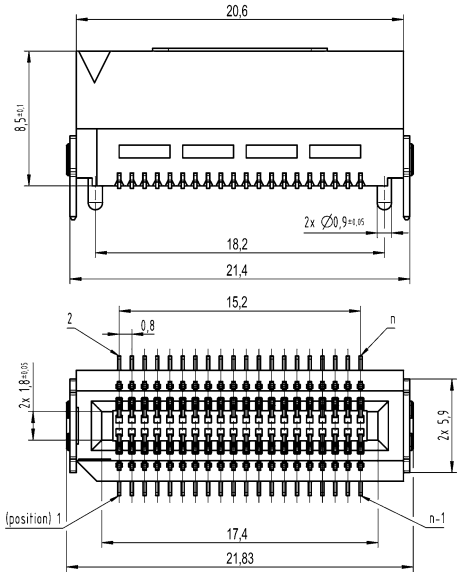

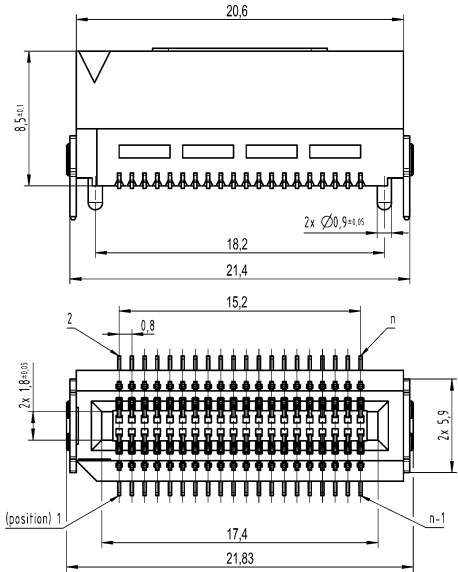
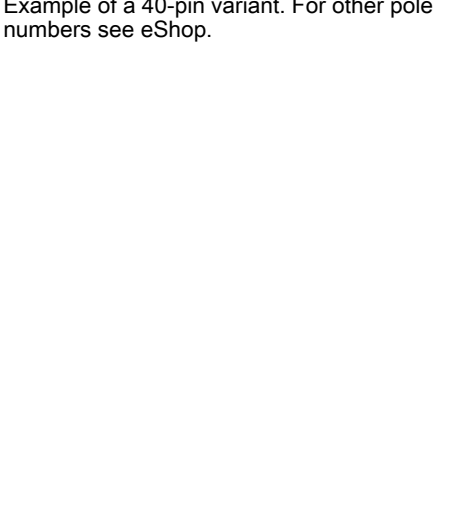
15 11 006 2601 333

The article numbers shown include delivery on a roll. To order a sample, please replace the last three digits of the article number with 333.

Identification	Number of contacts	Part number	Drawing (dimensions in mm)
har-flex®, HD-Card Edge, Connector, Reflow soldering termination (SMT), without hold downs, Pack contents: 200 pieces on reel	20	15 03 020 2001 000	<p>Example of a 40-pin variant. For other pole numbers see eShop.</p>
	40	15 03 040 2001 000	
	60	15 03 060 2001 000	
	80	15 04 080 2001 000	
	100	15 04 100 2001 000	
	120	15 04 120 2001 000	
140	15 04 140 2001 000		



PCB

Identification	Number of contacts	Part number	Drawing (dimensions in mm)
<p>har-flex®, HD-Card Edge, Connector, Reflow soldering termination (SMT), Termination method of hold downs: SMT, Pack contents: 200 pieces on reel</p> 	20	15 03 020 2601 000	 <p>Example of a 40-pin variant. For other pole numbers see eShop.</p>  <p>Example of a 40-pin variant. For other pole numbers see eShop.</p>
	40	15 03 040 2601 000	
	60	15 03 060 2601 000	
	80	15 04 080 2601 000	
	100	15 04 100 2601 000	
	140	15 04 140 2601 000	
<p>har-flex®, HD-Card Edge, Connector, Reflow soldering termination (SMT), Termination method of hold downs: THR, Pack contents: 200 pieces on reel</p> 	20	15 03 020 2401 000	 <p>Example of a 40-pin variant. For other pole numbers see eShop.</p>  <p>Example of a 40-pin variant. For other pole numbers see eShop.</p>
	40	15 03 040 2401 000	
	60	15 03 060 2401 000	
	80	15 04 080 2401 000	
	100	15 04 100 2401 000	
	140	15 04 140 2401 000	

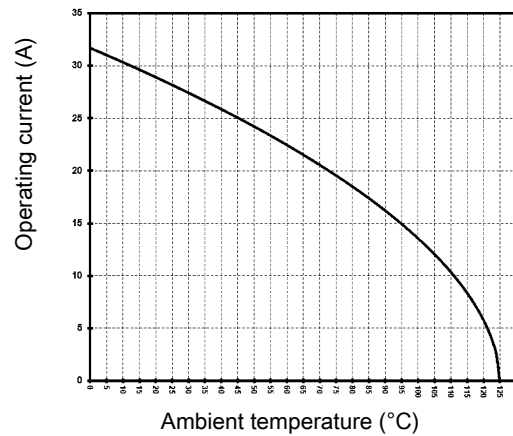
Features

- for decentralized drive systems

Technical characteristics

Contact spacing (termination side)	6.3 mm
Contact spacing (mating side)	6.3 mm
Rated current	19 A
Pollution degree	2
Test voltage $U_{r.m.s.}$	2.21 kV
Insulation resistance	$>10^9 \Omega$
Contact resistance	$\leq 2 \text{ m}\Omega$
Limiting temperature	-55 ... +125 °C
Mating cycles	100
Clearance distance	5 mm
Creepage distance	5.5 mm
Insertion force per contact	$\leq 4 \text{ N}$
Withdrawal force per contact	$\geq 0.5 \text{ N}$
Performance level	2
Mating cycles	100
Material (insert)	Polyamide (PA)
Isolation group	I, ($600 \leq \text{CTI}$)
Colour (insert)	RAL 7032 (pebble grey)
Material (contacts)	Copper alloy
Surface (contacts)	Sn over Ni, Termination side Au over Ni, Mating side
Material flammability class acc. to UL 94	V-0
RoHS	compliant


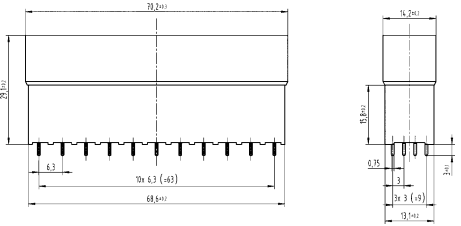

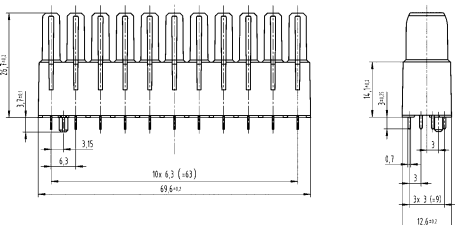

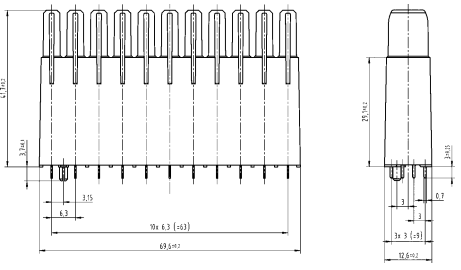
Derating



Specifications and approvals

IEC 61984

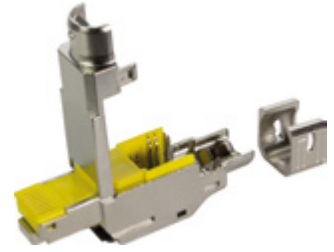
PCB

Identification	Number of contacts	Part number	Drawing (dimensions in mm)
<p>har-drive®, Male connector, Wave soldering termination</p> 	11	17 61 011 2801	
<p>har-drive®, Female connector, for 45 mm PCB distance, Wave soldering termination</p> 	11	17 66 011 2801	
<p>har-drive®, Female connector, for 60 mm PCB distance, Wave soldering termination</p> 	11	17 66 011 2802	

Contents	Page
preLink®	New 4.2
HARTING ix Industrial®	New 4.4
HARTING RJ Industrial®	New 4.10
HARTING Mini PushPull ix Industrial®	New 4.14
Han® PushPull RJ45 metal.....	New 4.23
HARTING PushPull (V4) RJ45 Outlet	New 4.26
AIDA H-distributor.....	New 4.32
D-Sub InduCom.....	New 4.33

Number of contacts

8

Inter-
face

Features

- Ethernet data connector suitable for industry
- Robust industrial design with 360° shielding, locking lever protection and high mating cycles
- Category of transmission Cat. 6A
- Suitable for termination of massive and flexible wires
- Suitable for all PoE versions
- 35° + 90° angled version with variable cable outlet in 4 different cable outlet directions


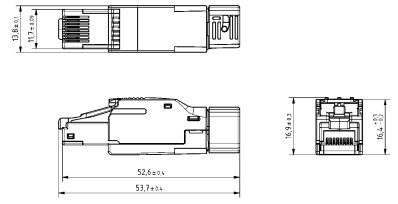

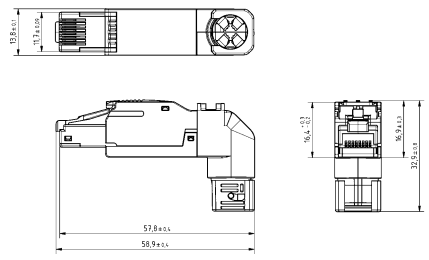
Technical characteristics


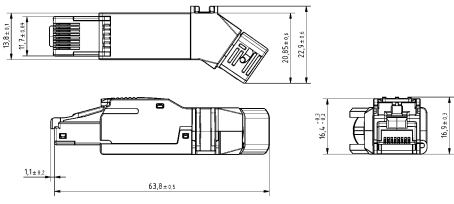
Number of contacts	8
Transmission characteristics	Cat. 6A, Class EA up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Limiting temperature	-40 ... +85 °C
Mating cycles	<750
Degree of protection acc. to IEC 60529	IP20
Cable diameter	5 ... 9 mm
Material (insert)	Zinc die-cast, nickel-plated

Specifications and approvals

DNV GL



Identification	Part number Male	Drawing (dimensions in mm)
<p>preLink®, RJ45, Connector, RJ45, Straight, preLink® IDC insulation displacement termination, Shielded</p> 	20 82 101 0020	
<p>preLink®, Connector, RJ45, 90° angled, preLink® IDC insulation displacement termination, Shielded</p> 	20 82 101 0021	

Identification	Part number Male	Drawing (dimensions in mm)
<p>preLink®, Connector, RJ45, 35° angled, preLink® IDC insulation displacement termination, Shielded</p> 	<p>20 82 101 0022</p>	

Inter-
face

Number of contacts

8

+ 2x GND

Inter-
face

Features

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

Technical characteristics

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


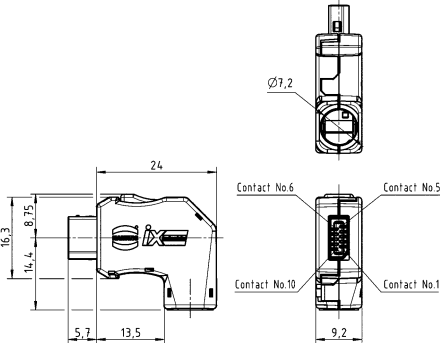

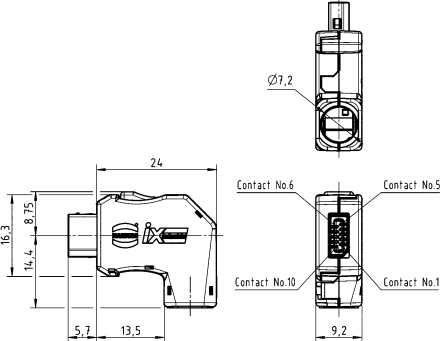

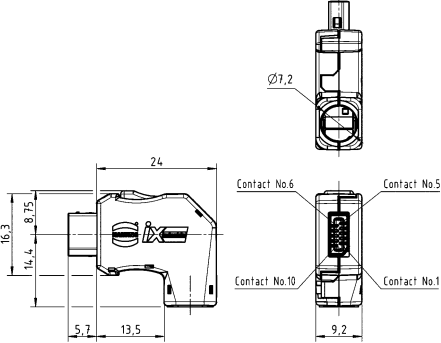

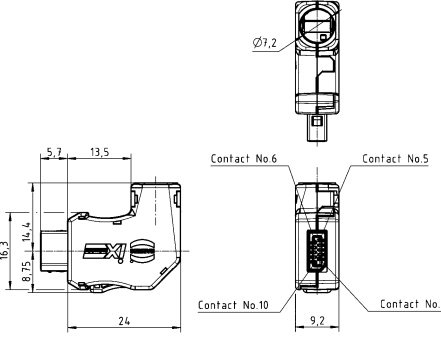
Specifications and approvals

IEC 61076-3-124
EN 45545-2 R22, R23: HL1, HL2, HL3
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079



Details


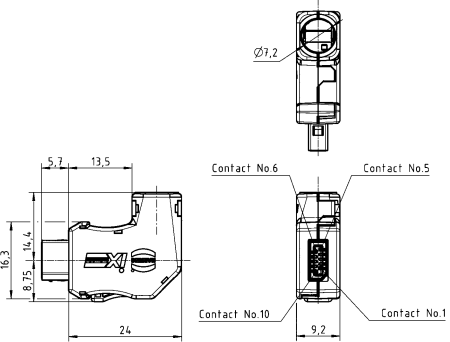

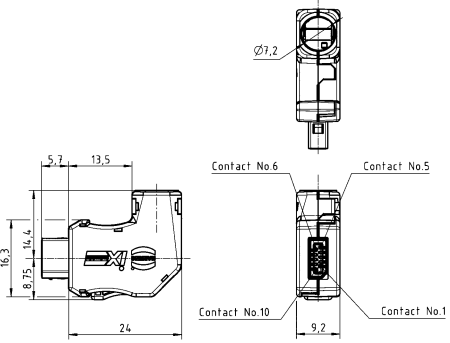
Cable assemblies see chapter 6

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING ix Industrial®, Data, Cable connector, Angled bottom, Solder termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 22/7 and conductor diameters up to 1.55 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2580 XL</p>	
<p>HARTING ix Industrial®, Data, Cable connector, Angled bottom, IDC termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 26/7 and conductor diameters from 0.95 - 1.05 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2581 XL</p>	
<p>HARTING ix Industrial®, Data, Cable connector, Angled bottom, IDC termination, Fully shielded, 360° shielding contact, for AWG 24 and conductor diameters from 1.1 - 1.25 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2582 XL</p>	
<p>HARTING ix Industrial®, Data, Cable connector, Angled top, Solder termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 22/7 and conductor diameters up to 1.55 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2585 XL</p>	

Inter-
face



Inter-
face

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING ix Industrial®, Data, Cable connector, Angled top, IDC termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 26/7 and conductor diameters from 0.95 - 1.05 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2586 XL</p>	
<p>HARTING ix Industrial®, Data, Cable connector, Angled top, IDC termination, Fully shielded, 360° shielding contact, for AWG 24 and conductor diameters from 1.1 - 1.25 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 2587 XL</p>	

Number of contacts

10

Inter-
face

Features

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

Technical characteristics

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

Specifications and approvals


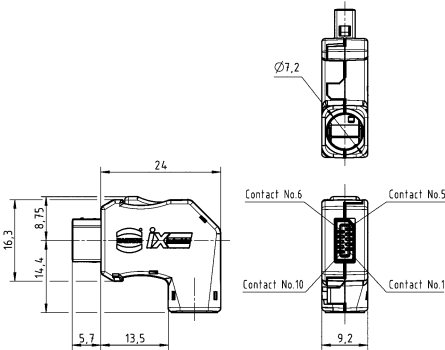

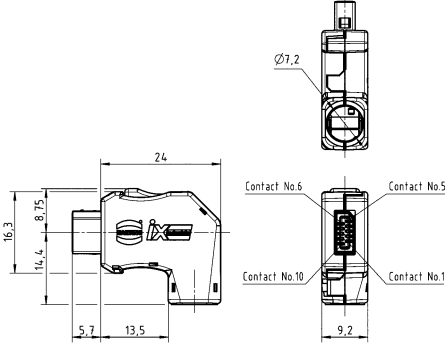

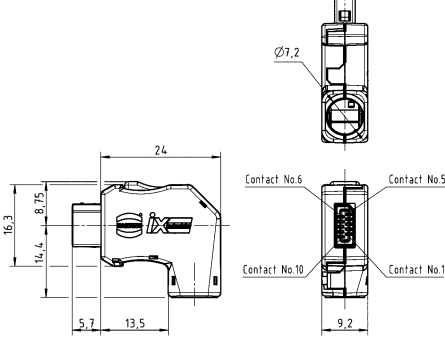

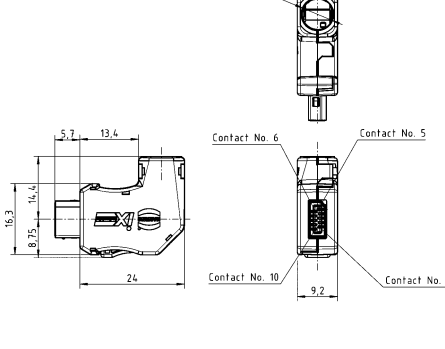
IEC 61076-3-124
EN 45545-2 R22, R23: HL1, HL2, HL3
UL 1977 ECBT2.E102079
CSA-C22.2 No. 182.3 ECBT8.E102079


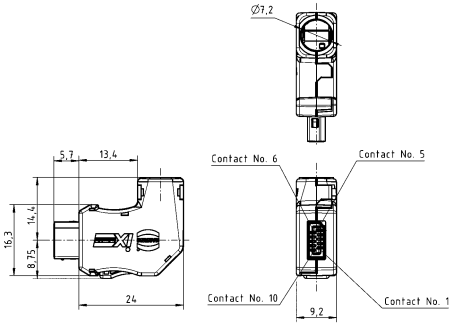

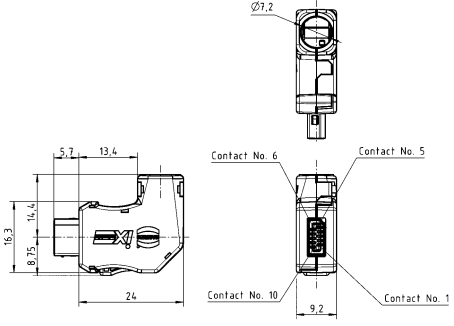


Details

Cable assemblies see chapter 6

Interface

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING ix Industrial®, Signal, Cable connector, Angled bottom, Solder termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 22/7 and conductor diameters up to 1.55 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9020 XL</p>	
<p>HARTING ix Industrial®, Signal, Cable connector, Angled bottom, IDC termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 26/7 and conductor diameters from 0.95 - 1.05 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9021 XL</p>	
<p>HARTING ix Industrial®, Signal, Cable connector, Angled bottom, IDC termination, Fully shielded, 360° shielding contact, for AWG 24 and conductor diameters from 1.1 - 1.25 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9022 XL</p>	
<p>HARTING ix Industrial®, Signal, Cable connector, Angled top, Solder termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 22/7 and conductor diameters up to 1.55 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9025 XL</p>	

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING ix Industrial®, Signal, Cable connector, Angled top, IDC termination, Fully shielded, 360° shielding contact, for AWG 28/7 - 26/7 and conductor diameters from 0.95 - 1.05 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9026 XL</p>	 <p>Technical drawing showing dimensions: 16.3, 8.75, 14.4, 5.7, 13.4, 24, 9.2, and contact labels: Contact No. 6, Contact No. 5, Contact No. 10, Contact No. 1. A detail view shows a diameter of $\varnothing 7.2$.</p>
<p>HARTING ix Industrial®, Signal, Cable connector, Angled top, IDC termination, Fully shielded, 360° shielding contact, for AWG 24 and conductor diameters from 1.1 - 1.25 mm, Pack contents: Packaging with 100 pieces</p> 	<p>09 45 181 9027 XL</p>	 <p>Technical drawing showing dimensions: 16.3, 8.75, 14.4, 5.7, 13.4, 24, 9.2, and contact labels: Contact No. 6, Contact No. 5, Contact No. 10, Contact No. 1. A detail view shows a diameter of $\varnothing 7.2$.</p>

Inter-
face

Number of contacts

4

Interface



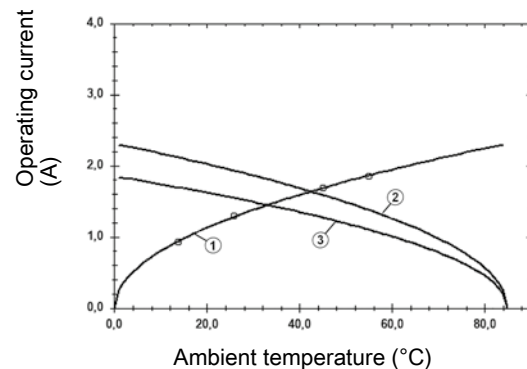
Features

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

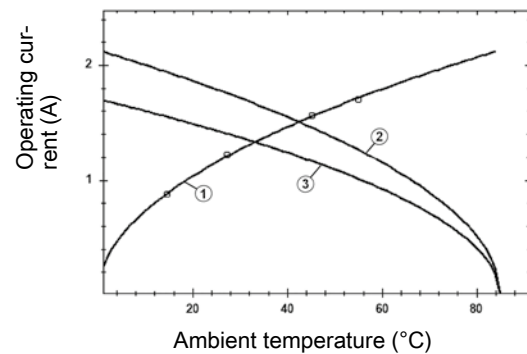
Technical characteristics

Number of contacts	4
Rated current	1.76 A
Rated voltage	50 V AC, 60 V DC
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Data rate	10 Mbit/s, 100 Mbit/s
Test voltage U_{DC}	1 kV (contact-contact) 1.5 kV (contact-ground)
Insulation resistance	$> 5 \times 10^9 \Omega$
Contact resistance	$\leq 20 \text{ m}\Omega$
Contact resistance, shielding	$\leq 100 \text{ m}\Omega$
Limiting temperature	-40 ... +85 °C
Mating cycles	≥ 750
Conductor cross-section	0.12 ... 0.32 mm ² Stranded 0.12 ... 0.32 mm ² Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded AWG 26/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP20
Cable diameter	4.5 ... 9 mm
Insertion force	$\leq 25 \text{ N}$
Withdrawal force	$\leq 25 \text{ N}$
Material (insert)	Polycarbonate (PC)
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated
Colour (hood/housing)	Silver
Material (contacts)	Copper alloy
Surface (contacts)	Au over Ni, Mating side Tin plated, Termination side
RoHS	compliant with exemption

Derating



- ① Heating
- ② Derating curve
- ③ Derating curve 80% AWG 26/7


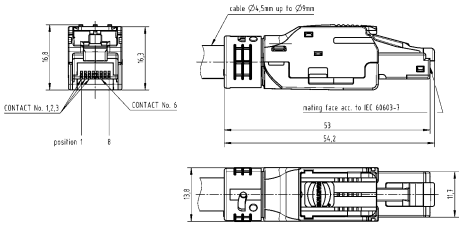

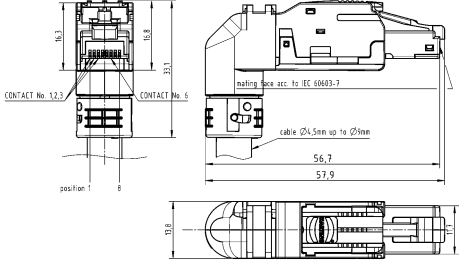
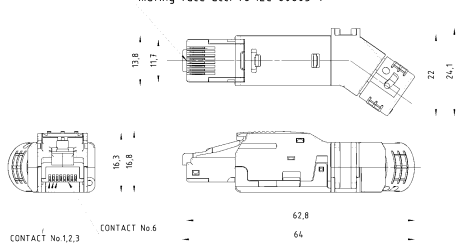


- ① Heating
- ② Derating curve
- ③ Derating curve 80% AWG 23/1

Specifications and approvals

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



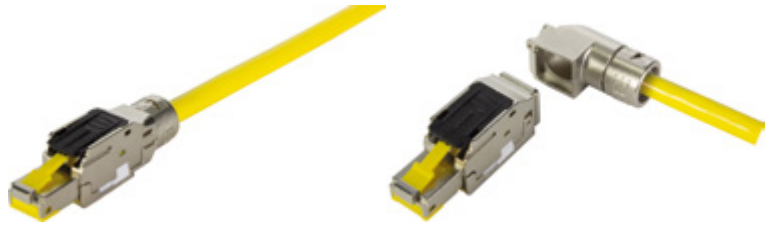
Identification	Part number	Drawing (dimensions in mm)
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, Straight, IDC termination, Fully shielded, 360° shielding contact</p> 	<p>09 45 151 1140</p>	 <p>Technical drawing showing front, side, and cross-sectional views of the straight connector. Dimensions include 56.8, 56.2, 53, 56.2, 13.8, and 11.7. Labels include 'CONTACT No. 1,2,3', 'CONTACT No. 6', 'cable Ø4.5mm up to Ø9mm', and 'mating face acc. to IEC 60603-7'.</p>
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, 90° angled, IDC termination, Fully shielded, 360° shielding contact</p> 	<p>09 45 151 1141</p>	 <p>Technical drawing showing front, side, and cross-sectional views of the 90-degree angled connector. Dimensions include 16.3, 16.8, 33.1, 56.2, 57.9, 13.8, and 11.7. Labels include 'CONTACT No. 1,2,3', 'CONTACT No. 6', 'cable Ø4.5mm up to Ø9mm', and 'mating face acc. to IEC 60603-7'.</p>
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, 35° angled, IDC termination, Fully shielded, 360° shielding contact</p>	<p>09 45 151 1142</p>	 <p>Technical drawing showing front, side, and cross-sectional views of the 35-degree angled connector. Dimensions include 13.8, 11.7, 16.3, 16.8, 62.8, 64, 22, and 24.1. Labels include 'CONTACT No. 1,2,3', 'CONTACT No. 6', and 'mating face acc. to IEC 60603-7'.</p>

Inter-
face

Number of contacts

8

Interface



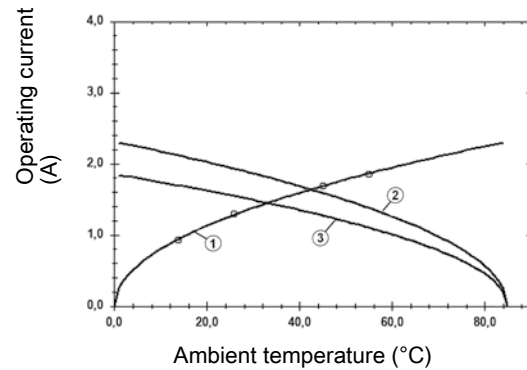
Features

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

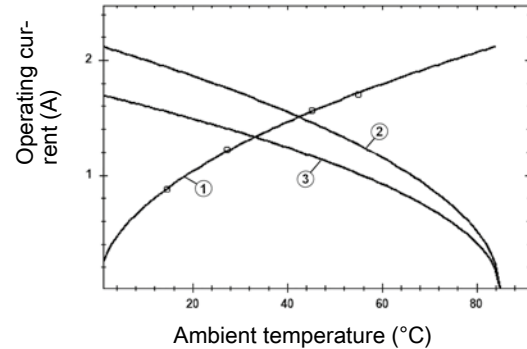
Technical characteristics

Number of contacts	8
Rated current	1.76 A
Rated voltage	50 V AC, 60 V DC
Transmission characteristics	Cat. 6A, Class E _A up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Test voltage U _{DC}	1 kV (contact-contact) 1.5 kV (contact-ground)
Insulation resistance	> 5 × 10 ⁹ Ω
Contact resistance	≤ 20 mΩ
Contact resistance, shielding	≤ 100 mΩ
Limiting temperature	-40 ... +85 °C
Mating cycles	≥ 750
Conductor cross-section	0.12 ... 0.32 mm ² Stranded 0.12 ... 0.32 mm ² Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded AWG 26/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP20
Cable diameter	4.5 ... 9 mm
Insertion force	≤ 25 N
Withdrawal force	≤ 25 N
Material (insert)	Polycarbonate (PC)
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated
Colour (hood/housing)	Silver
Material (contacts)	Copper alloy
Surface (contacts)	Au over Ni, Mating side Tin plated, Termination side
RoHS	compliant with exemption

Derating



- ① Heating
- ② Derating curve
- ③ Derating curve 80% AWG 26/7


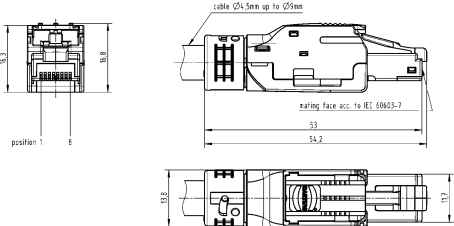

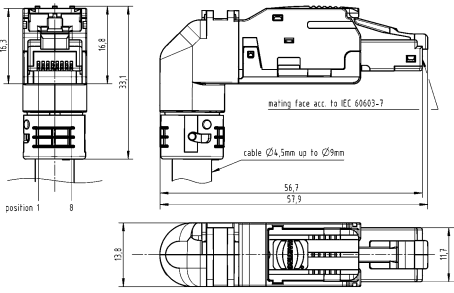
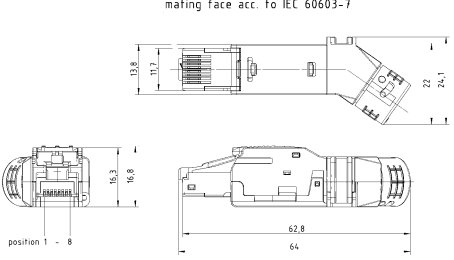


- ① Heating
- ② Derating curve
- ③ Derating curve 80% AWG 23/1

Specifications and approvals

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



Identification	Part number	Drawing (dimensions in mm)
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, Straight, IDC termination, Fully shielded, 360° shielding contact</p> 	<p>09 45 151 1570</p>	
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, 90° angled, IDC termination, Fully shielded, 360° shielding contact</p> 	<p>09 45 151 1571</p>	
<p>HARTING RJ Industrial®, Connector, Multi Feature RJ45, 35° angled, IDC termination, Fully shielded, 360° shielding contact</p>	<p>09 45 151 1572</p>	

Inter-
face



Features

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

Technical characteristics

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

Details

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

Identification

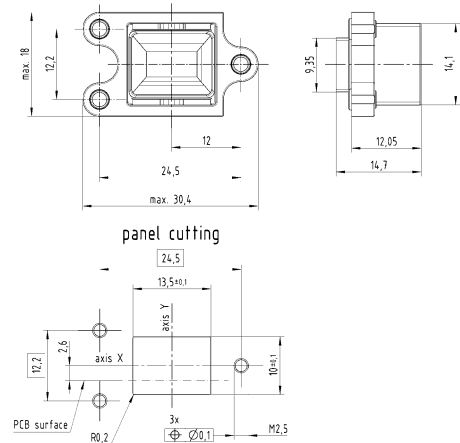
HARTING Mini PushPull,
Bulkhead mounted housing,
Without board locks



Part number

09 51 521 0001

Drawing (dimensions in mm)



Number of contacts

8

+ 2x GND



Interface

Features

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

Technical characteristics

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

Specifications and approvals

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





Inter-
face

Identification

HARTING Mini PushPull,
ix Industrial®,
Bulkhead mounted housing,
Panel feed trough set,
Fully shielded, 360° shielding contact,

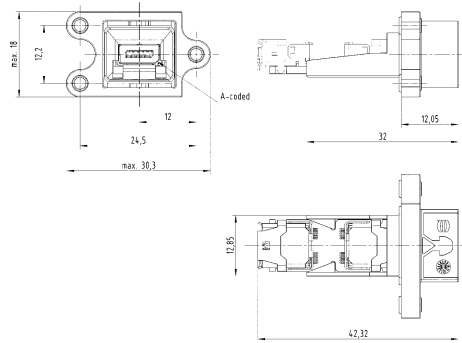
Pack contents:
incl. seal, 2x HARTING ix Industrial®-jack type A (Ethernet) and
board drillings for M2.5



Part number

09 51 221 0001

Drawing
(dimensions in mm)



Number of contacts

10



Inter-
face

Features

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

Technical characteristics

Number of contacts	10
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV (contact-contact) 0.5 kV (contact-shielding)
Contact resistance	$\leq 30 \text{ m}\Omega$
Shielding resistance	$\leq 100 \text{ m}\Omega$
Limiting temperature	-40 ... +70 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥ 750
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Insertion force	$\leq 25 \text{ N}$
Withdrawal force	$\leq 25 \text{ N}$
Material (insert)	Liquid crystal polymer (LCP)
Colour (insert)	Black
Material (hood/housing)	Polybutylene terephthalate (PBT)
Colour (hood/housing)	Black
Material (seal)	PTS
Colour (seal)	Yellow
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

Specifications and approvals

IEC 61076-3-124 Type B



Identification

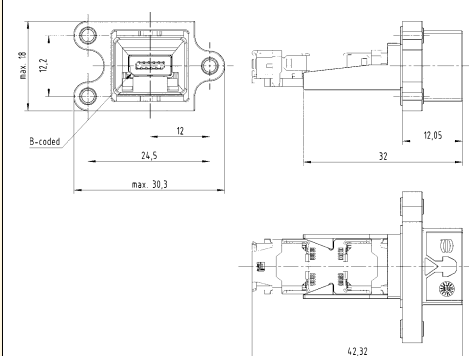
HARTING Mini PushPull,
ix Industrial®,
Bulkhead mounted housing,
Panel feed trough set,
Fully shielded, 360° shielding contact,
Pack contents:
incl. seal, 2x HARTING ix Industrial®-jack type B (Signal) and
board drillings for M2.5



Part number

09 51 221 0002

Drawing (dimensions in mm)





Number of contacts

8

+ 2x GND



Inter-
face

Features

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

Technical characteristics

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

Specifications and approvals

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





Details

Cable assemblies see chapter 6

Can be combined with HARTING ix Industrial® jacks



Identification	Part number	Drawing (dimensions in mm)
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, 8 contacts + 2 GND, AWG 28 ... AWG 26, Conductor cross-section 0.09 ... 0.14 mm², Wire outer diameter ≤ 1.15 mm,</p> <p>Pack contents: incl. housing, HARTING ix Industrial®-connector type A, shielding and cable gland</p> 	<p>09 51 121 0001</p>	
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, 8 contacts, AWG 24 ... AWG 22, Conductor cross-section 0.23 ... 0.36 mm², Wire outer diameter ≤ 1.59 mm,</p> <p>Pack contents: incl. housing, HARTING ix Industrial®-connector type A, shielding and cable gland</p> 	<p>09 51 121 0003</p>	

Inter-
face

Number of contacts

10

Inter-
face

Features

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

Technical characteristics

Number of contacts	10
Rated current	1.5 A
Rated voltage	50 V AC, 60 V DC
Test voltage $U_{r.m.s.}$	0.5 kV
Contact resistance	≤30 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +70 °C
Storage temperature	-30 ... +60 °C
Mating cycles	≥750
Conductor cross-section	0.09 ... 0.14 mm ² 0.23 ... 0.36 mm ²
Conductor cross-section	AWG 28 ... AWG 26 AWG 24 ... AWG 22
Wire outer diameter	≤1.15 mm ≤1.59 mm
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Cable diameter	4.5 ... 7.5 mm
Insertion force	≤25 N
Withdrawal force	≤25 N
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (hood/housing)	Polybutylene terephthalate (PBT) / PA66
Colour (hood/housing)	Black
Material (seal)	HNBR / NBR
Colour (seal)	Black
Material (locking)	Polybutylene terephthalate (PBT)
Colour (locking)	Yellow
Material (contacts)	Copper alloy
Material flammability class acc. to UL 94	V-0

Specifications and approvals

IEC 61076-3-124 Type B


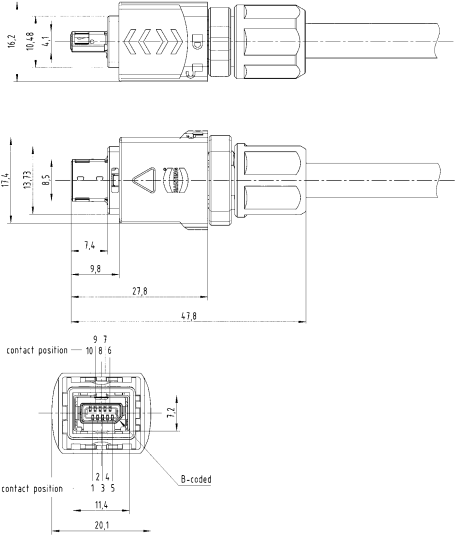

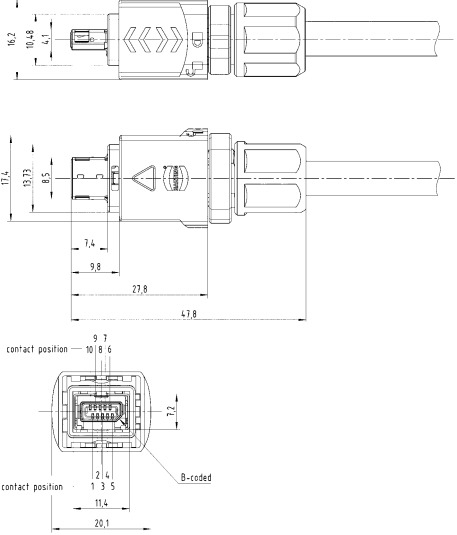


Details

Cable assemblies see chapter 6

Can be combined with HARTING ix Industrial® jacks



Identification	Part number	Drawing (dimensions in mm)
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, AWG 28 ... AWG 26, Conductor cross-section 0.09 ... 0.14 mm², Wire outer diameter ≤ 1.15 mm,</p> <p>Pack contents: incl. housing, HARTING ix Industrial®-connector type B, shielding and cable gland</p> 	<p>09 51 121 0002</p>	
<p>HARTING Mini PushPull, ix Industrial®, Connector sets, IDC termination, Fully shielded, 360° shielding contact, 8 contacts, AWG 24 ... AWG 22, Conductor cross-section 0.23 ... 0.36 mm², Wire outer diameter ≤ 1.59 mm,</p> <p>Pack contents: incl. housing, HARTING ix Industrial®-connector type B, shielding and cable gland</p> 	<p>09 51 121 0004</p>	

Interface



Interface


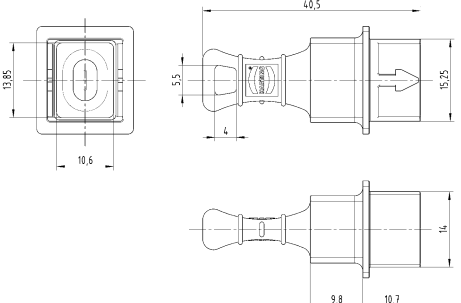

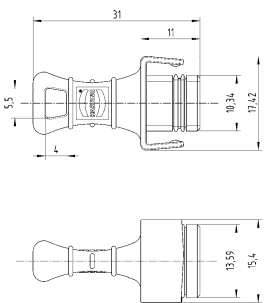


Technical characteristics

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

Technical characteristics

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

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING Mini PushPull, Protection cover, for cable side</p> 	09 51 800 0002	
<p>HARTING Mini PushPull, Protection cover, for device side</p> 	09 51 800 0003	

Number of contacts

4



Inter-
face

Features

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

Technical characteristics

Number of contacts	4
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Data rate	10 Mbit/s, 100 Mbit/s
Limiting temperature	-40 ... +85 °C
Mating cycles	≥750
Conductor cross-section	0.12 ... 0.32 mm ² Stranded 0.12 ... 0.32 mm ² Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded AWG 24/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP65 IP67
Cable diameter	6.5 ... 9.5 mm
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated

Specifications and approvals

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



Identification

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

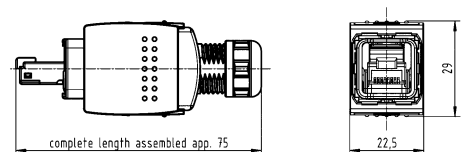


When installing a PROFINET system, observe the PROFINET installation guideline.

Part number

09 35 229 0401

Drawing
(dimensions in mm)



Number of contacts

8

Interface



Features

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

Technical characteristics

Number of contacts	8
Transmission characteristics	Cat. 6A, Class E _A up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Limiting temperature	-40 ... +85 °C
Mating cycles	≥750
Conductor cross-section	0.12 ... 0.32 mm ² Stranded
Conductor cross-section	0.12 ... 0.32 mm ² Solid
Wire outer diameter	0.8 ... 1.6 mm
Degree of protection acc. to IEC 60529	IP65 IP67
Cable diameter	6.5 ... 9.5 mm
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated

Specifications and approvals

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



Identification

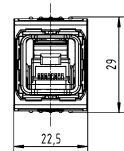
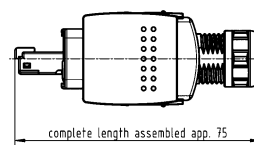
Han® PushPull (V14),
Connector,
AIDA compliant,
PROFINET,
Straight,
IDC termination,
Fully shielded, 360° shielding contact


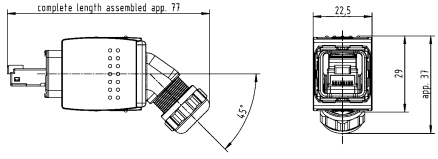


Part number

09 35 220 0401

Drawing
(dimensions in mm)



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

Inter-
face

Ethernet ports copper 2x HARTING PushPull (V4) RJ45 (IP65 / IP67)

Inter-
face



Features

- Simple mounting
- Cable entering optionally from bottom or from topside
- Self-closing protection caps in IP65 / IP67
- IP65 / IP67 Label
- Compatible with RJ45 female inserts (HIFF-version)

Technical characteristics

Transmission characteristics	Cat. 6A, Class EA up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 10 Gbit/s
Limiting temperature	-20 ... +70 °C
Conductor cross-section	0.22 ... 0.32 mm ² Solid 0.22 ... 0.32 mm ² Stranded
Conductor cross-section	AWG 24 ... AWG 22
Wire outer diameter	1.7 mm
Degree of protection acc. to IEC 60529	IP65 IP67
Cable diameter	6 ... 9 mm
Fixing	Wall mounting
Material (hood/housing)	Polycarbonate (PC) Fibre-glass reinforced
Colour (hood/housing)	Black White
Material flammability class acc. to UL 94	V-0

Identification

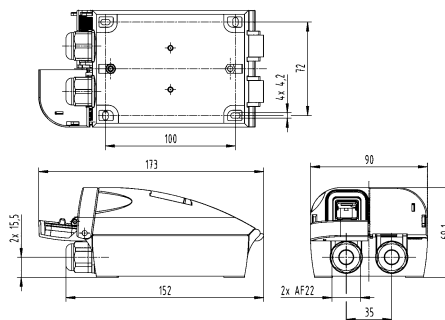
HARTING PushPull (V4),
IDC termination,
Fully shielded, 360° shielding contact,
Outlet,
Black,
Pack contents:
2-port outlet housing with protection caps,
Cable management,
Cable gland,
Label,
2x RJ45 jack,
Dummy plugs,
Assembly instructions

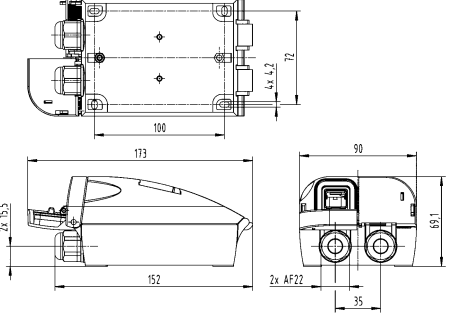


Part number

09 45 845 1562

Drawing (dimensions in mm)



Identification	Part number	Drawing (dimensions in mm)
<p>HARTING PushPull (V4), IDC termination, Fully shielded, 360° shielding contact, Outlet, White,</p> <p>Pack contents: 2-port outlet housing with protection caps, Cable management, Cable gland, Label, 2x RJ45 jack, Dummy plugs, Assembly instructions</p>	<p>09 45 845 1563</p>	

Inter-
face

Inter-
face


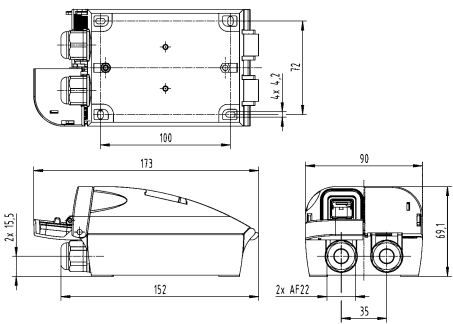


Technical characteristics

Limiting temperature	-20 ... +70 °C
Degree of protection acc. to IEC 60529	IP65 IP67
Cable diameter	6 ... 9 mm
Fixing	Wall mounting

Technical characteristics

Material (hood/housing)	Polycarbonate (PC) Fibre-glass reinforced
Colour (hood/housing)	Black
Material flammability class acc. to UL 94	V-0

Identification	Part number	Drawing (dimensions in mm)
<p>HARTING PushPull (V4), Outlet, Empty, for fixture of 2x RJ45 female inserts, Black</p>  <p>Please order insert separately.</p>	<p>09 45 845 1560</p>	



Number of contacts

4

Inter-
face

Technical characteristics

Number of contacts	4
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Limiting temperature	-40 ... +70 °C
Mating cycles	≥750
Conductor cross-section	0.22 ... 0.32 mm ² solid and stranded
Conductor cross-section	AWG 24 ... AWG 22
Wire outer diameter	1.7 mm
Degree of protection acc. to IEC 60529	IP20
Cable diameter	5 ... 9 mm
Material (insert)	Polycarbonate (PC)
Colour (insert)	White Yellow

Technical characteristics

Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated
Material flammability class acc. to UL 94	V-2
RoHS	compliant

Specifications and approvals

DNV GL



Identification	Part number	Drawing (dimensions in mm)
----------------	-------------	-------------------------------

HARTING RJ Industrial®,
Female,
RJ45,
HIFF version,
IDC termination,
Fully shielded, 360° shielding contact



09 45 545 1120



Inter-
face

Technical characteristics

Number of contacts	8
Transmission characteristics	Cat. 6A, Class E _A up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 10 Gbit/s
Limiting temperature	-40 ... +85 °C -40 ... +70 °C
Mating cycles	≥750
Conductor cross-section	0.22 ... 0.32 mm ² 0.1 ... 0.12 mm ² 0.08 ... 0.22 mm ² solid and stranded 0.22 ... 0.32 mm ² solid and stranded
Conductor cross-section	AWG 24 ... AWG 22 AWG 27 ... AWG 26 AWG 28 ... AWG 24
Wire outer diameter	1.2 mm 1.7 mm
Degree of protection acc. to IEC 60529	IP20

Technical characteristics

Cable diameter	5 ... 9 mm
Material (insert)	Polycarbonate (PC)
Colour (insert)	White Yellow
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated
Material flammability class acc. to UL 94	V-2
RoHS	compliant

Specifications and approvals

EN 45545-2 R26: HL1, HL2, HL3
 UL 1863 DUXR2.E470046
 CSA-C22.2 No. 182.4, No. 233-09 DUXR8.E470046
 DNV GL



Identification

Part number

Drawing (dimensions in mm)

preLink®,
 Female module,
 With terminal block,
 preLink® IDC insulation displacement termination,
 AWG 23/22






20 82 001 0001

preLink®,
 Female module,
 With terminal block,
 preLink® IDC insulation displacement termination,
 AWG 27/26



20 82 001 0002



Identification	Part number	Drawing (dimensions in mm)
<p>preLink®, Female module, without terminal block, preLink® IDC insulation displacement termination, AWG 23/22, AWG 27/26</p> 	<p>20 82 000 0002</p>	
<p>HARTING RJ Industrial®, Female, RJ45, HIFF version, IDC termination, Fully shielded, 360° shielding contact, AWG 28 ... AWG 24</p> 	<p>09 45 545 1561</p>	
<p>HARTING RJ Industrial®, Female, RJ45, HIFF version, IDC termination, Fully shielded, 360° shielding contact, AWG 24 ... AWG 22</p> 	<p>09 45 545 1562</p>	

Inter-
face

Number of contacts

5

15 A 24 V 4 kV 3

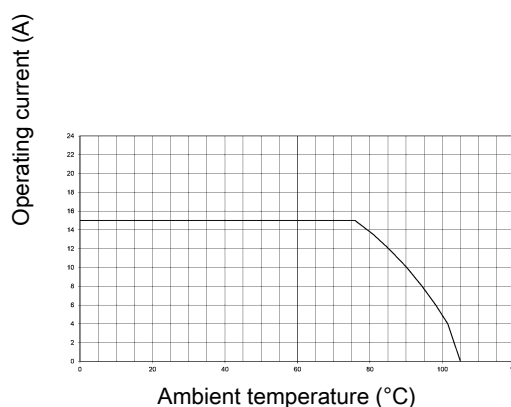


Inter-
face

Technical characteristics

Number of contacts	5
Rated current	15 A
Rated voltage	24 V
Rated impulse voltage	4 kV
Pollution degree	3
Limiting temperature	0 ... +55 °C
Storage temperature	-40 ... +70 °C
Mating cycles	≥500
Conductor cross-section	0.75 ... 2.5 mm ²
Conductor cross-section	AWG 18 ... AWG 13
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65
Tightening torque	3 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Sn over Ni, Termination side Au over Ni, Mating side

Derating



Specifications and approvals

DNV GL

Identification

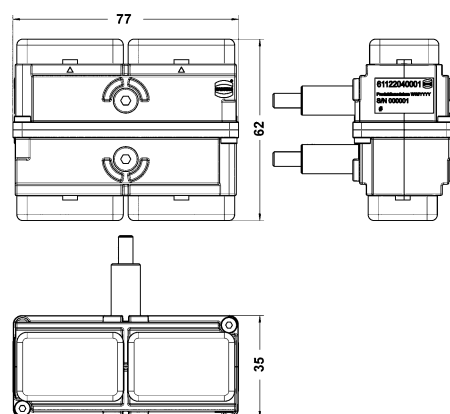
Han® PushPull (V14),
AIDA H-distributor,
Connector,
Distributor,
AIDA compliant,
Han® PushPull (V14),
Pack contents:
Distributor,
2 fixing screws,
4 Transport protection covers,
2 distance sleeves



Part number

61 12 204 0001 02

Drawing
(dimensions in mm)




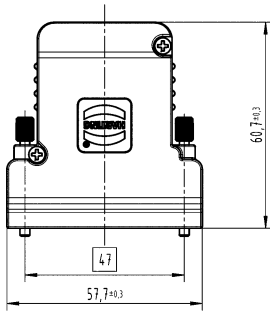
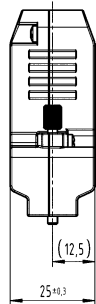

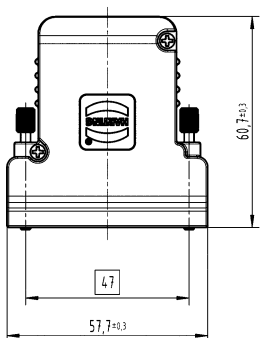
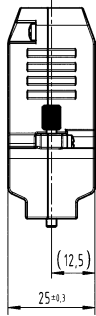
Technical characteristics

Limiting temperature	-40 ... +125 °C
Locking type	Knurled screw, Thread 4-40 UNC
Degree of protection acc. to IEC 60529	IP30
Tightening torque	0.4 Nm cover screw 0.4 Nm Locking screw 0.4 Nm Fixing screws
Material (hood/housing)	Zinc die-cast
Material (screw)	Steel, nickel plated

Details

In case of strain relief for one cable, DIN 41612 insert or cable clamps must be used.

In case of strain relief for one or two cables, D-Sub insert and cable clamp or crimp flange and crimp ferrule combination must be used.

Identification	Part number	Drawing (dimensions in mm)	
D-Sub InduCom, Shell housing, Cable insert, Top entry 	61 03 001 0217		
D-Sub InduCom, Shell housing, PCB transition connectors, Top entry, Pack contents: Fixing screws 	61 03 001 0317		



Inter-
face

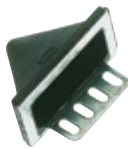
Technical characteristics

Material (accessories) Metal

Technical characteristics

Colour (accessories) Metallic
RoHS compliant

Identification	Part number	Drawing (dimensions in mm)
DIN 41612, Insert for shell housing, With strain relief, for shell housing D 20	09 06 800 9950	
DIN 41612, Cable clamp, for shell housing D 20, Standard	09 06 800 9955	
DIN 41612, Cable clamp, for shell housing D 20, Narrow	09 06 800 9962	








Technical characteristics

Cable diameter
5 ... 7 mm
7 ... 10 mm
9 ... 12 mm

Technical characteristics

Material (accessories) Metal
Colour (accessories) Metallic
RoHS compliant with exemption




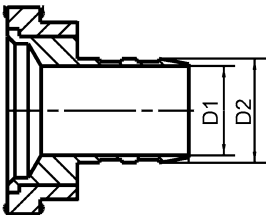
Identification		Part number	Drawing (dimensions in mm)
DIN 41612, Insert for shell housing, for shell housing D 20		09 06 800 9952	
D-Sub, Dummy plugs, for hoods/housings		61 03 000 0042	
Cable clamp, D-Sub 1 ... 4, 5 ... 7 mm		61 03 000 0141	
Cable clamp, D-Sub 1 ... 4, 7 ... 10 mm		61 03 000 0044	
Cable clamp, D-Sub 1 ... 4, 9 ... 12 mm		61 03 000 0143	


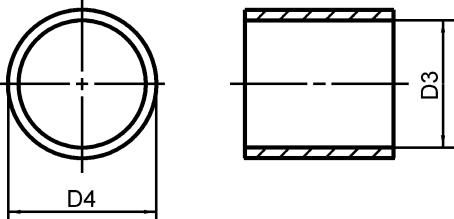
Technical characteristics

Material (accessories)	Metal
Colour (accessories)	Metallic
RoHS	compliant compliant with exemption

Details

HARTING offers to test and define the best crimp flange and ferrule combination for customer specific cables.

Identification	Inner diameter	Outer diameter	Part number	Drawing (dimensions in mm)
DIN 41612, Insert for shell housing, for shell housing D 20 			09 06 800 9952	
D-Sub, Dummy plugs, for hoods/housings 			61 03 000 0042	
D-Sub, Crimp flange, D-Sub 1 ... 4 	3 mm 3.5 mm 4 mm 4.5 mm 5 mm 5.5 mm 6 mm 6.5 mm 7 mm 7.5 mm 8 mm 8.5 mm 9 mm	4 mm 4.5 mm 5 mm 5.5 mm 6 mm 6.5 mm 7 mm 7.5 mm 8 mm 8.5 mm 9 mm 9.5 mm 10 mm	61 03 000 0062 61 03 000 0063 61 03 000 0064 61 03 000 0065 61 03 000 0066 61 03 000 0166 61 03 000 0067 61 03 000 0068 61 03 000 0069 61 03 000 0070 61 03 000 0071 61 03 000 0165 61 03 000 0072	 D1 = Inner diameter D2 = Outer diameter

Identification	Inner diameter	Outer diameter	Part number	Drawing (dimensions in mm)
D-Sub, Crimp ferrule 	5 mm	6 mm	61 03 000 0045	 <p>D4 = Outer diameter D3 = Inner diameter</p>
	5.5 mm	6.5 mm	61 03 000 0046	
	6 mm	7 mm	61 03 000 0047	
	6.5 mm	7.5 mm	61 03 000 0048	
	7 mm	8 mm	61 03 000 0049	
	7.5 mm	8.5 mm	61 03 000 0050	
	8 mm	9 mm	61 03 000 0051	
	8.5 mm	9.5 mm	61 03 000 0052	
	9 mm	10 mm	61 03 000 0053	
	9.5 mm	10.5 mm	61 03 000 0054	
	10 mm	11 mm	61 03 000 0055	
	10.5 mm	11.5 mm	61 03 000 0056	
	11 mm	12 mm	61 03 000 0057	
	11.5 mm	12.5 mm	61 03 000 0058	
	12 mm	13 mm	61 03 000 0142	
	12.5 mm	13.5 mm	61 03 000 0059	
	13 mm	14 mm	61 03 000 0127	
	13.7 mm	15 mm	61 03 000 0060	
	14 mm	15 mm	61 03 000 0061	

Inter-
face

Contents	Page
M23 Signal system cables.....	New 6.2
M23 Power system cables.....	New 6.8
M23 Hybrid system cables	New 6.10
HARTING ix Industrial® EtherRail® system cables.....	New 6.11
HARTING T1 Industrial® AWG 22 system cables.....	New 6.12
HARTING PushPull (V4) Power system cables	New 6.13
Han® 1A system cables	New 6.15
Han® F+B system cables.....	New 6.23

12x AWG 18
M23 Male Straight



Cable

Technical characteristics


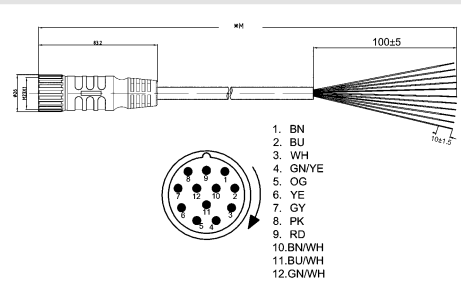

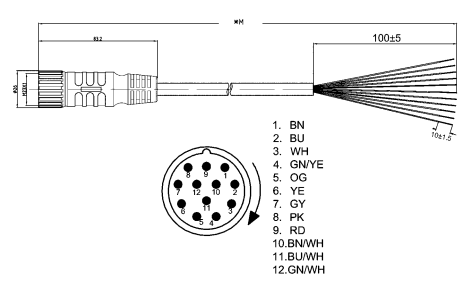
Number of cores	12
Core structure	12x AWG 18
Connector 1	M23
	Male, Straight
Rated current	6 A
Rated voltage	300 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PUR (polyurethane) PVC
Colour (cable)	Black
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PUR (polyurethane)</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 330 0C70 050 21 37 330 0C70 100</p>	 <p>1. BN 2. BU 3. WH 4. GN/YE 5. OG 6. YE 7. GY 8. PK 9. RD 10. BN/WH 11. BU/WH 12. GN/WH</p>
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PVC</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 330 0C71 050 21 37 330 0C71 100</p>	 <p>1. BN 2. BU 3. WH 4. GN/YE 5. OG 6. YE 7. GY 8. PK 9. RD 10. BN/WH 11. BU/WH 12. GN/WH</p>

New
6
·
2

12x AWG 18
M23 Female Straight



Cable

Technical characteristics


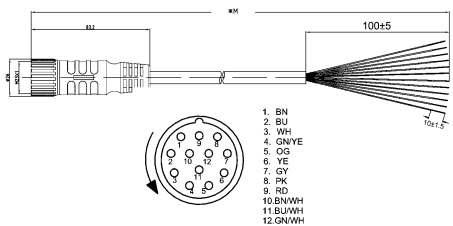

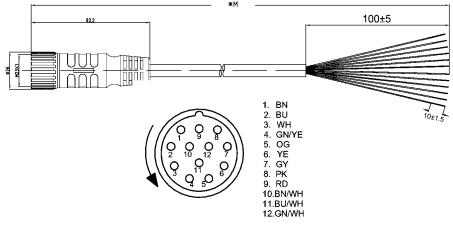
Number of cores	12
Core structure	12x AWG 18
Connector 1	M23 Female, Straight
Rated current	6 A
Rated voltage	300 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PUR (polyurethane) PVC
Colour (cable)	Black
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PUR (polyurethane)</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 350 0C70 050 21 37 350 0C70 100</p>	
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PVC</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 350 0C71 050 21 37 350 0C71 100</p>	

17x AWG 18
M23 Male Straight



Cable

Technical characteristics


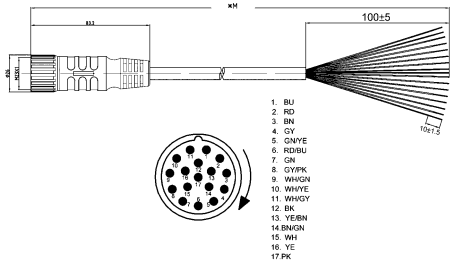

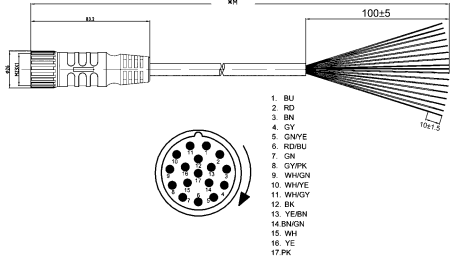
Core structure	17x AWG 18
Connector 1	M23
	Male, Straight
Rated current	9 A
Rated voltage	150 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PUR (polyurethane) PVC
Colour (cable)	Black
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PUR (polyurethane)</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 330 0F72 050 21 37 330 0F72 100</p>	 <p>1. BU 2. RD 3. BN 4. GY 5. GWYE 6. RDBU 7. SN 8. GYFK 9. WHGN 10. WHYE 11. WHGY 12. BK 13. YEBN 14. BNGN 15. WH 16. YE 17. PK</p>
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PVC</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 330 0F73 050 21 37 330 0F73 100</p>	 <p>1. BU 2. RD 3. BN 4. GY 5. GWYE 6. RDBU 7. SN 8. GYFK 9. WHGN 10. WHYE 11. WHGY 12. BK 13. YEBN 14. BNGN 15. WH 16. YE 17. PK</p>

17x AWG 18
M23 Female Straight



Cable

Technical characteristics


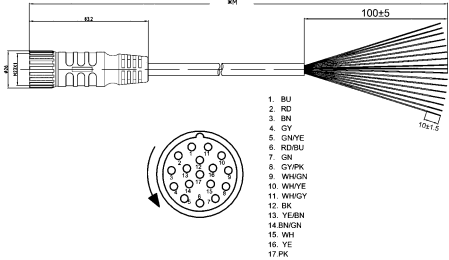

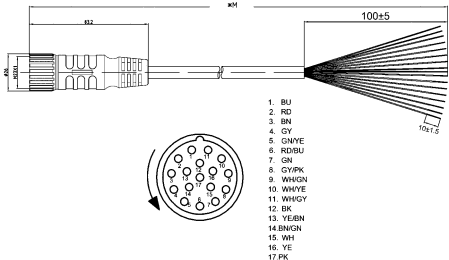
Number of cores	17
Core structure	17x AWG 18
Connector 1	M23 Female, Straight
Rated current	9 A
Rated voltage	150 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PUR (polyurethane) PVC
Colour (cable)	Black
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PUR (polyurethane)</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 350 0F72 050 21 37 350 0F72 100</p>	 <ol style="list-style-type: none"> 1. BU 2. RD 3. BN 4. GY 5. CH/VE 6. RDBU 7. GN 8. GY/PK 9. WH/GN 10. WH/VE 11. WH/GY 12. BK 13. VE/BN 14. BN/GN 15. WH 16. YE 17. PK
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PVC</p> <p>Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 350 0F73 050 21 37 350 0F73 100</p>	 <ol style="list-style-type: none"> 1. BU 2. RD 3. BN 4. GY 5. CH/VE 6. RDBU 7. GN 8. GY/PK 9. WH/GN 10. WH/VE 11. WH/GY 12. BK 13. VE/BN 14. BN/GN 15. WH 16. YE 17. PK

3x AWG 18 + 16x AWG 22
M23 Male Straight



Cable

Technical characteristics

Number of cores	19
Core structure	3x AWG 18 + 16x AWG 22
Connector 1	M23
	Male, Straight
Rated voltage	150 V
Rated current (signal)	2 A
Rated current (power)	9 A
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PUR (polyurethane) PVC
Colour (cable)	Black
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

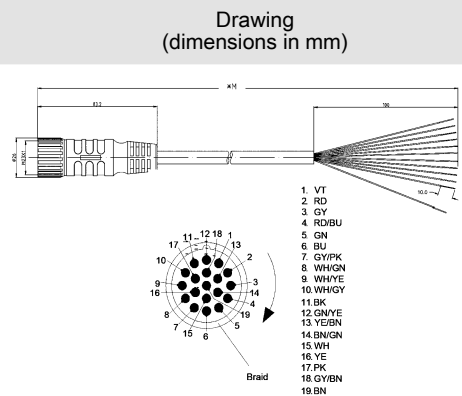
Identification	Cable length	Part number	Drawing (dimensions in mm)
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Circular connectors M23,
Copper cable (round),
Cable assemblies,
Pre-assembled on one side,
PUR (polyurethane)
Contact surface:
Silver plated



5 m
10 m

21 37 330 0D74 050
21 37 330 0D74 100

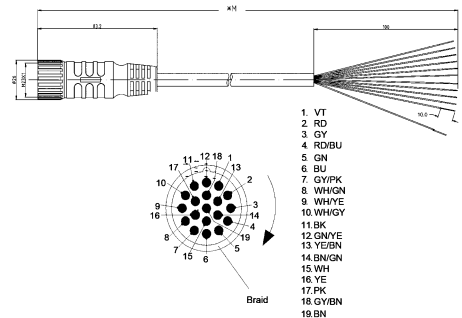


Circular connectors M23,
Copper cable (round),
Cable assemblies,
Pre-assembled on one side,
PVC
Contact surface:
Silver plated



5 m
10 m

21 37 330 0D75 050
21 37 330 0D75 100



3x AWG 18 + 16x AWG 22
M23 Female Straight



Cable

Technical characteristics


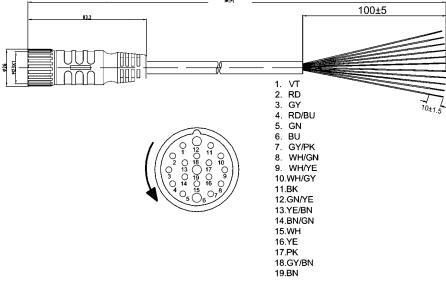

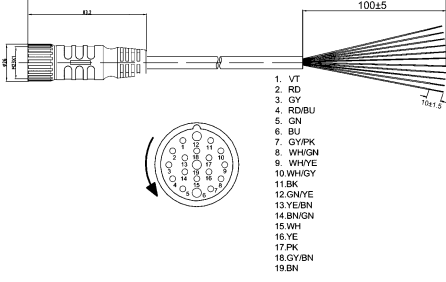
Number of cores	19
Core structure	3x AWG 18 + 16x AWG 22
Connector 1	M23 Female, Straight
Rated voltage	150 V
Rated current (signal)	2 A
Rated current (power)	9 A
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PUR (polyurethane) PVC
Colour (cable)	Black
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PUR (polyurethane) Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 350 0D74 050 21 37 350 0D74 100</p>	 <p>1. VT 2. RD 3. GY 4. RD/BU 5. GN 6. BU 7. GY/PK 8. WH/GN 9. WH/YE 10. WH/GY 11. BK 12. GN/YE 13. YE/BN 14. BN/GN 15. WH 16. YE 17. PK 18. GY/BN 19. BN</p>
<p>Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, PVC Contact surface: Silver plated</p> 	<p>5 m 10 m</p>	<p>21 37 350 0D75 050 21 37 350 0D75 100</p>	 <p>1. VT 2. RD 3. GY 4. RD/BU 5. GN 6. BU 7. GY/PK 8. WH/GN 9. WH/YE 10. WH/GY 11. BK 12. GN/YE 13. YE/BN 14. BN/GN 15. WH 16. YE 17. PK 18. GY/BN 19. BN</p>

4x AWG 16 + 2x AWG 17
M23 Male Straight



Cable

Technical characteristics

Number of cores	6
Core structure	4x AWG 16 + 2x AWG 17
Connector 1	M23
	Male, Straight
Rated current	28 A
Rated voltage	630 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PVC
Colour (cable)	Orange
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, Contact surface: Silver plated	5 m 10 m	21 37 370 0676 050 21 37 370 0676 100	<p>1- E1 2- E2 3- GN/YE 4- E3 5- BK 6- WE</p>

New
6
·
8

4x AWG 16 + 2x AWG 17
M23 Female Straight



Cable

Technical characteristics

Number of cores	6
Core structure	4x AWG 16 + 2x AWG 17
Connector 1	M23 Female, Straight
Rated current	28 A
Rated voltage	630 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67
Material (contacts)	Copper alloy

Technical characteristics

Material (cable)	PVC
Colour (cable)	Orange
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Circular connectors M23, Copper cable (round), Cable assemblies, Pre-assembled on one side, Contact surface: Silver plated	5 m 10 m	21 37 380 0676 050 21 37 380 0676 100	

4x AWG 16 + 4x AWG 19
M23 Male Straight



Cable

Technical characteristics

Number of cores	8
Core structure	4x AWG 16 + 4x AWG 19
Connector 1	M23
	Male, Straight
Rated current (signal)	10 A
Rated voltage (signal)	250 V
Rated current (power)	40 A
Rated voltage (power)	630 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP67

Technical characteristics

Material (contacts)	Copper alloy
Material (cable)	PVC
Colour (cable)	Orange
Material (overmoulding)	Thermoplastic polyurethane (TPU)
Colour (overmoulding)	Black

Details

Other cable lengths and variants on request!

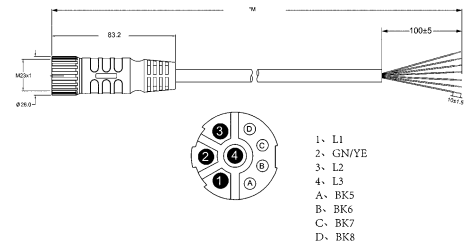
Identification	Cable length	Part number	Drawing (dimensions in mm)
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Circular connectors M23,
Copper cable (round),
Cable assemblies,
Pre-assembled on one side,
Contact surface:
Silver plated



5 m
10 m

21 37 380 0G78 050
21 37 380 0G78 100



4x 2x AWG 26/7
 HARTING ix Industrial® Type A
 HARTING ix Industrial® Type A



Cable

Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING ix Industrial®, Type A
Connector 2	HARTING ix Industrial®, Type A
Transmission characteristics	Cat. 6A, Class E _A up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Limiting temperature	-40 ... +80 °C unmoved -40 ... +80 °C moved
Cable diameter	6.4 ... 6.8 mm
Minimum bending radius	6x Cable diameter
Material (cable)	Polyolefin copolymer electron beam crosslinked Comp 752
Colour (cable)	Black
RoHS	compliant

Specifications and approvals

EN 45545-2 (HL 1-3) fire protection in railway vehicles
 NFPA 130 fire protection in railway vehicles
 UN/ECE-R 118 fire protection for rolling stock
 EN 50155 Shock and vibration resistance
 EN 60811-403 Resistance to ozone
 EN 60811-404 Oil resistance
 EN 50618 UV resistant



Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
HARTING ix Industrial®, Copper cable (round), for railway applications, Cable assemblies, Pre-assembled on both sides, IDC termination	0.5 m	33 48 010 1819 005	
	1 m	33 48 010 1819 010	
	2 m	33 48 010 1819 020	
	3 m	33 48 010 1819 030	
	4 m	33 48 010 1819 040	
	5 m	33 48 010 1819 050	
	7.5 m	33 48 010 1819 075	
	10 m	33 48 010 1819 100	
	15 m	33 48 010 1819 150	
	20 m	33 48 010 1819 200	

1x 2x AWG 22/7
 HARTING T1 Industrial Overmoulded
 HARTING T1 Industrial Overmoulded



Features

- Internationally standardised mating face acc. to IEC 63171-6
- For the construction of future-proof and standardised Single Pair Ethernet (SPE) communication networks with standardised cabling according to ISO / IEC 11801 and TIA 42
- Designed for industrial applications up to M₃L₃C₃E₃ environmental conditions
- Meets all IEEE 802.3 requirements for SPE
- Robust industrial design with 360° shielding, locking lever protection and high mating cycles
- Suitable for remote power supply for all Power over Data Line (PoDL) classes
- Very flexible, overmoulded cable with a small footprint

Technical characteristics

Number of cores	2
Core structure	1x 2x AWG 22/7
Connector 1	HARTING T1 Industrial Overmoulded
Connector 2	HARTING T1 Industrial Overmoulded
Rated current	4 A
Rated voltage	60 V DC
Transmission characteristics	600 MHz, Bandwidth
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s
Test voltage U _{DC}	1 kV (contact-contact) 2.25 kV (contact-ground)
Contact resistance	≤20 mΩ
Shielding resistance	≤100 mΩ
Limiting temperature	-40 ... +80 °C unmoved -25 ... +80 °C moved
Mating cycles	≥1000
Degree of protection acc. to IEC 60529	IP20
Material (cable)	PUR (polyurethane)
Colour (cable)	Yellow

Specifications and approvals

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

Details

Unmating under electrical load with 1.5 A / 60 V.

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
HARTING T1 Industrial, Copper cable (round), Halogen-free, Oil resistant, Flame retardant, Cable assemblies, Pre-assembled on both sides	0.3 m	33 28 010 1002 003	
	0.5 m	33 28 010 1002 005	
	1 m	33 28 010 1002 010	
	2 m	33 28 010 1002 020	
	3 m	33 28 010 1002 030	
	5 m	33 28 010 1002 050	
	7.5 m	33 28 010 1002 075	
	10 m	33 28 010 1002 100	
	15 m	33 28 010 1002 150	
	20 m	33 28 010 1002 200	

Number of contacts

2+

3G 1.5 mm²
 HARTING PushPull (V4) Power 3-pin
 HARTING PushPull (V4) Power 3-pin



Cable

Technical characteristics

Number of cores	3
Core structure	3G 1.5 mm ²
Connector 1	HARTING PushPull (V4) Power 3-pin
Connector 2	HARTING PushPull (V4) Power 3-pin
Rated current	16 A
Rated voltage	250 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP65 IP67
Material (cable)	PUR (polyurethane)

Technical characteristics

Colour (cable) Grey

Specifications and approvals

IEC 61076-3-106 Variant 4 (V4)

Details

Other cable lengths on request!

Identification	Conductor cross-section (mm ²)	Cable length	Part number	Drawing (dimensions in mm)
HARTING PushPull (V4), Copper cable (round), Wiring 1:1, Cable assemblies, Pre-assembled on both sides, Crimp termination, Unshielded, PushPull	1.5	0.5 m	33 59 222 0050 001	
	1.5	1 m	33 59 222 0100 001	
	1.5	2 m	33 59 222 0200 001	
	1.5	3 m	33 59 222 0300 001	
	1.5	4 m	33 59 222 0400 001	
	1.5	5 m	33 59 222 0500 001	
	1.5	7.5 m	33 59 222 0750 001	
	1.5	10 m	33 59 222 1000 001	
	1.5	15 m	33 59 222 1500 001	
	1.5	20 m	33 59 222 2000 001	
	1.5	30 m	33 59 222 3000 001	

Number of contacts

4

4G 1.5 mm²
 HARTING PushPull (V4) Power 4-pin
 HARTING PushPull (V4) Power 4-pin



Technical characteristics

Number of cores	4
Core structure	4G 1.5 mm ²
Connector 1	HARTING PushPull (V4) Power 4-pin
Connector 2	HARTING PushPull (V4) Power 4-pin
Rated current	12 A
Rated voltage	48 V
Limiting temperature	-40 ... +80 °C
Degree of protection acc. to IEC 60529	IP65 IP67
Material (cable)	PUR (polyurethane)

Technical characteristics

Colour (cable) Grey

Specifications and approvals

IEC 61076-3-106 Variant 4 (V4)

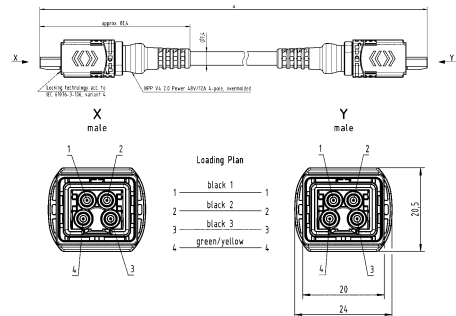
Details

Other cable lengths on request!

Identification	Conductor cross-section (mm ²)	Cable length	Part number
HARTING PushPull (V4),	1.5	0.5 m	33 59 222 0050 002
Copper cable (round),	1.5	1 m	33 59 222 0100 002
Wiring 1:1,	1.5	2 m	33 59 222 0200 002
Cable assemblies,	1.5	3 m	33 59 222 0300 002
Pre-assembled on both sides,	1.5	4 m	33 59 222 0400 002
Crimp termination,	1.5	5 m	33 59 222 0500 002
Unshielded,	1.5	7.5 m	33 59 222 0750 002
PushPull	1.5	10 m	33 59 222 1000 002
	1.5	15 m	33 59 222 1500 002
	1.5	20 m	33 59 222 2000 002
	1.5	30 m	33 59 222 3000 002



Drawing (dimensions in mm)



Number of contacts

3+

4x 2.5 mm²
Han® 1A Male



Cable

Technical characteristics

Core structure	4x 2.5 mm ²
Connector 1	Han® 1A, Male
Rated current	16 A
Rated voltage	400 V
Limiting temperature	-40 ... +80 °C unmoved -15 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	9.2 mm
Material (cable)	PVC
Colour (cable)	Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Single locking lever	1 m	33 50 020 0201 010	
	2 m	33 50 020 0201 020	
	5 m	33 50 020 0201 050	
	7.5 m	33 50 020 0201 075	
	10 m	33 50 020 0201 100	
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Snap-in latches	1 m	33 50 040 0201 010	
	2 m	33 50 040 0201 020	
	5 m	33 50 040 0201 050	
	7.5 m	33 50 040 0201 075	
	10 m	33 50 040 0201 100	

Number of contacts

3+

4x 2.5 mm²
Han® 1A Female



Technical characteristics


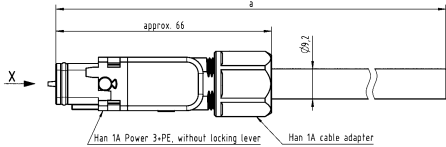

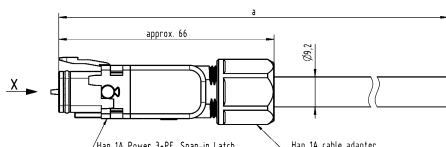
Core structure	4x 2.5 mm ²
Connector 1	Han® 1A, Female Han® 1A, Male
Rated current	16 A
Rated voltage	400 V
Limiting temperature	-40 ... +80 °C unmoved -15 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	9.2 mm
Material (cable)	PVC
Colour (cable)	Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Single locking lever 	1 m	33 50 010 0201 010	 <p>approx. 66</p> <p>Ø9.2</p> <p>X →</p> <p>Han 1A Power 3-PE, without locking lever</p> <p>Han 1A cable adapter</p> <p>X female</p> <p>PE</p> <p>3</p> <p>2</p> <p>1</p> <p>20.3</p> <p>25.3</p> <p>Loading Plan</p> <p>1 wire 1</p> <p>2 wire 2</p> <p>3 wire 3</p> <p>PE green/yellow</p>
	2 m	33 50 010 0201 020	
	5 m	33 50 010 0201 050	
	7.5 m	33 50 010 0201 075	
	10 m	33 50 010 0201 100	
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Snap-in latches 	1 m	33 50 030 0201 010	 <p>approx. 66</p> <p>Ø9.2</p> <p>X →</p> <p>Han 1A Power 3-PE, Snap-in Latch</p> <p>Han 1A cable adapter</p> <p>X female</p> <p>PE</p> <p>3</p> <p>2</p> <p>1</p> <p>20.3</p> <p>25.3</p> <p>Loading Plan</p> <p>1 wire 1</p> <p>2 wire 2</p> <p>3 wire 3</p> <p>PE green/yellow</p>
	2 m	33 50 030 0201 020	
	5 m	33 50 030 0201 050	
	7.5 m	33 50 030 0201 075	
	10 m	33 50 030 0201 100	

Number of contacts

3+

4x 1.5 mm²
Han® 1A Male
Shielded



Cable

Technical characteristics

Core structure	4x 1.5 mm ²
Connector 1	Han® 1A, Male
Rated current	10 A
Rated voltage	400 V
Limiting temperature	-40 ... +80 °C unmoved -10 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	8.3 mm
Material (cable)	PVC
Colour (cable)	Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Shielded, Single locking lever	1 m	33 50 060 0202 010	
	2 m	33 50 060 0202 020	
	5 m	33 50 060 0202 050	
	7.5 m	33 50 060 0202 075	
	10 m	33 50 060 0202 100	
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Shielded, Snap-in latches	1 m	33 50 080 0202 010	
	2 m	33 50 080 0202 020	
	5 m	33 50 080 0202 050	
	7.5 m	33 50 080 0202 075	
	10 m	33 50 080 0202 100	

Number of contacts

3+

4x 1.5 mm²
Han® 1A Female
Shielded



Technical characteristics

Core structure	4x 1.5 mm ²
Connector 1	Han® 1A, Female
Rated current	10 A
Rated voltage	400 V
Limiting temperature	-40 ... +80 °C unmoved -10 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	8.3 mm
Material (cable)	PVC
Colour (cable)	Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Shielded, Single locking lever	1 m	33 50 050 0202 010	
	2 m	33 50 050 0202 020	
	5 m	33 50 050 0202 050	
	7.5 m	33 50 050 0202 075	
	10 m	33 50 050 0202 100	
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Shielded, Snap-in latches	1 m	33 50 070 0202 010	
	2 m	33 50 070 0202 020	
	5 m	33 50 070 0202 050	
	7.5 m	33 50 070 0202 075	
	10 m	33 50 070 0202 100	

Number of contacts

5+

6x 1.5 mm²
Han® 1A Male



Cable

Technical characteristics

Core structure	6x 1.5 mm ²
Connector 1	Han® 1A, Male
Rated current	10 A
Rated voltage	400 V
Limiting temperature	-40 ... +80 °C unmoved -15 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	9.2 mm
Material (cable)	PVC
Colour (cable)	Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Single locking lever	1 m	33 50 100 0203 010	
	2 m	33 50 100 0203 020	
	5 m	33 50 100 0203 050	
	7.5 m	33 50 100 0203 075	
	10 m	33 50 100 0203 100	
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Snap-in latches	1 m	33 50 120 0203 010	
	2 m	33 50 120 0203 020	
	5 m	33 50 120 0203 050	
	7.5 m	33 50 120 0203 075	
	10 m	33 50 120 0203 100	

Number of contacts

5+

6x 1.5 mm²
Han® 1A Female



Technical characteristics

Number of cores	5
Core structure	6x 1.5 mm ²
Connector 1	Han® 1A, Female
Rated current	10 A
Rated voltage	400 V
Limiting temperature	-40 ... +80 °C unmoved -15 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	9.2 mm
Material (cable)	PVC

Technical characteristics

Colour (cable) Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

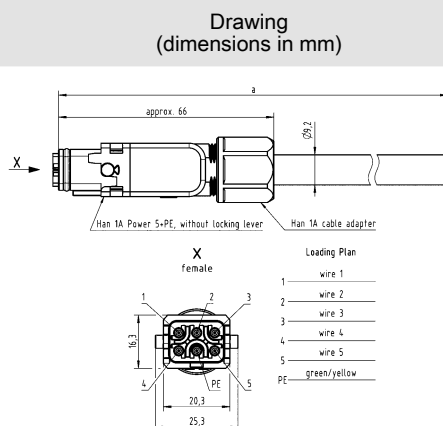
Identification	Cable length	Part number	Drawing (dimensions in mm)
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Han® 1A,
Copper cable (round),
Oil resistant,
Cable assemblies,
Pre-assembled on one side,
Single locking lever



1 m
2 m
5 m
7.5 m
10 m

33 50 090 0203 010
33 50 090 0203 020
33 50 090 0203 050
33 50 090 0203 075
33 50 090 0203 100

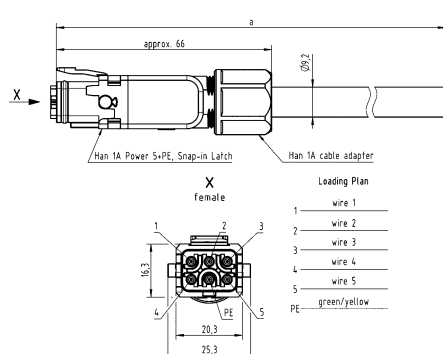


Han® 1A,
Copper cable (round),
Oil resistant,
Cable assemblies,
Pre-assembled on one side,
Snap-in latches



1 m
2 m
5 m
7.5 m
10 m

33 50 110 0203 010
33 50 110 0203 020
33 50 110 0203 050
33 50 110 0203 075
33 50 110 0203 100



Number of contacts

12

12x 0.34 mm²
Han® 1A Male



Cable

Technical characteristics

Core structure	12x 0.34 mm ²
Connector 1	Han® 1A, Male
Rated current	6.5 A
Rated voltage	50 V
Limiting temperature	-40 ... +80 °C unmoved -5 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	7.8 mm
Material (cable)	PVC
Colour (cable)	Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Single locking lever	1 m	33 50 140 0304 010	
	2 m	33 50 140 0304 020	
	5 m	33 50 140 0304 050	
	7.5 m	33 50 140 0304 075	
	10 m	33 50 140 0304 100	
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Snap-in latches	1 m	33 50 160 0304 010	
	2 m	33 50 160 0304 020	
	5 m	33 50 160 0304 050	
	7.5 m	33 50 160 0304 075	
	10 m	33 50 160 0304 100	

Number of contacts

12

12x 0.34 mm²
Han® 1A Female



Technical characteristics

Core structure	12x 0.34 mm ²
Connector 1	Han® 1A, Female
Rated current	6.5 A
Rated voltage	50 V
Limiting temperature	-40 ... +80 °C unmoved -5 ... +80 °C moved
Degree of protection acc. to IEC 60529	IP65
Cable diameter	7.8 mm
Material (cable)	PVC
Colour (cable)	Grey

Specifications and approvals

IEC 60332-1-2 Flame retardancy

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)																										
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Single locking lever	1 m	33 50 130 0304 010	<table border="0"> <tr> <td colspan="2">Loading Plan acc. to DIN 47100</td> </tr> <tr> <td>1</td> <td>white</td> </tr> <tr> <td>2</td> <td>brown</td> </tr> <tr> <td>3</td> <td>green</td> </tr> <tr> <td>4</td> <td>yellow</td> </tr> <tr> <td>5</td> <td>grey</td> </tr> <tr> <td>6</td> <td>pink</td> </tr> <tr> <td>7</td> <td>blue</td> </tr> <tr> <td>8</td> <td>red</td> </tr> <tr> <td>9</td> <td>black</td> </tr> <tr> <td>10</td> <td>violet</td> </tr> <tr> <td>11</td> <td>grey-pink</td> </tr> <tr> <td>12</td> <td>red-blue</td> </tr> </table>	Loading Plan acc. to DIN 47100		1	white	2	brown	3	green	4	yellow	5	grey	6	pink	7	blue	8	red	9	black	10	violet	11	grey-pink	12	red-blue
	Loading Plan acc. to DIN 47100																												
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	2	brown																											
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7	blue																												
8	red																												
9	black																												
10	violet																												
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12	red-blue																												
2 m	33 50 130 0304 020																												
5 m	33 50 130 0304 050																												
7.5 m	33 50 130 0304 075																												
10 m	33 50 130 0304 100																												
Han® 1A, Copper cable (round), Oil resistant, Cable assemblies, Pre-assembled on one side, Snap-in latches	1 m	33 50 150 0304 010	<table border="0"> <tr> <td colspan="2">Loading Plan acc. to DIN 47100</td> </tr> <tr> <td>1</td> <td>white</td> </tr> <tr> <td>2</td> <td>brown</td> </tr> <tr> <td>3</td> <td>green</td> </tr> <tr> <td>4</td> <td>yellow</td> </tr> <tr> <td>5</td> <td>grey</td> </tr> <tr> <td>6</td> <td>pink</td> </tr> <tr> <td>7</td> <td>blue</td> </tr> <tr> <td>8</td> <td>red</td> </tr> <tr> <td>9</td> <td>black</td> </tr> <tr> <td>10</td> <td>violet</td> </tr> <tr> <td>11</td> <td>grey-pink</td> </tr> <tr> <td>12</td> <td>red-blue</td> </tr> </table>	Loading Plan acc. to DIN 47100		1	white	2	brown	3	green	4	yellow	5	grey	6	pink	7	blue	8	red	9	black	10	violet	11	grey-pink	12	red-blue
	Loading Plan acc. to DIN 47100																												
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8	red																												
9	black																												
10	violet																												
11	grey-pink																												
12	red-blue																												
2 m	33 50 150 0304 020																												
5 m	33 50 150 0304 050																												
7.5 m	33 50 150 0304 075																												
10 m	33 50 150 0304 100																												

Number of contacts

12+

2x 2x AWG 22 2x 0.75 mm² 2x 1.5 mm² 5G 2.5 mm²
Female Hood



Cable

Technical characteristics

Number of cores	13
Core structure	2x 2x AWG 22 2x 0.75 mm ² 2x 1.5 mm ² 5G 2.5 mm ²
Connector 1	Female Hood
Rated current (signal)	10 A
Rated voltage (signal)	250 V
Rated impulse voltage (signal)	4 kV
Pollution degree (signal)	3
Rated current (power)	20 A
Rated voltage (power)	400 V
Rated impulse voltage (power)	6 kV
Pollution degree (power)	3
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Limiting temperature	-40 ... +90 °C unmoved -30 ... +90 °C moved
Degree of protection acc. to IEC 60529	IP69

Technical characteristics

Cable diameter	16.5 mm
Minimum bending radius	10x Cable diameter, (repeated bending)
Material (cable)	Polyolefin copolymer
Colour (cable)	Black

Specifications and approvals

Ecolab Topactive 200
Ecolab Topactive 500
Ecolab Topax 66
Ecolab Topax 990
Ecolab Topactive OKTO

Details

Other cable lengths on request!

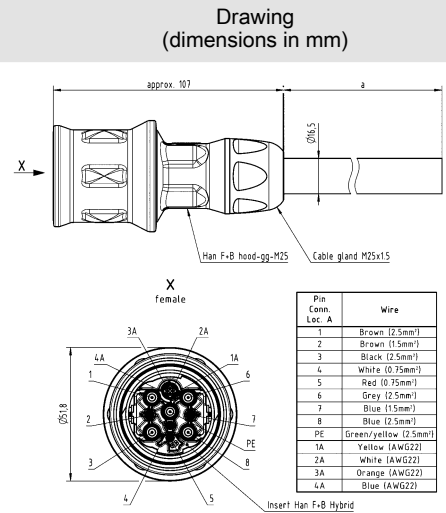
Identification	Cable length	Part number	Drawing (dimensions in mm)
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Han® F+B,
Hybrid cable (copper/copper),
Cable assemblies,
Pre-assembled on one side



5 m
7.5 m
10 m

33 50 300 0140 050
33 50 300 0140 075
33 50 300 0140 100



Number of contacts

12+

2x 2x AWG 22 2x 0.75 mm² 2x 1.5 mm² 5G 2.5 mm²
Male Bulkhead mounted housing



Technical characteristics

Number of cores	13
Core structure	2x 2x AWG 22 2x 0.75 mm ² 2x 1.5 mm ² 5G 2.5 mm ²
Connector 1	Male Bulkhead mounted housing
Rated current (signal)	10 A
Rated voltage (signal)	250 V
Rated impulse voltage (signal)	4 kV
Pollution degree (signal)	3
Rated current (power)	20 A

Technical characteristics

Rated voltage (power)	400 V
Rated impulse voltage (power)	6 kV
Pollution degree (power)	3
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Cable diameter	16.5 mm
Minimum bending radius	10x Cable diameter, (repeated bending)

Details

Other cable lengths on request!

Identification

Cable length

Part number

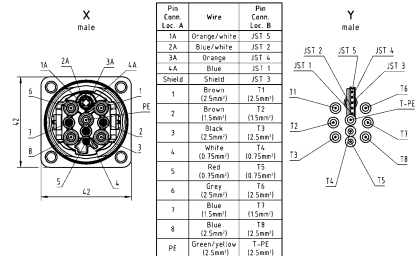
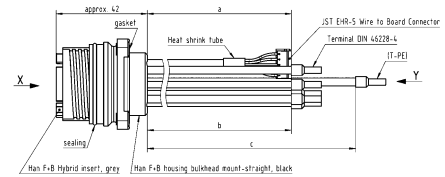
Drawing
(dimensions in mm)

Han® F+B,
Hybrid cable (copper/copper),
Cable assemblies,
Pre-assembled on one side



0.3 m
0.5 m

33 50 319 9141 003
33 50 319 9141 005



Number of contacts

12+

2x 2x AWG 22 2x 0.75 mm² 2x 1.5 mm² 5G 2.5 mm²
Bulkhead mounted housing Angled RJ45 Male



Cable

Technical characteristics


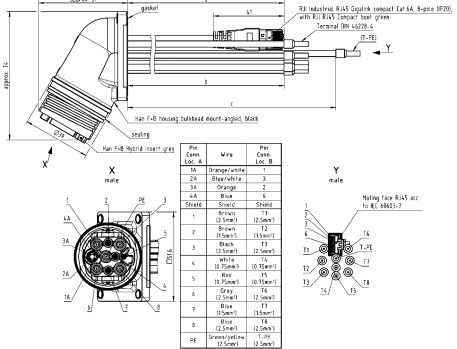
Number of cores	13
Core structure	2x 2x AWG 22 2x 0.75 mm ² 2x 1.5 mm ² 5G 2.5 mm ²
Connector 1	Bulkhead mounted housing, Angled RJ45, Male
Rated current (signal)	10 A
Rated voltage (signal)	250 V
Rated impulse voltage (signal)	4 kV
Pollution degree (signal)	3
Rated current (power)	20 A

Technical characteristics

Rated voltage (power)	400 V
Rated impulse voltage (power)	6 kV
Pollution degree (power)	3
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Cable diameter	16.5 mm
Minimum bending radius	10x Cable diameter, (repeated bending)

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
<p>Han® F+B, Hybrid cable (copper/copper), Cable assemblies, Pre-assembled on one side</p> 	1 m	33 50 389 8141 010	

Number of contacts

12+

2x 2x AWG 22 2x 0.75 mm² 2x 1.5 mm² 5G 2.5 mm²
Bulkhead mounted housing Angled RJ45 Female



Technical characteristics

Number of cores	13
Core structure	2x 2x AWG 22 2x 0.75 mm ² 2x 1.5 mm ² 5G 2.5 mm ²
Connector 1	Bulkhead mounted housing, Angled RJ45, Female
Rated current (signal)	10 A
Rated voltage (signal)	250 V
Rated impulse voltage (signal)	4 kV
Pollution degree (signal)	3
Rated current (power)	20 A

Technical characteristics

Rated voltage (power)	400 V
Rated impulse voltage (power)	6 kV
Pollution degree (power)	3
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Cable diameter	16.5 mm
Minimum bending radius	10x Cable diameter, (repeated bending)

Details

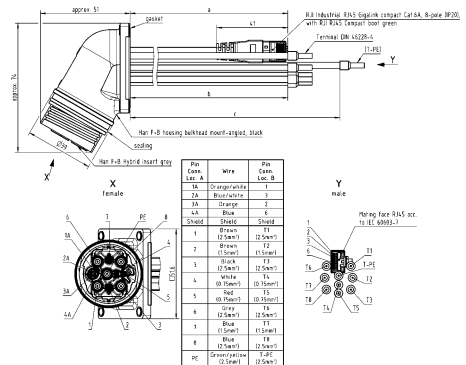
Other cable lengths on request!

Identification	Cable length	Part number	Drawing (dimensions in mm)
----------------	--------------	-------------	-------------------------------

Han® F+B,
Hybrid cable (copper/copper),
Cable assemblies,
Pre-assembled on one side

1 m

33 50 399 8141 010



Number of contacts

12+

2x 2x AWG 22 2x 0.75 mm² 2x 1.5 mm² 5G 2.5 mm²
 Han® F+B Male Straight
 Han® F+B Female Straight



Cable

Technical characteristics

Number of cores	13
Core structure	2x 2x AWG 22 2x 0.75 mm ² 2x 1.5 mm ² 5G 2.5 mm ²
Connector 1	Han® F+B Male, Straight
Connector 2	Han® F+B Female, Straight
Rated current (signal)	10 A
Rated voltage (signal)	250 V
Rated impulse voltage (signal)	4 kV
Pollution degree (signal)	3
Rated current (power)	20 A
Rated voltage (power)	400 V
Rated impulse voltage (power)	6 kV
Pollution degree (power)	3
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Limiting temperature	-40 ... +90 °C unmoved -30 ... +90 °C moved

Technical characteristics

Degree of protection acc. to IEC	IP69
60529	
Cable diameter	16.5 mm
Minimum bending radius	10x Cable diameter, (repeated bending)
Material (cable)	Polyolefin copolymer
Colour (cable)	Black

Specifications and approvals

Ecolab Topactive 200
 Ecolab Topactive 500
 Ecolab Topax 66
 Ecolab Topax 990
 Ecolab Topactive OKTO

Details

Other cable lengths on request!

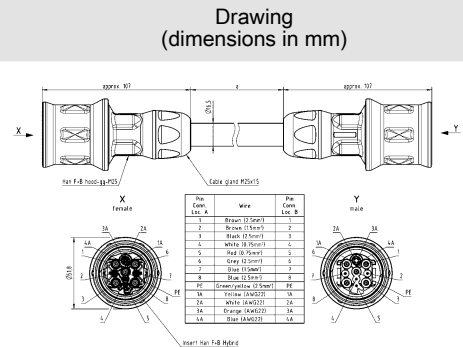
Identification Cable length Part number Drawing (dimensions in mm)

Han® F+B,
 Hybrid cable (copper/copper),
 Cable assemblies,
 Pre-assembled on both sides



2.5 m
 5 m
 7.5 m
 10 m

33 50 303 7140 025
 33 50 303 7140 050
 33 50 303 7140 075
 33 50 303 7140 100

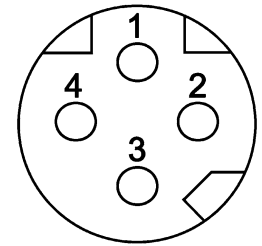


Contents	Page
Device side M8.....	New 7.2
Cable side M8.....	New 7.8
Device side M12 Power.....	New 7.10
Cable side M12 Power	New 7.20
Tools	New 7.30

Number of contacts

4

Reflow soldering termination (THR)
Shielded



Technical characteristics

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

Technical characteristics

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

Specifications and approvals

IEC 61076-2-114

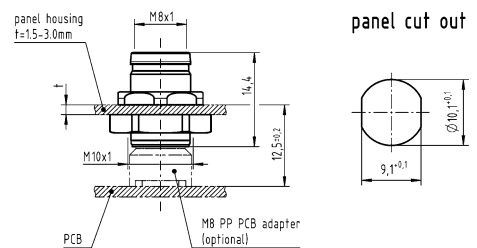
Identification

Part number
Female

Drawing
(dimensions in mm)

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

21 02 381 2418




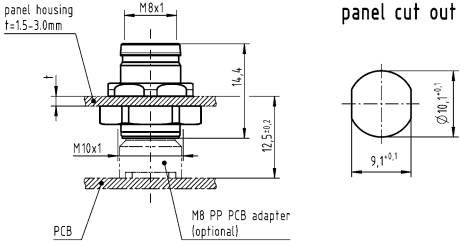
Order housings separately

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

21 02 381 2419



Order housings separately

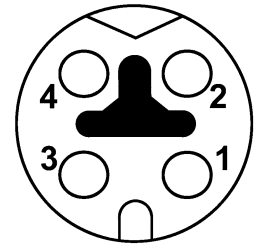
Identification	Part number Female	Drawing (dimensions in mm)
<p>Circular connectors M8, Housing, for front mounting, Pack contents: incl. lock nut</p> 	<p>21 02 301 2001</p>	
<p>Circular connectors M8, Housing, for front mounting, Pack contents: without lock nut</p>	<p>21 02 301 2002</p>	
<p>Lock nut,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

Circular

Number of contacts

4

Reflow soldering termination (THR)
Shielded



Technical characteristics

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

Technical characteristics

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

Specifications and approvals

IEC 61076-2-114

Circular

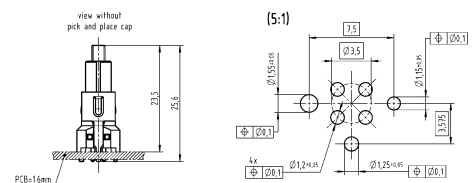
Identification

Part number
Female

Drawing
(dimensions in mm)

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

21 02 341 2418



Order housings separately

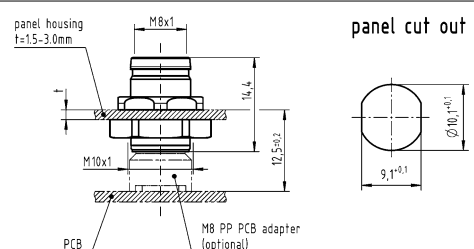
21 02 341 2419

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



Order housings separately

21 02 301 2001





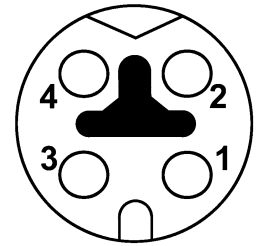
Identification	Part number Female	Drawing (dimensions in mm)
Circular connectors M8, Housing, for front mounting, Pack contents: without lock nut	21 02 301 2002	
Lock nut, M10 x 1	21 01 000 0051	

Circular

Number of contacts

4

Reflow soldering termination (THR)
Shielded



Technical characteristics

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

Technical characteristics

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

Specifications and approvals

IEC 61076-2-114

Circular

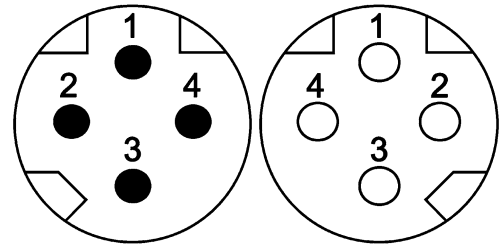
Identification	Part number Female	Drawing (dimensions in mm)
Circular connectors M8, PCB connector, Straight, for front mounting, Reflow soldering termination (THR), Shielded, Pack contents: incl. housing	21 02 341 2431	



Number of contacts

4

HARAX® connection technology
Shielded



Technical characteristics

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

Technical characteristics

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

Specifications and approvals

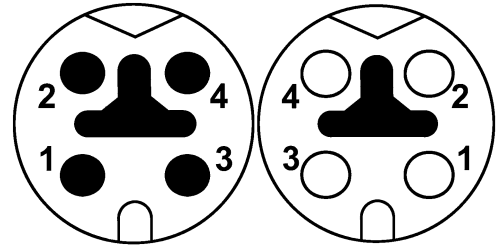
IEC 61076-2-114

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

Number of contacts

4

HARAX® connection technology
Shielded



Technical characteristics

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

Technical characteristics

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

Specifications and approvals

IEC 61076-2-114

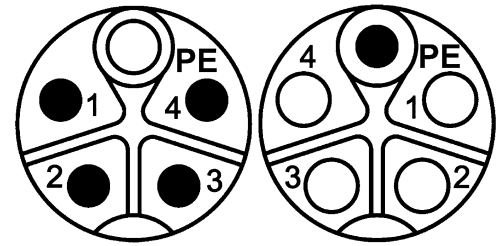
Circular

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

Number of contacts

4+

Reflow soldering termination (THR)
Shielded



Technical characteristics


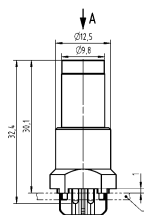
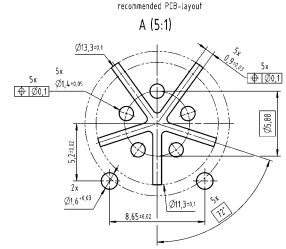

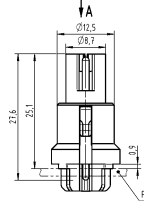
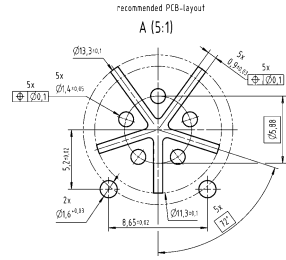
Number of contacts	4
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 ⁸ Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

Technical characteristics

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


Specifications and approvals

IEC 61076-2-111

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

New
7
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10



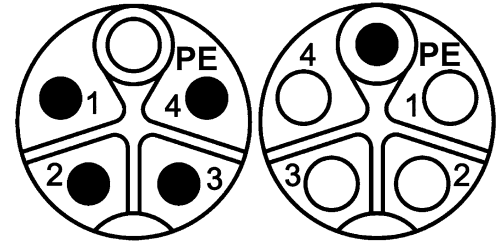
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, Housing, for front mounting, Pack contents: 30 pieces	21 03 302 1000 407	21 03 302 2001 407	
			
Circular connectors M12, Housing, for rear mounting, Pack contents: 30 pieces	21 03 302 1001 407	21 03 302 2000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

Circular

Number of contacts

4+

Reflow soldering termination (THR)
Shielded



Technical characteristics

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


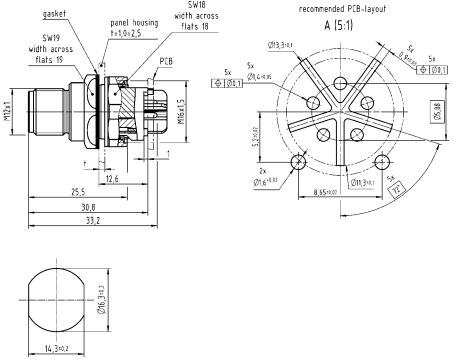
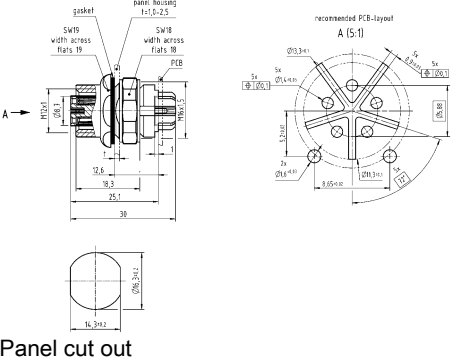
Technical characteristics

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

Specifications and approvals

IEC 61076-2-111

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

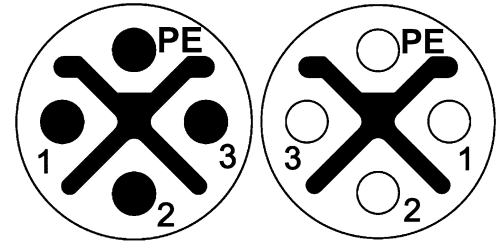
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
<p>Circular connectors M12, M12 Power, PCB adapter, Straight, incl. housing, for front mounting, Reflow soldering termination (THR), Shielded</p> 	21 03 309 1531	21 03 309 2531	 <p>Panel cut out</p>  <p>Panel cut out</p>

Circular

Number of contacts

3+

Reflow soldering termination (THR)
Shielded



Technical characteristics


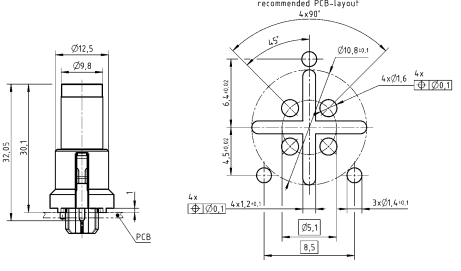
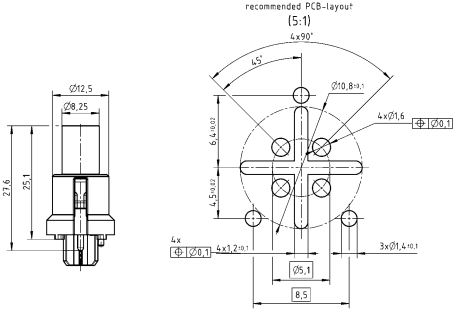
Number of contacts	3
Rated current	12 A
Rated voltage	630 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	>10 ⁸ Ω
Contact resistance	≤10 mΩ
Mating cycles	≥100
Locking type	Screw locking, PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67, when mated

Technical characteristics


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

Specifications and approvals

IEC 61076-2-111

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: 30 pieces in a carton box  Order housings separately	21 03 309 1400	21 03 309 2400	
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: 60 pieces in a tray Order housings separately	21 03 309 1403	21 03 309 2403	



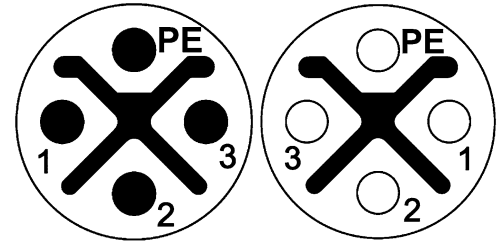
Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, Housing, for front mounting, Pack contents: 30 pieces	21 03 302 1000 407	21 03 302 2001 407	
			
Circular connectors M12, Housing, for rear mounting, Pack contents: 30 pieces	21 03 302 1001 407	21 03 302 2000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

Circular

Number of contacts

3+

Reflow soldering termination (THR)
Shielded



Circular

Technical characteristics

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

Technical characteristics

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

Specifications and approvals

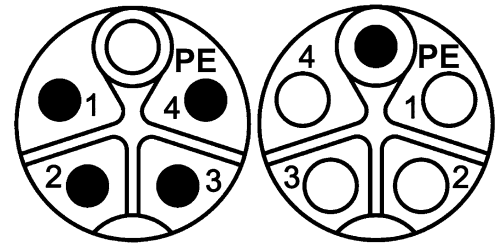
IEC 61076-2-111

Identification	Part number		Drawing (dimensions in mm)
	Male	Female	
Circular connectors M12, M12 Power, PCB adapter, Straight, Reflow soldering termination (THR), Shielded, Pack contents: incl. housing	21 03 309 1431	21 03 309 2431	<p>Panel cut out</p> <p>Panel cut out</p>

Number of contacts

4+

Shielded



Technical characteristics

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


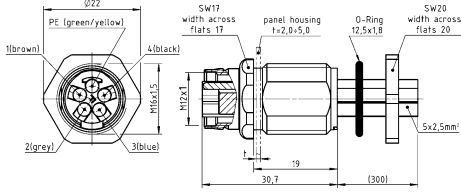


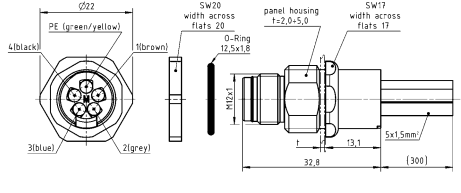

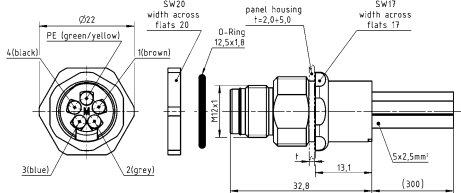

Technical characteristics

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

Specifications and approvals

IEC 61076-2-111

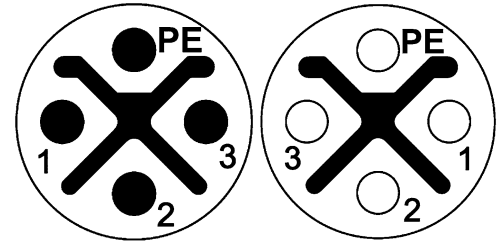
Circular

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

Number of contacts

3+

Unshielded



Technical characteristics

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

Technical characteristics

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

Specifications and approvals

IEC 61076-2-111

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

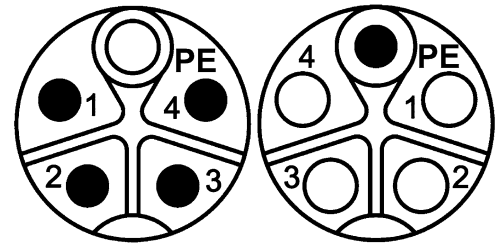
Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Panel feed through, With conductors, for rear mounting, Unshielded	1.5	21 03 396 1402	21 03 396 2402	<p>Panel cut out</p> <p>Panel cut out</p> <p>Panel cut out</p>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

Circular

Number of contacts

4+

Crimp termination
Shielded



Technical characteristics

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

Technical characteristics

Conductor cross-section	AWG 20 ... AWG 14, AWG 14, AWG 16, AWG 19, AWG 21
Cable diameter	4 ... 11.6 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

Specifications and approvals

IEC 61076-2-111

Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
<p>Circular connectors M12, M12 PushPull-Power, Cable connector, Straight, Crimp termination, Shielded, PushPull locking</p> <p>Please order crimp contacts separately.</p>	0.5 ... 2.5	21 03 896 1525	21 03 896 2525	<p>complete length when assembled app. 52mm</p> <p>width across flats 17 SW17</p> <p>width across flats 18 SW18</p> <p>seal insert, red Ø12mm</p> <p>seal insert, green Ø10.5mm</p> <p>seal insert, black Ø9mm</p>
<p>Circular connectors M12, M12 Power, Cable connector, Straight, Crimp termination, Shielded, Screw locking</p> <p>Please order crimp contacts separately.</p>	0.5 ... 2.5	21 03 896 1515	21 03 896 2515	<p>complete length when assembled app. 52mm</p> <p>width across flats 17 SW17</p> <p>width across flats 18 SW18</p> <p>seal insert, red Ø12mm</p> <p>seal insert, green Ø10.5mm</p> <p>seal insert, black Ø9mm</p>

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

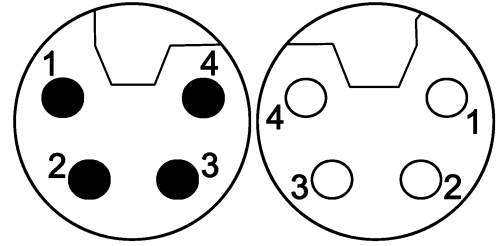
Circular



Number of contacts

4

Crimp termination
Shielded



Circular

Technical characteristics

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

Technical characteristics

Cable diameter	4 ... 11.6 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

Specifications and approvals

IEC 61076-2-111



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



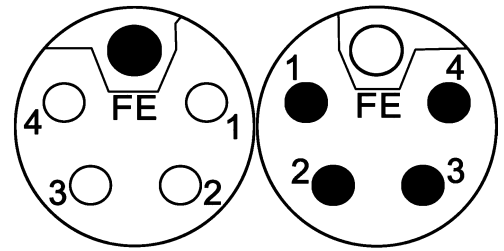
Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Crimp contact, Turned contacts, Pack contents: 50 pieces	0.5	21 01 100 9962	21 01 100 9964	
	0.75	21 01 100 9963	21 01 100 9965	
	1.5	21 01 100 9937	21 01 100 9939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

Circular

Number of contacts

4+

Crimp termination
Shielded



Technical characteristics

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

Technical characteristics

Cable diameter	4 ... 11.6 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

Specifications and approvals

IEC 61076-2-111



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

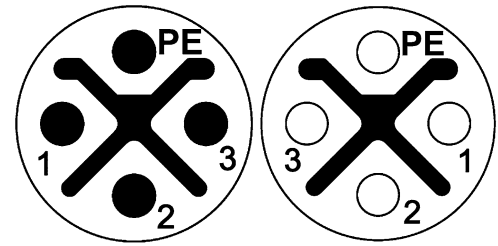
Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Crimp contact, Turned contacts, Pack contents: 50 pieces	0.5	21 01 100 9962	21 01 100 9964	
	0.75	21 01 100 9963	21 01 100 9965	
	1.5	21 01 100 9937	21 01 100 9939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

Circular

Number of contacts

3+

Crimp termination
Shielded



Technical characteristics

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

Technical characteristics

Conductor cross-section	AWG 14, AWG 16, AWG 19, AWG 21
Cable diameter	4 ... 11.6 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated

Specifications and approvals

IEC 61076-2-111

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



Please order crimp contacts separately.

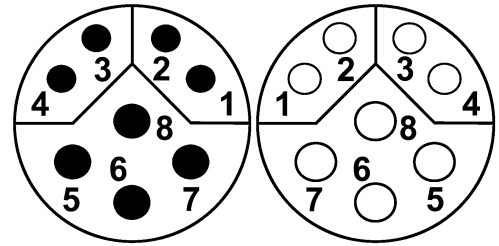
Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Crimp contact, Turned contacts, Pack contents: 50 pieces	0.5	21 01 100 9962	21 01 100 9964	
	0.75	21 01 100 9963	21 01 100 9965	
	1.5	21 01 100 9937	21 01 100 9939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

Circular

Number of contacts

8

4 Power + 4 Data
Crimp termination
Shielded



Circular

Technical characteristics

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

Technical characteristics


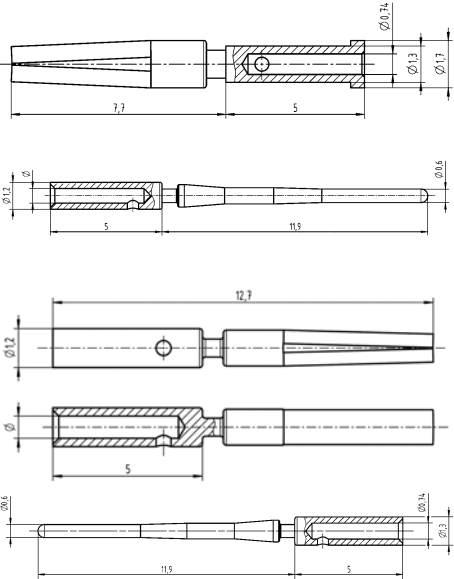
Conductor cross-section	AWG 22 ... AWG 18, AWG 26 ... AWG 23, AWG 28 ... AWG 24
Cable diameter	5.7 ... 8.8 mm
Tightening torque	0.6 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Gold plated
RoHS	compliant with exemption

Specifications and approvals

IEC 61076-2-113

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

New
7
28



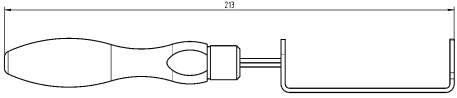
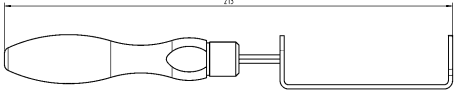
Identification	Conductor cross-section (mm ²)	Part number		Drawing (dimensions in mm)
		Male	Female	
Circular connectors M12, M12 Power, Crimp contact, Turned contacts, Pack contents: 50 pieces <i>har-speed</i> , Crimp contact, Turned contacts 	0.13 ... 0.25 0.33 ... 0.82	21 01 100 9982	21 01 100 9984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

Circular

Circular

Technical characteristics

Conductor cross-section 0.09 ... 0.82 mm²,
0.5 ... 2.5 mm²

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

Contents

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Charging socket.....

New 8.8

Accessories

New 8.9

Number of phases

3

20 A
11 kW



Technical characteristics

Charging mode	Mode 3
Number of phases	3
Number of contacts	7
Number of signal contacts	2
Number of power contacts	5
Contact configuration	Signal: CP, PP Power: L1, L2, L3, N, PE
Termination method	Crimp termination
Core structure	5x 2.5 mm ² + 0.5 mm ²
Connector 1	Type 2 Female, (Vehicle side)
Connector 2	Type 2 Male, (infrastructure side)
Rated current (signal)	2 A
Rated voltage (signal)	30 V
Rated current (power)	20 A
Rated voltage (power)	480 V
Type of current	AC
Charging power	11 kW
Coding resistance	680 Ω between PE and PP
Conductor resistance @ 20 °C	≤7.98 Ω/km @ 2.5 mm ² ≤39 Ω/km @ 0.5 mm ²
Mating cycles	≥10000
Degree of protection acc. to IEC 60529	IP44
Cable diameter	12.8 mm ± 0.4 mm
Minimum bending radius	9x Cable diameter, (repeated bending)
Insertion force	<100 N
Withdrawal force	<100 N
Ambient temperature	-30 ... +50 °C in operation -40 ... +80 °C storage/transport

Technical characteristics

Air pressure	≥540 hPa ≈ 5000 m
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (hood/housing)	Polyamide (PA)
Colour (hood/housing)	Black
Material (cover)	Thermoplastic polyurethane (TPU)
Material (contacts)	Copper alloy
Surface (contacts)	Silver plated
Material (cable)	TPE-U
Colour (cable)	Black
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

Specifications and approvals

IEC 62196-2
IEC 62893
VDE

Details

Other cable lengths on request!

Spiralised cables on request!

Also available with customer specific logo on request.

Identification	Cable length	Part number	Drawing (dimensions in mm)
Charging cable, Straight	2.5 m 5 m 7.5 m 10 m	08 91 409 0114 A0 08 91 409 0105 A0 08 91 409 0106 A0 08 91 409 0111 A0	<p>Female (Vehicle side)</p> <p>Male (infrastructure side)</p>

Auto

Number of phases

1

32 A
7.4 kW



Technical characteristics

Charging mode	Mode 3
Number of phases	1
Number of contacts	5
Number of signal contacts	2
Number of power contacts	3
Contact configuration	Signal: CP, PP Power: L1, N, PE
Termination method	Crimp termination
Core structure	3x 6 mm ² + 0.5 mm ²
Connector 1	Type 2 Female, (Vehicle side)
Connector 2	Type 2 Male, (infrastructure side)
Rated current (signal)	2 A
Rated voltage (signal)	30 V
Rated current (power)	32 A
Rated voltage (power)	250 V
Type of current	AC
Charging power	7.4 kW
Coding resistance	220 Ω between PE and PP
Conductor resistance @ 20 °C	≤3.3 Ω/km @ 6 mm ² ≤39 Ω/km @ 0.5 mm ²
Mating cycles	≥10000
Degree of protection acc. to IEC 60529	IP44
Cable diameter	12.8 mm ± 0.4 mm
Minimum bending radius	9x Cable diameter, (repeated bending)
Insertion force	<100 N
Withdrawal force	<100 N
Ambient temperature	-30 ... +50 °C in operation -40 ... +80 °C storage/transport

Technical characteristics

Air pressure	≥540 hPa ≈ 5000 m
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (hood/housing)	Polyamide (PA)
Colour (hood/housing)	Black
Material (cover)	Thermoplastic polyurethane (TPU)
Material (contacts)	Copper alloy
Surface (contacts)	Silver plated
Material (cable)	TPE-U
Colour (cable)	Black
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

Specifications and approvals

IEC 62196-2
IEC 62893
VDE

Details

Other cable lengths on request!

Spiralised cables on request!

Also available with customer specific logo on request.

Identification	Cable length	Part number	Drawing (dimensions in mm)
Charging cable, Straight	2.5 m 5 m 7.5 m 10 m	08 91 409 0116 A0 08 91 409 0107 A0 08 91 409 0108 A0 08 91 409 0113 A0	<p>Female (Vehicle side)</p> <p>Male (infrastructure side)</p>

Auto

Number of phases

3

32 A
22 kW



Technical characteristics

Charging mode	Mode 3
Number of phases	3
Number of contacts	7
Number of signal contacts	2
Number of power contacts	5
Contact configuration	Signal: CP, PP Power: L1, L2, L3, N, PE
Termination method	Crimp termination
Core structure	5x 6 mm ² + 0.5 mm ²
Connector 1	Type 2 Female, (Vehicle side)
Connector 2	Type 2 Male, (infrastructure side)
Rated current (signal)	2 A
Rated voltage (signal)	30 V
Rated current (power)	32 A
Rated voltage (power)	480 V
Type of current	AC
Charging power	22 kW
Coding resistance	220 Ω between PE and PP
Conductor resistance @ 20 °C	≤3.3 Ω/km @ 6 mm ² ≤39 Ω/km @ 0.5 mm ²
Mating cycles	≥10000
Degree of protection acc. to IEC 60529	IP44
Cable diameter	16.5 mm ± 0.3 mm
Minimum bending radius	9x Cable diameter, (repeated bending)
Insertion force	<100 N
Withdrawal force	<100 N
Ambient temperature	-30 ... +50 °C in operation -40 ... +80 °C storage/transport

Technical characteristics

Air pressure	≥540 hPa ≈ 5000 m
Material (insert)	Polyamide (PA)
Colour (insert)	Black
Material (hood/housing)	Polyamide (PA)
Colour (hood/housing)	Black
Material (cover)	Thermoplastic polyurethane (TPU)
Material (contacts)	Copper alloy
Surface (contacts)	Silver plated
Material (cable)	TPE-U
Colour (cable)	Black
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption

Specifications and approvals

IEC 62196-2
IEC 62893
VDE

Details

Other cable lengths on request!

Spiralised cables on request!

Also available with customer specific logo on request.

Identification	Cable length	Part number	Drawing (dimensions in mm)
Charging cable, Straight	2.5 m 5 m 7.5 m 10 m	08 91 409 0115 A0 08 91 409 0109 A0 08 91 409 0102 A0 08 91 409 0112 A0	<p>Female (Vehicle side)</p> <p>Male (infrastructure side)</p>

Auto

Number of phases

3

32 A
22 kW



Technical characteristics

Charging mode	Mode 3
Number of phases	3
Number of contacts	7
Number of signal contacts	2
Number of power contacts	5
Contact configuration	Signal: CP, PP Power: L1, L2, L3, N, PE
Termination method	Crimp termination
Core structure	5x 6 mm ² + 2x 0.75 mm ²
Rated current (signal)	2 A
Rated voltage (signal)	30 V
Rated current (power)	32 A
Rated voltage (power)	480 V
Type of current	AC
Charging power	22 kW
Mating cycles	≥10000
Conductor length	70 cm
Degree of protection acc. to IEC 60529	IP44, mated condition IP55, Closed

Technical characteristics

Impact resistance level	IK08
Insertion force	<100 N
Withdrawal force	<100 N
Fixing	Fixing hole 4x 7 mm for front mounting
Ambient temperature	-30 ... +50 °C in operation -40 ... +80 °C storage/transport
Material (insert)	Polyamide (PA)
Colour (insert)	Black

Specifications and approvals

IEC 62196-2



Identification

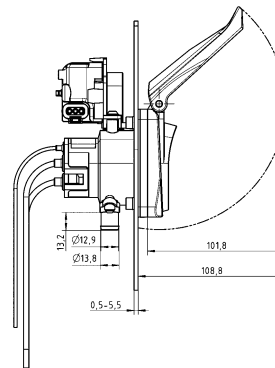
Part number

Drawing
(dimensions in mm)

Charging socket,
Type 2,
with motorised locking



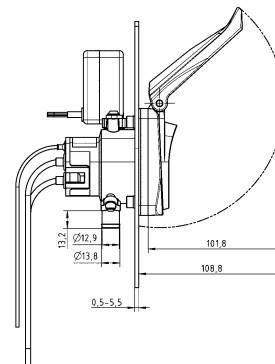
61 13 213 0371



Charging socket,
Type 2,
with magnetic locking (solenoid)



61 13 213 0381





Auto

Technical characteristics

Fixing	Fixing hole 4x 6.4 mm for front mounting
Material (accessories)	Polyamide (PA)
Colour (accessories)	Black

Details

Plug holder is also available with customer specific logo and part number on request.

Identification	Part number	Drawing (dimensions in mm)
<p>Plug holder, with HARTING 3D gel label, for charging cables, type 2</p>	<p>61 13 213 0401 00</p>	

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