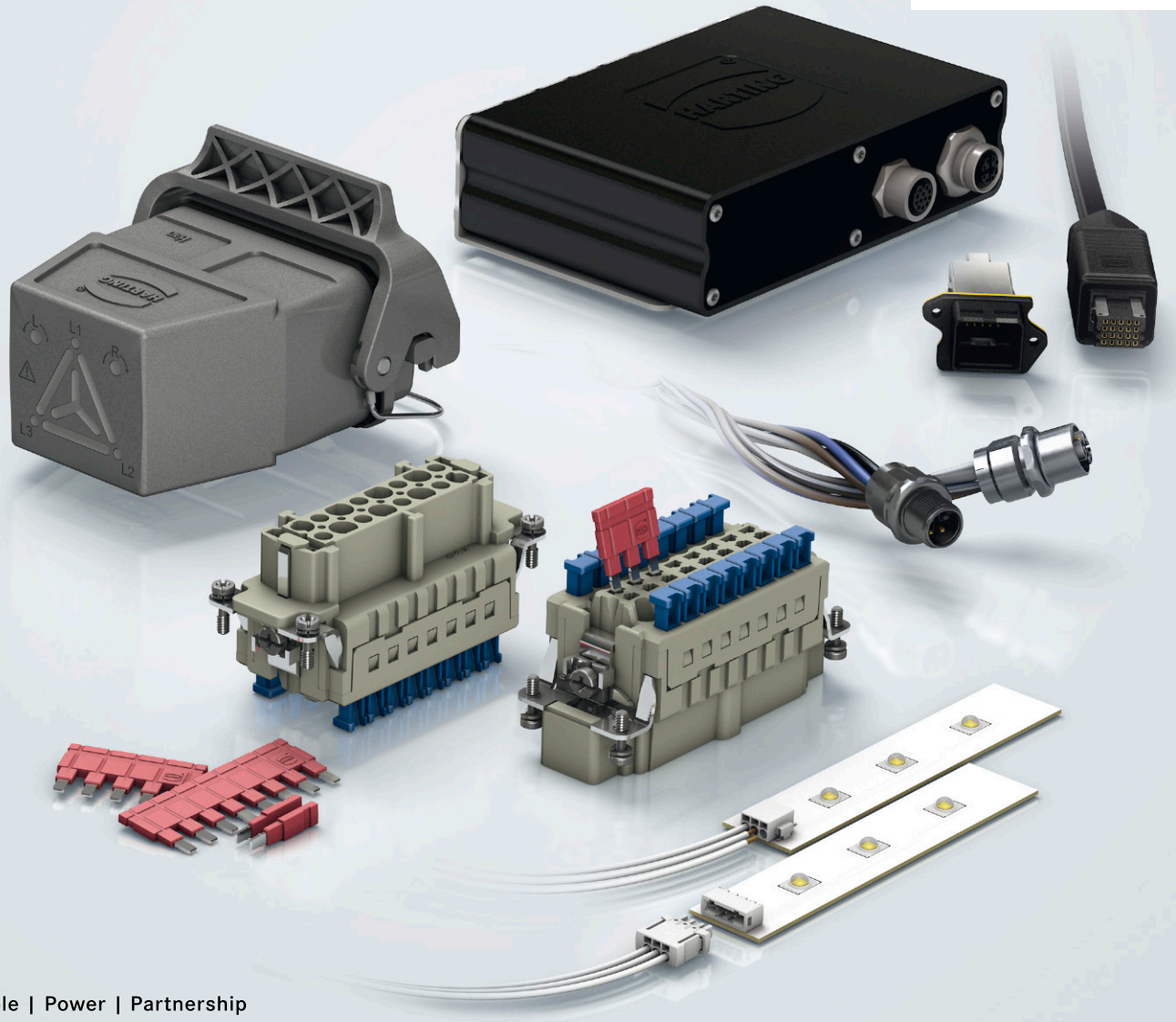
Pushing Performance



People | Power | Partnership

HARTING News 2016

Transforming customer wishes into concrete solutions

The HARTING Technology Group is skilled in the fields of electrical, electronic and optical connection, transmission and networking, as well as in manufacturing, mechatronics and software creation. The Group uses these skills to develop customized solutions and products such as connectors for energy and data transmission applications including, for example, mechanical engineering, rail technology, wind energy plants, factory automation and the telecommunications sector. In addition, HARTING also produces electro-magnetic components for the automobile industry and offers solutions in the field of Enclosures and Shop Systems.
The HARTING Group currently comprises 53 sales companies and production plants worldwide employing a total of about 4,200 staff.

HARTING Subsidiary company

HARTING Representatives

We aspire to top performance.

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

Always at hand, wherever our customers may be.

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

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

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

Our claim: pushing performance.

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

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

Quality creates reliability – and warrants trust.

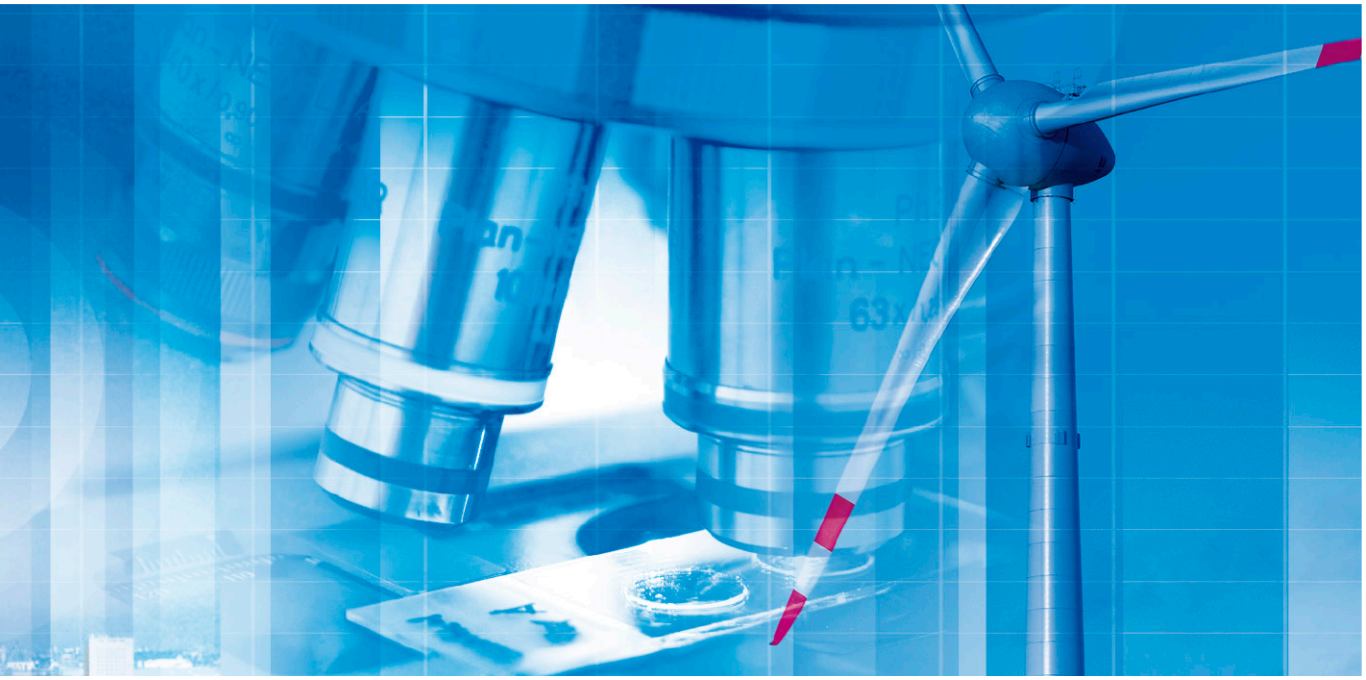
The HARTING brand stands for superior quality and reliability – worldwide. The standards we set are the result of consistent, stringent quality management that is subject to regular certifications and audits.

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

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

Opting for HARTING opens up an innovative, complex world of concepts and ideas.
In order to develop connectivity and network solutions serving an exceptionally wide range of connector applications and task scopes in a professional and cost optimized manner, HARTING not only commands the full array of conventional tools and basic technologies. Over and beyond these capabilities, HARTING is constantly harnessing and refining its broad base of knowledge and experience to create new solutions that ensure continuity at the same time. In securing this know-how lead, HARTING draws on a wealth of sources from both in-house research and the world of applications alike.
Salient examples of these sources of innovative knowledge include microstructure technologies, 3D design and construction technology, as well as high temperature or ultrahigh frequency applications that are finding use in telecommunications or automation networks, in the automotive industry, or in industrial sensor and actuator applications, RFID and wireless technologies, in addition to packaging and housing made of plastics, aluminum or stainless steel.

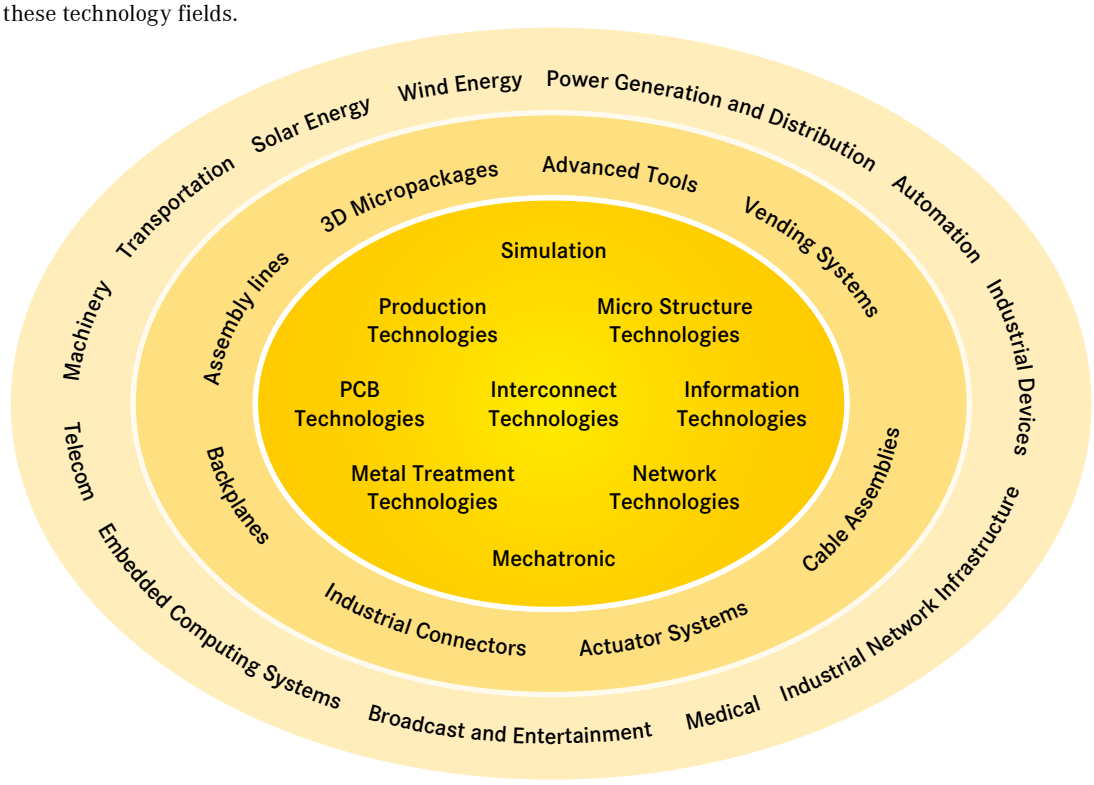
HARTING solutions extend across technology boundaries.
Drawing on the comprehensive resources of the group's technology pool, HARTING devises practical solutions for its customers. Whether this involves industrial networks for manufacturing automation, or hybrid interface solutions for wireless telecommunication infrastructures, 3D circuit carriers with microstructures, or cable assemblies for high-temperature applications in the automotive industry – HARTING technologies offer far more than components, and represent mature, comprehensive solutions attuned to individual customer requirements and wishes. The range covers ready-to-use cable configurations, completely assembled backplanes and board system carriers, as well as fully wired and tested control panels.
In order to ensure the future proof design of RF- and EMC-compatible interface solutions, the central HARTING laboratory (certified to EN 45001) provides simulation tools, as well as experimental, testing and diagnostics facilities all the way through to scanning electron microscopes. In the selection of materials and processes, lifecycle and environmental aspects play a key role, in addition to product and process capability considerations.



HARTING knowledge is practical know-how generating synergy effects.

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

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



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The **HARTING eCatalogue / eShop** can be found on our homepage at **www.HARTING.com** or at the direct link **www.eCatalogue.HARTING.com**.

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

Find out about **product innovations and news** on the start page of the HARTING e-Catalogue or go directly to **www.product-news.HARTING.com**.

Registered users can take advantage of MyHARTING to check on availability or prices, and to place or track their orders. Here, your customized „HARTING history“ provides you with a list of your inquiries, quotations and more.

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www.eShop.HARTING.com

Features

- Easy bridging functionality of contacts by means of plug-in jumpers directly on the connector
- Fast realisation of potential multiplication as well as star and delta bridges
- Rapid termination technology without tools for a time saving assembly and for optimal process reliability
- Mating compatible to connectors of the Han E®, Han® ES and Han® ESS product families
- Integrated opening for measuring probe

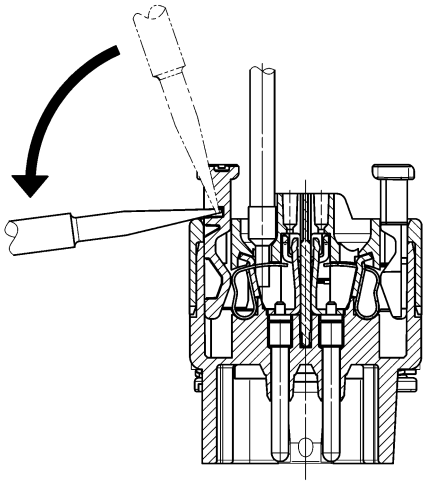
Description

- To assemble the conductor close the blue press button with light finger pressure
- Audible and tactile snap-in of press buttons and plug-in jumpers
- Conductors can be connected with and without ferrules
- Zero Insertion Force (ZIF) of conductor into contact
- Jumpers for potential multiplication within the connector
- Jumpers to bridge star and delta circuits within the connector
- Suitable for hoods and housings of the Han® B, Han® M, Han® EMV, Han® HPR, Han® Easy Hood and Han-Drive® series
- Suitable for control cabinets in combination with Han-Snap® series

Hint:
When using plug-in jumpers within Han® ES Press hoods of high construction must be used.

Removal of conductor

To open the blue press button use a standard screw driver (blade 2.5 mm) with a light lever movement.

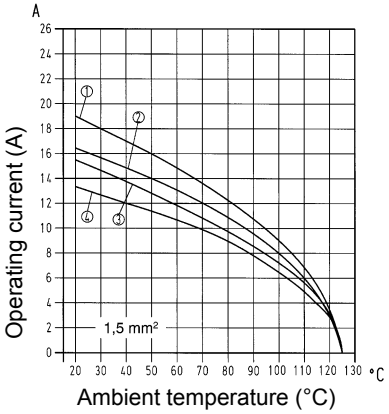


Technical characteristics

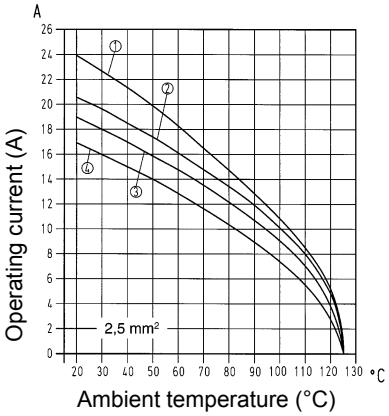
Specifications	DIN EN 60 664-1 DIN EN 61 984
Inserts	
Contacts	6, 10, 16, 24
Electrical data acc. to DIN EN 61 984	
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
Insulation resistance	≥ 10^{10} Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mating cycles	≥ 500
Contacts	
Material power contacts	copper alloy
Surface silver plated	3 µm Ag
Contact resistance	≤ 3 mΩ
Cage clamp termination	0.14 ... 2.5 mm²
Max. insulation diameter	5.0 mm
Stripping length	9 ... 11 mm
Plug-in jumpers	
Contacts	2, 3, 5, 8, 12
Colour jumpers	RAL 3018 (red) RAL 5012 (blue) RAL 5004 (black)
Electrical data acc. to DIN EN 61 984	
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mating cycles	≥ 5
Material insulation	polyamide
Insulation resistance	≥ 10^{10} Ω
Material jumpers	copper alloy
Surface jumpers - tin plated	3 µm Sn
Contact resistance	≤ 1,0 mΩ

Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature. Measuring and testing techniques according to DIN EN 60 512-5-2.



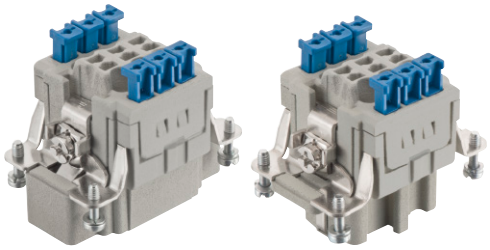
① Han® 6 ES Press insert 1.5 mm²
② Han® 10 ES Press insert 1.5 mm²
③ Han® 16 ES Press insert 1.5 mm²
④ Han® 24 ES Press insert 1.5 mm²



① Han® 6 ES Press insert 2.5 mm²
② Han® 10 ES Press insert 2.5 mm²
③ Han® 16 ES Press insert 2.5 mm²
④ Han® 24 ES Press insert 2.5 mm²

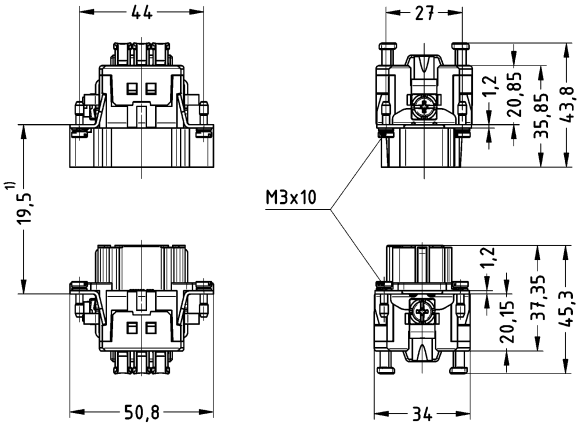
Number of contacts

6 + ⏚

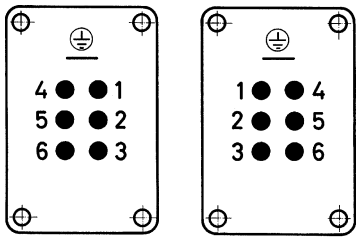


500 V 16 A

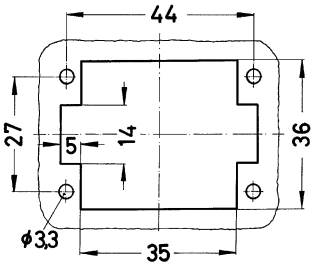
Identification	Part number Male insert (M)	Part number Female insert (F)	Drawing	Dimensions in mm
Han® 6 ES Press 	09 33 006 2648	09 33 006 2748		



1) Distance for contacts max. 21 mm



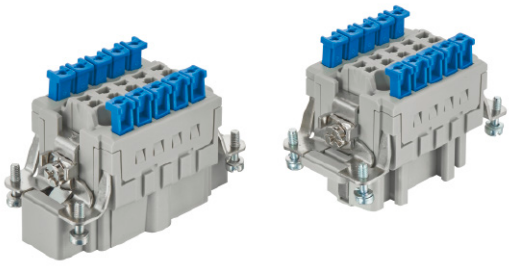
Contact arrangement: view from termination side



Panel cut out

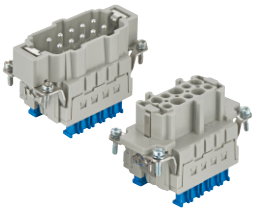
Number of contacts

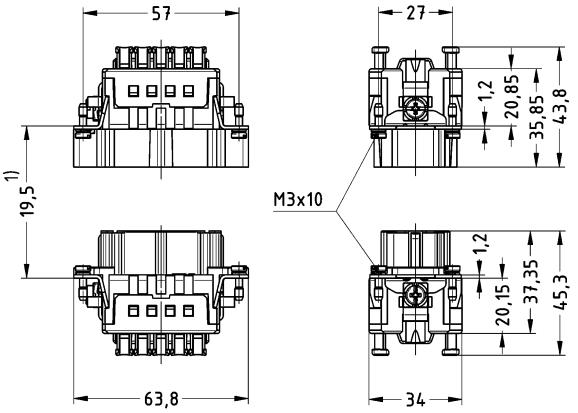
10 + ⏚



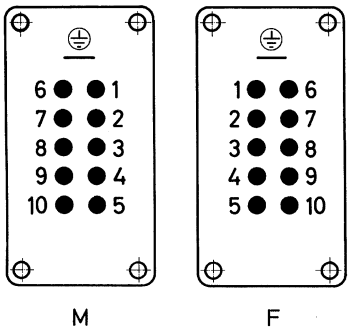
500 V 16 A

Identification	Part number Male insert (M)	Part number Female insert (F)	Drawing	Dimensions in mm
Han® 10 ES Press	09 33 010 2648	09 33 010 2748		

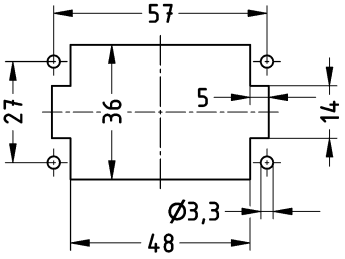




1) Distance for contacts max. 21 mm



Contact arrangement: view from termination side

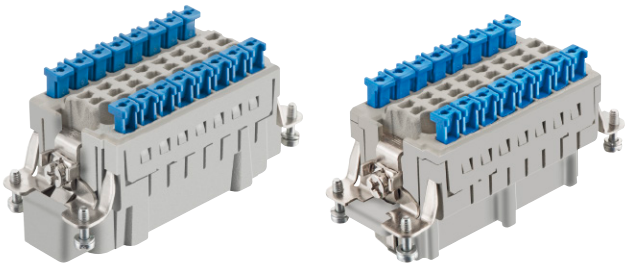


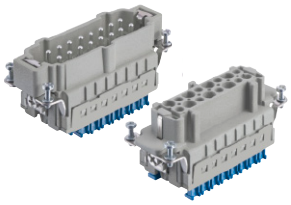
Panel cut out

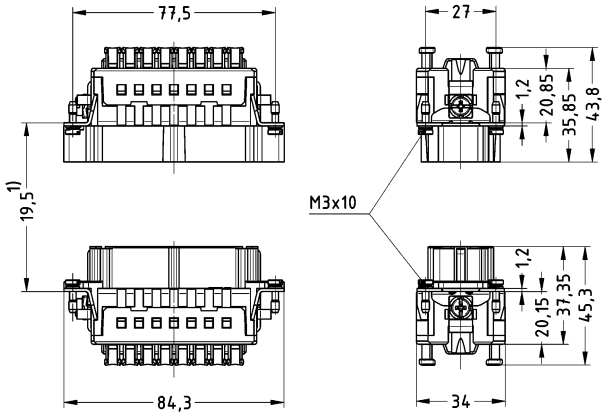
Number of contacts

16 + ⏚

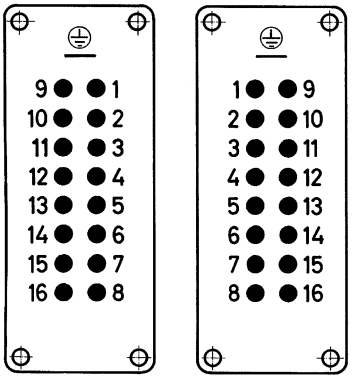
500 V 16 A



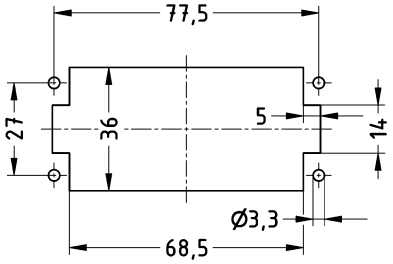
Identification	Part number Male insert (M)	Part number Female insert (F)	Drawing	Dimensions in mm
Han® 16 ES Press 	09 33 016 2648	09 33 016 2748		



1) Distance for contacts max. 21 mm



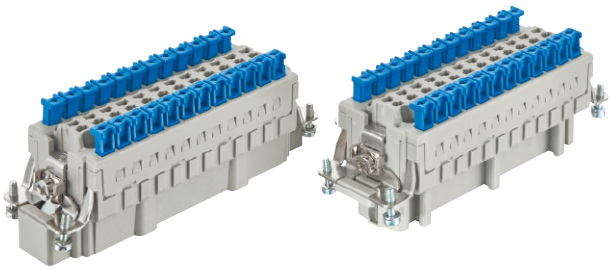
Contact arrangement: view from termination side



Panel cut out

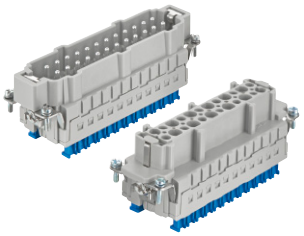
Number of contacts

24 + ⏚

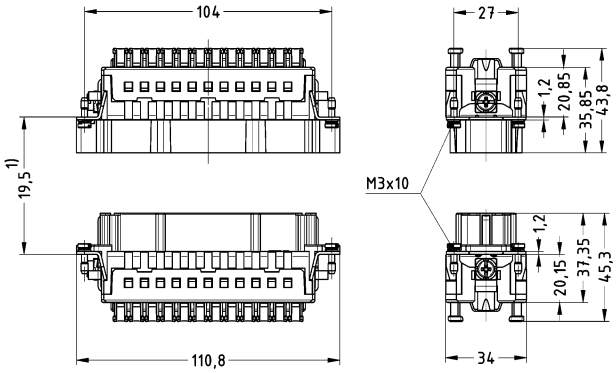


500 V 16 A

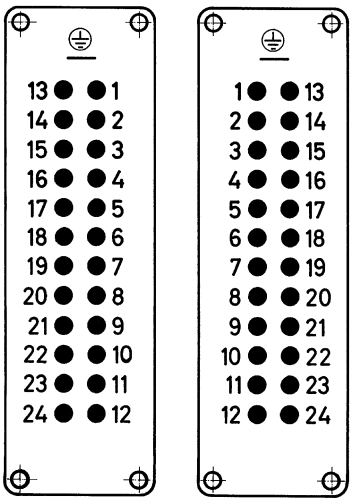
Identification	Part number Male insert (M)	Part number Female insert (F)
Han® 24 ES Press	09 33 024 2648	09 33 024 2748



Drawing

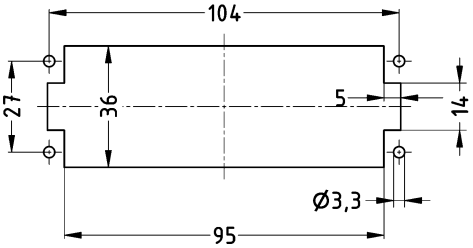


1) Distance for contacts max. 21 mm



M F

Contact arrangement: view from termination side



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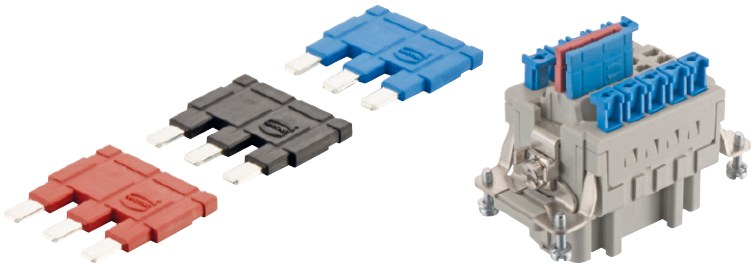
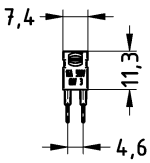
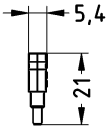
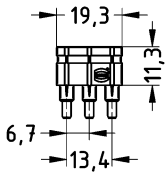
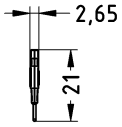
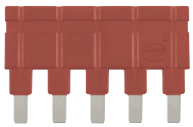
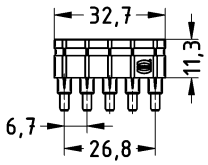
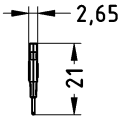
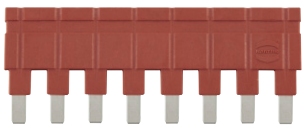
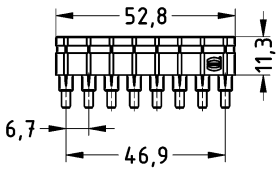
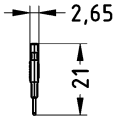
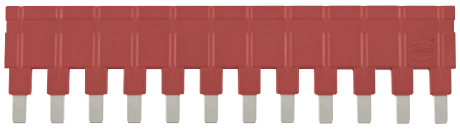
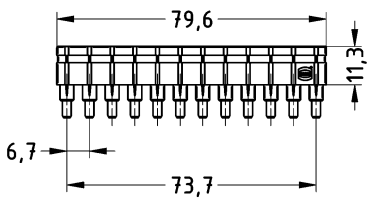
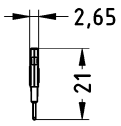


Identification	Part number	Drawing	Dimensions in mm
Han® ES Press plug-in jumper			
			
plug-in jumper 2 x 1 red	09 33 000 9820	2x1 	
plug-in jumper 2 x 1 blue	09 33 000 9821		
plug-in jumper 2 x 1 black	09 33 000 9822		
			
plug-in jumper 1 x 3 red	09 33 000 9831	1x3 	
plug-in jumper 1 x 3 blue	09 33 000 9842		
plug-in jumper 1 x 3 black	09 33 000 9853		
			
plug-in jumper 1 x 5 red	09 33 000 9833	1x5 	
plug-in jumper 1 x 5 blue	09 33 000 9844		
plug-in jumper 1 x 5 black	09 33 000 9855		
			
plug-in jumper 1 x 8 red	09 33 000 9836	1x8 	
plug-in jumper 1 x 8 blue	09 33 000 9847		
plug-in jumper 1 x 8 black	09 33 000 9858		
			
plug-in jumper 1 x 12 red	09 33 000 9840	1x12 	
plug-in jumper 1 x 12 blue	09 33 000 9851		
plug-in jumper 1 x 12 black	09 33 000 9862		

Han® Gigabit HMC module

Features

- Designed for 10,000 mating cycles thanks to HMC surface in mating area
- Shielding separate from housing potential
- Ideal for the transmission of very sensitive signals
- Suitable for Gigbbit Ethernet Cat. 6_A

Technical characteristics

Specifications	DIN EN 60 664-1 DIN EN 61 984

Han® module adapter

Number of contacts	8
Insulation resistance	≥ 10^{10} Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +85 °C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 10,000 mating cycles

Han® Gigabit HMC insert

Number of contacts	8 + shielding
Electrical data acc. to DIN EN 61 984	**5 A 50 V 0.8 kV 3**
Rated current	5 A
Rated voltage	50 V
Rated impulse voltage	0.8 kV
Pollution degree	3
Rated voltage acc. to UL	< 30 V
Material	
- Insulator	polycarbonate
- Outer conductor	zinc alloy HMC
Contact resistance	≤ 4 mΩ
Limiting temperatures	-40 °C ... +85 °C
Mechanical working life	≥ 10,000 mating cycles
Flammability acc. to UL 94	V 0
Outer surface finish	nickel
Cable diameter	5 ... 12 mm

Han® D-Sub HMC crimp contacts

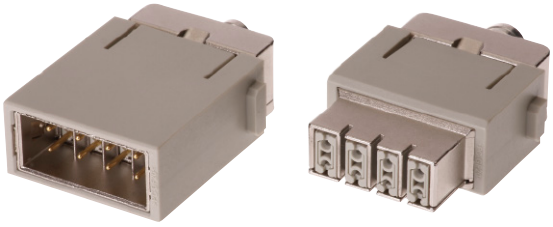
Crimp termination	0.08 ... 0.52 mm² AWG 28 ... 20

Han® Gigabit HMC Module

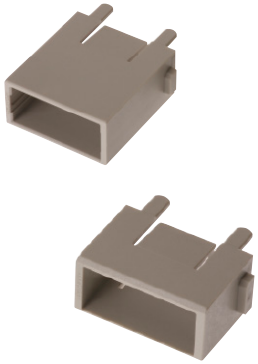
50 V 5 A

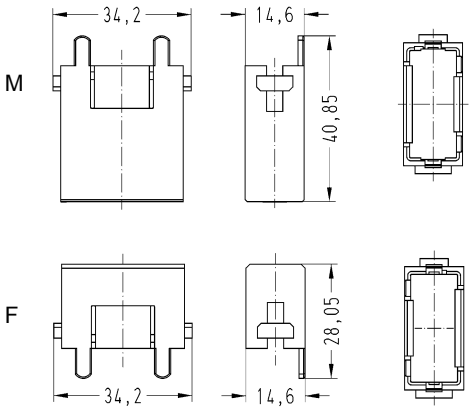
Number of contacts

8



Han® module adapter

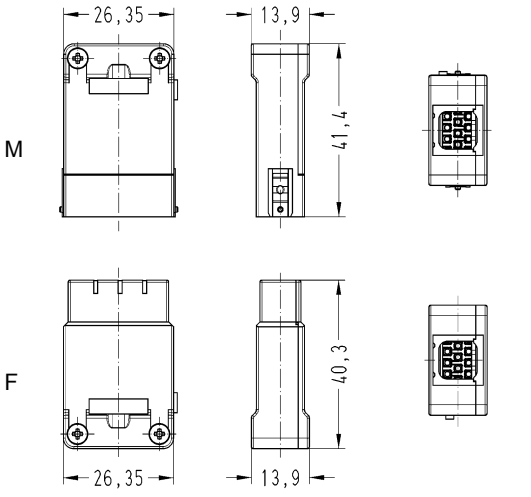


Identification	Part number Male insert (M)	Part number Female insert (F)	Drawing	Dimensions in mm
Han® module adapter	09 14 001 3011	09 14 001 3111		

Han® Gigabit HMC module insert

20 + shield
crimp contacts order separately

With additional shield connection to the hinged frame
crimp contacts order separately

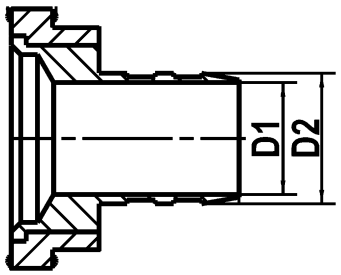
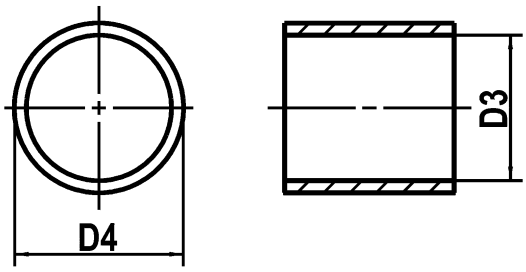
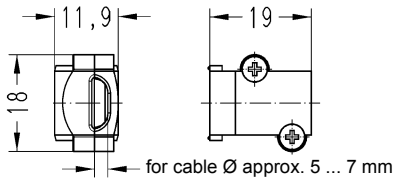
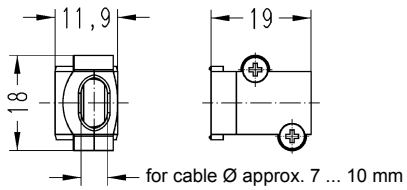
Identification	Cross-section mm²	Part number Male contact	Part number Female contact	Drawing	Dimensions in mm
Han® Gigabit HMC module insert, 20 + shield, crimp contacts order separately		09 14 208 3011	09 14 208 3111		
With additional shield connection to the hinged frame, crimp contacts order separately		09 14 208 3012	09 14 208 3112		

Han® D-Sub HMC crimp contacts

gold plated HMC

Cross-section mm²	Part number Male contact	Part number Female contact
0.08-0.21	09 67 000 7570	09 67 000 7470
0.13-0.33	09 67 000 5570	09 67 000 5470
0.33-0.52	09 67 000 8570	09 67 000 8470

Conductor cross-section	Wire gauge	Stripping length of stranded wire
0.08 - 0.21 mm²	AWG 28-24	4 mm
0.13 - 0.33 mm²	AWG 26-22	4 mm
0.33 - 0.52 mm²	AWG 22-20	4 mm

Identification	D1	D2	Part number	Drawing	Dimensions in mm
Crimp flange					
	3.0	4.0	61 03 000 0062		
	3.5	4.5	61 03 000 0063		
	4.0	5.0	61 03 000 0064		
	4.5	5.5	61 03 000 0065		
	5.0	6.0	61 03 000 0066		
	5.5	6.5	61 03 000 0166		
	6.0	7.0	61 03 000 0067		
	6.5	7.5	61 03 000 0068		
	7.0	8.0	61 03 000 0069		
	7.5	8.5	61 03 000 0070		
	8.0	9.0	61 03 000 0071		
	8.5	9.5	61 03 000 0165		
	9.0	10.0	61 03 000 0072		
Crimp ferrule					
	D3	D4			
	5.0	6.0	61 03 000 0045		
	5.5	6.5	61 03 000 0046		
	6.0	7.0	61 03 000 0047		
	6.5	7.5	61 03 000 0048		
	7.0	8.0	61 03 000 0049		
	7.5	8.5	61 03 000 0050		
	8.0	9.0	61 03 000 0051		
	8.5	9.5	61 03 000 0052		
	9.0	10.0	61 03 000 0053		
	9.5	10.5	61 03 000 0054		
	10.0	11.0	61 03 000 0055		
	10.5	11.5	61 03 000 0056		
	11.0	12.0	61 03 000 0057		
	11.5	12.5	61 03 000 0058		
	12.0	13.0	61 03 000 0142		
	12.5	13.5	61 03 000 0059		
	13.0	14.0	61 03 000 0127		
Cable clamp					
cable diameter approx. 5 ... 7 mm			61 03 000 0141		
cable diameter approx. 7 ... 10 mm			61 03 000 0044		
cable diameter approx. 10 ... 12 mm			61 03 000 0143		

Han® Megabit HMC Module

Features

- Designed for 10,000 mating cycles thanks to HMC surface in mating area
- Shielding separate from housing potential
- Suitable for Ethernet Cat. 5e

Technical characteristics

Specifications	DIN EN 60 664-1 DIN EN 61 984

Han® module adapter

Number of contacts	2 x 4
Insulation resistance	≥ 10^{10} Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +85 °C
Flammability acc. to UL 94	V 0
Mechanical working life	≥ 10,000 mating cycles

Han® Megabit HMC insert

Number of contacts	2 x 4 + shielding
Electrical data acc. to DIN EN 61 984	**10 A 50 V 0.8 kV 3**
Rated current	10 A
Rated voltage	50 V
Rated impulse voltage	0.8 kV
Pollution degree	3
Material	
- insulator	polycarbonate
- outer conductor	zinc alloy HMC
Contact resistance	≤ 4 mΩ
Limiting temperatures	-40 °C ... +85 °C
Mechanical working life	≥ 10,000 mating cycles
Flammability acc. to UL 94	V 0
Outer surface finish	nickel
Cable diameter	5 ... 12 mm

Han D® HMC crimp contacts

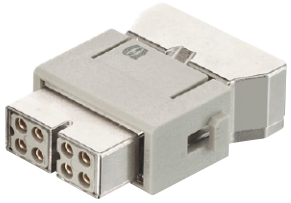
Material	copper alloy
Surface	HMC gold plated
Contact resistance	≤ 3 mΩ
Crimp termination	0.14 ... 2.5 mm² AWG 26 ... 14

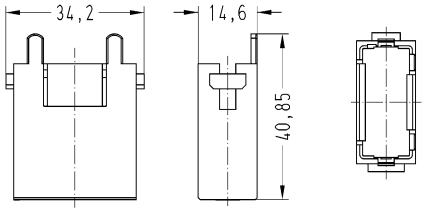
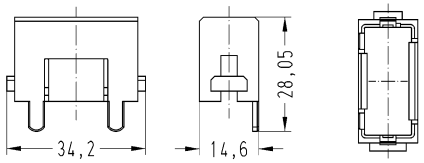
Han® Megabit HMC Module

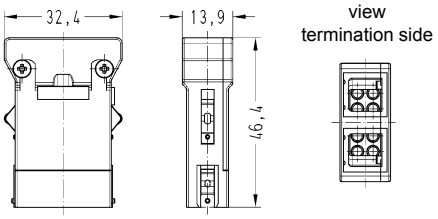
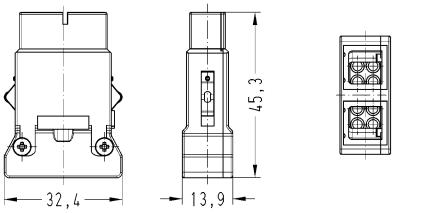
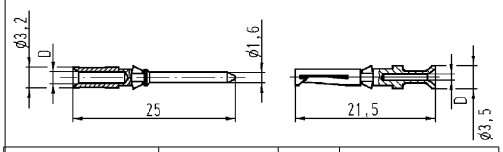
50 V 10 A

Number of contacts

2 x 4

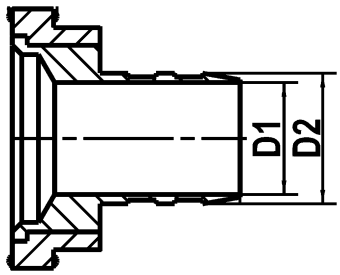


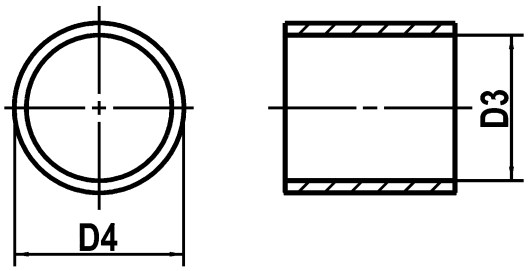
Identification	Part number Male insert (M)	Part number Female insert (F)	Drawing	Dimensions in mm
Han® module adapter  	09 14 001 3011	09 14 001 3111	M  F 	

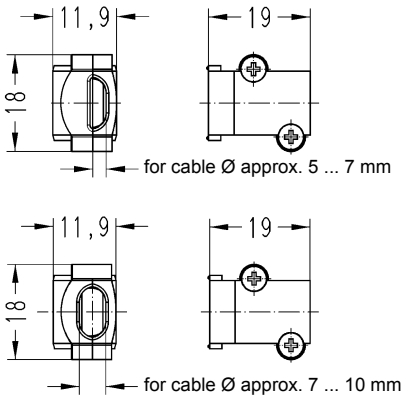
Identification	Cross-section mm²	Part number Male contact	Part number Female contact	Drawing	Dimensions in mm
Megabit HMC insert 2 x 4 contacts order crimp contacts separately		09 14 208 3016	09 14 208 3116	M 	
2 x 4 contacts with additional shield connection to the hinged frame order crimp contacts separately		09 14 208 3017	09 14 208 3117	F 	
Han D® HMC crimp contacts gold plated HMC	0.14-0.37 0.5 0.75 1.0 1.5 2.5	09 15 200 6124 09 15 200 6123 09 15 200 6125 09 15 200 6122 09 15 200 6121 09 15 200 6126	09 15 200 6224 09 15 200 6223 09 15 200 6225 09 15 200 6222 09 15 200 6221 09 15 200 6226		

Conductor cross-section	Wire gauge	ø mm	Stripping length of stranded wire
0.14 - 0.37 mm²	AWG 26-22	0.9	8 mm
0.5 mm²	AWG 20	1.1	8 mm
0.75 mm²	AWG 18	1.3	8 mm
1.0 mm²	AWG 18	1.45	8 mm
1.5 mm²	AWG 16	1.75	8 mm
2.5 mm²	AWG 14	2.25	6 mm

Identification			Part number	Drawing	Dimensions in mm
Crimp flange					
	D1	D2			
	3.0	4.0	61 03 000 0062		
	3.5	4.5	61 03 000 0063		
	4.0	5.0	61 03 000 0064		
	4.5	5.5	61 03 000 0065		
	5.0	6.0	61 03 000 0066		
	5.5	6.5	61 03 000 0166		
	6.0	7.0	61 03 000 0067		
	6.5	7.5	61 03 000 0068		
	7.0	8.0	61 03 000 0069		
	7.5	8.5	61 03 000 0070		
	8.0	9.0	61 03 000 0071		
	8.5	9.5	61 03 000 0165		
	9.0	10.0	61 03 000 0072		
Crimp ferrule					
	D3	D4			
	5.0	6.0	61 03 000 0045		
	5.5	6.5	61 03 000 0046		
	6.0	7.0	61 03 000 0047		
	6.5	7.5	61 03 000 0048		
	7.0	8.0	61 03 000 0049		
	7.5	8.5	61 03 000 0050		
	8.0	9.0	61 03 000 0051		
	8.5	9.5	61 03 000 0052		
	9.0	10.0	61 03 000 0053		
	9.5	10.5	61 03 000 0054		
	10.0	11.0	61 03 000 0055		
	10.5	11.5	61 03 000 0056		
	11.0	12.0	61 03 000 0057		
	11.5	12.5	61 03 000 0058		
	12.0	13.0	61 03 000 0142		
	12.5	13.5	61 03 000 0059		
	13.0	14.0	61 03 000 0127		
Cable clamp					
cable diameter approx. 5 ... 7 mm			61 03 000 0141		
cable diameter approx. 7 ... 10 mm			61 03 000 0044		
cable diameter approx. 10 ... 12 mm			61 03 000 0143		







Features

Features	• auto-crossing • auto-negotiation • auto-polarity • store and Forward switching mode • fast and Full GigaBit Ethernet Non-Blocking • support of Jumlo-Frames (10 kBytes) • energy Efficient Ethernet acc. to IEEE 802.3az
Ethernet interface	
Number of ports	4
Cable types acc. to IEEE 802.3	Shielded Twisted Pair (STP) or Unshielded Twisted Pair (UTP), Category 5
Data rate	10/100/1000 Mbit/s
Maximum cable length	100 m (Twisted Pair; with cable Category 5 acc. to EN 50 173-1)
Termination type	RJ45 (Twisted Pair)
Diagnostics (via LED)	• status link - green • status data transfer (Act) - green flashing • data transfer rate (speed only in the front position) - 10 Mbit/s: off - 100 Mbit/s: yellow - 1000 Mbit/s: green
Topology	line, star or mixed
Power supply	
Nominal voltage	24 V DC (reverse polarity proof)
Permissible voltage range	12.0 V ... 30.0 V
Nominal current	110 mA (at 24 V DC)
Diagnostics (via LED)	power supply
Termination power supply	3-pole pluggable contact: 24 V DC, FE
Design features module	
Material	polycarbonate
Dimensions (W x H x D)	34.4 x 29.4 x 86.9 mm (without connectors)
Degree of protection acc. to DIN 60 529	IP30
Colour	RAL 7032 (light grey)
Environmental conditions	
Operating temperature	0 °C ... +60 °C
Storage temperature	-40 °C ... +85 °C
Relative humidity	30 % ... 95 % (non-condensing)
Approvals	CE

Han-Modular® Switch US4

Features

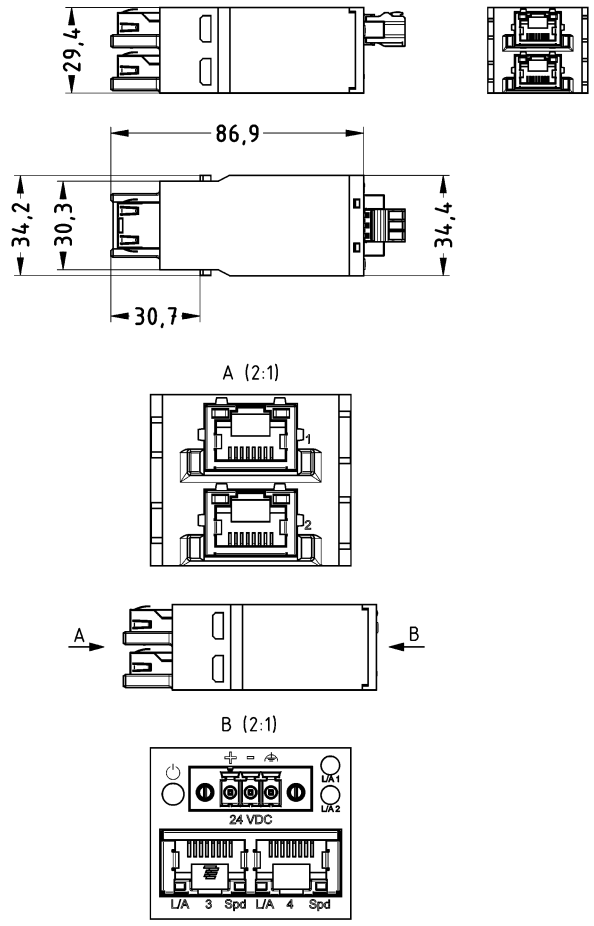
- 4-port Ethernet Switch
- Double module in Han-Modular® connector style
- Power- und Networkdiagnostic
- Supported standards: IEEE 802.3
- Transmission: 10/100/1000 MBit/s
- Energy Efficient Ethernet
- Suitable for EtherNet/IP and PROFINET

General description

The Ethernet Switch US4 is suitable for industrial applications and supports Ethernet (10 Mbit/s), Fast Ethernet (100 Mbit/s) and GigaBit Ethernet (1000 Mbit/s).

4 Ethernet devices can be terminated to the Switch via RJ45 ports. It is plug & play capable, thus a configuration is not necessary.

Integrated LEDs provide quick and easy power and network diagnostics.

Identification	Part number	Drawing	Dimensions in mm
Han-Modular® Switch US4	09 80 113 0400		

Features

- PE module to connect large cable diameters within the Han-Modular® hinged frames
- Electrically conductive connection of the PE contact to the hinged frames and the hoods and housings to DIN EN 61984
- Pre-leading and robust 100 A PE contact
- Suitable for the connection of standard power cables even with large cross-sections (no special cables with reduced PE necessary)
- Both versions axial screw as well as crimp termination are mating compatible

Technical characteristics

Specifications	DIN EN 61 984

Module

Contacts	1 x PE
Material	zinc die cast
Surface	Ni
Limiting temperatures	- 40 °C … + 125 °C
Fixing screw	M4
Tightening torque	2 Nm
Mating cycles	≥ 500
Impulse derating	1920 A for 1 second (acc. to IEC 60 947-7-2)

Contacts

Material	copper alloy
Surface	3 µm Ag
Contact resistance	≥ 0.3 mΩ

Axial screw termination

Conductor cross-section	10 ... 38 mm² / AWG 7 ... 2
Stripping length	13 mm
Hexagonal key	SW 4

Tightening torque

mm²	10	16	25	35
Nm	6	6	7	8

Crimp termination

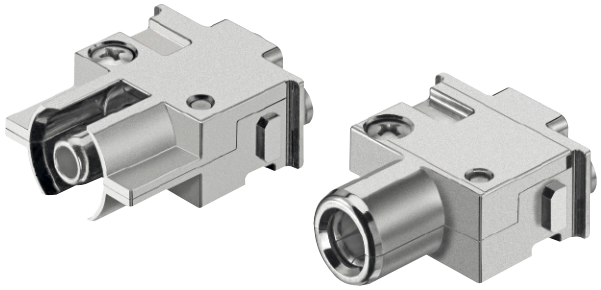
Conductor cross-section: 10 ... 35 mm²

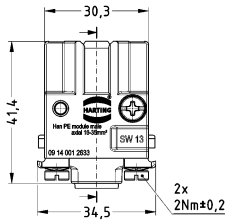
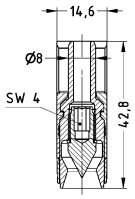
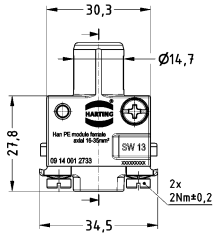
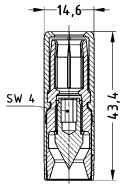
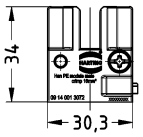
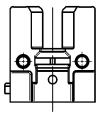
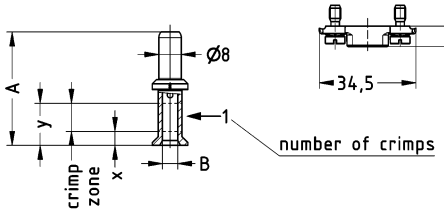
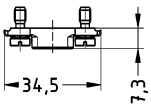
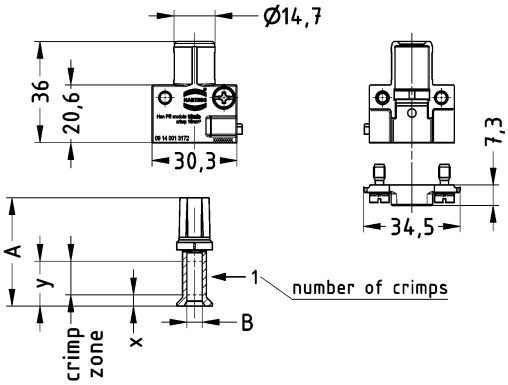
Stripping lengths

mm²	10	16	25	35
mm	19	19	19	16

Han® PE module

Number of contacts



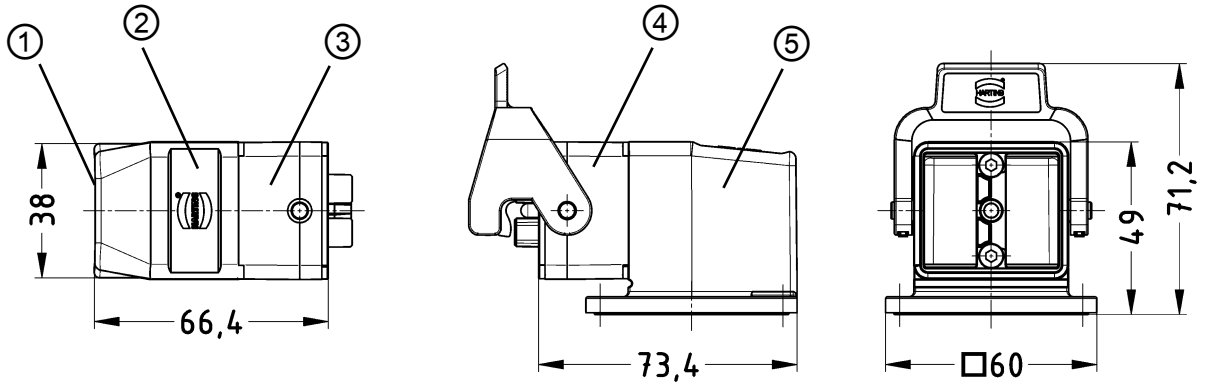
Identification	Cross-Section mm²	Part number Male contact	Part number Female contact	Drawing	Dimensions in mm
Axial screw termination					
Power contact	10 - 25	09 14 001 2632	09 14 001 2732		
	16 - 35	09 14 001 2633	09 14 001 2733		
	22 - 38	09 14 001 2634	09 14 001 2734		
Included in delivery: PE module with pre-assembled axial screw contact					
Crimp termination					
Power contact	16	09 14 001 3072	09 14 001 3172		
	25	09 14 001 3073	09 14 001 3173		
	35	09 14 001 3074	09 14 001 3174		
Included in delivery: 2 PE module halves 1 contact pressure plate 1 crimp contact					

Features

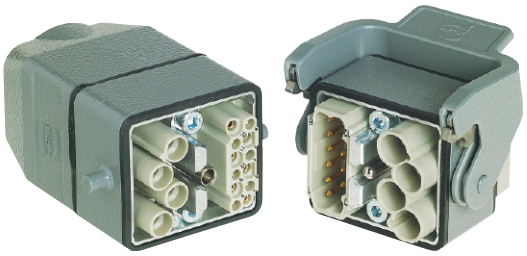
- Compact and space-saving
- High flexibility due to modular assembly
- Easy and quick assembly
- Hood consists of two parts
- It is easy to realise a cable-to-cable housing, by screwing hood and bulkhead mounted housing together
- Suitable for two single modules of the Han-Modular® series

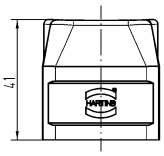
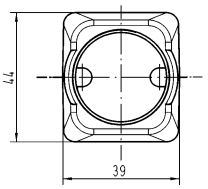
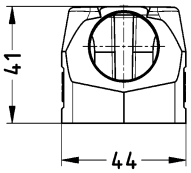
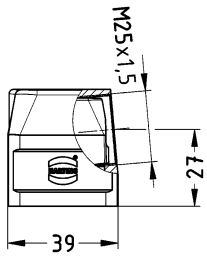
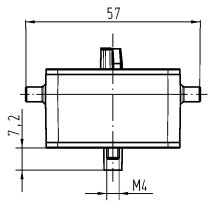
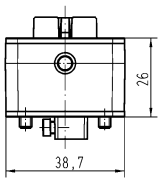
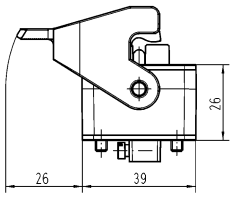
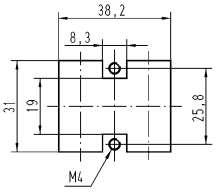
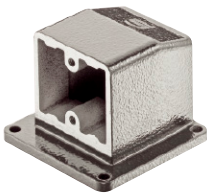
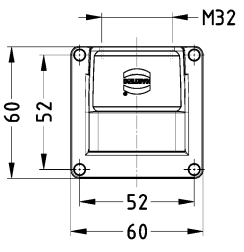
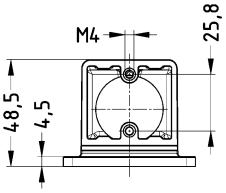
Technical characteristics

Specifications	DIN EN 61 984
Hoods/housings	
Material	aluminium die-cast / zinc die-cast
Surface	powder coated
Locking element	Han-Easy Lock®
Hoods/housings seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529 in locked position	IP65
Mating cycles	≥ 500
PE contact	
- conductor cross-section	10 mm² / AWG 8
- stripping length	10 mm
- tightening torque	1 Nm



① Cable entry
② Hood
③ Carrier hood
④ Bulkhead mounted housing
⑤ Angled housing



Identification	Part number	Cable entry metric	Drawing	Dimensions in mm
Hood				
top entry 	19 14 002 0400 19 14 002 0401 19 14 002 0402	M20 M25 M32		
side entry 	19 14 002 0501	M25		
Carrier hood 	09 14 002 0311	-		
Bulkhead mounted housing 	09 14 002 0301	-		
Angled housing  **NEW**	09 14 002 0950 19 14 002 0952	- M32		

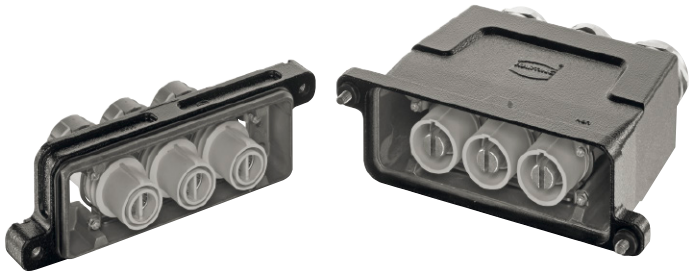
Features

- Crimp termination
  - for wires acc. to IEC 60 228 class 5
  - for crimp dies acc. to DIN 46 235
- Screw termination
  - for termination of cable shoes and bus bars
  - must be used in Han® HPR bulkhead mounted housings only
- Low mating forces
- Contacts suitable for all frames for
  - Han® HC Modular 350
  - Han® HC Modular 350 enlarged
  - Han® 24 HPR EasyCon 350

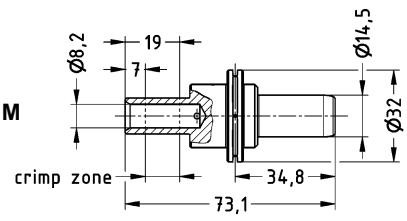
Technical characteristics

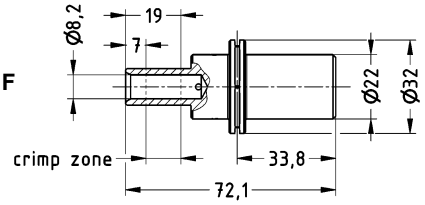
Contacts

Material	copper alloy
Surface	silver plated
Contact resistance	≤ 0.3 mΩ
Rated current	350 A
Limiting temperature	-40 °C ... 125 °C
Mating cycles	≥ 500



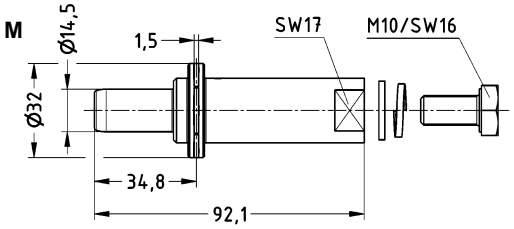
Identification	Cross-section mm²	Part number Male contact	Part number Female contact	Drawing	Dimensions in mm
Han® TC 350 PE Crimp contact	35	09 11 000 6172	09 11 000 6272		

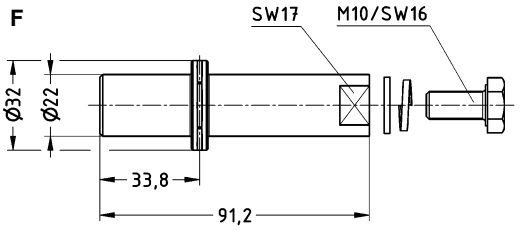




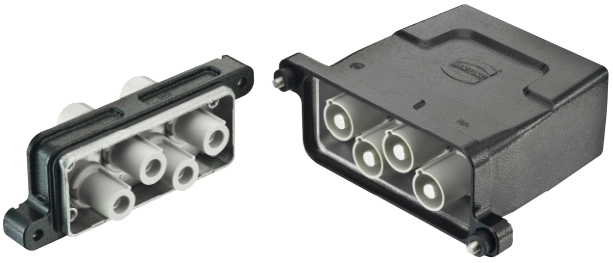
Cross-section	Tool identification	Stripping length	Ø
35 mm²	12	26 mm	8.2 mm
For stranded wire according to IEC 60 228 Class 5			

Identification	Cross-section mm²	Part number Male contact	Part number Female contact	Drawing	Dimensions in mm
Han® TC 350 PE Screw contact	≤ 120	09 11 000 6158	09 11 000 6258		





Tightening torque 14 Nm
for cable shoes ≤ 120 mm²
While applying the tightening torque please hold the contact with screw driver 17



Features

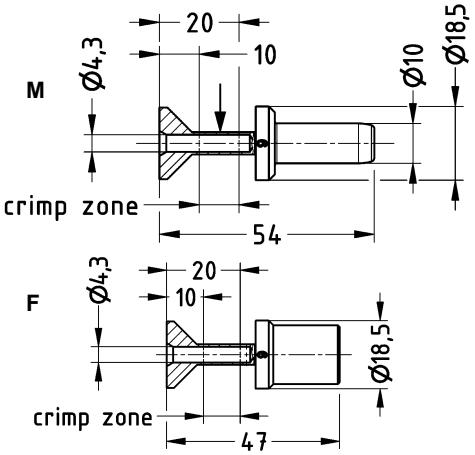
- Crimp terminal
- For stranded wire acc. to IEC 60 228 Class 5
- Low mating and demating forces
- For crimp dies acc. to DIN 46 235
- Contacts suitable for Han® HC Modular 250 inserts 09 11 001 3021 and 09 11 001 3121

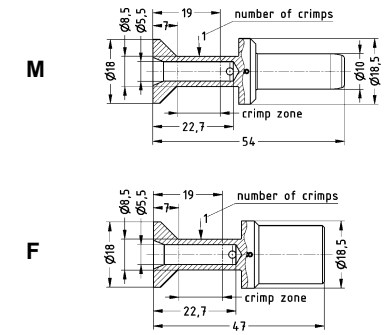
Technical characteristics

Contacts

Material	copper alloy
Surface	silver plated
Contact resistance	≤ 0.3 mΩ
Rated current	250 A
Limit temperature	-40 °C ... 125 °C
Mating cycles	≥ 500

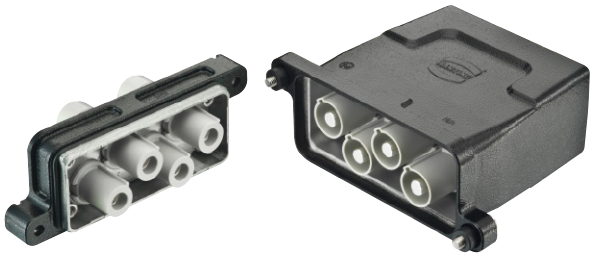
Identification	Cross-section mm²	Part number Male contact	Part number Female contact	Drawing	Dimensions in mm
Han® TC 250 Crimp contact	10	09 11 000 6184	09 11 000 6284		
Han® TC 250 Crimp contact	16	09 11 000 6185	09 11 000 6285		





Cross-section	Tool indentification	Stripping length	Ø
10 mm²	6	22 mm	4.3 mm
16 mm²	8	22 mm	5.5 mm
For stranded wire according to IEC 60 228 Class 5			

Han® HC Modular 250 enlarged



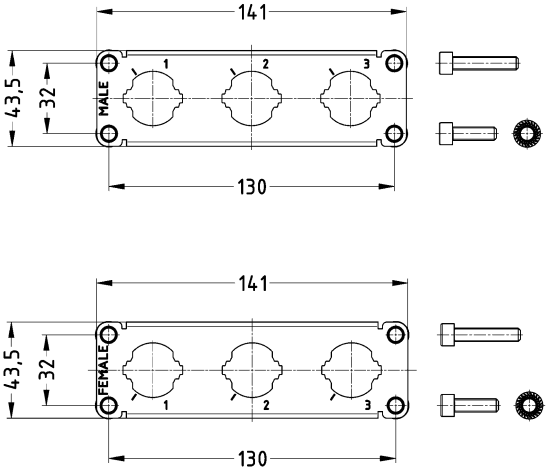
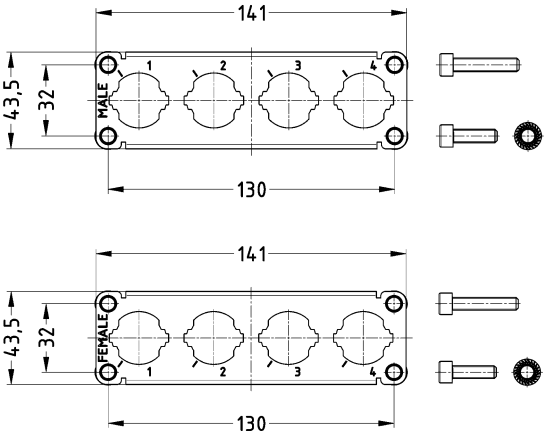
Features

- Frames for Han® HC Modular 250 contacts for use in Han® 24 HPR enlarged hoods and housings

Technical characteristics

Frames

Material	stainless steel
Number of pins	3 and 4 pins
Tightening torque M6 fixing screws	10 Nm

Identification	Part number male	Part number female	Drawing	Dimensions in mm
Frame for 3 x Han® HC Modular 250 enlarged Range of delivery: 4 x cheese-head screw M6 x 20 4 x cheese-head screw M6 x 25 4 x washer SK S6 	09 11 000 9931	09 11 000 9932		
Frame for 4 x Han® HC Modular 250 enlarged Range of delivery: 4 x cheese-head screw M6 x 20 4 x cheese-head screw M6 x 25 4 x washer SK S6 	09 11 000 9927	09 11 000 9928		

Features

- Frame for 8 Han-Modular® single modules
- Possibility to realise customer specific strain relief or cable shielding connection

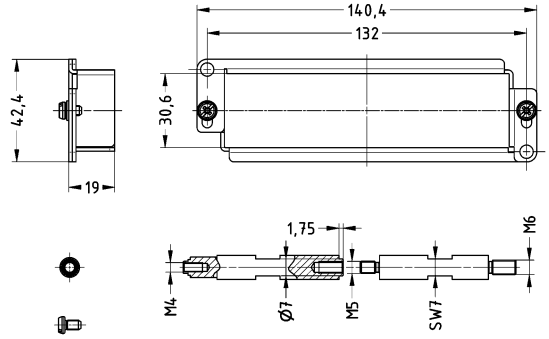
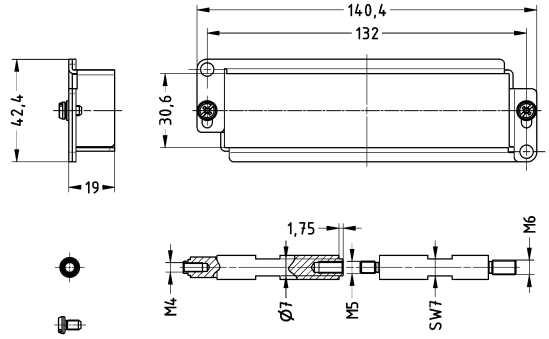
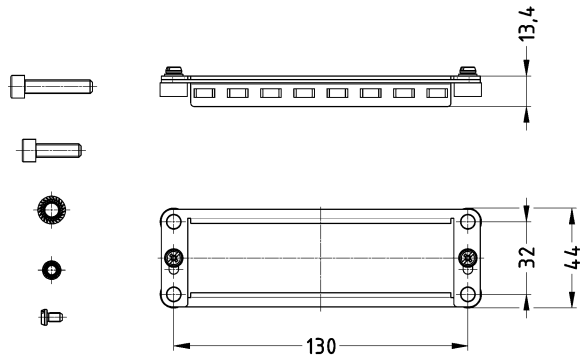
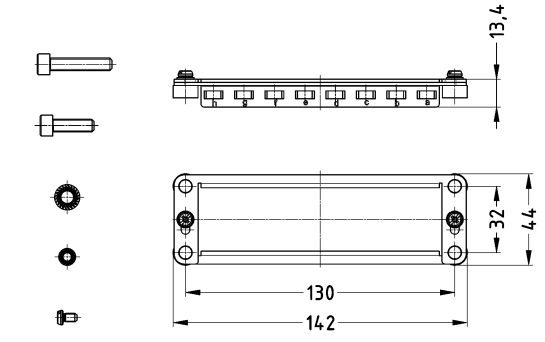
Technical characteristics

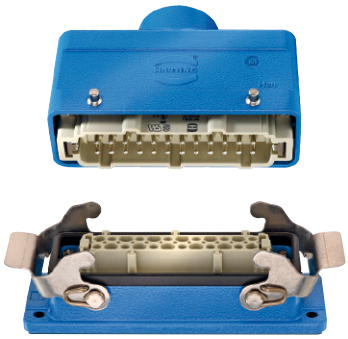
Frame

Material	stainless steel
Number of modules	8 single modules
Tightening torque M4 fixing screws	1.5 Nm
Tightening torque M6 fixing screws	10 Nm
Tightening torque Distance bolt	6 Nm

Han® 24 HPR EasyCon and Han® 24 HPR enlarged

Frame for Han® 24 HPR EasyCon and Han® 24 HPR enlarged hoods and housings

Identification	Part number	Drawing	Dimensions in mm
Han-Modular® frame for up to 8 single modules in Han® 24 HPR EasyCon hoods/housings marking A … H Range of delivery: 2 x M4/M5 distance bolts (SW 7) 2 x M5/M6 distance bolts (SW 7) 4 x M4 screw 4 x washer SK S4	09 40 024 9931		
Han-Modular® frame for up to 8 single modules in Han® 24 HPR EasyCon hoods/housings marking a … h Range of delivery: 2 x M4/M5 distance bolts (SW 7) 2 x M5/M6 distance bolts (SW 7) 4 x M4 screw 4 x washer SK S4	09 40 024 9932		
Han-Modular® frame for up to 8 single modules in Han® 24 HPR enlarged hoods/housings marking A … H Range of delivery: 2 x M4 screw 2 x washer SK S4 4 x cheese-head screw M6 x 20 4 x cheese-head screw M6 x 25 4 x washer SK S6	09 11 000 9935		
Han-Modular® frame for up to 8 single modules in Han® 24 HPR enlarged hoods/housings marking a … h Range of delivery: 2 x M4 screw 2 x washer SK S4 4 x cheese-head screw M6 x 20 4 x cheese-head screw M6 x 25 4 x washer SK S6	09 11 000 9936		



Connectors for explosion hazardous environments

Features

- Hoods and housings in the sizes 6 B, 10 B, 16 B, 24 B and 48 B
- Connectors especially for explosion hazardous applications
- Suitable for intrinsically safe circuits
- Inserts on basis of Han® E with 6 to 24 contacts
- Suitable for areas classed 1 und 2

⚠ WARNING! **Industrial connectors of the Han® Ex series are designed exclusively for the use in intrinsically safe electrical circuits of categories „ia“, „ib“ and „ic“!**

- The explosion group is defined by the corresponding intrinsically safe equipment.
- Temperature class according to DIN EN 60 079-11

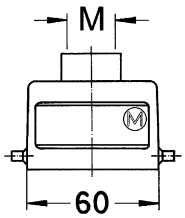
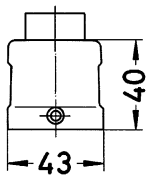
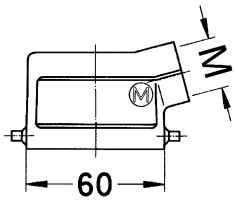
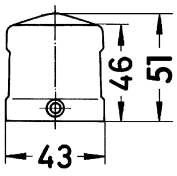
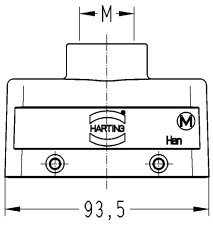
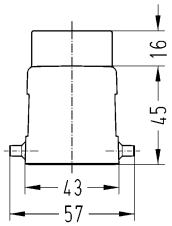
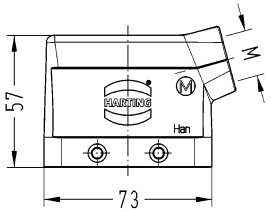
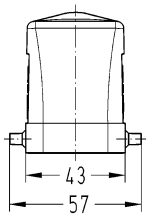
General description

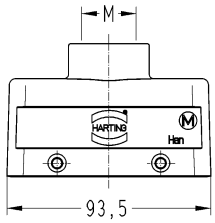
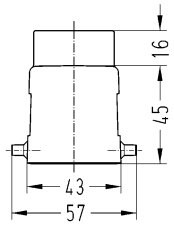
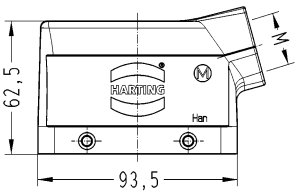
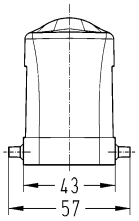
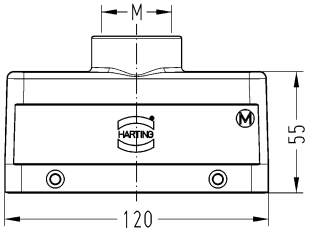
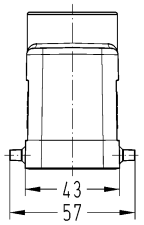
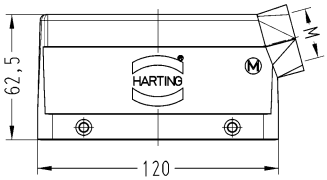
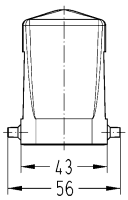
The connectors are designed to meet the intrinsic safety requirements for ignition protection class in explosion hazardous areas classed as 1 and 2. In intrinsically safe circuits, energy is limited in such a manner that even a potential spark cannot ignite an explosive environment.

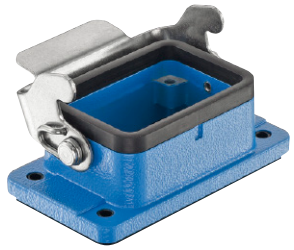
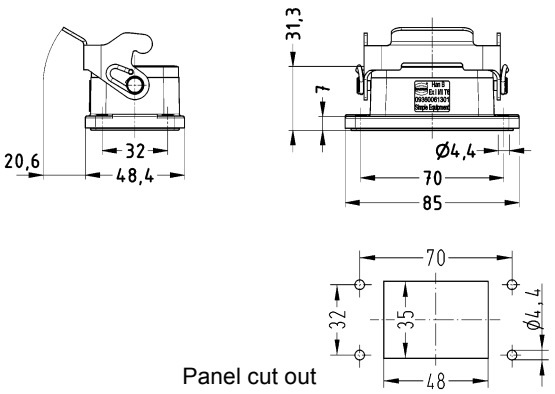
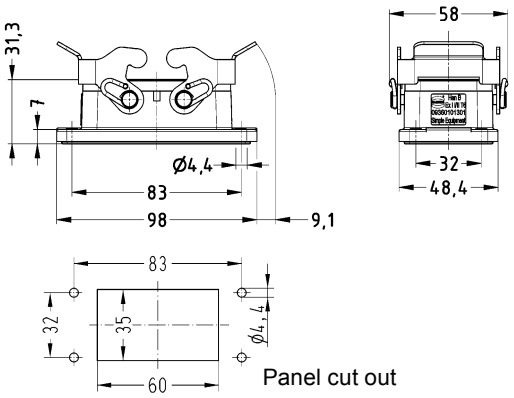
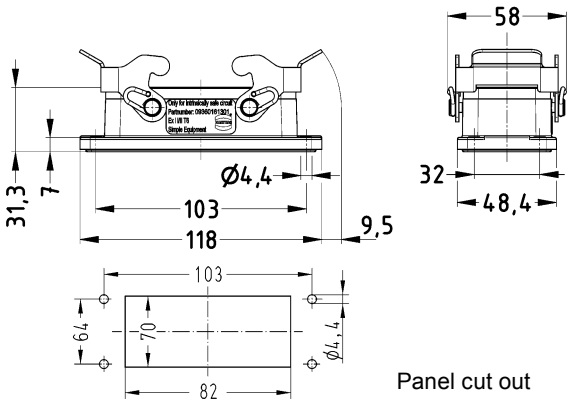
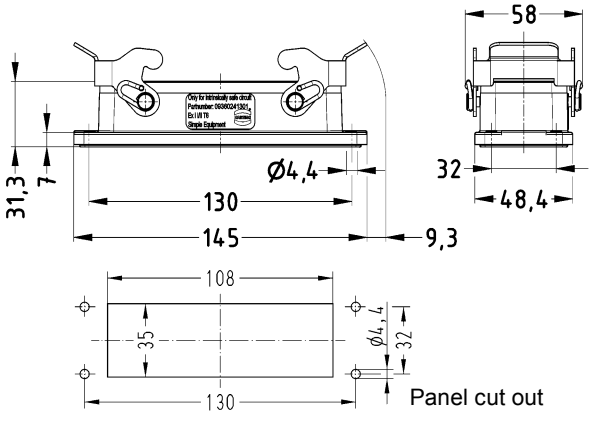
The Han® Ex product portfolio offers complete connector systems consisting of housings and inserts, including housings made from an alloy that can be used in pulverised methane-coal dust atmospheres. They also offer ignition protection class 65 in the mated condition. The housing’s blue colour indicates that an intrinsically safe circuit is present. The contact inserts provide a high number of pins and meet the standards of the ignition protection class even in the tightest of spaces.

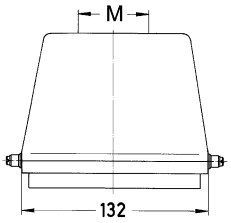
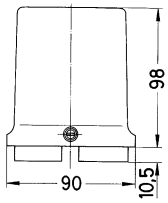
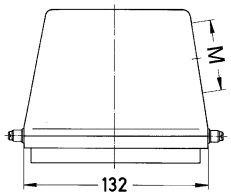
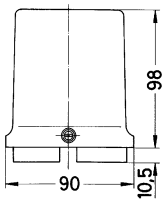
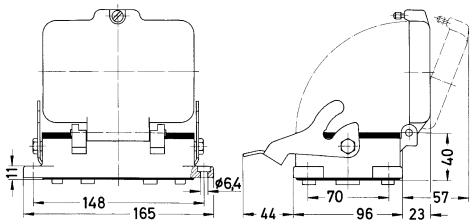
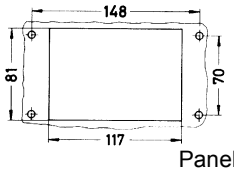
Technical characteristics

Specifications	DIN EN 60 079-0, -11, -14 DIN EN 60 664-1 DIN EN 61 984
Hoods/ housings	
Material	zinc die cast
Colour	RAL 5015 (blue)
Surface	powder coated
Locking element	stainless steel
Lever type	metal lever
Seal	NBR
Ambient temperature acc. to DIN EN 60 079-11	-20 °C ... +40 °C
Limit temperature for connectors	-40 °C ... +125 °C
Maximum surface temperature acc. to DIN EN 60 079-11	T6 = 85 °C
Protection degree acc. to DIN EN 60 529 in locked position	IP65 is achieved with cable gland
Inserts	
Number of contacts	6, 10, 16, 24
Rated current	16 A
Rated voltage	90 V
Insulation resistance	≥ 10^{10} Ω
Material	polycarbonate
Limiting temperatures acc. to DIN EN 60 079-11	-20 °C ... +40 °C
Mechan. working life - mating cycles	≥ 500
Contacts	
Material	copper alloy
Surface - hard-silver plated	3 µm Ag
Contact resistance	≤ 1 mΩ
Crimp termination	0.14 ... 2.5 mm² AWG 26 ... 14
Screw connection	0.75 ... 2.5 mm²
Tightening torque	0.5 Nm
Max. insulation diameter	3.6 mm

Identification	Part number	Cable entry	Drawing	Dimensions in mm
Hood 6 B top entry 	19 36 006 1440 19 36 006 1441	M20 M25		
Hood 6 B side entry 	19 36 006 1540 19 36 006 1541	M20 M25		
Hood 10 B top entry 	19 36 010 1420 19 36 010 1421	M20 M25		
Hood 10 B side entry 	19 36 010 1520 19 36 010 1521	M20 M25		

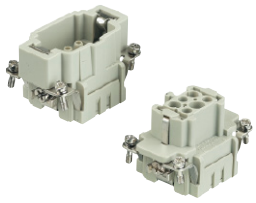
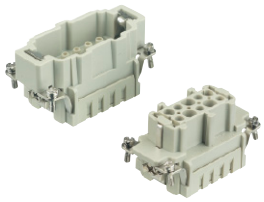
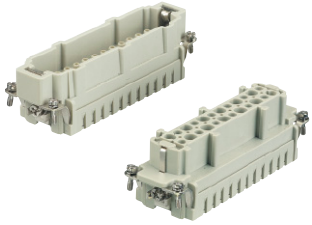
Identification	Part number	Cable entry	Drawing	Dimensions in mm
Hood 16 B top entry 	19 36 016 1421 19 36 016 1422	M25 M32		
Hood 16 B side entry 	19 36 016 1521 19 36 016 1522	M25 M32		
Hood 24 B top entry 	19 36 024 1421 19 36 024 1422	M25 M32		
Hood 24 B side entry 	19 36 024 1521 19 36 024 1522	M25 M32		

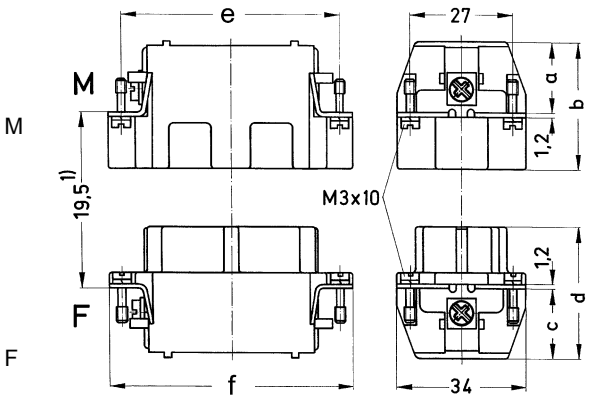
Identification	Part number	Drawing	Dimensions in mm
Housing, bulkhead mounting 6 B 	09 36 006 1301		
Housing, bulkhead mounting 10 B 	09 36 010 1301		
Housing, bulkhead mounting 16 B 	09 36 016 1301		
Housing, bulkhead mounting 24 B 	09 36 024 1301		

Identification	Part number	Cable entry	Drawing	Dimensions in mm
Hood 48 B top entry 	19 36 048 0447 19 36 048 0448	M32 M40		
Hood 48 B side entry 	19 36 048 0547 19 36 048 0548	M32 M40		
Hood 48 B with cover 	09 36 048 0301		  Panel cut out	

Number of contacts

6, 10, 16, 24 + ⏚

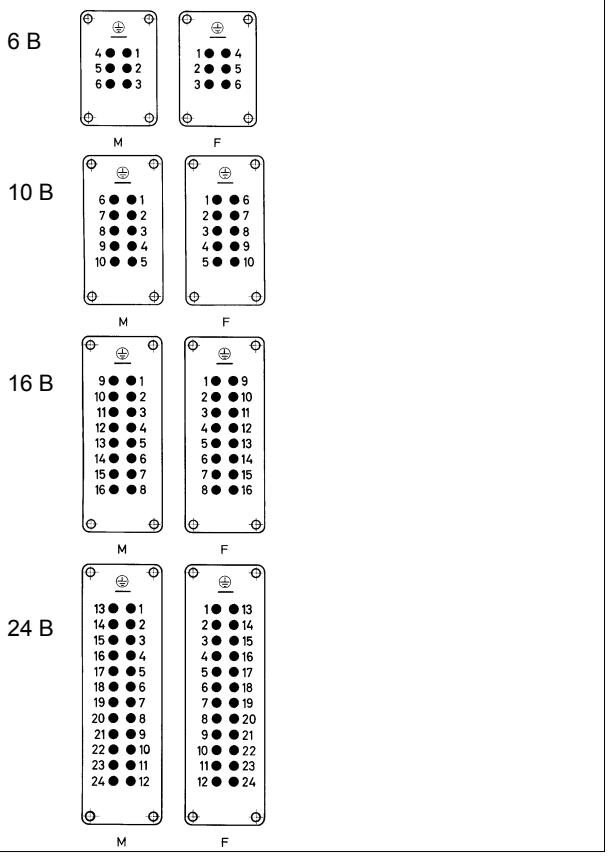
Identification	Part number Male insert (M)	Part number Female insert (F)	Drawing	Dimensions in mm
Han® Ex crimp insert 6 B[2)]				
screw termination	09 36 006 2601	09 36 006 2701		
crimp termination	09 36 006 2602	09 36 006 2702		
				
Han® Ex crimp insert 10 B[2)]				
screw termination	09 36 010 2601	09 36 010 2701		
crimp termination	09 36 010 2602	09 36 010 2702		
				
Han® Ex crimp insert 16 B[2)]				
screw termination	09 36 016 2601	09 36 016 2701		
crimp termination	09 36 016 2602	09 36 016 2702		
				
Han® Ex crimp insert 24 B[2)]				
screw termination	09 36 024 2601	09 36 024 2701		
crimp termination	09 36 024 2602	09 36 024 2702		
				



1) Distance for contact max. 21 mm

Size	a	b	c	d	e	f
6 B	19	34	19	36	44	51
10 B	19	34	19	36	57	64
16 B	19	34	19	36	77.5	84.5
24 B	19	34	19	36	104	111

Contact arrangement view from termination side



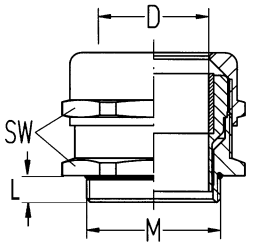
[2)] Han® E crimp contacts can be ordered from the HARTING eCatalogue (www.HARTING.com)

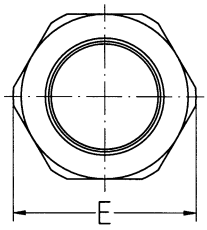
Technical characteristics

Degree of protection	IP68 / IP69K
Limiting temperatures	-40 °C … +100 °C
Material	brass, nickel-plated
Material seal	NBR
Approvals	RoHS

Identification	Part number	Thread	Sealing range(D) min./max. [mm]	SW* [mm]	L [mm]	E [mm]	Tightening torque [Nm]
Han® CGM-M Metal with pre-assembled o-ring at the connection thread	19 00 000 5080	M20 x 1.5	5 ... 9	22	6	24.4	10
	19 00 000 5081	M20 x 1.5	5 ... 9 / 6 ... 12	22	6	24.4	10
	19 00 000 5082	M20 x 1.5	6 ... 12	22	6	24.4	10
	19 00 000 5084	M20 x 1.5	10 ... 14	24	6	26.5	10
	19 00 000 5090	M25 x 1.5	9 ... 16	30	7	33.5	12
	19 00 000 5091	M25 x 1.5	9 ... 16 / 13 ... 18	30	7	33.5	12
	19 00 000 5092	M25 x 1.5	13 ... 18	30	7	33.5	12
	19 00 000 5094	M32 x 1.5	13 ... 20	40	8	44	15
	19 00 000 5095	M32 x 1.5	13 ... 20 / 18 ... 25	40	8	44	15
	19 00 000 5096	M32 x 1.5	18 ... 25	40	8	44	15
	19 00 000 5097	M40 x 1.5	20 ... 26	50	8	55	15
	19 00 000 5098	M40 x 1.5	22 ... 32	50	8	55	15
	19 00 000 5099	M40 x 1.5	20 ... 26 / 22 ... 32	50	8	55	15
	19 00 000 5086	M50 x 1.5	32 ... 38	57	9	60	24

* SW = Wrench size



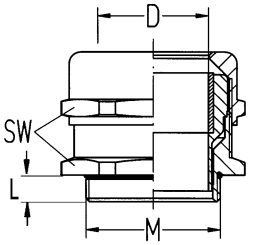


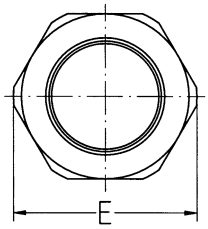
Technical characteristics

Degree of protection	IP68 / IP69K
Limiting temperatures	-40 °C … +100 °C
Material	polyamide
Flammability acc. to UL 94	V 0
Material seal	NBR
Approvals	RoHS, for the black version

Identification	Part number grey RAL 7035	Part number black RAL 9005	Thread	Sealing range (D) min./max. [mm]	SW* [mm]	L [mm]	E [mm]	Tightening torque [Nm]
Han® CGM-P Plastic with pre-assembled o-ring at the connection thread	19 00 000 5180	19 00 000 5181	M20 x 1.5	5 ... 9	24	9	26.4	4.5
	19 00 000 5182	19 00 000 5183	M20 x 1.5	6 ... 12	24	9	26.4	4.5
	19 00 000 5184	19 00 000 5185	M20 x 1.5	10 ... 14	27	9	29.8	4.5
	19 00 000 5190	19 00 000 5191	M25 x 1.5	9 ... 16	33	11	33.5	5
	19 00 000 5192	19 00 000 5193	M25 x 1.5	13 ... 18	33	11	36.5	5
	19 00 000 5194	19 00 000 5186	M32 x 1.5	13 ... 20	42	11	46.8	6.5
	19 00 000 5196	19 00 000 5187	M32 x 1.5	18 ... 25	42	11	46.8	6.5
	19 00 000 5197	19 00 000 5188	M40 x 1.5	20 ... 26	53	13	58.8	10
	19 00 000 5198	19 00 000 5189	M40 x 1.5	22 ... 32	53	13	58.8	10

* SW = Wrench size



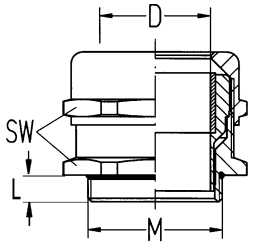


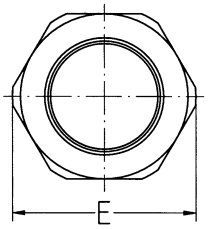
Technical characteristics

Field of application	intrinsically safe electric circuits
Degree of protection	IP68 / IP69K
Limiting temperatures	-40 °C … +100 °C
Material	polyamide
Flammability acc. to UL 94	V 0
Material seal	NBR
Colour	
- Cap nut	RAL 5012 (blue)
- Lock nut	RAL 9005 (black)
Approvals:	RoHS

Identification	Part number	Thread	Sealing range (D) min./max. [mm]	SW* [mm]	L [mm]	E [mm]	Tightening torque [Nm]
Han® CGM-Ex i Plastic with pre-assembled o-ring at the connection thread	19 00 000 7101	M20 x 1.5	5 ... 9	24	9	26.4	4.5
	19 00 000 7102	M20 x 1.5	6 ... 12	24	9	26.4	4.5
	19 00 000 7104	M25 x 1.5	9 ... 16	33	11	33.5	5
	19 00 000 7106	M32 x 1.5	13 ... 20	42	11	46.8	6.5
	19 00 000 7109	M40 x 1.5	22 ... 32	53	13	58.8	10

* SW = Wrench size





Han-Power® T with 3 x HARTING PushPull Power

Number of contacts

4

48 V
12 A

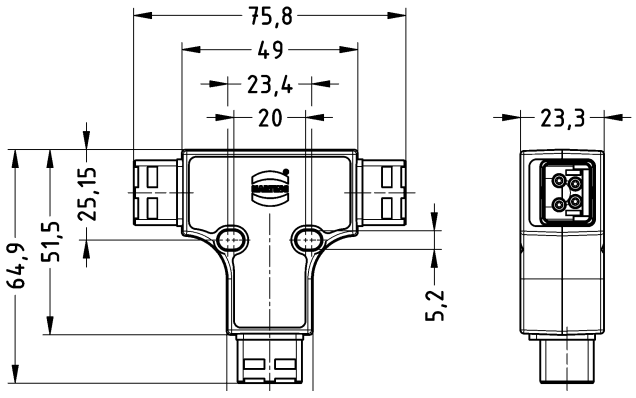
Features

- One connection for the power input, the power output and to connect with the device
- Compact, space-saving design
- Finger safe acc. to IEC DIN EN 60 529
- Polarisation with the aid of coding pins
- Cable side: Male with crimp termination
- 4 different coding variants without loss of contact

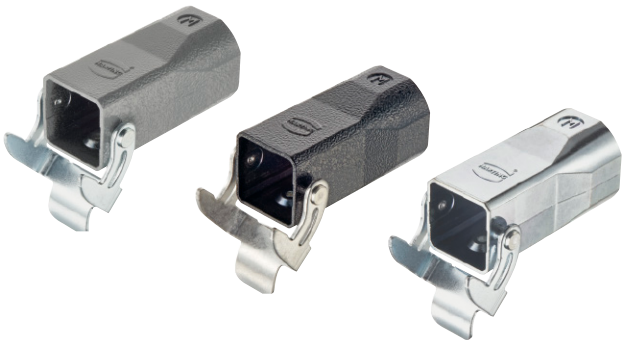
Technical characteristics

Contacts	4
Electrical data acc. to IEC 61 948	**12 A 48 V 1.5 kV 3**
Rated current	12 A
Rated voltage	48 V
Rated impulse voltage	1.5 kV
Pollution degree	3
Insulation resistance	≥ 10^{10} O Ω hm
Flammability acc. to UL 94	V 0
Mating cycles	≥ 750
Degree of protection acc. to IEC DIN EN 60 529	IP65 / IP67
Material hoods/housings	polyamide
Colour hoods/housings	RAL 9005 (black)

Identification	Part number	Drawing	Dimensions in mm
Han-Power® T with 3 x HARTING PushPull Power	09 12 008 4770		



Han® 3 A Hood Cable to Cable Metal

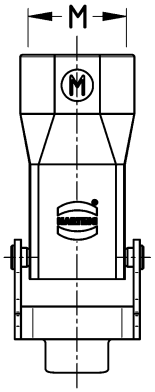
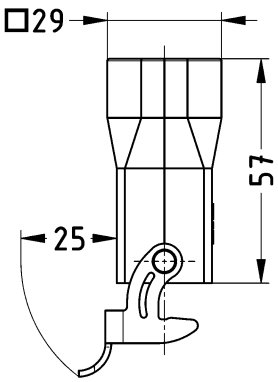


Features

- With M25 cable entry for big cable diameters
- Compatible with inserts size Han® 3 A
- Available in standard, Han® EMC and Han® M version

Technical characteristics

Material	zinc die-cast
Surface standard version	powder-coated RAL 7037 (grey)
Material locking lever	steel zinc-plated
Surface Han® EMC version	non coated electrically conductive
Material locking lever	steel zinc-plated
Surface Han® M version	powder-coated RAL 9005 (black)
Material locking lever	stainless steel
Limiting temperatures	-40 °C ... 125 °C
Degree of protection acc. to EN 60 529 in locked position	IP44 IP65 / IP67 is achieved by usage of sealing screw 09 20 0009918
Cable entry	M25

Identification	Part number	Cable entry metric	Drawing	Dimensions in mm
Cable to cable hood Han® 3 A standard hood 	19 20 003 1755	M25		
Cable to cable hood Han® 3 M 	19 37 003 1755	M25		
Cable to cable hood Han® 3 EMC 	19 62 003 1755	M25		

Han® 3 A Hood Thermoplastic

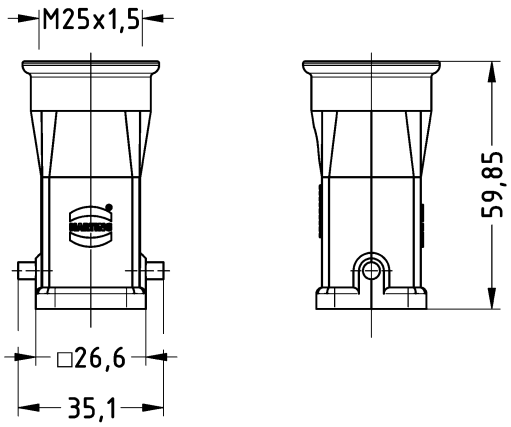
Features

- With M25 cable entry for big cable diameters
- Compatible with inserts size Han® 3 A

Technical characteristics

Material	polycarbonate
Colour	RAL 7032 (light grey) / RAL 9005 (black)
Locking element	polyamide
Lever type	lever, plastic
Hoods/Housings seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Approval acc. to UL 50	NEMA Type 4/4X/12
Flammability acc. to UL 94	V 0
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP44 IP67 is achieved by usage of sealing screw 09 20 000 9918

Identification	Part number	Cable entry metric	Drawing	Dimensions in mm
Hood Han® 3 A thermoplastic light grey	19 20 003 0430	M25		
Hood Han® 3 A thermoplastic light grey with seal	19 20 003 0433	M25		
Hood Han® 3 A thermoplastic black with seal	19 20 003 0436	M25		
Hood Han® 3 A thermoplastic black	19 20 003 0437	M25		



Han-*Yellock*® Covers

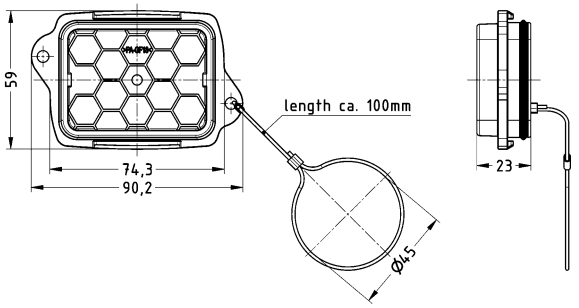
Features

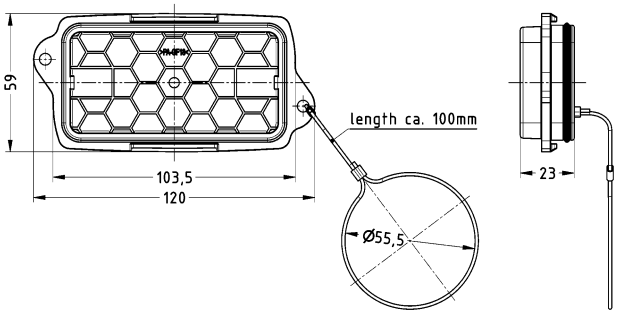
- Suitable for carrier hoods
- High construction
- Compatible to Han-Modular® inserts

Technical characteristics

Material cover	polyamide
Material seal	NBR
Flammability acc. to UL 94	V 0
Degree of protection acc. to DIN EN 60 529 for coupled connector	IP65 / IP67

Identification	Part number	Drawing	Dimensions in mm
Cover for carrier hoods Han-*Yellock*® 30 with securing flex	11 12 300 5452		
Han-*Yellock*® 60 with securing flex	11 12 600 5452		





Han-INOX® 3 A Cable to Cable Hood

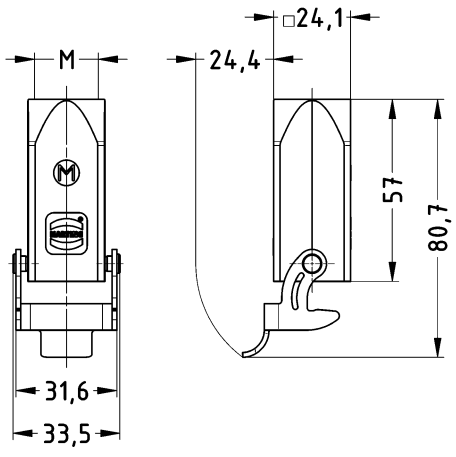
Stainless steel housings

Features

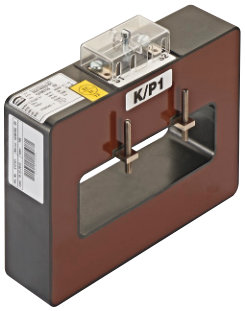
- Made of corrosion resistant stainless steel
- Resistant against aggressive detergents
- Suitable for standard inserts that fit into size Han® 3 A
- Fields of application
  - Food and beverage industry
  - Water and sewage industry
  - Pharmaceutical industry
  - Chemical industry
  - Offshore and shipbuilding

Technical characteristics

Material	stainless steel
Limiting temperatures	-40 °C ... +125 °C
Protection degree acc. to DIN EN 60 529 in locked position	IP44 IP65 / IP67 is achieved by usage of sealing screw 09 20 000 9918
Locking lever	stainless steel

Identification	Part number	Cable entry metric	Drawing	Dimensions in mm
Han-INOX® 3 A Cable to cable hood top entry	19 44 003 1750	M20		

HARTING Current Transformer 4000/5 A



I_{PN} = 4000 A

Features

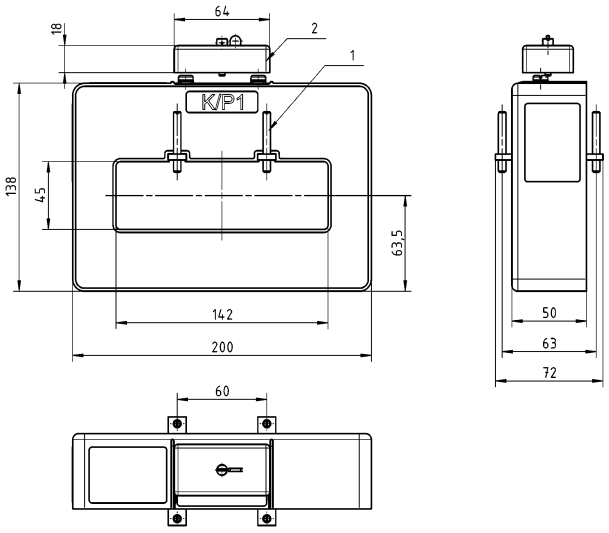
- Window type current transformer for tariff metering
- Calibrated with certificate without corrigendum
- Calibration by an accredited test laboratory for electrical meters on request
- Including primary bus bar clamp and secondary termination cover

Technical characteristics

Standards	EN 61 869-2 IEC 60 044-1
Rated current I_{PN}	4000 A
Primary / secondary	4000/5 A
Rated output	10 VA
Class	E 0.5 FS 10
Rated frequency	50 - 60 Hz
Rated short-time thermal current I_{th}	70 x I_{PN}
Rated dynamic current I_{dyn}	2.5 x I_{th}
Rated continuous thermal current I_D	1.2 x I_{PN}
Highest voltage for equipment U_m	0.72 kV
Insulation level	3 kV / 1 min
Insulation class	B
Ambient temperature	-25 °C ... +55 °C
Mass	app. 3 kg
Material housing	PC 15 % GF
Material potting	PU

Identification	Part number	Drawing	Dimensions in mm
Current transformer 4000/5 A	20 31 400 0101		

1 Primary bus bar clamp (incl. screws) included in the delivery
2 Secondary termination cover (incl. screws) included in the delivery



HARTING Current Transformer 7000/5 A

I_{PN}= 7000 A

Features

- Window type current transformer for tariff metering
- Calibrated with certificate without corrigendum
- Calibration by an accredited test laboratory for electrical meters on request
- Including primary bus bar clamp and secondary termination cover

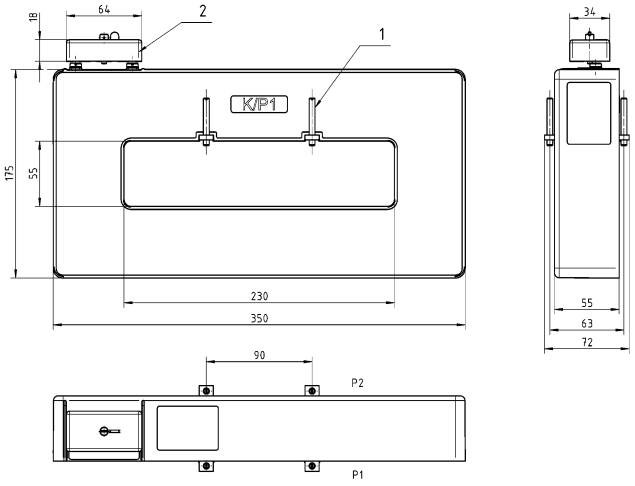
Technical characteristics

Standards	EN 61 869-2
	IEC 60 044-1
Rated current I_{PN}	7000 A
Primary / secondary	7000/5 A
Rated output	10 VA
Class	E 0.2 FS 25
Rated frequency	50 Hz
Rated short-time thermal current I_{th}	100 kA
Rated dynamic current I_{dyn}	2.5 x I_{th}
Rated continuous thermal current I_D	1.2 x I_{PN}
Highest voltage for equipment U_m	0.72 kV
Insulation level	3 kV / 1 min
Insulation class	B
Ambient temperature	-25 °C ... +55 °C
Mass	app. 7.2 kg
Material housing	PC 15 % GF
Material potting	PU

Identification	Part number
Current transformer 7000/5 A	20 32 700 0101

Drawing — Dimensions in mm

1 Primary bus bar clamp (incl. screws) included in the delivery
2 Secondary termination cover (incl. screws) included in the delivery



Han-Eco® Punch Units for Hydraulic Punch Drivers

Features

- Integrated centre punch for exact positioning of mounting holes
- Long lifetime due to CAD-optimised punch geometry and special inert gas hardening
- Reduced punching forces due to innovative punch geometry
- Reduced punching force results in lower stress on hydraulic seals
- For use in combination with Hydraulic Punch Drivers 09 99 000 0900 and 09 99 000 0901

Technical characteristics

Max. sheet thickness	2 mm unalloyed steel[1)] (acc. to EN 10025)

[1)] Punch units for stainless steel available on request

Identification	Part number	Panel cut out
Han-Eco® 10 A Punch Unit	09 99 000 0914	32.1 x 62.6 mm
Han-Eco® 16 A Punch Unit	09 99 000 0915	32.1 x 79.1 mm

Crimp Tool Han-Fast® Lock 1.5 mm² and 2.5 mm²

Crimp Tool for Han-Fast® Lock contacts

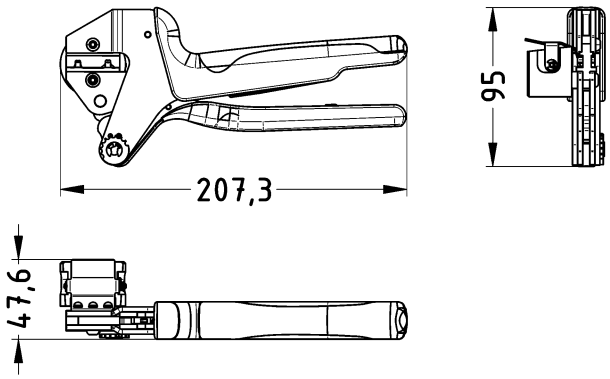
Features

- Manual crimp tool for Han-Fast® Lock contacts for wire gauges of 1.5 mm² and 2.5 mm²
- Integrated locator guarantees precise contact alignment
- Balanced grip force and optimised handle design
- Built-in interlock to ensure a complete crimping cycle
- Easy exchange of crimp dies
- High quality crimping

Technical characteristics

Specification		IEC 60 352-2
Dimensions		207.3 mm x 95.0 mm (length x height)
Conductor cross-section		1.5 and 2.5 mm²
Wire gauge		AWG 16 und 14
Wire retention force	1.5 mm²	> 150 N
	2.5 mm²	> 230 N

Identification	Part number	Drawing	Dimensions in mm
Crimp tool Han-Fast® Lock	09 99 000 0881		



Ha-VIS eCon 2000 Fast Ethernet Basic

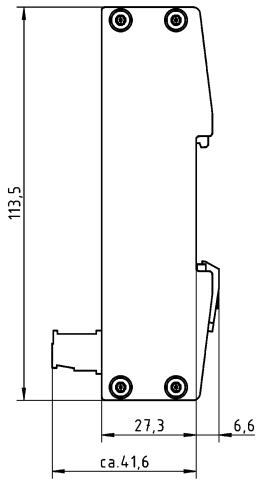
Unmanaged Plug-and-Play Ethernet Switches

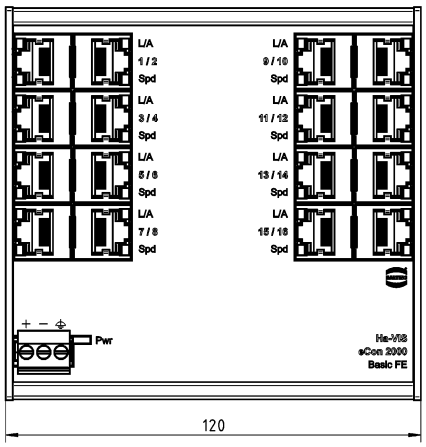
for Assembly on DIN Rail in Control Cabinets
Commercial Temp.: 0 °C ... +55 °C / Industrial Temp.: -40 °C ... +70 °C

Specification

Number of ports copper / termination	16 x 10BASE-Te / 100BASE-TX EEE / RJ45 (twisted pair)
Nominal voltage	24 / 48 V DC ⎓
Permissible voltage range	9 V ... 60 V DC ⎓
Termination	screw type terminal block, pluggable, 3-poles (+ / - / ⏚)
Current consumption typical @ 24 V / 48 V	93 mA / 49 mA
Dimensions (W x H x D)	180.0 x 113.5 x 27.3 mm (without pluggable screw type terminal block)
Weight	390 g
MTBF in million hours	1.75
Approvals	CE FCC CFR 47 Part 15, cUL US 508 listed Det Norske Veritas (DNV), ABB IIT

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS eCon 2160B-A 0 °C ... +55 °C	24 02 016 0010		
Ha-VIS eCon 2160BT-A -40 °C ... +70 °C	24 02 016 0000		





Ha-VIS eCon 2000 Gigabit Ethernet Basic

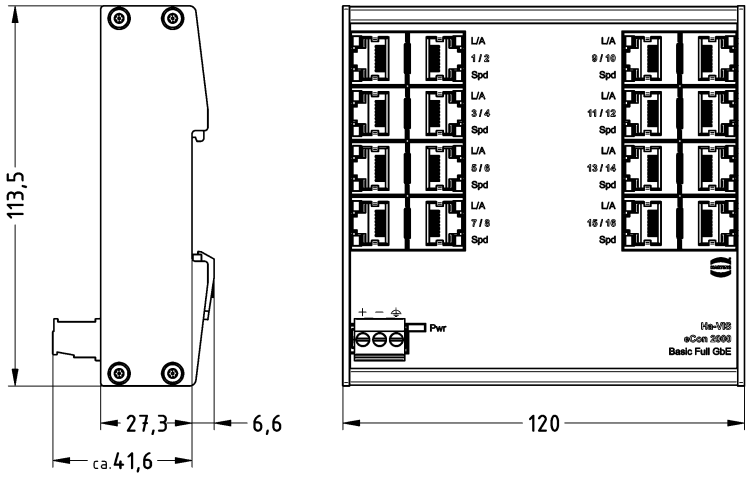
Unmanaged Plug-and-Play Ethernet Switches

for Assembly on DIN Rail in Control Cabinets
Commercial Temp.: 0 °C ... +55 °C / Industrial Temp.: -40 °C ... +70 °C

Specification

Number of ports copper / termination	16 x 10BASE-T / 100BASE-TX EEE / 1000Base-T EEE / RJ45 (twisted pair)
Nominal voltage	24 / 48 V DC ⎓
Permissible voltage range	9 V ... 60 V DC ⎓
Termination	Screw type terminal block, pluggable, 3-poles (+ / - / ⏚)
Current consumption typical @ 24 V / 48 V	382 mA / 191 mA
Dimensions (W x H x D)	180.0 x 113.5 x 27.3 mm (without pluggable screw type terminal block)
Weight	455 g
MTBF in million hours	see eCatalogue
Approvals	CE FCC CFR 47 Part 15, cUL US 508 listed ABB IIT

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS eCon 2160GB-A 0 °C ... +55 °C	24 02 416 0010		
Ha-VIS eCon 2160GBT-A -40 °C ... +70 °C	24 02 416 0000		



Ha-VIS eCon 3000 Fast Ethernet Basic

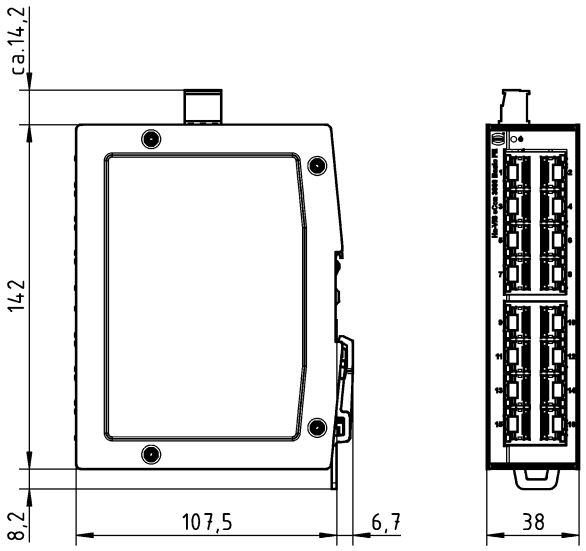
Unmanaged Plug-and-Play Ethernet Switches

for Assembly on DIN Rail in Control Cabinets
Commercial Temp.: 0 °C ... +55 °C / Industrial Temp.: -40 °C ... +70 °C

Specification

Number of ports copper / termination	16 x 10BASE-Te / 100BASE-TX EEE / RJ45 (twisted pair)
Nominal voltage	24 / 48 V DC ⎓
Permissible voltage range	9 V ... 60 V DC ⎓
Termination	screw type terminal block, pluggable, 3-poles (+ / - / ⏚)
Current consumption typical @ 24 V / 48 V	93 mA / 49 mA
Dimensions (W x H x D)	38.0 x 142.0 x 107.5 mm (without pluggable screw type terminal block)
Weight	530 g
MTBF in million hours	1.75
Approvals	CE FCC CFR 47 Part 15, cUL US 508 listed Det Norske Veritas (DNV), ABB IIT

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS eCon 3160B-A 0 °C ... +55 °C	24 03 016 0010		
Ha-VIS eCon 3160BT-A -40 °C ... +70 °C	24 03 016 0000		



Ha-VIS eCon 3000 Full Gigabit Ethernet Basic

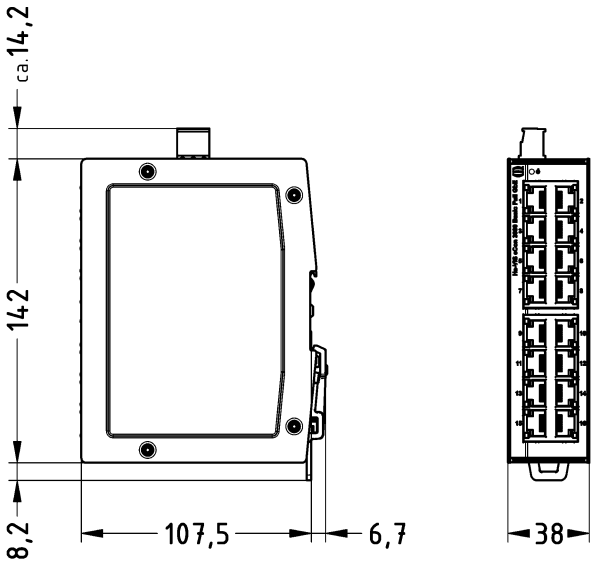
Unmanaged Plug-and-Play Ethernet Switches

for Assembly on DIN Rail in Control Cabinets
Commercial Temp.: 0 °C ... +55 °C / Industrial Temp.: -40 °C ... +70 °C

Specification

Number of ports copper / termination	16 x 10BASE-T / 100BASE-TX EEE / 1000Base-T EEE / RJ45 (twisted pair)
Nominal voltage	24 / 48 V DC ⎓
Permissible voltage range	9 V ... 60 V DC ⎓
Termination	Screw type terminal block, pluggable, 3-poles (+ / - / ⏚)
Current consumption typical @ 24 V / 48 V	382 mA / 191 mA
Dimensions (W x H x D)	38.0 x 142.0 x 107.5 mm (without pluggable screw type terminal block)
Weight	700 g
MTBF in million hours	see eCatalogue
Approvals	CE FCC CFR 47 Part 15, cUL US 508 listed ABB IIT

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS eCon 3160GB-A 0 °C ... +55 °C	24 03 416 0010		
Ha-VIS eCon 3160GBT-A -40 °C ... +70 °C	24 03 416 0000		



Ha-VIS mCon 1124-AASFP

Ethernet Switch
Ha-VIS mCon 1124-AASFP
16-port Ethernet Switch, managed
for mounting onto DIN rail in control cabinets

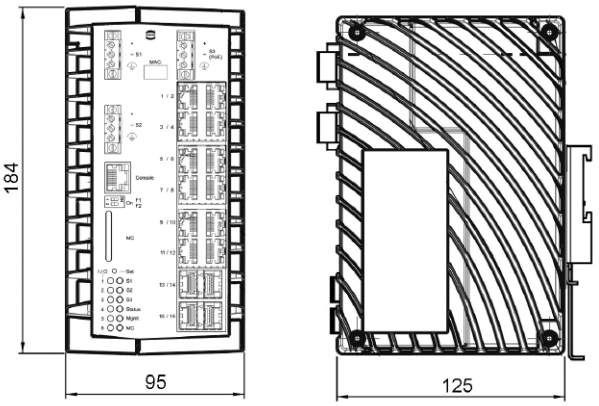
Features

- Fully managed switch acc. to 802.3
- 16 Ports Full Gigabit
- 12 Ports RJ45 and 4 Ports SFP
- Industrial temperature range from -40°C to +85°C
- Memory card slot for SD card with MAC address and storing the configuration

General description

The new managed Full-Gigabit-Ethernet Switches Ha-VIS mCon 1124 for harsh environment support the connection of max. 16 network devices via fiber optic or twisted pair.

A lot of security features e. g. SCP, SSHv2, HTTPS, RADIUS, SNMPv3 and IEEE 802.1X are supported.

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS mCon 1124-AASFP Ethernet Switch 12 ports RJ45 4 slots SFP incl. set for assembly onto DIN rail	20 76 116 8100		

Technical characteristics

Design features

Material enclosure	varnished aluminium case, anodised
Enclosure type	without vents
Dimensions (W x H x D)	184 x 95 x 125 mm (without connectors)
Degree of protection	IP30
Mounting	35 mm DIN rail acc. to EN 60 715, panel mounting, vertical assembly
Weight	1800 g

Environmental conditions

Operating temperature	-40 °C … +85 °C
Stock temperature	-40 °C … +85 °C
Relative humidity	20 % … 90 % (non-condensing)

Ethernet Interface RJ45

Number of ports	12x 10/100/1000Base-T(X)
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s
Maximum cable length	100 m
Topology	ring / line / star or mixed

Ethernet Interface SFP

Number of ports	4 x 100/1000Base
Data rate	100 Mbit/s, 1 Gbit/s
Termination	SFP module acc. to MSA (Multi Source Agreement)
Diagnosis	configurable limits for TX- and RX-Power

Power supply

Nominal voltage	24 V DC ⎓
Permissible voltage range	18 V DC … 72 V DC ⎓
Termination	3-pole screw terminal, redundant power supply

Configuration

Slots for SD cards	• saving and loading of configuration files • MAC Address • licence management for MRP
Management Software	Managed via web interface, SNMP, CLI (Telnet / SSH and V.24 console) and mCon Management Software (Accessory)

Management Functions

Access Control / Authentication Management

- Admin account with Read/Write access for HTTP/HTTPS, Telnet/SSH/V.24 console and Device Manager
- Access Policy Mode with disabling function for unsecure protocols, activation of SSHv2, HTTPS SNMPv3 and „Password Checker“
- Gratuitous ARP function guarantees that the switch can be reached after change of IP address
- Securely encrypted transfer of configuration und firmware via SCP-Secure Copy
- IPv6 (prepared)

WEB / HTTP / HTTPS Access

- WEB interface (no proxy server required)
- TCP port number can be set for WEB access

Telnet / SSH and V.24 Console

- Telnet console (no proxy server required) and Cisco-like command line interface (CLI)
- Telnet or V.24 console can be disabled respectively Telnet and V.24 console authentication via RADIUS server
- Secure 256-bit encrypted SSH / SSL transfer and use of 1024-bit RSA key

SNMP Access, SNMP Traps and Syslog Messages

- Configuration of switch possible via ‚SNMP Set Request‘
- MIB-II (RFC1213) system, interface, at, ip
- ETHERLIKE MIB (RFC2665) dot3StatsTable
- IF-MIB (RFC2863) ifXTable
- BRIDGE-MIB (RFC4188) dot1dBase, dot1dStp, dot1dTp
- RSTP-MIB (RFC4318)
- RMON-MIB (RFC2819) statistics
- Eight IP addresses can be set as event receivers for SNMP traps, Alarm and Syslog messages
- Up to 27 different event types can be enabled per receiver

Port Security

- Loop/broadcast limiter for protection against accidental or malicious packet storms
- Active loop protection with automatic disablement of short-circuited ports
- Manual definition of three authorised MAC addresses per port
- Automatic learning of up to three authorised MAC addresses per port
- Port switches off, when an unauthorised MAC address is detected
- SNMP trap/syslog message for newly detected or for unauthorised MAC address
- Transparent transmission of IEEE802.1x packets can be enabled/disabled
- RADIUS authentication of up to three MAC addresses per port
- Port authentication according to IEEE802.1x in connection with the RADIUS server
- Unauthenticated ports are switched into a freely selectable Unsecure-Default-VLAN

VLAN Support / Trunking

- VLAN table selectable with up to 64 VLAN IDs, static or dynamic configurable
- Default-VLAN ID can be set for each port
- Default-VLAN can be disabled for trunking ports
- Trunking with tagging in accordance with IEEE802.1q can be enabled/disabled for each port
- Prioritisation of the VLAN tags selectable according to IEEE802.1p

Management Functions

Prioritisation
- Prioritisation selectable per each port according to IEEE802.1p / IPv4 and IPv6
- Four output queues selectable for prioritisation weighting per port
- 4 Prioritisation scheme: strict queuing / 8,4,2,1 weighted fair queuing / 3 strict/2,1,0 weighted / 2,3 strict/1,0 weighted

Discovery Protocols
- LLDP (Link Layer Discovery Protocol)
- CDP (Cisco Discovery Protocol)

Switch Information / Configuration
- Configuration of IP parameters via DHCP and manual configuration of IP parameters possible
- Configuration of IP parameters possible without pressing configuration switches (Device Manager)
- Loading of a switch configuration or firmware via Telnet/SSH/V.24/DHCP/BOOTP console possible
- Output of the running configuration in Telnet as CLI script and optional saving on an external TFTP server.

Firmware and Configuration Management via HARTING Device Manager
- Prevention of corruption through firmware update in separate FLASH segment
- Avoid corruption of configuration changes with dual configuration management
- Authentication via RADIUS server
- Download / upload of the configuration and archiving in a database on the PC
- Upload of a new configuration into the switch is made On-The-Fly (no reboot required)
- Archiving of the configuration in an offline database (using Device Manager)
- Securely encrypted configuration via SNMPv3

Redundancy
- RSTP - Rapid Spanning Tree Protocol
- MSTP - Multiple Spanning Tree Protocol

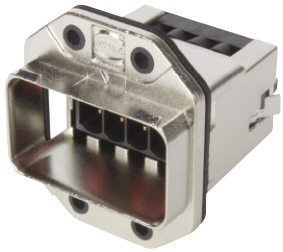
Environment Surveillance/Diagnose/Monitoring/Mirroring
- Display of internal nominal voltages and housing temperature
- SNMP trap/alarm and syslog messages, if temperature is exceeded
- Logbook for permanent internal saving of syslog messages
- 27 counters for packets, bytes, Unicasts, Broadcasts, etc. per port
- Port monitor for individual ports
- Switch can be set to VLAN mirroring
- Display of SFP Information: Vendorname, Part Number, Serial Number, Datecode, etc.
- Display of SFP Diagnostics: TX- and RX-Power in uW and dBm, temperature, voltage, bias current
- Configurable Alarm limits for TX- and RX-Power as well as for Laser-Bias-Current
- SNMP-Trap/Syslog-message activation for preset alarm limits

Other Network Protocols
- IGMP Snooping (Internet Group Management Protocol) can be activated globally, IGMP protocol versions 1 or 2 can be selected
- SNTP (Simple Network Time Protocol) can be activated globally

Notes

Notes

Han® PushPull L Power 4/0 Metal



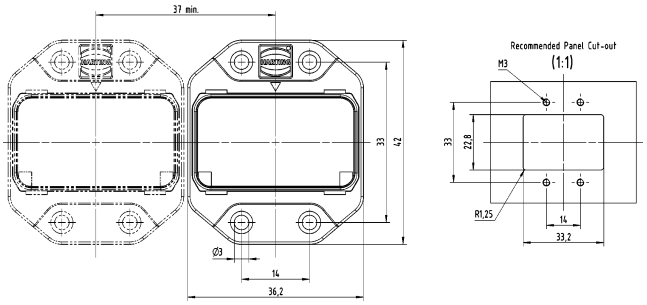
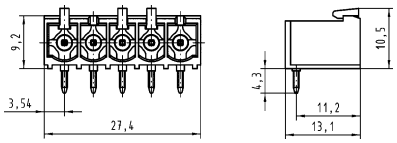
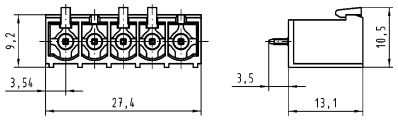
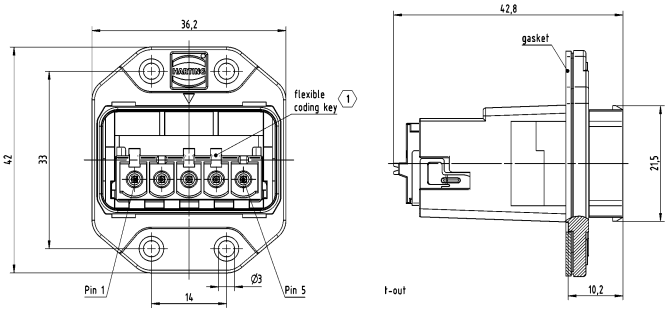
Housing bulkhead mounting and power females for device integration

Features

- HARTING PushPull technology
- Robust design
- Device side: male
  - Solder variant, angled and straight
  - Spring cage connection
- AIDA-conform (German Domestic Automobile Manufactures)

Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67
Number of contacts	4 + PE
Electrical data acc. to DIN EN 61984	16 A 24 V 4 kV
Termination	Male insert with solder termination Spring cage connection
Mating cycles	min. 100
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel plated Plastic, black (female)
	UL pending

Identification	Part number	Drawing	Dimensions in mm
Components device side			
Housing bulkhead mounting metal	09 35 014 0301		
Male insert with solder termination angled and with fixed coding	09 35 004 3003		
Male insert with solder termination straight and with fixed coding	09 35 004 3004		
Panel feed-through, metal			
incl. housing and male insert with spring cage connection and			
with fixed coding	09 35 433 0311		
with variable coding	09 35 434 0311		
Protection cover IP65 / IP67	09 35 004 5401		

Han® PushPull L Power 4/0 Metal

Connector, 5 poles, 24 V, 16 A

Features

- HARTING PushPull technology
- Robust design
- Cable side: female
  - spring cage connection
- AIDA-conform
  (German Domestic Automobile Manufactures)
- Enlarged size for an optimized connection of 2.5 mm² conductor cross sections

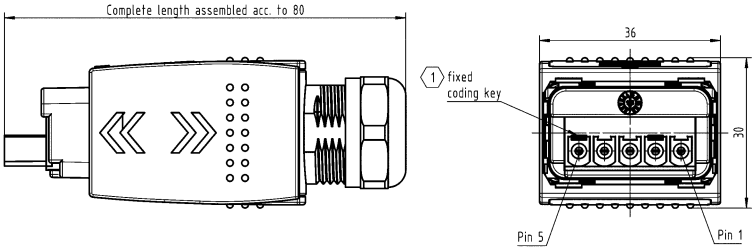
Technical characteristics

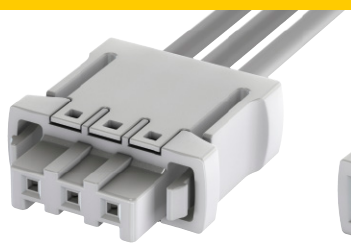
Locking	PushPull technology
Degree of protection	IP65 / IP67
Number of contacts	4 + PE
Electrical data	
acc. to DIN EN 61 984	16 A 24 V 4 kV 3
Termination	Spring cage connection
Termination cross section	0.75 ... 2.5 mm²
Mating cycles	min. 100
Temperature range	-40 °C ... +70 °C
Cable diameter	9 - 13 mm
Housing material	Zinc die-cast, nickel plated
	UL pending

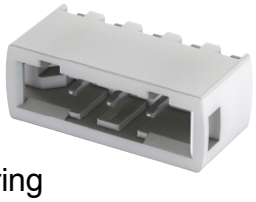
Identification	Part number
Connector set, metal	
incl. housing and female insert with spring cage connection and	
with fixed coding	
9 - 13 mm clamp range	09 35 433 0401
with variable coding	
9 - 13 mm clamp range	09 35 434 0401
Separate seal	
for 4 - 6.5 mm clamp range (packaging 10 pieces)	09 35 004 9907
Protection cover IP65 / IP67	09 35 004 5411

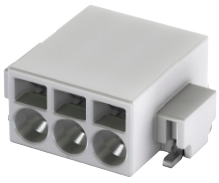
Drawing

Dimensions in mm







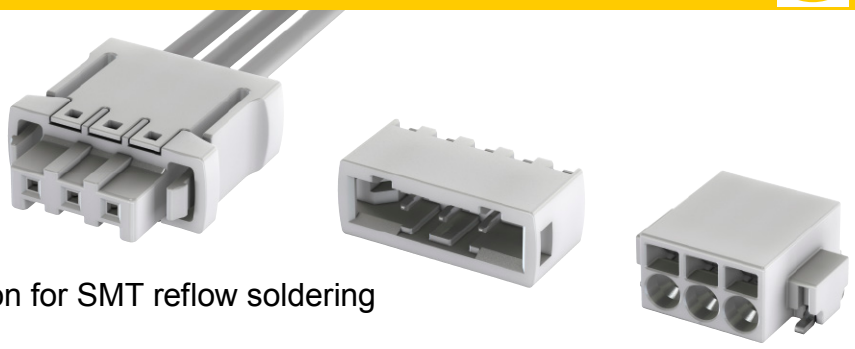


PCB terminal blocks
and PCB connectors
for LED applications
with push-in-spring-cage termination for SMT reflow soldering
pitch 2.54 mm

Identification	No. of contacts	Part number	Packaging unit (pieces)
PCB connectors female, white vertical with push-in-spring-cage termination	2 3	14 31 021 3101 160 14 31 031 3101 160	1 1
PCB connectors male, white horizontal	2 3	14 11 021 3010 . . . 14 11 031 3010 . . .	600 600
PCB terminal blocks, white horizontal with push-in-spring-cage termination	2 3	14 01 021 3110 . . . 14 01 031 3110 . . .	500 500

Suitable screw driver 2.0 x 40: Part number 14 99 000 0001

334
160
for samples (1 piece)
for 500/600 pieces on reel

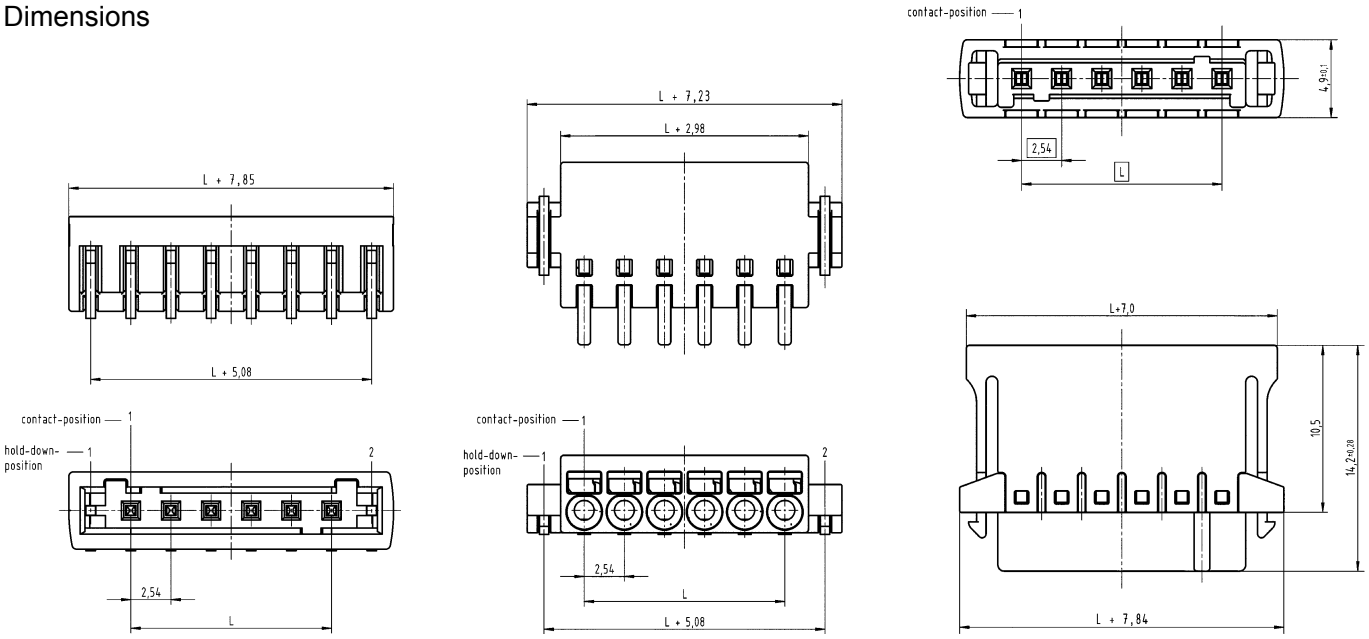


PCB terminal blocks
and PCB connectors
for LED applications
with push-in-spring-cage termination for SMT reflow soldering
pitch 2.54 mm

Drawing

Dimensions in mm

Dimensions



L = pitch x (poles - 1)

Technical characteristics

Technical data

Rated current	6 A
Pitch	2.54 mm

Surge voltage category / pollution degree	III/3	III/2	II/2
Rated voltage	32 V	160 V	160 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV

Material data

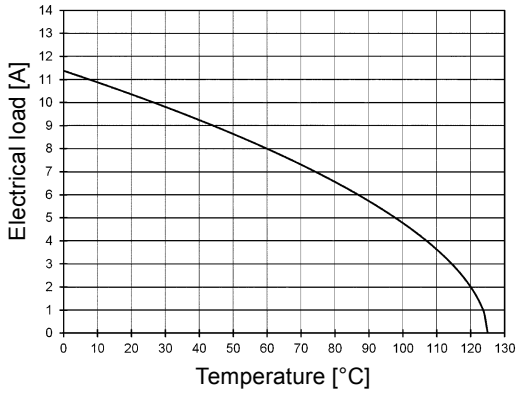
Group of insulation material	III a
Type of insulation material	LCP
Flammability rating per UL 94	V0
Operating temperature	-40 °C … +125 °C
Contact material	copper alloy
Contact plating	tin plated
	UL pending

Conductor data

Connection technology wire	push-in-spring-cage termination
Conductor size	
solid / stranded	0.14 - 0.5 / 0.2 - 0.5 mm²*
stranded with ferrules without plastic sleeve	0.25 - 0.34 mm²
Conductor size AWG	24 - 20
Stripping length	6 mm

Derating

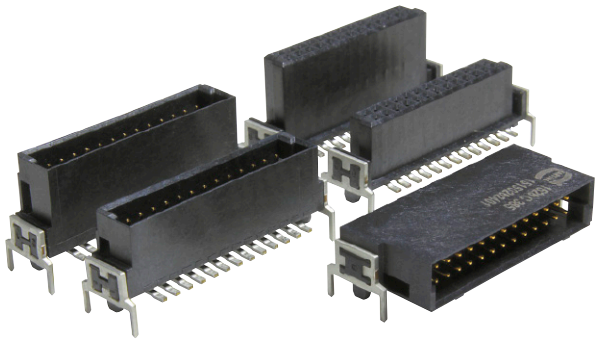
(for PCB connectors, male and female)



Tested with AWG 20

* A conductor cross-section (solid / stranded) of up to 0.75 mm² is possible at a rated insulation voltage of 32 V with III / 2

Notes



har-flex® THR

Description

- THR stands for Through Hole Reflow and describes the termination technique of the hold downs, positioned on both sides of the connector
- The *har*-flex® THR combines the advantages of robust through hole solder connections with the automated processing features of SMD components
- These connectors are tailored for miniaturised and mechanically stressed applications

Technical characteristics

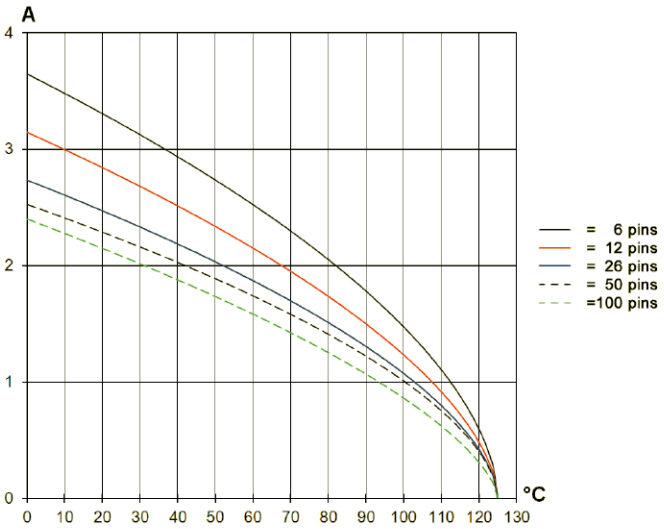
Number of contacts	6 … 100
Connector pitch	1.27 mm x 1.27 mm [0.050'' x 0.050'']
Mating cycles	≥ 500, acc. to performance level 1
Working temperature range	
for connectors:	– 55 °C … + 125 °C
The higher temperature limit includes the local ambient and heating effects of the contacts under load	
Temperature during reflow soldering (acc. to ECA/IPC/JEDEC J-STD-075 Level PSL R0)	min. 150 s > 217 °C min. 30 s > 240 °C
Electrical termination	
Contacts	SMT (Surface Mount Technology)
Hold downs	THR (Through Hole Reflow)
Materials	
Moulding material	LCP
UL approval	UL 94-V0
Contacts base material	Copper alloy
Contact surface	
Mating side Board connectors	Au over PdNi
Termination side Board connectors (SMT)	Sn

Technical characteristics

Current carrying capacity acc. to IEC 60512-5-2

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

Control and test procedures according to DIN IEC 60512-5-2.



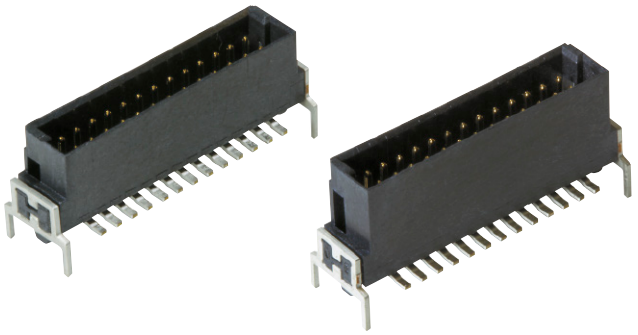
Derating curve at I_{max} * 0.8 (IEC 60512-5-2)

Working voltage acc. to IEC 60664-1

The working voltage depends on user specific operational conditions. Depending on the installation category, the degree of pollution and the entire electrical environment, the working voltage is different. The standard IEC 60664-1 specifies, in general, the minimum insulation distances for equipment. But it can also be used to determine the maximum working voltage with given requirements.

The following table shows the most common conditions applicable for the *har*-flex® connectors and exemplary calculations for the working voltage. For installation category, degree of pollution and other requirements which are not shown in the table we refer to the IEC 60664-1.

Clearance / Creepage distance	0.4 mm			
CTI-Value	< 400			
Isolation group	III a/b			
Electrical field type	Case A (Inhomogeneous field)		Case B (Homogeneous field)	
Installation category	I	II	I	II
Degree of pollution	1	1	1	1
Working voltage max.	**150 V**	**100 V**	**150 V**	**150 V**



Male connectors, straight, with robust THR hold downs

Identification	No. of contacts	Part number	Dimensions in mm

Male connector, straight, with robust THR hold downs, stacking heights 1.75 / 3.25 mm

No. of contacts	Part number
6	15 1 . 006 2401 . . .
12	15 1 . 012 2401 . . .
16	15 1 . 016 2401 . . .
20	15 1 . 020 2401 . . .
26	15 1 . 026 2401 . . .
32	15 1 . 032 2401 . . .
40	15 1 . 040 2401 . . .
50	15 1 . 050 2401 . . .
68	15 1 . 068 2401 . . .
80	15 1 . 080 2401 . . .
100	15 1 . 100 2401 . . .

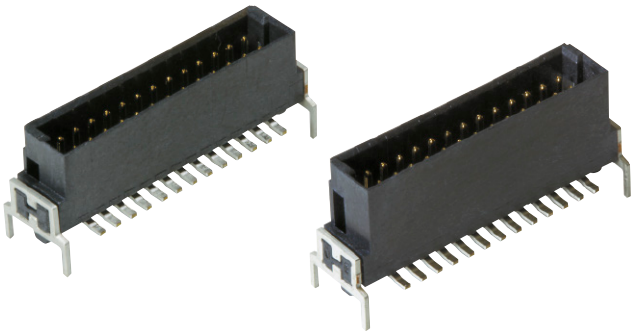
B	C	D	E	F	G	H
6.96	8.89	5.76	4.76	6.56	1.05	8.06
10.77	12.70	9.57	8.57	10.37	2.96	11.87
13.31	15.24	12.11	11.11	12.91	4.23	14.41
15.85	17.78	14.65	13.65	15.45	5.50	16.95
19.66	21.59	18.46	17.46	19.26	7.40	20.76
23.47	25.40	22.27	21.27	23.07	9.31	24.57
28.55	30.48	27.35	26.35	28.15	11.85	29.65
34.90	36.83	33.70	32.70	34.50	15.02	36.00
46.33	48.26	45.13	44.13	45.93	20.74	47.43
53.95	55.88	52.75	51.75	53.55	24.55	55.14
66.65	68.58	65.45	64.45	66.25	30.90	67.75

Please insert digit for stacking height

1.75 mm ▶ 1
3.25 mm ▶ 2

Further number of contacts between 6 and 100 and further performance levels are available on request.

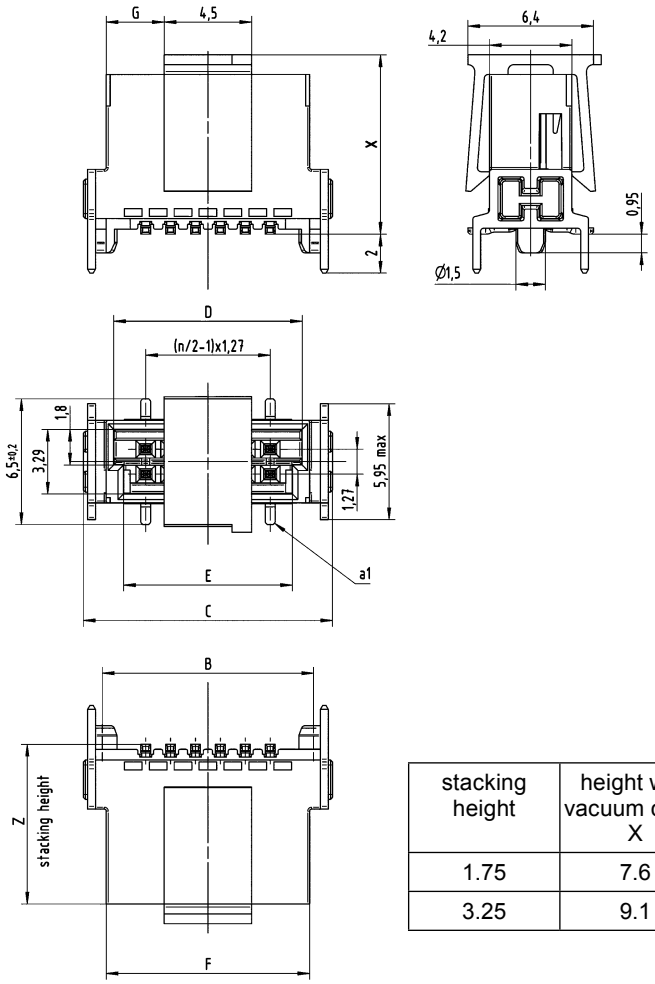
333 000 for samples
for 220 pieces on reel



Male connectors, straight,
with robust THR hold downs

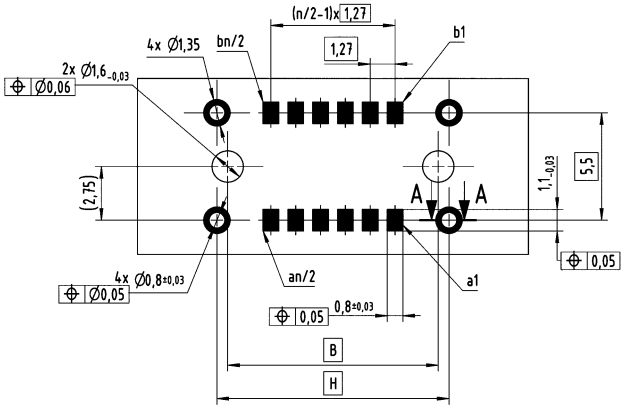
Identification	Drawing	Dimensions in mm

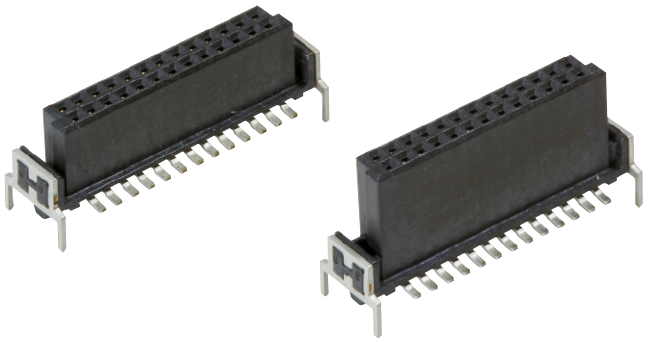
Dimensions



stacking height	height with vacuum cover X	unmated height Z
1.75	7.6	6.6
3.25	9.1	8.1

PCB layout





Female connectors, straight, with robust THR hold downs

Identification	No. of contacts	Part number
Female connector, straight, with robust THR hold downs, stacking heights 6.25 / 9.05 mm	6	15 2 . 006 2401 . . .
	12	15 2 . 012 2401 . . .
	16	15 2 . 016 2401 . . .
	20	15 2 . 020 2401 . . .
	26	15 2 . 026 2401 . . .
	32	15 2 . 032 2401 . . .
	40	15 2 . 040 2401 . . .
	50	15 2 . 050 2401 . . .
	68	15 2 . 068 2401 . . .
	80	15 2 . 080 2401 . . .
	100	15 2 . 100 2401 . . .

Dimensions in mm

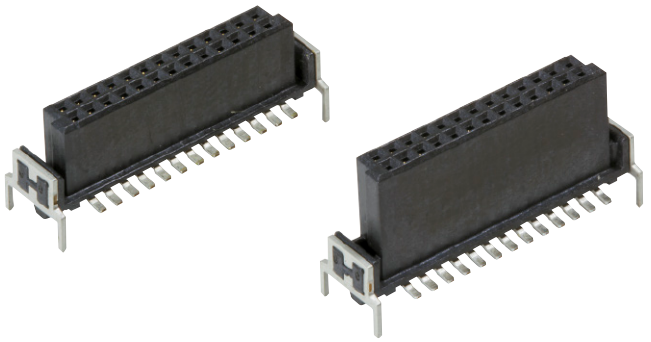
A	B	C	D	E	G	H
2.54	6.96	8.89	5.56	4.56	1.19	8.06
6.35	10.77	12.70	9.37	8.37	2.46	11.87
8.89	13.31	15.24	11.91	10.91	3.73	14.41
11.43	15.85	17.78	14.45	13.45	5.00	16.95
15.24	19.66	21.59	18.26	17.26	7.54	20.76
19.05	23.47	25.40	22.07	21.07	8.81	24.57
24.13	28.55	30.48	27.15	26.15	11.35	29.65
30.48	34.90	36.83	33.50	32.50	15.16	36.00
41.91	46.33	48.26	44.93	43.93	20.24	47.43
49.53	53.95	55.88	52.55	51.55	24.05	55.14
62.23	66.65	68.58	65.25	64.25	30.40	67.75

Please insert digit for stacking height

6.25 mm ▶ 1
9.05 mm ▶ 2

Further number of contacts between 6 and 100 and further performance levels are available on request.

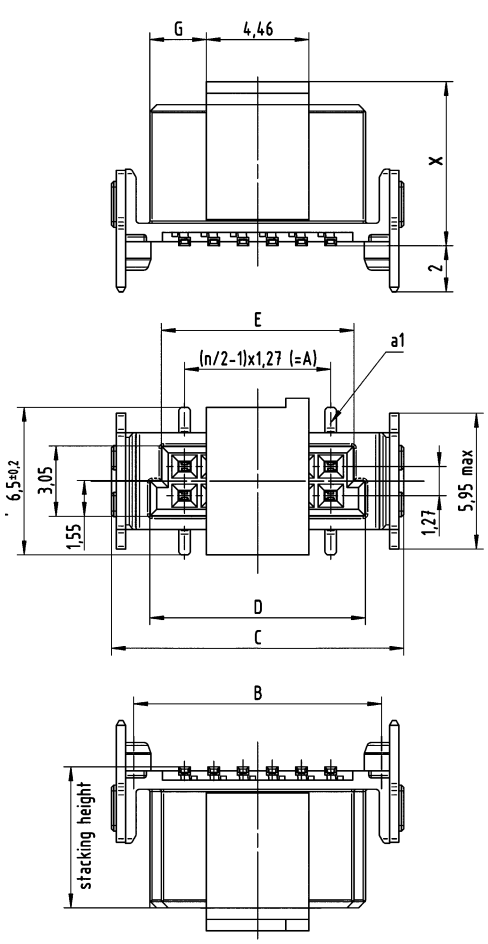
333 000 for samples
for 220 pieces on reel



Female connectors, straight,
with robust THR hold downs

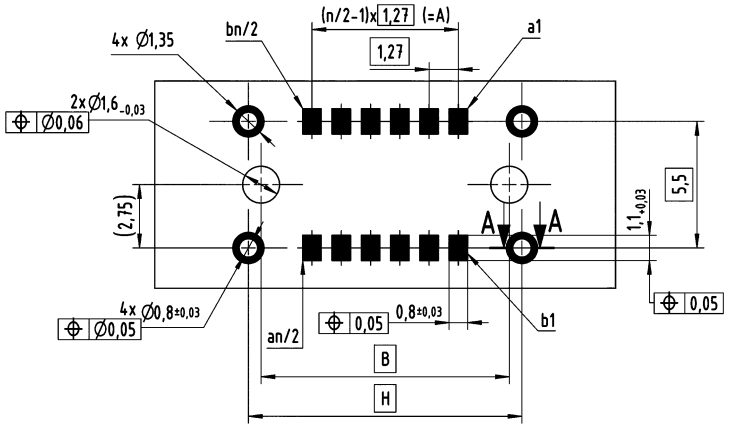
Identification	Drawing	Dimensions in mm

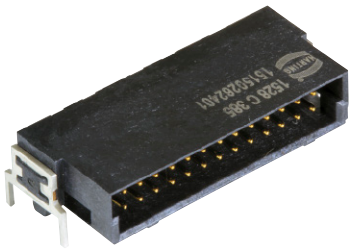
Dimensions



stacking height	height with vacuum cover X
6.25	7.1
9.05	9.9

PCB layout





Male connectors, angled, with robust THR hold downs

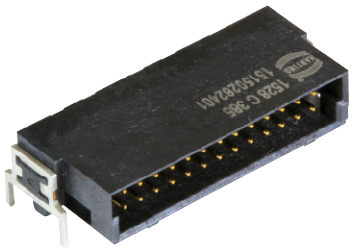
Identification	No. of contacts	Part number
Male connector, angled, with robust THR hold downs	12	15 15 012 2401 . . .
	26	15 15 026 2401 . . .
	80	15 15 080 2401 . . .
	100	15 15 100 2401 . . .

Dimensions in mm

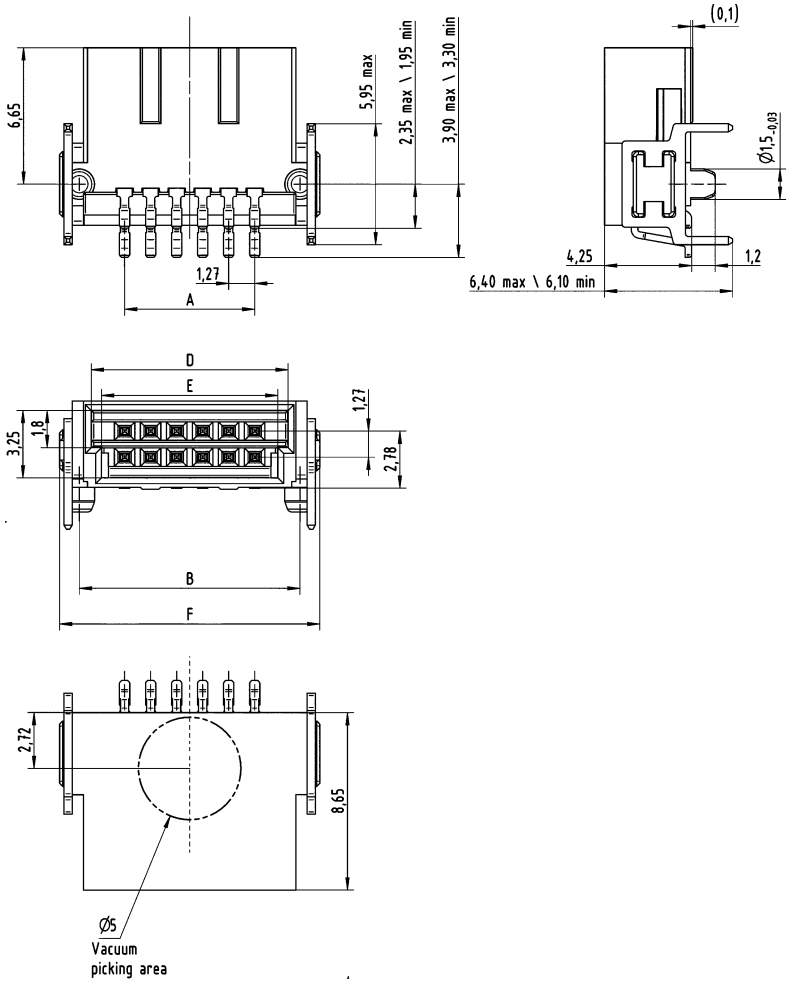
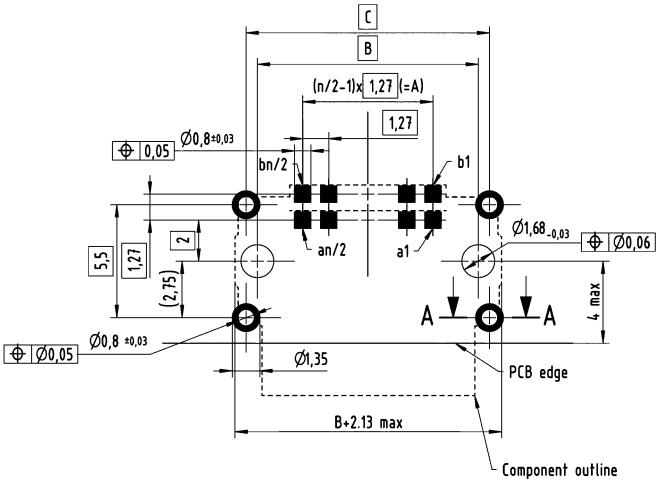
A	B	C	D	E	F
6.35	10.77	12.70	9.57	8.57	12.70
15.24	19.66	21.59	18.46	17.46	21.59
49.53	53.95	55.88	52.75	51.75	55.88
62.23	66.65	68.58	65.45	64.45	68.58

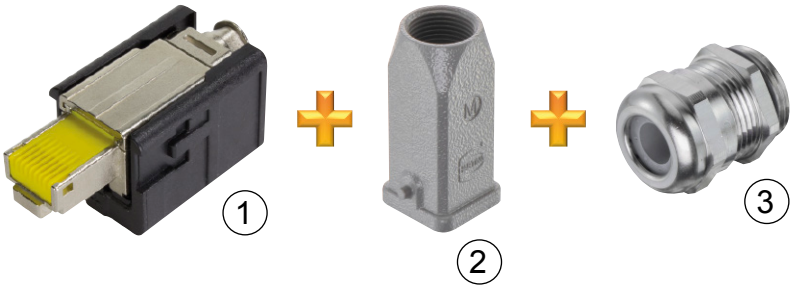
Further number of contacts between 6 and 100 and further performance levels are available on request.

333 000 for samples
for 440 pieces on reel



Male connectors, angled,
with robust THR hold downs

Identification	Drawing	Dimensions in mm
Dimensions		
PCB layout		



Han® 3 A RJ45 preLink® connector

Features

- Type / Material: RJ45 / metal
- Category: 6_A
- Number of wires: 8
- Termination: IDC
- Cable diameter: 5 - 9 mm

Applications

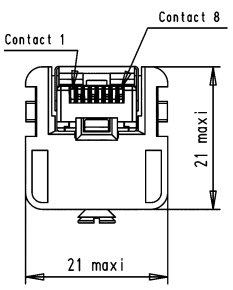
- Industrial cabling
- At machines, facilities and control units

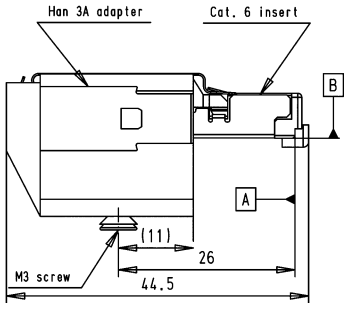
Advantages

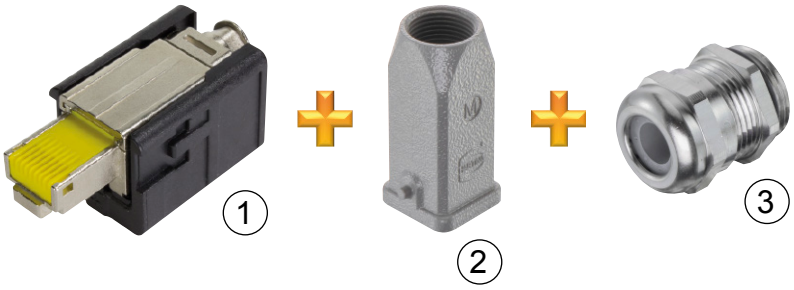
- RJ45 Ethernet-Data connector suitable for industry
- Suitable for solid and stranded wires
- Suitable for PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at)

Technical characteristics

Connector type	RJ45 connector acc. to IEC 60603-7
Number of contacts	8
Transmission category	Category 6_A, Class E_A, suitable for 1/10 Gigabit Ethernet
Transmission performance	Category 6_A / Class E_A up to 500 MHz acc. to ISO/IEC 11801:2002, EN 50173-1
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Shielding	fully shielded, 360° shielding contact
Mounting	IDC termination
Cable termination for preLink® terminal module, yellow, 20 82 000 0001 Connectable cables	
– Conductor cross section	AWG 23 … AWG 22 (solid and stranded)
– Conductor diameter	1.3 … 1.6 mm
Cable termination for preLink® terminal module, white, 20 82 000 0003 Connectable cables	
– Conductor cross section	AWG 27 … AWG 26 (solid and stranded)
– Conductor diameter	0.8 … 1.1 mm
Cable diameter	5 … 9 mm
Degree of protection	IP20
Mating cycles	min. 750
Temperature range	–40 °C … +70 °C
Housing material	Zinc die-cast, nickel-plated

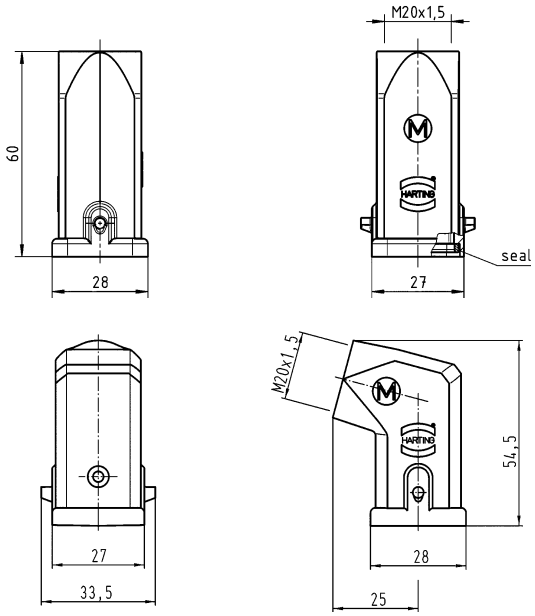
Identification	Part number	Drawing	Dimensions in mm
Han® 3 A RJ45 preLink® connector inserts (1) Cat. 6_A, 4/8 poles, 10/100 Mbit/s and 1/10 Gbit/s preLink® IDC for AWG 23/22 or AWG 27/26 depending on the separately orderable preLink® terminal module (20 82 000 0001 / 20 82 000 0003)	20 82 002 0001		
Ha-VIS preLink® RJ45 terminal module AWG 22/23, yellow[1)] AWG 26/27, white[1)]	20 82 000 0001 20 82 000 0003		
Ha-VIS preLink® assembly tool	20 82 000 9901		

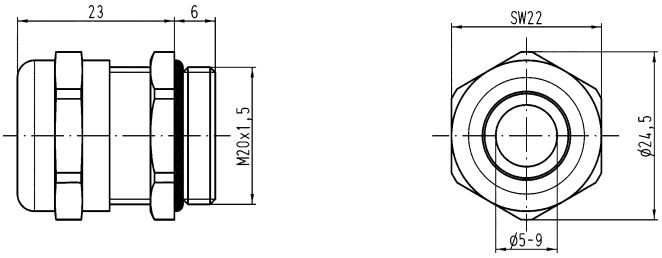




Han® 3 A RJ45 preLink® connector

Identification	Part number	Drawing	Dimensions in mm
Han® 3 A connector housing M20 (2) (with glued seal)			
straight cable entry:			
– metal, grey	19 20 003 1443		
– metal, black	19 37 003 1443		
– plastic, grey	19 20 003 0423		
– plastic, black	19 20 003 0423		
– metal, EMC	19 62 003 1443		
– stainless steel	19 44 003 1443		
angled cable entry:			
– metal, grey	19 20 003 1643		
– metal, black	19 37 003 1643		
– plastic, grey	19 20 003 0623		
– plastic, black	19 20 003 0626		
– metal, EMC	19 62 003 1643		
– stainless steel	19 44 003 1643		
M20 cable glands (3)			
metal:			
– 5 … 9 mm	19 00 000 5080		
– 5 … 12 mm	19 00 000 5081		
– 6 … 12 mm	19 00 000 5082		
– 10 … 14 mm	19 00 000 5084		
plastic, light grey:			
– 5 … 9 mm	19 00 000 5180		
– 6 … 12 mm	19 00 000 5182		
– 10 … 14 mm	19 00 000 5184		
metal, EMC version:			
– 6.5 … 9.5 mm	19 62 000 5080		
– 4.0 … 6.5 mm	19 62 000 5081		
– 7.0 … 10.5 mm	19 62 000 5082		
– 9.0 … 13.0 mm	19 62 000 5084		
stainless steel:			
– 6 … 13 mm	19 44 000 5082		
Accessories			
coding pin set for 4 different codings	09 45 820 0000		





HARTING Ethernet cabling – RJ45 cords 4-wire

preLink®
System cable, 4-wire, straight

Features

- Connector types: RJ45 – preLink®
- Category: Cat. 5
- Number of wires: 4
- Wiring: 1:1
- Sheath material: PUR

Applications

- Industrial cabling
- Within switch cabinets
- On machines and control units

Advantages

- Transmission of up to 100 Mbit/s
- Very large temperature range
- PROFINET compliant
- Can be combined with all preLink® Interfaces like RJ45 and M12

Technical characteristics

Connector types	RJ45 overmoulded and locking lever protection
Cable type	S/FTP AWG22/7, Cat. 5
Sheath material	PUR, PN type B and C
Wiring	4 pole, contacts 1/2 and 3/6
Transmission performance	Category 5
Transmission rate	10/100 Mbit/s
Shielding	Fully shielded, 360° shielding contact
Operating temperature range	-40 °C … +70 °C
Colour	Green (PROFINET)

Identification	Part number
preLink® System cable, 4-wire, straight	
Length 0.2 m	20 82 631 1002
Length 0.4 m	20 82 631 1004
Length 0.6 m	20 82 631 1006
Length 0.8 m	20 82 631 1008
Length 1.0 m	20 82 631 1010
Length 2.0 m	20 82 631 1020
Length 3.0 m	20 82 631 1030
Length 4.0 m	20 82 631 1040
Length 5.0 m	20 82 631 1050
Length 10.0 m	20 82 631 1100

Other cable lengths on request

preLink®
System cable, 4-wire, straight

Features

- Connector types: preLink®
- Category: Cat. 5
- Number of wires: 4
- Wiring: 1:1
- Sheath material: PUR

Applications

- Industrial cabling
- Within switch cabinets
- On machines and control units

Advantages

- Transmission of up to 100 Mbit/s
- Very large temperature range
- PROFINET compliant
- Can be combined with all preLink® Interfaces like RJ45 and M12

Technical characteristics

Connector types	RJ45 overmoulded and locking lever protection
Cable type	S/FTP AWG22/7, Cat. 5
Sheath material	PUR, PN type B and C
Wiring	4 pole, contacts 1/2 and 3/6
Transmission performance	Category 5
Transmission rate	10/100 Mbit/s
Shielding	Fully shielded, 360° shielding contact
Operating temperature range	-40 °C … +70 °C
Colour	Green (PROFINET)

Identification	Part number
preLink® System cable, 4-wire, straight	
Length 0.2 m	20 82 630 2002
Length 0.4 m	20 82 630 2004
Length 0.6 m	20 82 630 2006
Length 0.8 m	20 82 630 2008
Length 1.0 m	20 82 630 2010
Length 2.0 m	20 82 630 2020
Length 3.0 m	20 82 630 2030
Length 4.0 m	20 82 630 2040
Length 5.0 m	20 82 630 2050
Length 10.0 m	20 82 630 2100

Other cable lengths on request

har-port USB 3.0 coupler

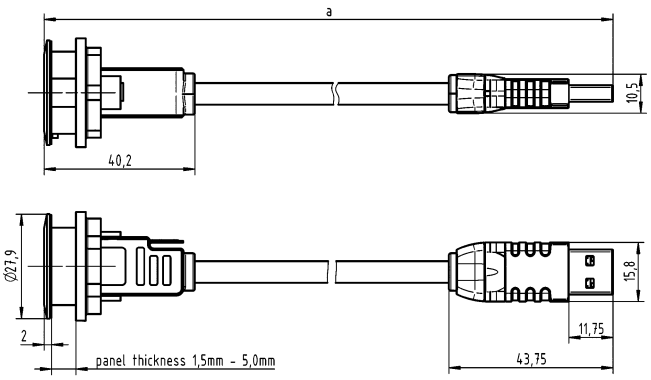
Advantages

- Compact and well-shaped service interface in a timeless attractive design
- Easy mounting
- Compact and robust design
- Practical accessories

Technical characteristics

Mounting	Screwable in cover plates (thread M22 x 1)
Degree of protection	IP20
Mating cycles	min. 1500
Temperature range	-25 °C … +70 °C
Housing material	Polyamide

Identification	Part number silver	Part number black	Drawing	Dimensions in mm
***har*-port USB 3.0 coupler**				
Type A jack – Type A connector				
Length: 0.5 m	09 45 452 1930	09 45 452 1970		
1.0 m	09 45 452 1931	09 45 452 1971		
1.5 m	09 45 452 1932	09 45 452 1972		
2.0 m	09 45 452 1933	09 45 452 1973		
3.0 m	09 45 452 1934	09 45 452 1974		



HARTING PushPull USB

HARTING PushPull USB
System cables

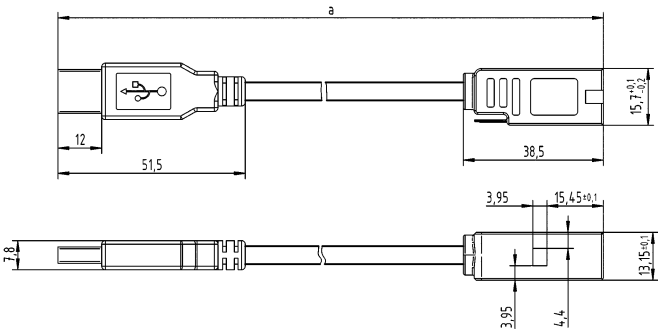
Advantages

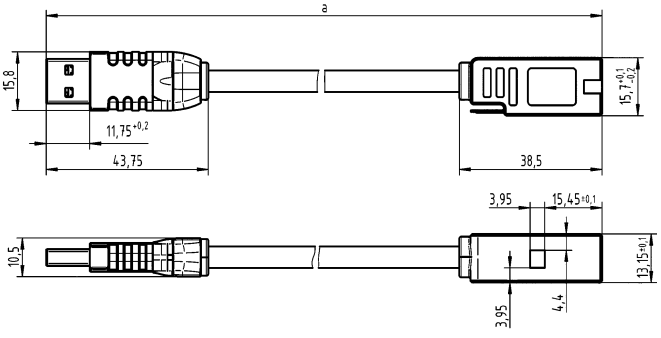
- Compatible with HARTING PushPull bulkhead mounting housings 09 45 545 0028 and 09 45 545 0032
- Plug+Play solutions for e.g. device integration and switch cabinets
- USB 2.0 and 3.0 compatible
- Fully shielded, 360° shielding contact
- Robust design, suitable for industrial applications

Technical characteristics

Mating face	USB 2.0 / 3.0 type A
Number of contacts	USB 2.0: 4 and USB 3.0: 9
Degree of protection	IP65 / IP67 for PushPull interfaces IP20 for USB interfaces
Mating cycles	min. 750
Temperature range	-40 °C … +70 °C

Identification		Part number	Drawing	Dimensions in mm
System cables				
USB 2.0 type A jack to connector				
	Length a: 0.5 m	09 45 545 1920		
	1.0 m	09 45 545 1921		
	1.5 m	09 45 545 1922		
	2.0 m	09 45 545 1923		
	3.0 m	09 45 545 1924		
	5.0 m	09 45 545 1925		
USB 3.0 type A jack to connector				
	Length a: 0.5 m	09 45 545 1930		
	1.0 m	09 45 545 1931		
	1.5 m	09 45 545 1932		
	2.0 m	09 45 545 1933		
	3.0 m	09 45 545 1934		

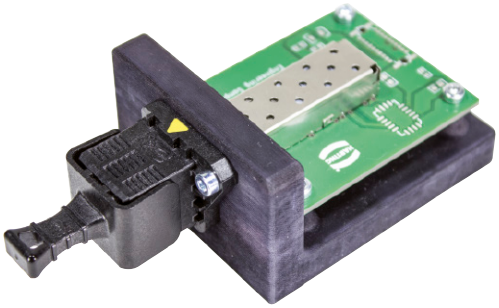




Other types and lengths on request

Notes

PushPull XS SFP



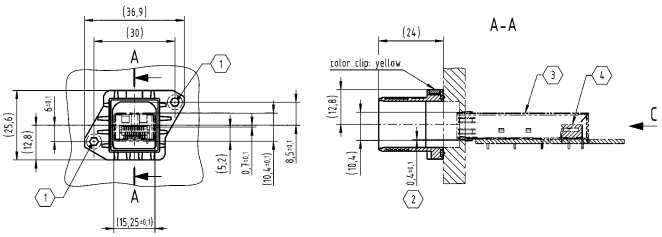
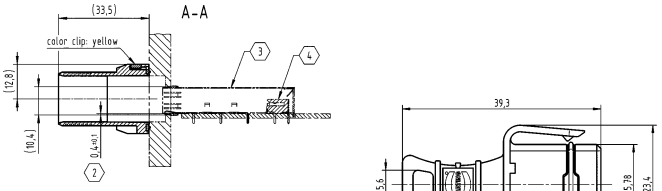
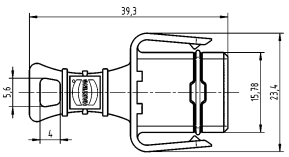
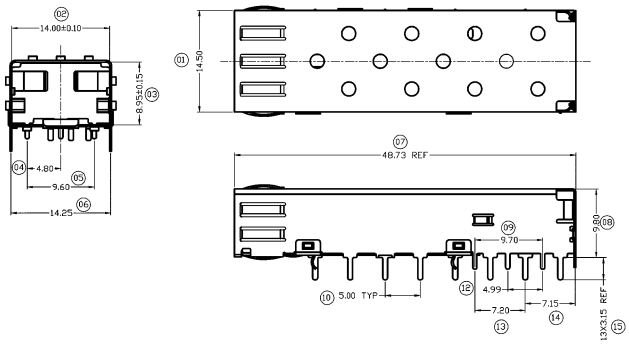
PushPull XS SFP
Device integration and system cables

Advantages

- Optical PushPull connector based on LC with small form factor (requires 50 % compared to SC and ST)
- Shortest, most compact cable solution equipped with SFP transceiver directly pluggable into the device (length of mated pair appr. 60 mm)
- Small installation pitch: 30 mm
- Multiple transceivers for LC and RJ45 can be used in the same port
- Blind mating capability

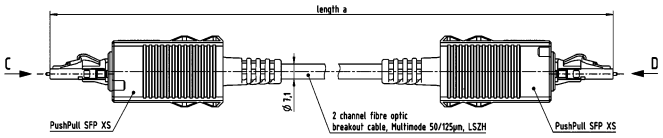
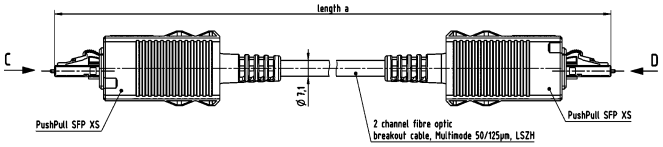
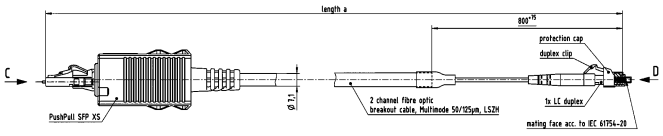
Technical characteristics

Locking	PushPull Technology
Degree of protection	IP65 / IP67
Mating face	LC acc. to IEC 61754-20
Mating cycles	Min. 50
Temperature range	-40 °C … +85 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0
XXX = length	001 = 1 m, 002 = 2 m … 010 = 10 m, 100 = 100 m
Available length 1 up to 15 m: in 1 m steps	20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 m

Identification	Part number	Drawing	Dimensions in mm
Housing bulkhead mounting, short	09 57 411 0501 200[1]		
Housing bulkhead mounting, long	09 57 411 0501 201[2]		
Protection cover device side	09 57 411 0501 202		
SFP cage solder termination press in termination	33 11 000 0180 000 33 11 000 0179 000		

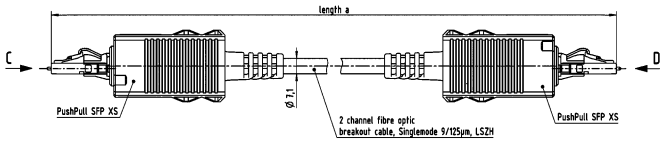
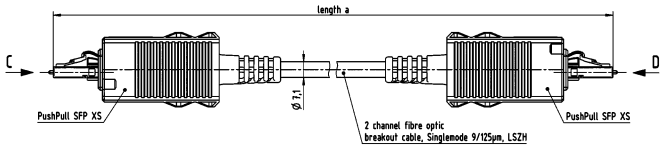
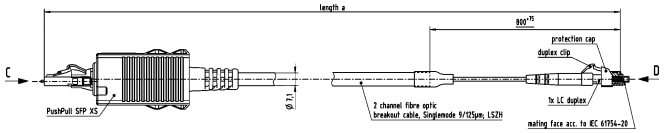
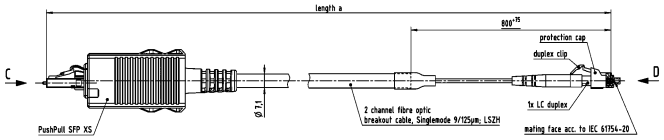
[1] Only for LC transceiver
[2] For LC and RJ45 transceiver

PushPull XS SFP
Device integration and system cables

Identification	Part number	Drawing	Dimensions in mm
Fibre optic cable PUR jacket, Multimode, 50 µm, overmoulded 2 x PushPull XS	33 26 231 xxx0 012[1]		
Fibre optic cable PUR jacket, Multimode, 50 µm, overmoulded 2 x PushPull XS	33 26 231 xxx0 014[2]		
Fibre optic cable PUR jacket, Multimode, 50 µm, overmoulded 1 x PushPull XS 1 x LC duplex	33 26 231 xxx0 013[1]		
Fibre optic cable PUR jacket, Multimode, 50 µm, overmoulded 1 x PushPull XS 1 x LC duplex	33 26 231 xxx0 018[2]		

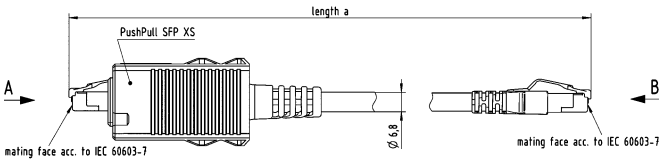
[1] For housing 09 57 411 0501 201
[2] For housing 09 57 411 0501 200

PushPull XS SFP
Device integration and system cables

Identification	Part number	Drawing	Dimensions in mm
Fibre optic cable PUR jacket, Singlemode, 9/125 µm, overmoulded 2 x PushPull XS	33 26 231 xxx0 011[1]		
Fibre optic cable PUR jacket, Singlemode, 9/125 µm, overmoulded 2 x PushPull XS	33 26 231 xxx0 015[2]		
Fibre optic cable PUR jacket, Singlemode, 9/125 µm, overmoulded 1 x PushPull XS 1 x LC duplex	33 26 231 xxx0 016[1]		
Fibre optic cable PUR jacket, Singlemode, 9/125 µm, overmoulded 1 x PushPull XS 1 x LC duplex	33 26 231 xxx0 017[2]		

[1] For housing 09 57 411 0501 201
[2] For housing 09 57 411 0501 200

PushPull XS SFP
Device integration and system cables

Identification	Part number	Drawing	Dimensions in mm
Cat. 6_A cable PVC jacket, overmoulded 1 x PushPull XS 1 x RJ45	33 25 231 xxx0 001		

Technical characteristics M8

Type	3 poles	4 poles

General data

Conductor cross section	max. 0.5 mm² max. AWG 20	max. 0.5 mm² max. AWG 20
Cable diameter	4 – 5.5 mm	4 – 5.5 mm
Temperature range	-30 °C … +85 °C	-30 °C … +85 °C
Degree of protection	IP67	IP67
Mating cycles	≥ 100	≥ 100
Recommended tightening torque / Hexagonal wrench Knurled screw / nut	0.4 Nm / SW 13	0.4 Nm / SW 13
Recommended tightening torque screw termination	0.1 Nm	0.1 Nm

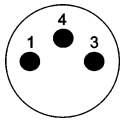
Electrical characteristics

Rated current	4 A @ 40 °C	4 A @ 40 °C
Rated voltage	60 V	30 V

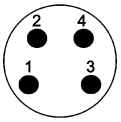
Materials

Contact material	Brass	Brass
Contact plating	Gold	Gold
Contact carrier material	PA	PA
Housing material	PA, zinc die-cast (shielded)	PA, zinc die-cast (shielded)
Material knurled screw / nut	Zinc die-cast	Zinc die-cast

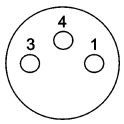
M8 with screw termination, unshielded



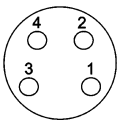
Male, 3 poles



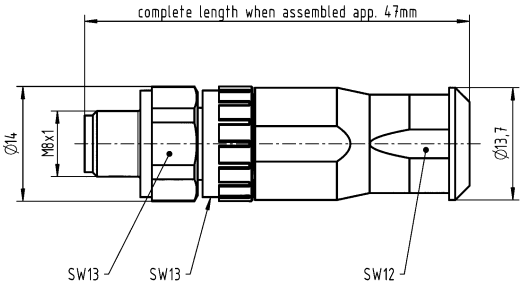
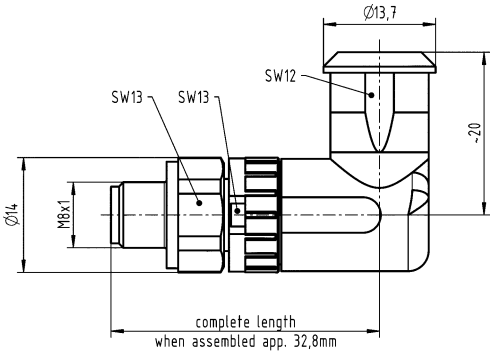
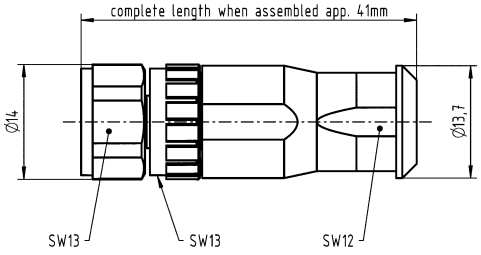
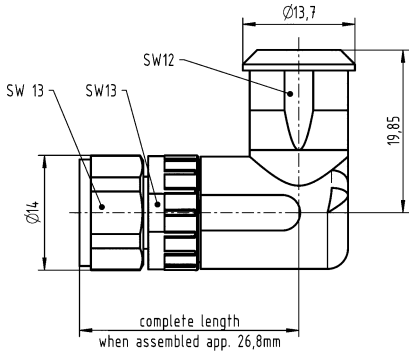
Male, 4 poles



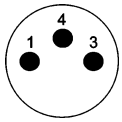
Female, 3 poles



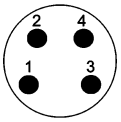
Female, 4 poles

Identification		Part number	Drawing	Dimensions in mm
M8 screw, unshielded				
 Male, straight version	3 poles 4 poles	21 02 359 1301 21 02 359 1401		
 Male, angled version	3 poles 4 poles	21 02 359 3301 21 02 359 3401		
 Female, straight version	3 poles 4 poles	21 02 359 2301 21 02 359 2401		
 Female, angled version	3 poles 4 poles	21 02 359 4301 21 02 359 4401		

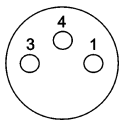
M8 with screw termination, shielded



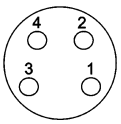
Male, 3 poles



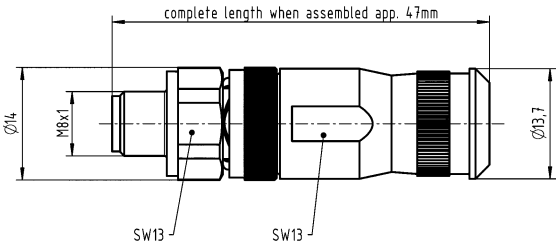
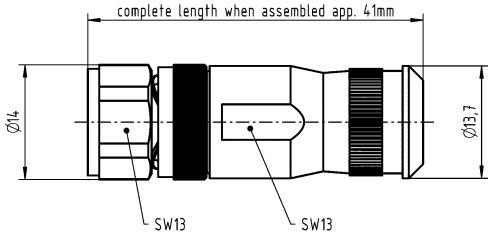
Male, 4 poles



Female, 3 poles



Female, 4 poles

Identification		Part number	Drawing	Dimensions in mm
M8 screw, shielded				
 Male, straight version	3 poles 4 poles	21 02 369 1301 21 02 369 1401		
 Female, straight version	3 poles 4 poles	21 02 369 2301 21 02 369 2401		

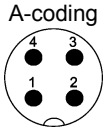
Notes

Technical characteristics M12

Type	4 poles	5 poles	8 poles
General data			
Conductor cross section	max. 1.5 mm² max. AWG 16	max. 1.5 mm² max. AWG 16	max. 0.5 mm² max. AWG 20
Cable diameter	4 – 8 mm	4 – 8 mm	4 – 8 mm
Temperature range	-30 °C … +85 °C	-30 °C … +85 °C	-30 °C … +85 °C
Degree of protection	IP67	IP67	IP67
Mating cycles	≥ 100	≥ 100	≥ 100
Recommended tightening torque / Hexagonal wrench Knurled screw / nut	0.6 Nm / SW 18	0.6 Nm / SW 18	0.6 Nm / SW 18
Recommended tightening torque screw termination	0.3 Nm	0.3 Nm	0.3 Nm
Electrical characteristics			
Rated current	7.5 A @ 40 °C	7.5 A @ 40 °C	2 A @ 40 °C
Rated voltage	250 V	60 V	30 V
Materials			
Contact material	Brass	Brass	Brass
Contact plating	Gold	Gold	Gold
Contact carrier material	PA	PA	PA
Housing material	PA, zinc die-cast (shielded)	PA, zinc die-cast (shielded)	PA, zinc die-cast (shielded)
Material knurled screw / nut	Zinc die-cast	Zinc die-cast	Zinc die-cast

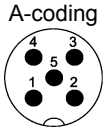
M12 with screw termination, unshielded

A-coding



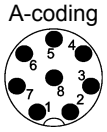
Male, 4 poles

A-coding



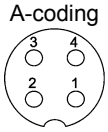
Male, 5 poles

A-coding



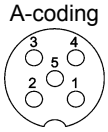
Male, 8 poles

A-coding



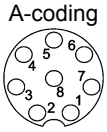
Female, 4 poles

A-coding

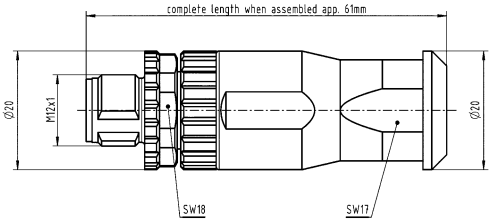
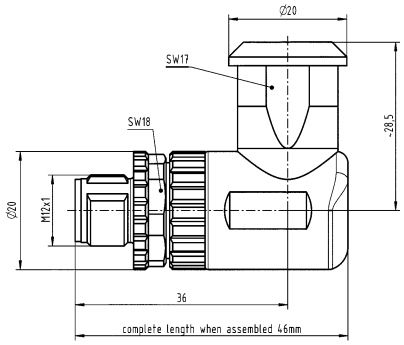
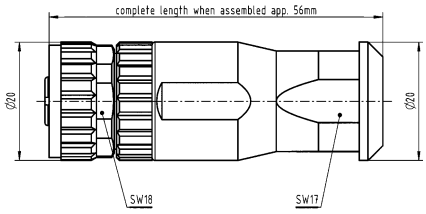
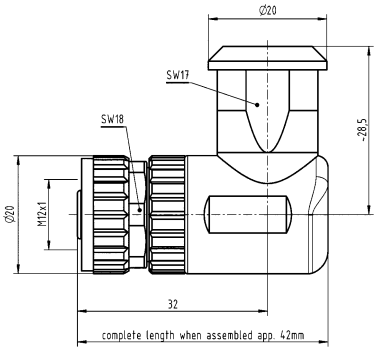


Female, 5 poles

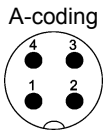
A-coding



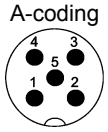
Female, 8 poles

Identification		Part number	Drawing	Dimensions in mm
M12 screw, unshielded				
 Male, straight version	4 poles, A-coding 5 poles, A-coding 8 poles, A-coding	21 03 319 1401 21 03 319 1501 21 03 319 1801		
 Male, angled version	4 poles, A-coding 5 poles, A-coding 8 poles, A-coding	21 03 319 3401 21 03 319 3501 21 03 319 3801		
 Female, straight version	4 poles, A-coding 5 poles, A-coding 8 poles, A-coding	21 03 319 2401 21 03 319 2501 21 03 319 2801		
 Female, angled version	4 poles, A-coding 5 poles, A-coding 8 poles, A-coding	21 03 319 4401 21 03 319 4501 21 03 319 4801		

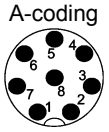
M12 with screw termination, shielded



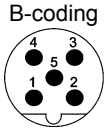
Male, 4 poles



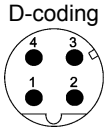
Male, 5 poles



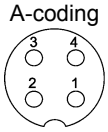
Male, 8 poles



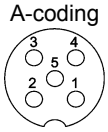
Male, 5 poles



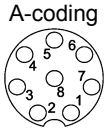
Male, 4 poles



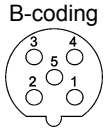
Female, 4 poles



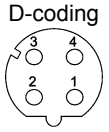
Female, 5 poles



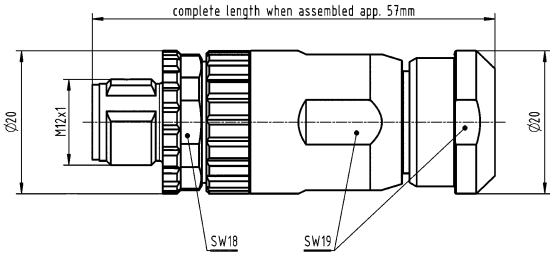
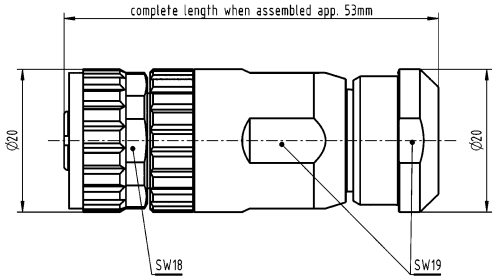
Female, 8 poles



Female, 5 poles



Female, 4 poles

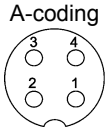
Identification		Part number	Drawing	Dimensions in mm
M8 screw, shielded				
				
Male, straight version	4 poles, A-coding	21 03 329 1401		
	5 poles, A-coding	21 03 329 1501		
	8 poles, A-coding	21 03 329 1801		
	5 poles, B-coding	21 03 349 1501		
	4 poles, D-coding	21 03 389 1402		
				
Female, straight version	4 poles, A-coding	21 03 329 2401		
	5 poles, A-coding	21 03 329 2501		
	8 poles, A-coding	21 03 329 2801		
	5 poles, B-coding	21 03 349 2501		
	4 poles, D-coding	21 03 389 2402		

Technical characteristics M12 Slim Design

Type M12 Slim Design	M12 Crimp A-coding	M12 Crimp D-coding	*har*-speed M12 Slim Design X-coding
General data			
Conductor cross section	4/5 poles: 0.13 - 0.82 mm² AWG 26-18 8 poles: 0.13 - 0.33 mm² AWG 26-22	0.13 - 0.82 mm² AWG 26-18	0.08 - 0.25 mm² AWG 28-23
Cable diameter	5.7 - 8.8 mm	5.7 - 8.8 mm	5.7 - 8.8 mm
Temperature range	-40 °C … +85 °C	-40 °C … +85 °C	-40 °C … +85 °C
Degree of protection	IP65 / IP67	IP65 / IP67	IP65 / IP67
Mating cycles	500	500	500
Recommended tightening torque / Hexagonal wrench	0.6 Nm / SW 15	0.6 Nm / SW 15	0.6 Nm / SW 15
Electrical characteristics			
Rated current	4/5 poles: 4 A 8 poles: 2 A	4 A	0,5 A
Rated voltage	4 poles: 250 V 5 poles: 60 V 8 poles: 30 V	250 V	48 V
Transmission performance (Category)	X	Cat. 5	Cat. 6_A
Materials			
Contact material	Brass	Brass	Brass
Contact plating	Gold	Gold	Gold
Contact carrier material	LCP	LCP	LCP
Housing material	ZP410	ZP410	ZP410

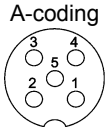
M12 Slim Design

A-coding



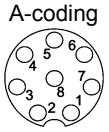
Female, 4 poles

A-coding



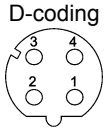
Female, 5 poles

A-coding



Female, 8 poles

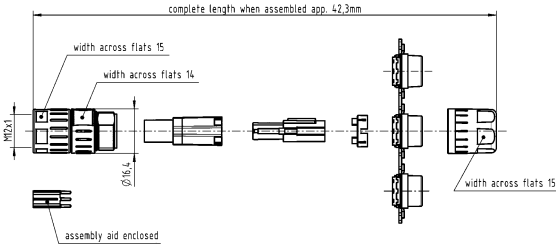
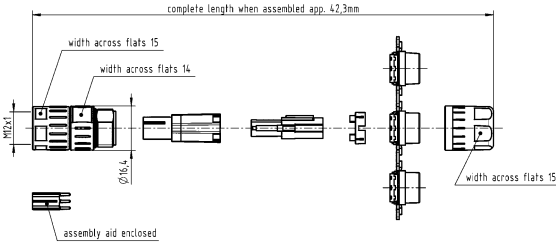
D-coding



Female, 4 poles

X-coding

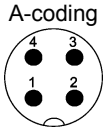
Female, 8 poles

Identification	Part number	Drawing	Dimensions in mm
M12 Slim Design			
			
Female, straight version 4/5 poles, A-coding 0.13 - 0.82 mm² AWG 26 - 18	21 03 821 2505		
Female, straight version 8 poles, A-coding 0.13 - 0.33 mm² AWG 26 - 22	21 03 821 2805		
Female, straight version 4 poles, D-coding 0.13 - 0.82 mm² ÂWG 26 - 18	21 03 881 2405		
Female, straight version 8 poles, X-coding 0.08 - 0.25 mm² AWG 28 - 23	21 03 881 2805		

Further information and data sheets see www.HARTING.com

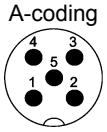
M12 Slim Design

A-coding



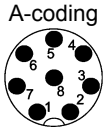
Male, 4 poles

A-coding



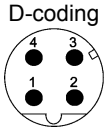
Male, 5 poles

A-coding



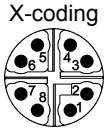
Male, 8 poles

D-coding

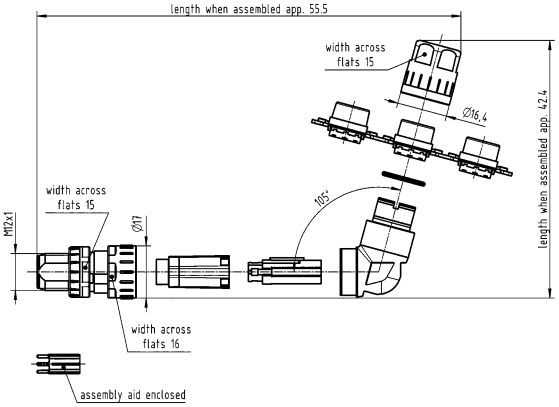
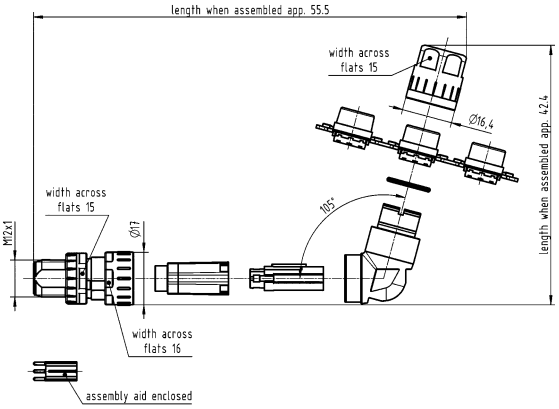


Male, 4 poles

X-coding

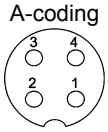


Male, 8 poles

Identification		Part number	Drawing	Dimensions in mm
M12 Slim Design				
				
Male, angled version	4/5 poles, A-coding 0.13 - 0.82 mm² AWG 26 - 18	21 03 821 3505		
Male, angled version	8 poles, A-coding 0.13 - 0.33 mm² AWG 26 - 22	21 03 821 3805		
Male, angled version	4 poles, D-coding 0.13 - 0.82 mm² ÂWG 26 - 18	21 03 881 3405		
Male, angled version	8 poles, X-coding 0.08 - 0.25 mm² AWG 28 - 23	21 03 881 3805		

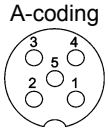
M12 Slim Design

A-coding



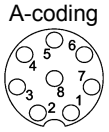
Female, 4 poles

A-coding



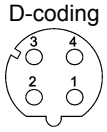
Female, 5 poles

A-coding



Female, 8 poles

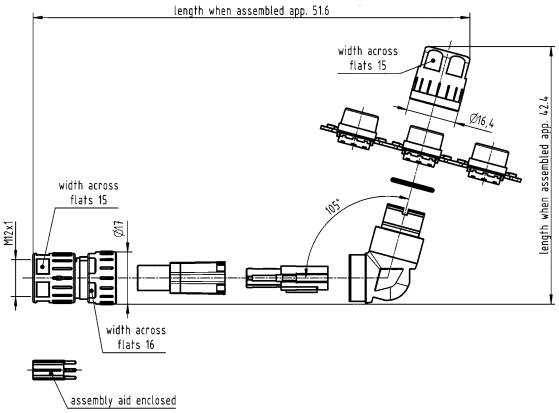
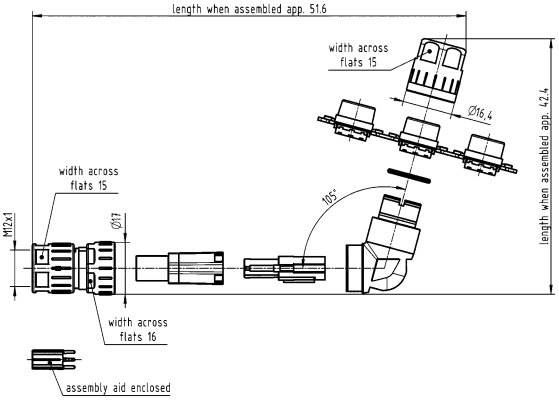
D-coding



Female, 4 poles

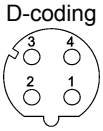
X-coding

Female, 8 poles

Identification	Part number	Drawing	Dimensions in mm
M12 Slim Design			
			
Female, angled version 4/5 poles, A-coding 0.13 - 0.82 mm² AWG 26 - 18	21 03 821 4505		
Female, angled version 8 poles, A-coding 0.13 - 0.33 mm² AWG 26 - 22	21 03 821 4805		
Female, angled version 4 poles, D-coding 0.13 - 0.82 mm² ÂWG 26 - 18	21 03 881 4405		
Female, angled version 8 poles, X-coding 0.08 - 0.25 mm² AWG 28 - 23	21 03 881 4805		

M12 PFT Slim Design

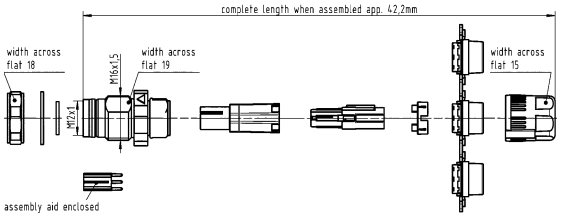
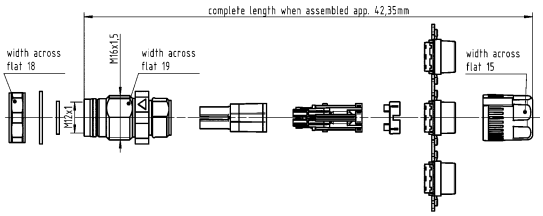
D-coding



Female, 4 poles

X-coding

Female, 8 poles

Identification		Part number	Drawing	Dimensions in mm
M12 PFT Slim Design				
				
Female	4 poles, D-coding 0.13 - 0.82 mm² ÂWG 26 - 18	21 03 881 2425		
Female	8 poles, X-coding 0.08 - 0.25 mm² AWG 28 - 23	21 03 881 2825		

Notes

Technical characteristics *har*-speed M12 Panel feed-throughs with cable

General data

Temperature range	-40 °C … +85 °C
Degree of protection	IP65 / IP67
Mating cycles	500
Recommended tightening torque / Hexagonal wrench	2.0 Nm / SW 18

Electrical characteristics

Rated current	0.5 A
Rated voltage	48 V
Transmission performance (Category)	Cat. 6_A

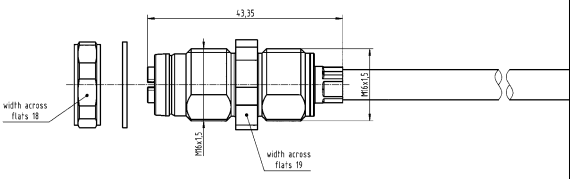
Materials

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

har-speed M12 Panel feed-throughs with cable

X-coding

Female, 8 poles

Identification	Part number	Drawing	Dimensions in mm
har-speed M12 PFT with cable 			
with 0.3 m cable “MegaLine F10-120S/F 11Y flex Cat 7A 4x (2x AWG37/7) PIMF”. Other lengths on request	21 33 080 0850 003		
with 0.3 m cable “HA-VIS EtherRail Cat7 4x (2x AWG 24/7)”. Other lengths on request	21 33 070 0853 003		

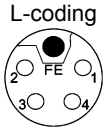
Technical characteristics M12 Power

Type	*HARAX*® M12 Power	M12 Power Crimp
General data		
Conductor cross section	0.75 – 1.5 mm² AWG 18-16	0.5 – 2.5 mm² AWG 20-14
Cable diameter	5.8 - 13.5 mm	5.8 - 13.5 mm
Temperature range	-40 °C … +85 °C	-40 °C … +85 °C
Degree of protection	IP65 / IP67	IP65 / IP67
Mating cycles	500	500
Recommended tightening torque / Hexagonal wrench	0.6 Nm / SW 17	0.6 Nm / SW 17
Electrical characteristics		
Rated current	12 A	16 A
Rated voltage	63 V DC	63 V DC
Materials		
Contact material	Copper	Copper
Contact plating	Gold	Gold
Contact carrier material	PA	PA
Housing material	ZP410	ZP410

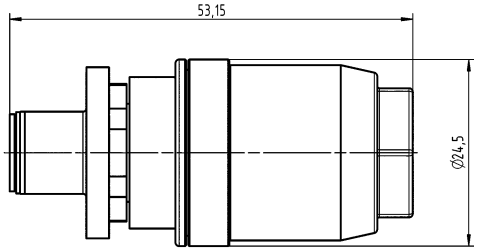
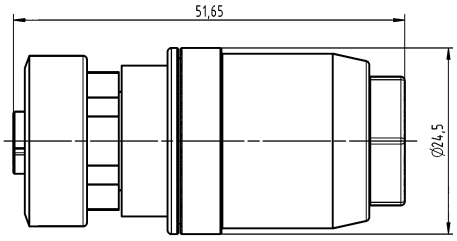
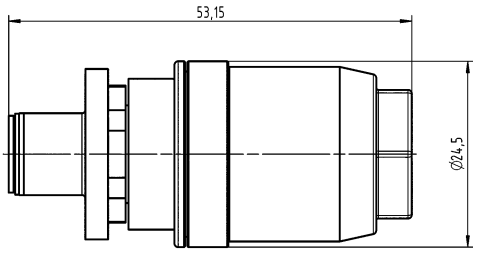
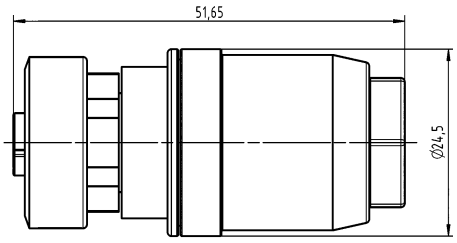
L-coding

Male, 5 poles

L-coding

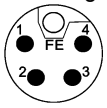


Female, 5 poles

Identification		Part number	Drawing	Dimensions in mm
M12 Power Crimp				
 Male	5 poles, L-coding	21 03 896 1505		
 Female	5 poles, L-coding	21 03 896 2505		
M12 Power *HARAX*®				
 Male	5 poles, L-coding	21 03 296 1505		
 Female	5 poles, L-coding	21 03 296 2505		

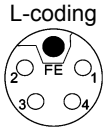
M12 Power Panel feed-through

L-coding



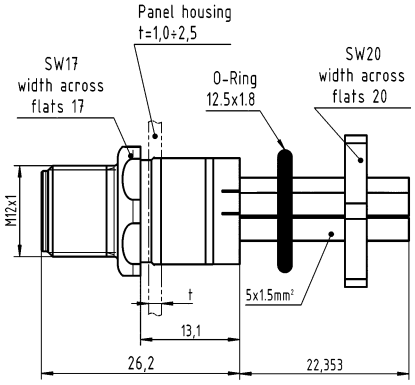
Male, 5 poles

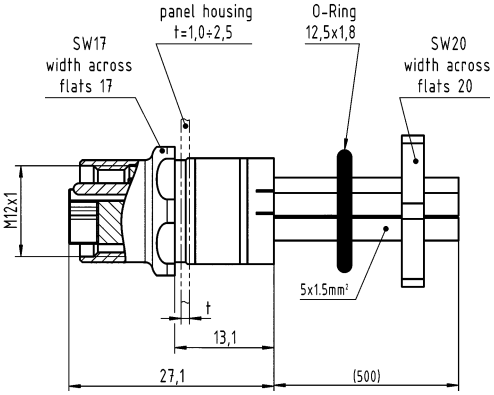
L-coding



Female, 5 poles

Identification		Part number	Drawing	Dimensions in mm
M12 Power Panel feed-through				
				
Male	5 poles, L-coding			
	30 cm conductors, 1.5 mm²	21 03 596 1505		
	30 cm conductors, 2.5 mm²	21 03 599 1505		
				
Female	5 poles, L-coding			
	30 cm conductors, 1.5 mm²	21 03 596 2505		
	30 cm conductors, 2.5 mm²	21 03 599 2505		





Other lengths on request
Further information and data sheets see www.HARTING.com

M12 Power PCB adapter

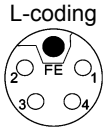
L-coding

Male, 5 poles

Identification		Part number	Drawing	Dimensions in mm
M12 Power PCB adapter male				
M12 Power PCB adapter				
				
Packaging: 60 pieces in a tray **Order housings separately**				
Male	5 poles, L-coding	21 03 396 1505		
Housing				
				
Packaging: 60 pieces in a tray				
	for rear mounting	21 03 302 1000		
	for front mounting	21 03 302 1001		
M12 Power PCB adapter incl. housing				
				
Packaging: 1 piece incl. housing				
Male	5 poles, L-coding			
	for rear mounting	21 03 396 1530		
	for front mounting	21 03 396 1531		

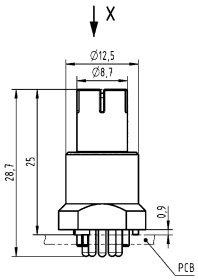
M12 Power PCB adapter

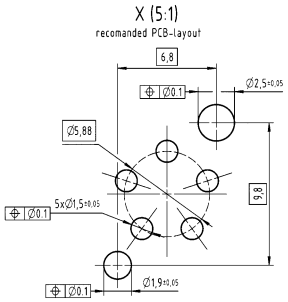
L-coding

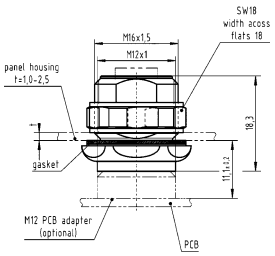


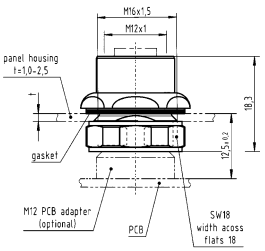
Female, 5 poles

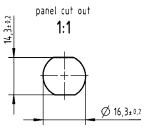
Identification		Part number	Drawing	Dimensions in mm
M12 Power PCB adapter female				
M12 Power PCB adapter				
				
Packaging: 60 pieces in a tray **Order housings separately**				
Female	5 poles, L-coding	21 03 396 2505		
Housing				
				
Packaging: 60 pieces in a tray				
	for rear mounting	21 03 302 2000		
	for front mounting	21 03 302 2001		
M12 Power PCB adapter incl. housing				
				
Packaging: 1 piece incl. housing				
Female	5 poles, L-coding			
	for rear mounting	21 03 396 2530		
	for front mounting	21 03 396 2531		

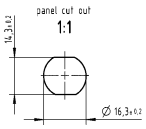


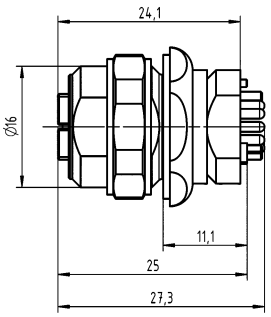




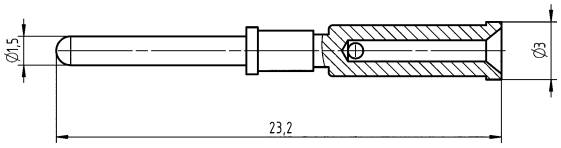
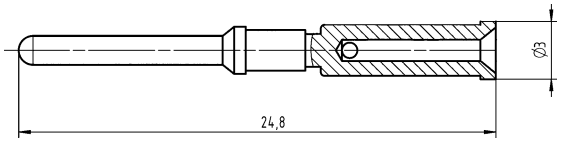
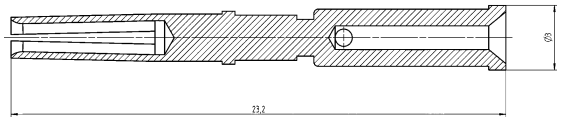
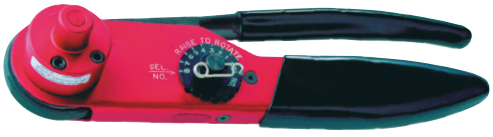








M12 Power crimp contacts

Identification	Part number	Drawing	Dimensions in mm
M12 Power individual contacts			
 Turned male contacts 23.2 mm length			
AWG 21 / 0.5 mm²	21 01 100 9923		
AWG 20 / 0.75 mm²	21 01 100 9924		
AWG 16 / 1.5 mm²	21 01 100 9925		
AWG 14 / 2.5 mm²	21 01 100 9926		
 Turned FE* male contacts 24.8 mm length			
AWG 21 / 0.5 mm²	21 01 100 9927		
AWG 20 / 0.75 mm²	21 01 100 9928		
AWG 16 / 1.5 mm²	21 01 100 9929		
AWG 14 / 2.5 mm²	21 01 100 9930		
 Turned female contacts 23.2 mm length			
AWG 21 / 0.5 mm²	21 01 100 9931		
AWG 20 / 0.75 mm²	21 01 100 9932		
AWG 16 / 1.5 mm²	21 01 100 9933		
AWG 14 / 2.5 mm²	21 01 100 9934		
Hand crimp tool	09 99 000 0509		
Positioner (To be ordered separately)	09 99 000 0638		

*FE: function grounding

Ha-VIS RFID RF-R300 Reader

Ha-VIS RFID RF-R300 Reader

Advantages

- Designed for the harsh industrial environment
- Tested according industry and railway standards
- Ready for software customisation
- Ha-VIS Middleware compatible
- M12 connectors
- Power over Ethernet

General description

- The Ha-VIS RF-R300 is a very robust industry and railway approved RFID reader. It is tested according the EN 50 155.
- All components are designed for a very long lifetime in harsh industrial environments.
- The modular software design of the new reader gives HARTING the ability to support various communications protocols such as LLRP, OPC-UA, or even MQTT. In addition, customer-specific variants can be supplied.

Technical characteristics

Transponder protocol	EPC Class 1 Gen2 (ISO 18000-6c)
UHF RFID antenna interface	
Antenna connection	2 x RP-TNC connector (50 Ohm); reader internally multiplexed
Output power	max. 0.5 W
Frequency range	865 ... 928 MHz (region configurable)
Interfaces	Ethernet (TCP/IP) 10/100 Mbit/s; Full Spec. 802.3
Diagnosis (LED)	3 LEDs to visualise the device and antenna status
Inputs / Outputs	up to 8 configurable IOs (24 V)
Performance	
Bulk-reading capability	up to 100 transponders/s
Max. reading distance	up to 5 meters, related to the transponder type and environmental conditions
Protocol	LLRP (Low Level Reader Protocol, worldwide standardised) OPC UA on request, on-board middleware functionality (available Q4 2016)
Power supply	
Power supply	24 V DC (±5 %) / Power over Ethernet (PoE)
Current consumption	max. 500 mA
Operating system	Linux (Kernel 3.x.x)
System performance	1 GHz ARM processor 1 GB RAM 4 GB eMMC up to 32 GB flash (via Micro SD Card)

Ha-VIS RFID RF-R300 Reader

Technical characteristics

Design features

Material of housing	corpus: Aluminium, powder coated
	front cover: fiberglass reinforced high performance plastic
Dimensions (W x H x D)	132 x 104 x 35 mm
Installation on DIN rail	DIN rail mounting kit (optional accessories)

Environmental conditions

Operating temperature	-25 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 95 % (non-condensing)
Vibration	EN 60 068-2-6
	10 Hz to 150 Hz: 0.075 mm / 1g
Shock	EN 60 068-2-27
	Acceleration: 30 g

Technical characteristics

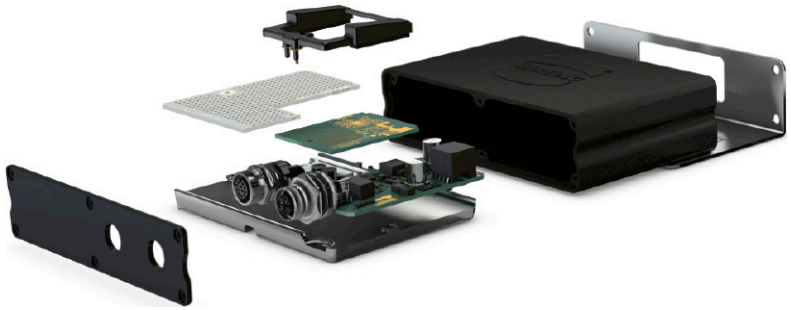
Norms & safety

Radio license	EN 302 208
	FCC 47 FCR Part 15 (Q2 2016)
	IC RSS-GEN, RSS-210 (Q2 2016)
EMC	EN 301 489
Low voltage	EN 60 950
Human exposure	EN 50 364
RoHS compliant	
Railway	tested according to EN 50 155 (Q2 2016)
EMC railway	EN 50 121-3-2 (Q2 2016)

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS RFID RF-R300 EU/FCC	20 91 105 1101		
Ha-VIS RFID RF-R300 EU/FCC *(tested according to railway standards)*	20 91 105 1111*		
Optional accessories			
DIN rail mounting adapter	20 95 200 0004		
Wall mounting kit	20 95 300 0007		
M12 X-coded Ethernet cable (2 m)**	09 47 841 1002		
M12 A-coded cable assembly (2 m)** (IOs / ext. power supply)	21 34 840 0C79 020		
Ha-VIS Coax TNC/TNC-RP, H155 PVC, 3 m**	20 93 204 0121		
Ha-VIS eCon 3060BT-A-P	24 03 006 0020		

* *available Q2 2016*
** *length just an example, another lengths on request*

HARTING IIC MICA



HARTING IIC MICA

Advantages

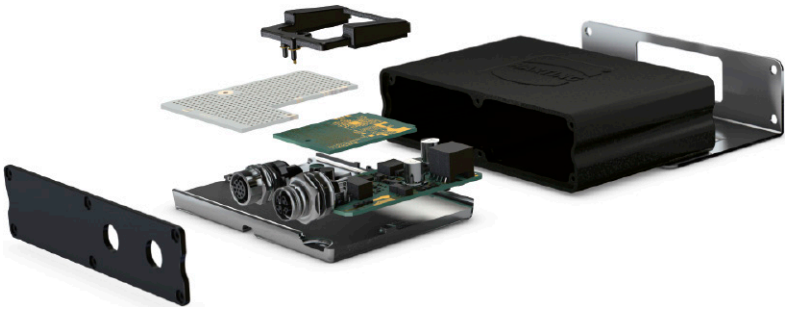
- Designed for harsh industrial environment
- Tested according industry and railway standards
- Open modular software concept
- Adaptable, upgradeable hardware
- Industrial connectors
- Power over Ethernet or 12 / 24 V DC

General description

- MICA is a very robust industry and railway approved industrial computer. It is tested according to IP67 and established industry and railway standards.
- All components are designed for a very long lifetime in harsh industrial environments.
- The modular hardware and software design allows users, development engineers and system integrators to realise Integrated Industry projects fast and cost efficient.

Technical characteristics

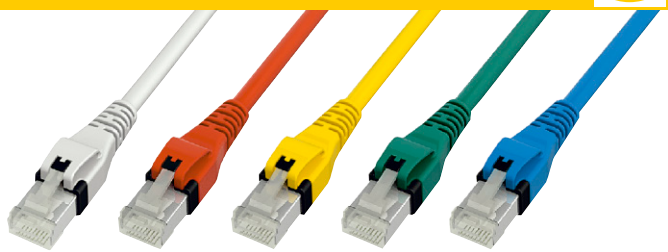
System performance	1 GHz ARM processor
	1 GB RAM
	4 GB eMMC
	up to 32 GB Flash (via Micro SD Card)
Interfaces	Ethernet (TCP/IP) 10/100 Mbit/s; Full Spec. 802.3
	2 USB A Push-Pull (only MICA USB)
Inputs / Outputs	up to 8 configurable IOs (12 / 24 V)
Power supply	
Power supply	12 / 24 V DC (± 5 %) / Power over Ethernet (PoE)
Current consumption	max. 500 mA
Diagnosis (LED)	2 LEDs to visualize the device status
Operating system	Linux (Kernel 3.x.x)
Design features	
Material of housing	corpus: Aluminium, powder coated
	front cover: fiberglass reinforced high performance plastic
Dimensions (W x H x D)	132 x 86 x 35 mm
Installation on DIN rail	DIN rail mounting kit (see optional accessories)
Environmental conditions	
Operating temperature	-25 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Relative humidity	5 % ... 95 % (non-condensing)
Vibration	EN 60 068-2-6
	10 Hz to 150 Hz: 0.075 mm / 1g
Shock	EN 60 068-2-27
	Acceleration: 30 g
Norms & safety	
EMC	EN 301 489
Low voltage	EN 60 950
Human exposure	EN 50 364
RoHS compliant	
Railway	tested according to EN 50155 (Q2 2016)



HARTING IIC MICA

Identification	Part number	Drawing	Dimensions in mm
MICA Basic	20 95 000 0003 00		
MICA USB	20 95 000 0002 00		
Optional accessories			
DIN rail mounting adapter	20 95 200 0004		
Wall mounting kit	20 95 300 0007		
M12 X-coded Ethernet cable (1 m)*	09 47 841 1001		
M12 X-coded Ethernet cable (2 m)*	09 47 841 1002		
M12 A-coded cable assembly (2 m)* (IOs / ext. power supply)	21 34 840 0C79 020		

* length just an example, another lengths on request



PushPull Patch Cable RJ45 DualBoot®, Cat. 5e ISO/IEC, shielded

Features

• Connector types	RJ45 with PushPull locker
• Category	Cat. 5e
• Number of wires	8
• Wiring	1:1
• Sheath material	LSHF (FRNC)

Applications

- Industrial Cabling
- Within switch cabinets
- In IT networks

Advantages

- Transmission of up to 1 Gbit/s
- PushPull locking mechanism
- Different colours, characterisation of services
- Halogen free and RoHS compliant
- Compliant acc. ISO/IEC 11 801

Technical characteristics

Connector types	RJ45 with Dual Boot® and PushPull locker
Cable type	4x2 Twisted Pair, screened F/UTP
Sheath material	LSHF (FRNC)
Wiring	8 pole, 1:1
Transmission performance	Category 5, Class D up to 100 MHz according ISO/IEC 11 801 and EN 50 173-1
Transmission rate	10/100 Mbit/s and 1 Gbit/s
Shielding	Fully shielded, 360° shielding contact
Operating temperature range	-20 °C … +60 °C
Lengths	All lengths available in 10 cm steps
Lengths key	xxx = length in dm (standard length: 5, 10, 15, 20, 25, 30, 50, 75 und 100 dm), e.g. 005 for 5 dm length
Colour	Grey, red, yellow, green, blue, orange

Identification	Part number
PushPull Patch Cable Cat. 5e ISO/IEC DualBoot® 1:1	
grey	09 48 898 9595 xxx
red	09 48 898 9596 xxx
yellow	09 48 898 9597 xxx
green	09 48 898 9594 xxx
blue	09 48 898 9598 xxx
orange	09 48 898 9593 xxx

Other cable lengths on request

PushPull Patch Cable RJ45 DualBoot®, Cat. 6_A ISO/IEC, shielded

Features

- Connector types: RJ45 with PushPull locker
- Category: Cat. 6_A
- Number of wires: 8
- Wiring: 1:1
- Sheath material: LSHF (FRNC)

Applications

- Industrial Cabling
- Within switch cabinets
- In IT networks

Advantages

- Transmission of up to 10 Gbit/s
- PushPull locking mechanism
- Different colours, characterisation of services
- Halogen free and RoHS compliant
- Compliant acc. ISO/IEC 11 801

Technical characteristics

Connector types	RJ45 with Dual Boot® and PushPull locker
Cable type	4x2 Twisted Pair, screened SF-STP
Sheath material	LSHF (FRNC)
Wiring	8 pole, 1:1
Transmission performance	Category 6_A, Class E_A up to 500 MHz according ISO/IEC 11 801 and EN 50 173-1
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Shielding	Fully shielded, 360° shielding contact
Operating temperature range	-20 °C … +60 °C
Lengths	All lengths available in 10 cm steps
Lengths key	xxx = length in dm (standard length: 5, 10, 15, 20, 25, 30, 50, 75 und 100 dm), e.g. 005 for 5 dm length
Colour	Grey, red, yellow, green, blue, orange

Identification	Part number
PushPull Patch Cable Cat. 6_A ISO/IEC DualBoot® 1:1	
grey	09 48 888 8576 xxx
red	09 48 888 8577 xxx
yellow	09 48 888 8578 xxx
green	09 48 888 8579 xxx
blue	09 48 888 8580 xxx
orange	09 48 888 8592 xxx

Other cable lengths on request

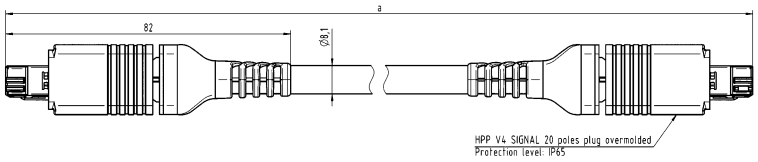
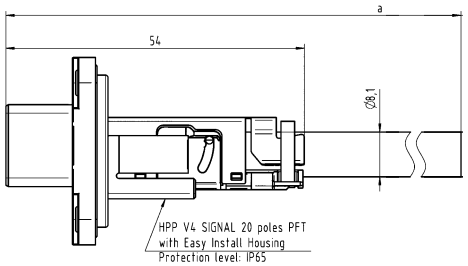
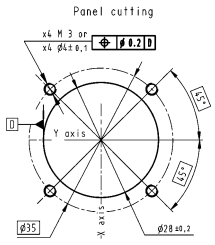
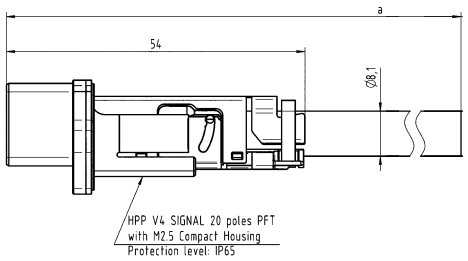
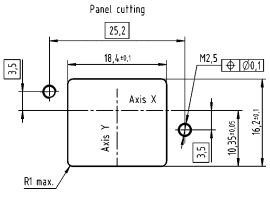
HARTING PushPull cable assemblies
20 poles

Features

- HARTING PushPull technology
- For the transmission of analog, low voltage and bus signals
- Fully shielded
- 20 contacts
- Touch-proof

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-106 variant 4
Degree of protection	IP65 / IP67
Mating face	acc. to IEC/PAS 61076-3-11x
Number of contacts	20
Electrical data acc. to DIN EN 61984	2 A 50 V 1.5 kV 3
Conductor cross section	AWG 26
Shielding	Fully shielded, 360° shielding contact
Mating cycles	min. 200
Temperature range	-40 °C ... +70 °C
Sheath material	PUR, black

Identification	Part number	Drawing	Dimensions in mm
HARTING PushPull system cable overmoulded, both sides assembled			
Length: 1.0 m	33 20 221 0010 001		
2.0 m	33 20 221 0020 001		
5.0 m	33 20 221 0050 001		
10.0 m	33 20 221 0100 001		
HARTING PushPull system cable Device side, one side assembled			
Easy Install			
Length: 0.1 m	33 22 143 0100 001		
0.2 m	33 22 143 0200 001		
0.5 m	33 22 143 0500 001		
			
Compact			
Length: 0.1 m	33 22 143 0100 002		
0.2 m	33 22 143 0200 002		
0.5 m	33 22 143 0500 002		

M12 double cable, A-coding

M12 double cable assembly
A-coding

Features

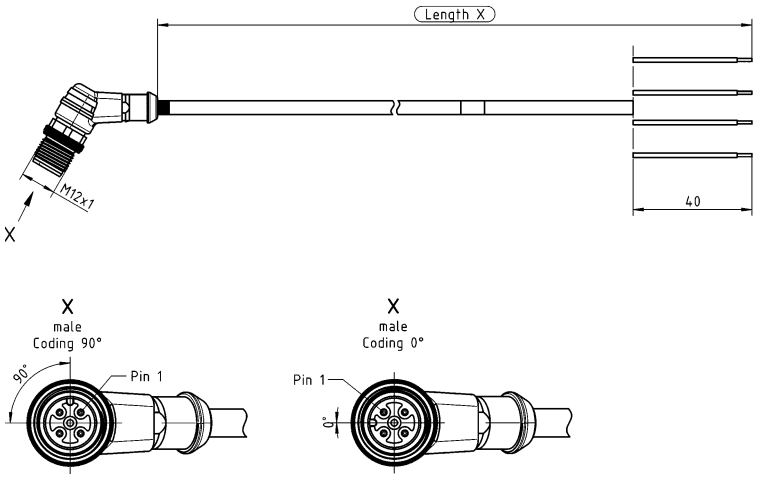
- Commonly for the connection with sensor/ actuator boxes straight circular connectors are used. Consequence is increased space requirement by the bending radius. Circular connectors with 90° angled cable outlet could not be used due their type of construction.

Technical characteristics

Degree of protection	IP67
Number of contacts	4
Rated current	4 A
Rated voltage	250 V
Conductor cross section	0.34 mm²
Cable diameter	4.7 ± 0.2 mm
Wire insulation Material and colour	PVC – brown / white / blue / black
Wire construction	finely stranded
Shielding	no
Drag chain suitable	no
Bending radius	flexible operation 10 x Ø fixed operation 5 x Ø
Mating cycles	min. 100
Temperature range	flexible operation - 5 °C ... +70 °C fixed operation -25 °C ... +70 °C
Sheath material	PVC, black

Identification		Part number
M12 double cable A-coding, 120° angled		
Coding 90°		
Length:	1.0 m	61 88 201 0580
	2.0 m	61 88 201 0581
	3.0 m	**61 88 201 0582**
	5.0 m	**61 88 201 0583**
Coding 0°		
Length:	1.0 m	61 88 201 0585
	2.0 m	61 88 201 0586
	3.0 m	**61 88 201 0587**
	5.0 m	**61 88 201 0588**

Drawing — Dimensions in mm



Stock items in bold type

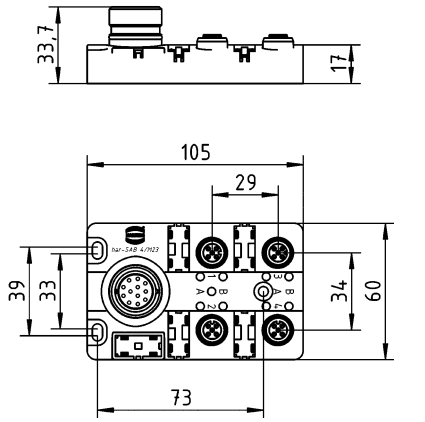
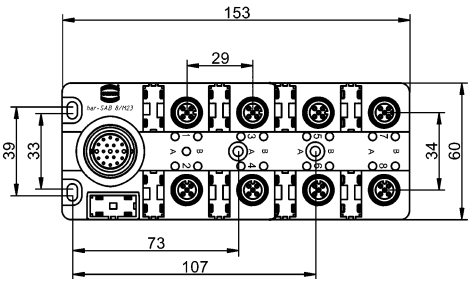
HARTING sensor / actuator boxes

Features

- Available with 4- and 8-port design
- 4-port – 12 pole M23 connector, 1 channel per port
- 8-port – 19 pole M23 connector, 2 channels per port
- 2 LEDs for operating- and status indicator
- Matching M23 and M12 cable assemblies available

Technical characteristics

Degree of protection	IP67
Number of channels	4-port 4 channels 8-port 16 channels
Rated current	2 A per contact 12 A max. total
Rated voltage	10 - 30 V DC
Temperature range	-20 °C ... +80 °C

Identification	Part number	Drawing	Dimensions in mm
HARTING sensor / actuator boxes			
4 x M12, 4 poles 1 x M23, 12 poles	61 88 200 0001		
8 x M12, 4 poles 1 x M23, 19 poles	61 88 200 0002		

Multiphase test connector

Multiphase test connector

Features

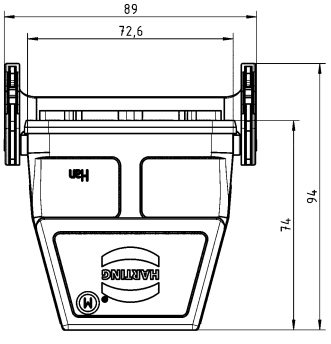
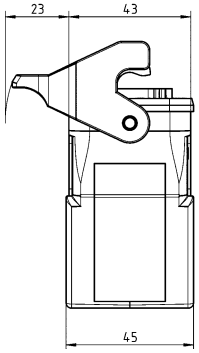
• Measuring parameters	star or delta connection, phase connection, rotating field
• Nominal voltage	230/400 V AC
• Gauge according to	DIN EN 61010-1 standard
• Compact frame size	Han® 10 B
• Compact interface	Han® 10 E
• Commodity code	9030 33 10
• Interface	DESINA compliant

Applications

• The multiphase test connector is suitable to optically display the following parameters for the supply cable of a three-phase AC motor: star or delta connection, connection of the single supply phases (L1, L2, L3) and rotating field (clockwise and counter-clockwise).

Technical characteristics

Nominal voltage	230/400 V AC
Power consumption (per phase)	0.025 A
Power consumption (total)	0.075 A
Housing	hood Han® 10 B
Material	die-cast aluminium
Dimensions (LxWxH)	73 x 43 x 74 mm
Surface	glass bead blasted
Locking	single lever
Contact insert	Han® 10 E-M
Contacts	Han® E, silver plated
Weight	approx. 0.4 kg
Display	LEDs
Mating cycles	≥ 500
Protection level	IP54
Temperature range	0 °C … +50 °C
Overvoltage category	III (according to DIN EN 60664-1)
Level of pollution	2 (according to DIN EN 60664-1)

Identification	Part number	Drawing	Dimensions in mm
Multiphase test connector	61 12 201 0010		

Notes

Distributors

Distributors – worldwide

Digi-Key Corporation:
www.digikey.com

Farnell: www.farnell.com

FUTURE Electronics:
www.futureelectronics.com

Mouser Electronics: www.mouser.com

RS Components:
www.rs-components.com

Other countries and general contact

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