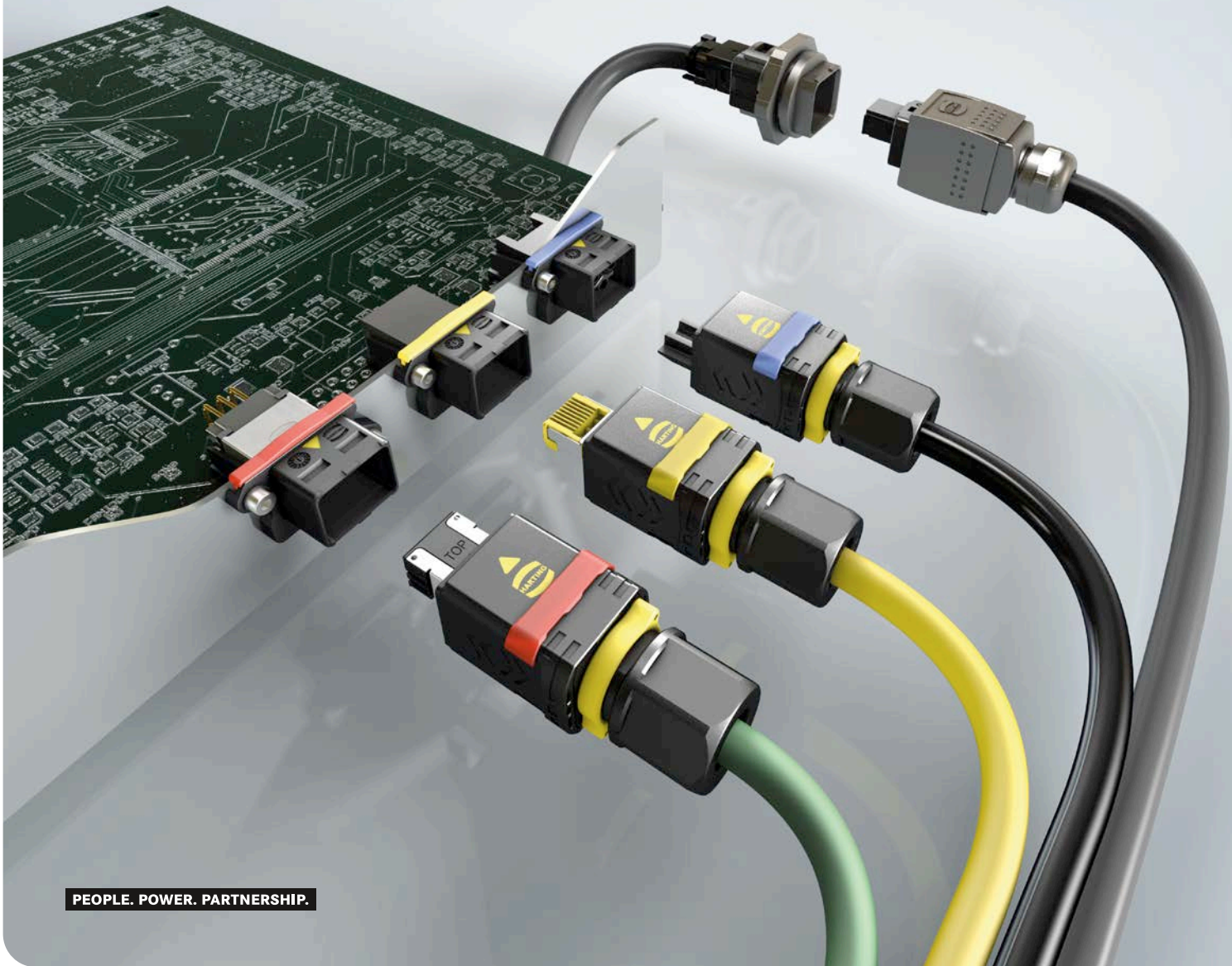




Pushing Performance
Since 1945



PEOPLE. POWER. PARTNERSHIP.

HARTING PushPull Device Connectivity

Transforming customer wishes into concrete solutions



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

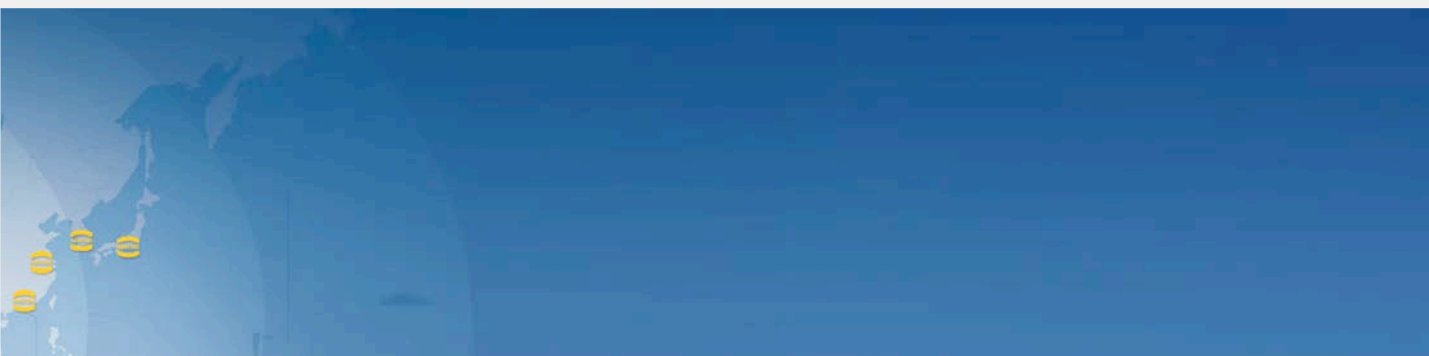
The HARTING Group currently comprises 14 production sites and branches in 44 countries worldwide employing a total of about 6,000 staff.



HARTING Subsidiary



HARTING Representation



We aspire to top performance.

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

Wherever our customers are, we're there.

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

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

Our claim: Pushing Performance.

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

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

Quality creates reliability – and warrants trust.

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

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



HARTING technology creates added value for customers.

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

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

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

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

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

HARTING overcomes technological limitations.

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

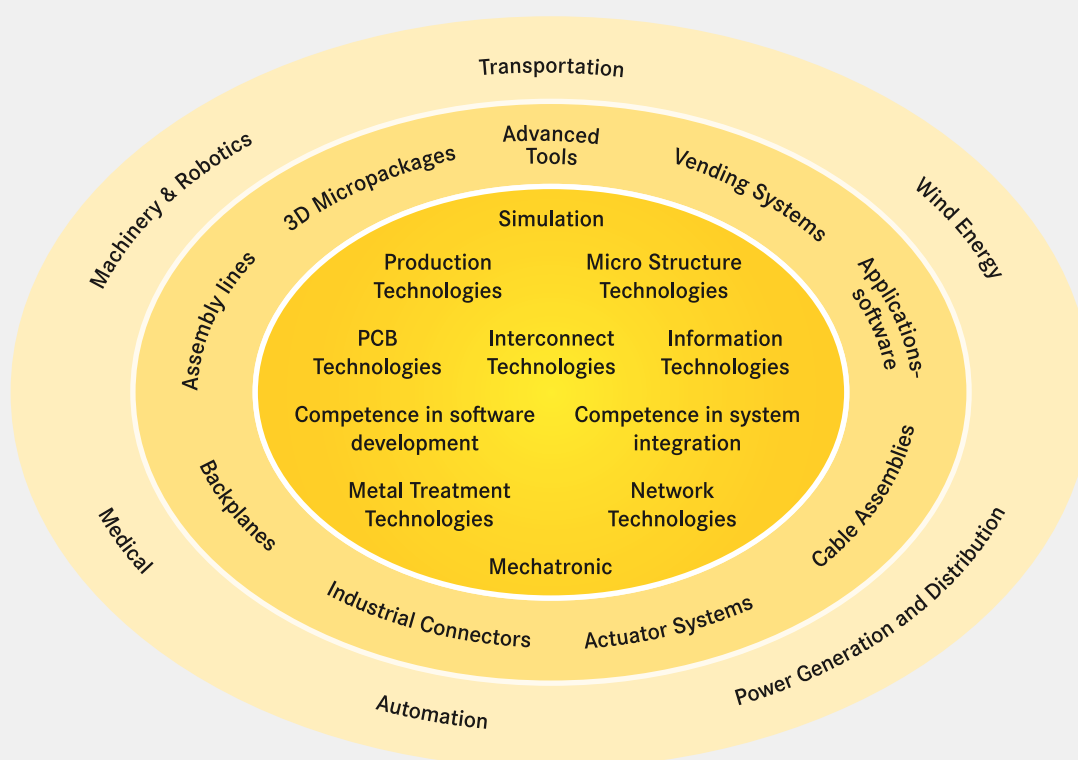
In order to ensure the future-proof design of RF and EMC-compatible interface solutions, the central **HARTING** laboratory (accredited according to DIN EN ISO/IEC 17025) employs simulation tools, as well as experimental, testing and diagnostics facilities all the way to Industrial computed tomography. In addition to product and process suitability considerations, lifecycle and environmental aspects play a key role in the selection of materials and processes.



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

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

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



Contents

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HARTING PushPull type acc

HARTING PushPull type acc. to IEC 61 076-3-106 Variante 4 **08**

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Han® PushPull type acc. to Power L to IEC PAS 61076-3-126 **107**

PushPull XS SFP to IEC 61 754-20 **111**



HARTING PushPull technology acc. to IEC 61076-3-106 variant 4
bulkhead mounted housing for device integration of RJ45-, USB- and Power-jacks

Advantages

- PushPull bulkhead mounted housing with HARTING PushPull technology
- Compact, space-saving design for device integration of RJ45-, USB-, Signal- or Power-pcb female
- High packing density (spacing 27 x 21 mm)

Technical characteristics

Locking	PushPull technology acc. to IEC 61076-3-106 variant 4
Mating cycles	min. 750
Degree of protection	IP65 / IP67
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Components device side			
Bulkhead mounted housing – Compact Board drillings for M2.5			
without fixing clip (with integrated seal)	09 45 545 0043 ¹⁾		
with fixing clip (with integrated seal)	09 45 545 0042 ²⁾		
with fixing clip (with integrated seal) for vertical RJ jack 09 45 551 1103	09 45 545 0040 ³⁾		
with fixing clip, for all HIFF compatible modules	09 45 545 0041		

¹⁾ suitable RJ45 jacks: 09 45 551 1100 / ... 1110 / ... 1102 / ... 115x / ... 154x

²⁾ suitable RJ45 jacks: 09 45 551 1100 / ... 1110 / ... 1102

³⁾ suitable RJ45 jacks: 09 45 551 1103



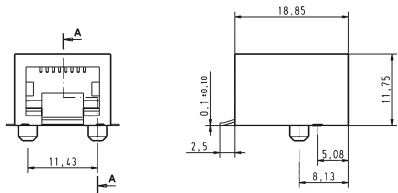
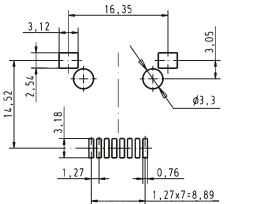
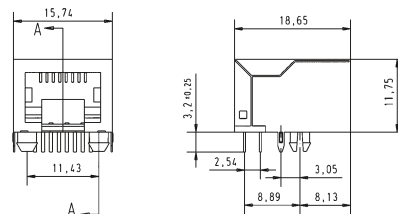
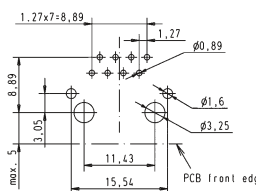
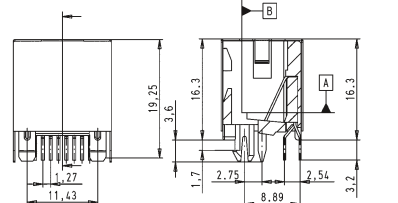
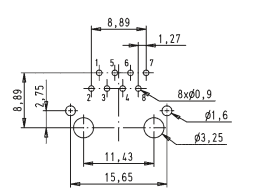
HARTING PushPull Technology acc. to IEC 61 076-3-106 variant 4
RJ45 jacks and accessories

Advantages

- HARTING PushPull technology
- Low-profile jacks for space-saving PCB integration
- Category of transmission Cat. 5
- Suitable for PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at)

Technical characteristics

Locking	PushPull Technology acc. to IEC 61 076-3-106 variant 4
Transmission rate	10/100/1000 Mbit/s
Shielding	fully shielded, 360° shielding contact
Mating cycles	min. 750
Degree of protection	IP65 / IP67
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0
	UL approval (E102079)

Identification	Part number	Drawing	Dimensions in mm pcb layout
Components device side			
RJ45 jacks Cat. 5			
Solder variant SMD, 90° angled	09 45 551 1100 ¹⁾ 09 45 551 1110 ²⁾ 09 45 551 1110 333 ⁴⁾		
Solder variant overmoulded, 90° angled	09 45 551 1102 ¹⁾		
Solder variant overmoulded, straight	09 45 551 1103 ³⁾		

1) Packaging: Blister à 120 pieces
2) Packaging: Tape & Reel à 130 pieces
3) Packaging: Tape & Reel à 80 pieces
4) Sample, Packaging: 1 piece



HARTING RJ Industrial® RJ45 jacks with transformer

Advantages

- Compact design
- Integrated optical fibres
- Excellent EMC behaviour due to integrated transformers and filters for 10/100 Mbit or 1 Gbit Ethernet
- THR compatible
- Versions from 10/100 Mbit up to 10 Gbit Ethernet and PoE
- Usable for IP65 / IP67 device integration with HARTING PushPull and Han® 3 A RJ45

Technical characteristics

Mating face	RJ45 acc. to IEC 60603-7
Number of contacts	8
Degree of protection	IP20
Rated voltage	30 V DC
Rated current	8 mA DC
Mating cycles	min. 750
Temperature range	-25 °C ... +70 °C

Identification

Part number

Drawing

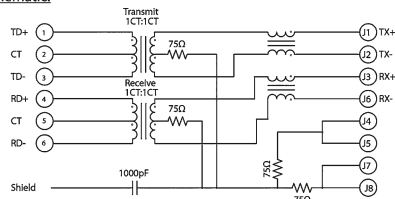
Dimensions in mm

Components device side

RJ45 jack with transformer (low profile)

90° angled, THT
10/100 Mbit Ethernet

Schematic:

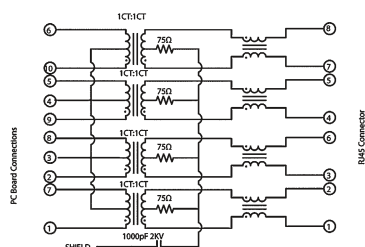


10/100 Mbit Ethernet and PoE

09 45 551 1150¹⁾

90° angled, THT
1 Gbit Ethernet

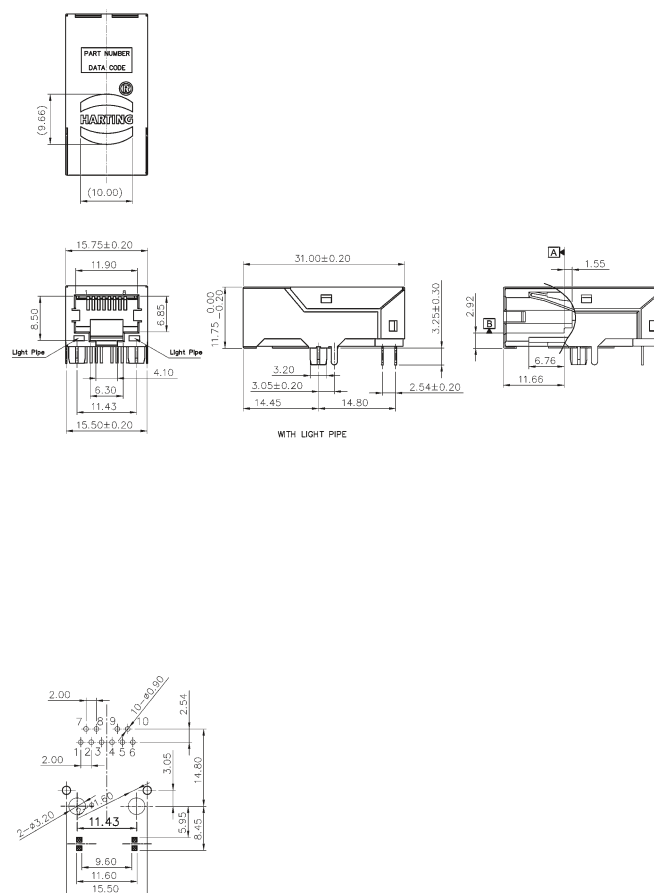
Schematic:



1 Gbit Ethernet and PoE

09 45 551 1540¹⁾

09 45 551 1541¹⁾



Customer specific versions on request



HARTING PushPull technology acc. to IEC 61 076-3-106 variant 4
RJ45 panel feed-throughs and accessories

Advantages

- Small, space-saving PushPull Interfaces in IP65 / IP67
- Easy handling of RJ45 patch cords in switch cabinets or sets
- Mounting to casings

Technical characteristics

Locking	PushPull Technology acc. to IEC 61 076-3-106 variant 4
Transmission rate	10/100 Mbit/s / 1/10 Gbit/s
Shielding	fully shielded, 360° shielding contact
Mating cycles	min. 750
Degree of protection	IP65 / IP67
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification

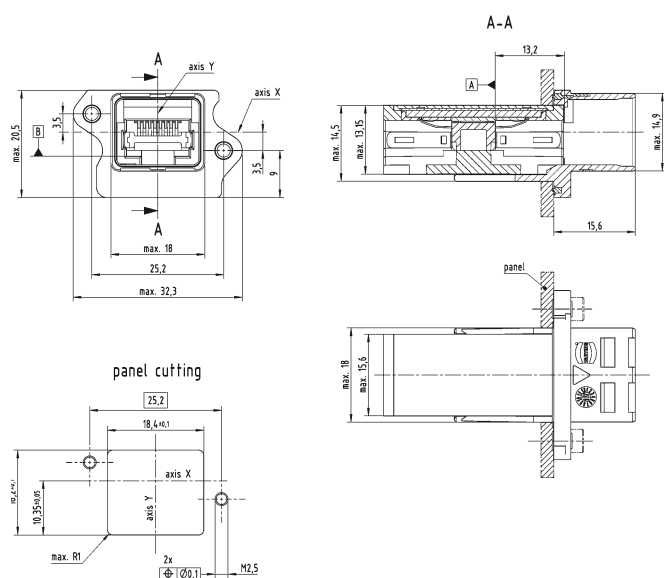
Panel feed-through set
category of transmission Cat. 6

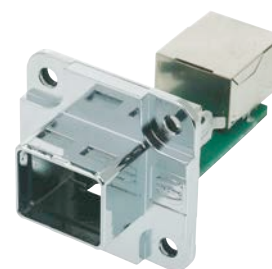
incl. bulkhead mounted housing –
Compact, with integrated seal,
2 x RJ45-jack

Part number

09 45 245 1561

Drawing





HARTING PushPull Technology acc. to IEC 61 076-3-106 variant 4
RJ45-panel feed-throughs and accessories

Advantages

- Small, space-saving PushPull Interfaces in IP65 / IP67
- Easy handling of RJ45 patch cords in switch cabinets or sets

Technical characteristics

Locking	PushPull Technology acc. to IEC 61 076-3-106 variant 4
Transmission rate cat. 5 versions	10/100/1000 Mbit/s
Transmission rate cat. 6 versions	10/100 Mbit/s / 1/10 Gbit/s
Shielding	fully shielded, 360° shielding contact
Mating cycles	min. 750
Degree of protection	IP65 / IP67
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, shining
Flammability acc. to UL 94	V0
	UL approval (E102079)

Identification

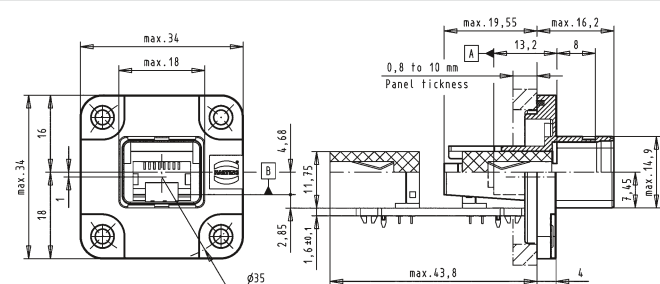
Panel feed-through set
category of transmission Cat. 5

incl. housing bulkhead mounting EasyInstall
with integrated seal,
2 x RJ45-jack
board drillings for M3

Part number

09 45 295 1130
(metal version)

Drawing





HARTING PushPull technology acc. to IEC 61076-3-106 variant 4 RJ45 connector

Advantages

- Ethernet connector based on RJ45
- Fully shielded, 360° shielding contact
- Field-assembly connector with IDC contacts (Cat. 5 versions) or piercing contacts (Cat. 6_A versions)

Technical characteristics

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60603-7
Cable diameter	4.5 ... 10 mm
Termination cross section	
Cat. 5	AWG 24/7 ... AWG 22/7 (stranded) AWG 23/1 ... AWG 22/1 (solid)
Cat. 6 _A	AWG 24/7 ... AWG 28/7 (stranded)
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification

Part number

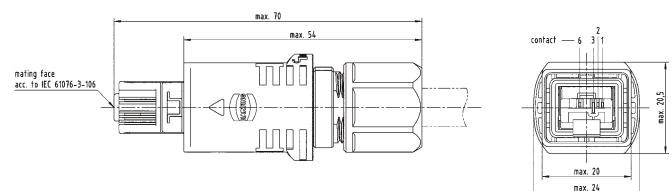
Drawing

Dimensions in mm

Connector, 4 poles Cat. 5

incl. housing
with RJ45 connector,
shielding and cable gland

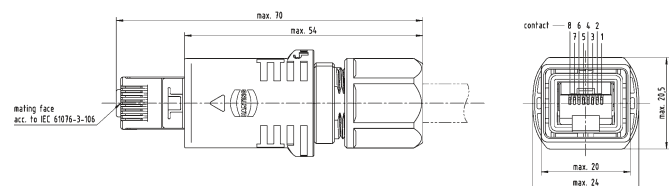
09 45 145 1106



Connector, 8 poles Cat. 6_A

incl. housing
with RJ45 connector,
shielding and cable gland

09 45 145 1521
09 45 145 1521 XL¹⁾



suitable assembly tool

09 45 800 0520

¹⁾ Packaging with 100 sets



HARTING PushPull Technology acc. to IEC 61 076-3-106 variant 4
RJ45-connector

Advantages

- Ethernet connector based on RJ45
- Fully shielded, 360° shielding contact
- Field-assembly connector with IDC contacts (Cat. 5 versions) or piercing contacts (Cat. 6_A versions)

Technical characteristics

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60603-7
Cable diameter	4.9 ... 8.6 mm
Termination cross section	
Cat. 5	AWG 24/7 ... AWG 22/7 (stranded) AWG 23/1 ... AWG 22/1 (solid)
Cat. 6 _A	AWG 24/7 ... AWG 28/7 (stranded)
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, shining
Flammability acc. to UL 94	V0
	UL approval (E102079)

Identification

Part number

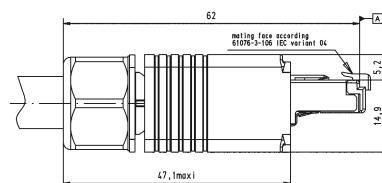
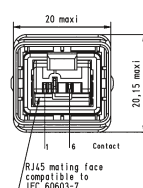
Drawing

Dimensions in mm

Connector, 4 poles Cat. 5

incl. housing with RJ45 connector,
shielding and cable gland

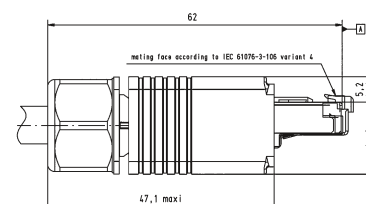
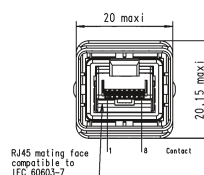
09 45 195 1100
(metal version)



Connector, 8 poles Cat. 6_A

incl. housing with RJ45 connector,
shielding and cable gland

09 45 195 1520
(metal version)



suitable assembly tool

09 45 800 0520



HARTING PushPull RJ45 – bulkhead

Advantages

- Small, space-saving PushPull Interfaces in IP65 / IP67
- Easy connection of PushPull RJ45 system cords
- Screwable with 2 x M3 screws

Technical characteristics

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Number of contacts	8
Transmission category	Cat. 6, performance class E _A , suitable for 1/10 Gigabit Ethernet
Transmission rate	10/100 Mbit/s / 1/10 Gbit/s
Shielding	fully shielded, 360° shielding contact
Mating cycles	min. 750
Degree of protection	IP65 / IP67
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0
	UL approval (E102079)

Identification

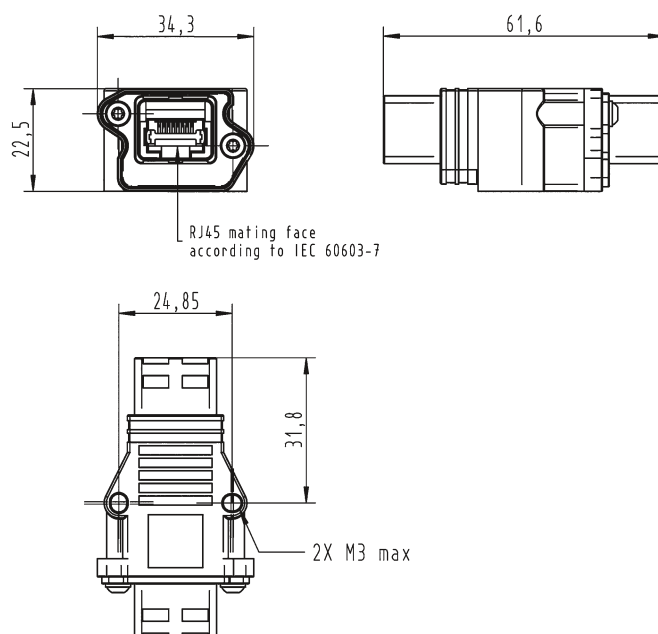
HARTING PushPull RJ45 –
bulkhead

Part number

09 45 345 1560

Drawing

Dimensions in mm





HARTING PushPull technology acc. to IEC 61076-3-106 variant 4
RJ45 connector

Advantages

- Ethernet connector based on RJ45
- Fully shielded, 360° shielding contact
- Field-assembly connector with IDC contacts
- Category of transmission: Cat. 6 / class E_A suitable for 1/10 Gbit Ethernet

Technical characteristics

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Mating face	RJ45 acc. to IEC 60603-7
Cable diameter	4.5 ... 10 mm
Termination cross section	AWG 27/7 ... AWG 22/7 (stranded) AWG 24/1 ... AWG 22/1 (solid)
Conductor diameter	max. 1.6 mm (incl. insulation)
Mating cycles	min. 750
Degree of protection	IP65 / IP67
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification

Part number

Drawing

Dimensions in mm

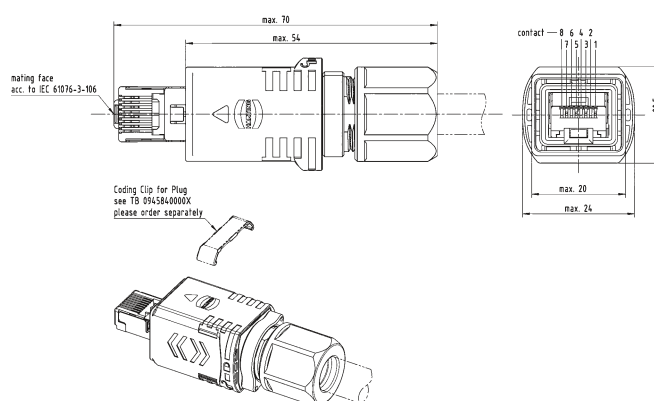
Connector, 8 poles
Cat. 6
incl. housing
with RJ45 connector,
shielding and cable gland

09 45 145 1561

Colour clips
for colour coding the HARTING
PushPull connectors

Blue
Violet
Green
Red
Yellow

09 45 840 0008
09 45 840 0007
09 45 840 0006
09 45 840 0005
09 45 840 0004





HARTING PushPull Technology acc. to IEC 61076-3-106 variant 4
RJ45-connector

Advantages

- Ethernet connector based on RJ45
- Fully shielded, 360° shielding contact
- Field-assembly connector with IDC contacts
- Category of transmission: Cat. 6 / class E_A suitable for 1/10 Gbit Ethernet

Technical characteristics

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Mating face	RJ45 acc. to IEC 60603-7
Cable diameter	4.9 ... 8.6 mm
Termination cross section	AWG 27/7 ... AWG 22/7 (stranded) AWG 24/1 ... AWG 22/1 (solid)
Conductor diameter	max. 1.6 mm (incl. insulation)
Mating cycles	min. 750
Degree of protection	IP65 / IP67
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, shining
Flammability acc. to UL 94	V0
	UL approval (E102079)

Identification

Part number

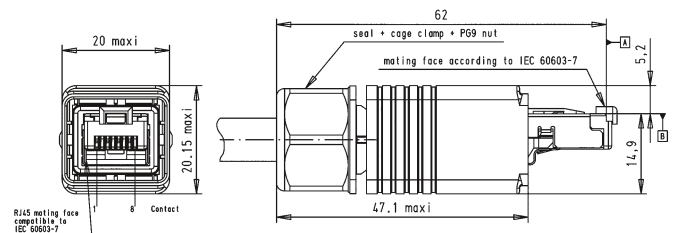
Drawing

Dimensions in mm

Connector, 8 poles
Cat. 6

incl. housing with RJ45 connector,
shielding and cable gland

09 45 195 1560
(metal version)





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

Features

- Transmission of up to 10 Gbit/s
- Double-sided IP65/IP67 protection
- Simple handling by HARTING PushPull
- Cables suitable for industry
- Suitable for outdoor applications (PVC (outdoor))

Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING PushPull RJ45
Connector 2	HARTING PushPull RJ45
Limiting temperature	-40 ... +80 °C, -20 ... +80 °C
Transmission characteristics	Cat. 6A, Class E _A up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 10 Gbit/s
Material (cable)	PUR (polyurethane), PVC
Colour (cable)	Yellow, Black

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, Copper cable (round), Wiring 1:1, Pre-assembled on both sides Fully shielded, 360° shielding contact, PUR (polyurethane), Yellow, -40 °C ... +80 °C	0.5 m 1 m 5 m 7.5 m 10 m 15 m 20 m	09 48 282 8756 005 09 48 282 8756 010 09 48 282 8756 050 09 48 282 8756 075 09 48 282 8756 100 09 48 282 8756 150 09 48 282 8756 200		
HARTING PushPull, Copper cable (round), Wiring 1:1, Pre-assembled on both sides, Fully shielded, 360° shielding contact, PVC, Yellow, -20 °C ... +80 °C	0.5 m 1 m 5 m 7.5 m 10 m 15 m 20 m	09 48 282 8757 005 09 48 282 8757 010 09 48 282 8757 050 09 48 282 8757 075 09 48 282 8757 100 09 48 282 8757 150 09 48 282 8757 200		

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, Copper cable (round), Wiring 1:1, Pre-assembled on both sides Fully shielded, 360° shielding contact, PVC (outdoor), Black, -20 °C ... +80 °C	0.5 m 1 m 5 m 7.5 m 10 m 15 m 20 m	09 48 282 8758 005 09 48 282 8758 010 09 48 282 8758 050 09 48 282 8758 075 09 48 282 8758 100 09 48 282 8758 150 09 48 282 8758 200		
				



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

Features

- Transmission of up to 10 Gbit/s
- Double-sided IP65/IP67 protection
- Simple handling by HARTING PushPull
- Cables suitable for industry
- Suitable for outdoor applicationsen (PVC (outdoor))

Technical characteristics

Number of cores	8
Core structure	4x 2x AWG 26/7
Connector 1	HARTING PushPull RJ45, RJ45
Connector 2	RJ45
Limiting temperature	-20 ... +75 °C
Transmission characteristics	Cat. 6A, Class E _A up to 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 10 Gbit/s
Material (cable)	PUR (polyurethane), PVC
Colour (cable)	Yellow, Black

Details

Other cable lengths on request!

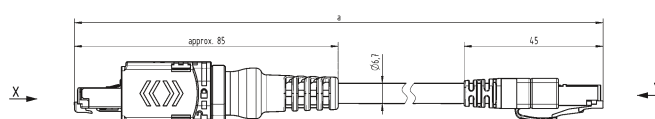
Identification	Cable length	Part number	Drawing	Dimensions in mm
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HARTING PushPull,

Copper cable (round),
Wiring 1:1,
Pre-assembled on both
sides
Fully shielded,
360° shielding contact,
PUR (polyurethane),
Yellow,
-20 °C ... +75 °C



1 m	09 48 284 7756 010
2 m	09 48 284 7756 020
3 m	09 48 284 7756 030
5 m	09 48 284 7756 050
7 m	09 48 284 7756 070
10 m	09 48 284 7756 100
15 m	09 48 284 7756 150
20 m	09 48 284 7756 200

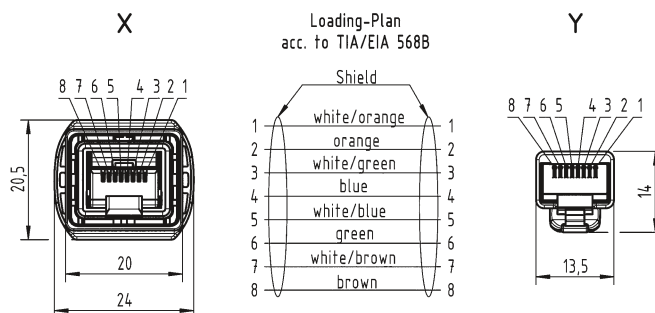


HARTING PushPull,

Copper cable (round),
Wiring 1:1,
Pre-assembled on both
sides,
Fully shielded,
360° shielding contact,
PVC,
Yellow,
-20 °C ... +75 °C



1 m	09 48 284 7757 010
2 m	09 48 284 7757 020
3 m	09 48 284 7757 030
5 m	09 48 284 7757 050
7 m	09 48 284 7757 070
10 m	09 48 284 7757 100
15 m	09 48 284 7757 150
20 m	09 48 284 7757 200



Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, Copper cable (round), Wiring 1:1, Pre-assembled on both sides Fully shielded, 360° shielding contact, PVC (outdoor), Black, -20 °C ... +75 °C	1 m	09 48 284 7758 010		
	2 m	09 48 284 7758 020		
	3 m	09 48 284 7758 030		
	5 m	09 48 284 7758 050		
	7 m	09 48 284 7758 070		
	10 m	09 48 284 7758 100		
	15 m	09 48 284 7758 150		
	20 m	09 48 284 7758 200		
				



HARTING PushPull type acc. to IEC 61076-3-106 variant 4
LC duplex panel feed-through and connector

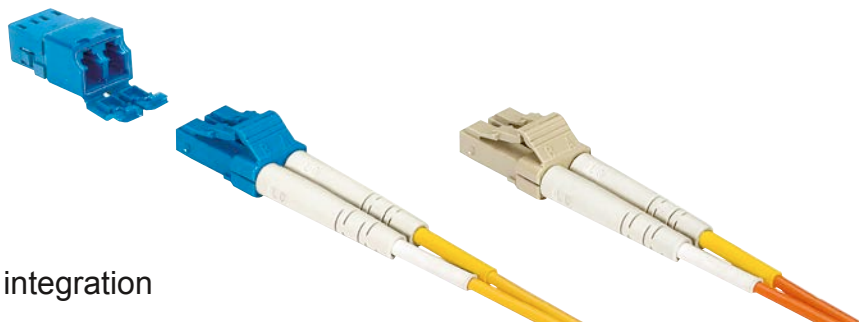
Advantages

- Optical PushPull connector based on LC with small form factor (requires 50 % compared to SC and ST)
- EasyInstall and Compact panel feed-through for simple device integration
- Optical module with inserts acc. to IEC 61754-20
- One-piece LC body assures high mechanical stability
- A & B parts identification for Duplex according TIA 568 standard

Technical characteristics

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Degree of protection	IP65 / IP67
Mating face	LC acc. to IEC 61754-20
Cable diameter	5.8 ... 7.2 mm
Mating cycles	min. 200
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black Zinc die-cast, shining
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
HARTING PushPull LC duplex			
Cable side			
	Multimode GOF		
	09 57 402 0500 000		
	09 57 409 0500 000 (metal version)		
Singlemode GOF			
	Multimode GOF		
	09 57 402 0501 000		
	09 57 409 0501 000 (metal version)		
Device side EasyInstall version			
	Multimode GOF		
	09 57 441 0500 000		
	09 57 468 0500 000 (metal version)		
Singlemode GOF			
	Multimode GOF		
	09 57 441 0501 000		
	09 57 468 0501 000 (metal version)		
Device side Compact version			
	Multimode GOF		
	09 57 442 0502 001		
	09 57 442 0503 001		



LC duplex IP20 adapter for device integration

Advantages

- Small form factor requires 50 % (compared to SC and ST)
- Compact, space-saving design
- High packing density
- A & B parts identification according TIA 568 standard
- Complement adapter for IP67 connector on device side

Technical characteristics

Degree of protection	IP20
Mating interface	LC duplex with two fibres
Temperature range	-40 °C ... +70 °C

Identification

Part number

Drawing

Dimensions in mm

Device side

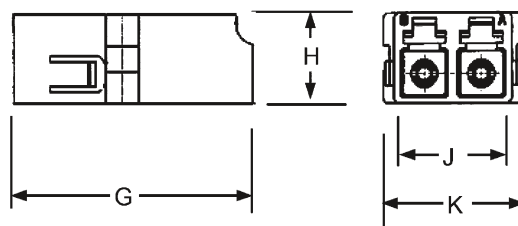
Adapter

Multimode GOF

09 57 400 0003 000

Singlemode GOF

09 57 400 0004 000



	min.	max.
G	26.60	26.80
H	9.35	9.45
J	12.80	12.90
K	15.24	15.34

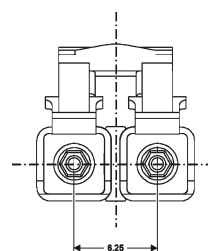
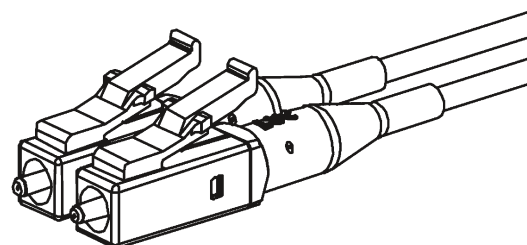
Connector
LC duplex

Multimode GOF

09 57 400 0001 000

Singlemode GOF

09 57 400 0002 000





9 / 125 μ m
HARTING PushPull
HARTING PushPull

Features

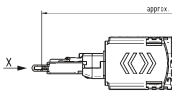
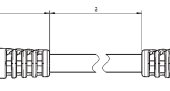
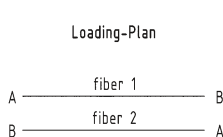
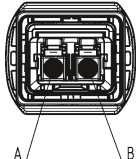
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	9 / 125 μ m
Connector 1	HARTING PushPull
Connector 2	HARTING PushPull
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Singlemode, Overmoulded, Pre-assembled on both sides  	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 221 0010 001 33 61 221 0020 001 33 61 221 0030 001 33 61 221 0040 001 33 61 221 0050 001 33 61 221 0060 001 33 61 221 0070 001 33 61 221 0080 001 33 61 221 0090 001 33 61 221 0100 001 33 61 221 0110 001 33 61 221 0120 001 33 61 221 0130 001 33 61 221 0140 001 33 61 221 0150 001 33 61 221 0200 001 33 61 221 0250 001 33 61 221 0300 001 33 61 221 0350 001 33 61 221 0400 001 33 61 221 0450 001 33 61 221 0500 001 33 61 221 0600 001 33 61 221 0700 001 33 61 221 0800 001 33 61 221 0900 001 33 61 221 1000 001	 X (without dust cap)  Y (without dust cap)  Loading-Plan 	
FO cable, Singlemode, Not assembled	10 m 20 m 100 m	33 58 751 0100 002 33 58 751 0200 002 33 58 751 1000 002		



50 / 125 μ m
HARTING PushPull
HARTING PushPull

Features

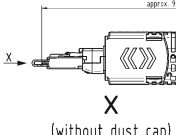
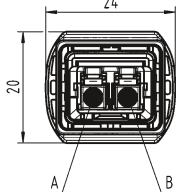
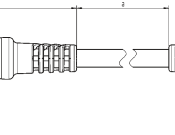
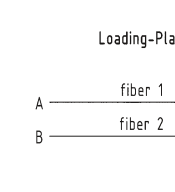
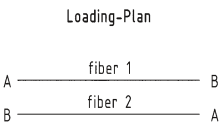
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	50 / 125 μ m
Connector 1	HARTING PushPull
Connector 2	HARTING PushPull
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Multimode, Overmoulded, Pre-assembled on both sides 	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 221 0010 002 33 61 221 0020 002 33 61 221 0030 002 33 61 221 0040 002 33 61 221 0050 002 33 61 221 0060 002 33 61 221 0070 002 33 61 221 0080 002 33 61 221 0090 002 33 61 221 0100 002 33 61 221 0110 002 33 61 221 0120 002 33 61 221 0130 002 33 61 221 0140 002 33 61 221 0150 002 33 61 221 0200 002 33 61 221 0250 002 33 61 221 0300 002 33 61 221 0350 002 33 61 221 0400 002 33 61 221 0450 002 33 61 221 0500 002 33 61 221 0600 002 33 61 221 0700 002 33 61 221 0800 002 33 61 221 0900 002 33 61 221 1000 002	 	 
	10 m 20 m 100 m	33 58 751 0100 003 33 58 751 0200 003 33 58 751 1000 003		
FO cable, Multimode, Not assembled				



62,5 / 125 μ m
HARTING PushPull
HARTING PushPull

Features

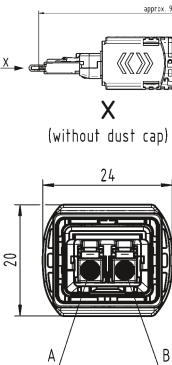
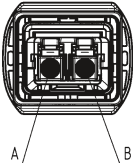
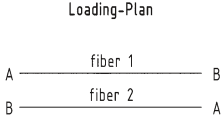
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	62,5 / 125 μ m
Connector 1	HARTING PushPull
Connector 2	HARTING PushPull
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm, 7 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Multimode, Overmoulded, Pre-assembled on both sides 	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 221 0010 003 33 61 221 0020 003 33 61 221 0030 003 33 61 221 0040 003 33 61 221 0050 003 33 61 221 0060 003 33 61 221 0070 003 33 61 221 0080 003 33 61 221 0090 003 33 61 221 0100 003 33 61 221 0110 003 33 61 221 0120 003 33 61 221 0130 003 33 61 221 0140 003 33 61 221 0150 003 33 61 221 0200 003 33 61 221 0250 003 33 61 221 0300 003 33 61 221 0350 003 33 61 221 0400 003 33 61 221 0450 003 33 61 221 0500 003 33 61 221 0600 003 33 61 221 0700 003 33 61 221 0800 003 33 61 221 0900 003 33 61 221 1000 003		
	10 m 20 m 100 m	33 58 751 0100 001 33 58 751 0200 001 33 58 751 1000 001		
FO cable, Multimode, Not assembled				



9 / 125 µm
HARTING PushPull
LC duplex

Features

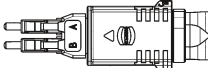
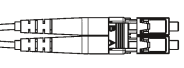
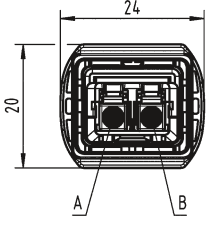
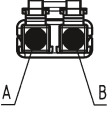
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	9 / 125 µm
Connector 1	HARTING PushPull
Connector 2	LC duplex
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Singlemode, Overmoulded, Pre-assembled on both sides 	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 431 0010 001 33 61 431 0020 001 33 61 431 0030 001 33 61 431 0040 001 33 61 431 0050 001 33 61 431 0060 001 33 61 431 0070 001 33 61 431 0080 001 33 61 431 0090 001 33 61 431 0100 001 33 61 431 0110 001 33 61 431 0120 001 33 61 431 0130 001 33 61 431 0140 001 33 61 431 0150 001 33 61 431 0200 001 33 61 431 0250 001 33 61 431 0300 001 33 61 431 0350 001 33 61 431 0400 001 33 61 431 0450 001 33 61 431 0500 001 33 61 431 0600 001 33 61 431 0700 001 33 61 431 0800 001 33 61 431 0900 001 33 61 431 1000 001	 X (without dust cap)  Y (without protection cap)  24 20 A B Loading-Plan A fiber 1 B B fiber 2 A  A B	
FO cable, Singlemode, Not assembled	10 m 20 m 100 m	33 58 751 0100 002 33 58 751 0200 002 33 58 751 1000 002		



50 / 125 µm
HARTING PushPull
LC duplex

Features

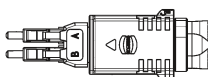
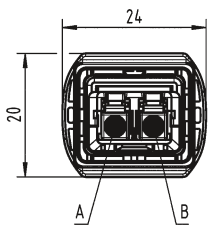
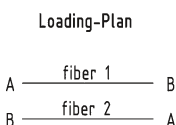
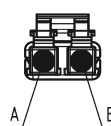
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	50 / 125 µm
Connector 1	HARTING PushPull
Connector 2	LC duplex
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Multimode, Overmoulded, Pre-assembled on both sides 	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 431 0010 002 33 61 431 0020 002 33 61 431 0030 002 33 61 431 0040 002 33 61 431 0050 002 33 61 431 0060 002 33 61 431 0070 002 33 61 431 0080 002 33 61 431 0090 002 33 61 431 0100 002 33 61 431 0110 002 33 61 431 0120 002 33 61 431 0130 002 33 61 431 0140 002 33 61 431 0150 002 33 61 431 0200 002 33 61 431 0250 002 33 61 431 0300 002 33 61 431 0350 002 33 61 431 0400 002 33 61 431 0450 002 33 61 431 0500 002 33 61 431 0600 002 33 61 431 0700 002 33 61 431 0800 002 33 61 431 0900 002 33 61 431 1000 002	 X (without dust cap)  Y (without protection cap)  Loading-Plan 	
FO cable, Multimode, Not assembled 	10 m 20 m 100 m	33 58 751 0100 003 33 58 751 0200 003 33 58 751 1000 003		



62,5 / 125 μm
HARTING PushPull
LC duplex

Features

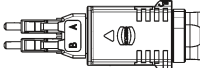
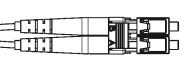
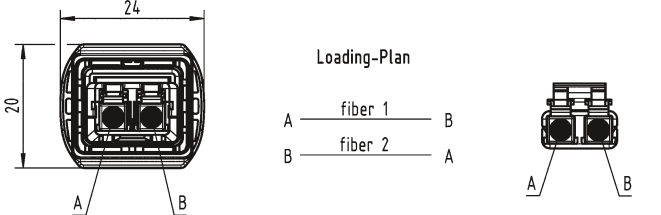
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

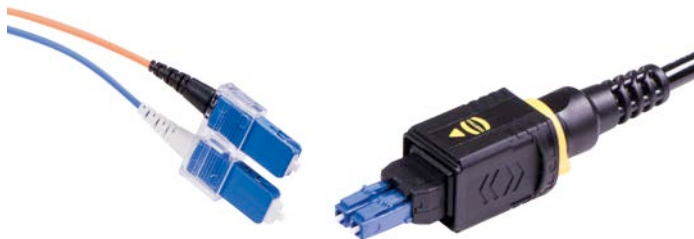
Number of cores	62,5 / 125 μm
Connector 1	HARTING PushPull
Connector 2	LC duplex
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm, 7 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Multimode, Overmoulded, Pre-assembled on both sides 	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 431 0010 003 33 61 431 0020 003 33 61 431 0030 003 33 61 431 0040 003 33 61 431 0050 003 33 61 431 0060 003 33 61 431 0070 003 33 61 431 0080 003 33 61 431 0090 003 33 61 431 0100 003 33 61 431 0110 003 33 61 431 0120 003 33 61 431 0130 003 33 61 431 0140 003 33 61 431 0150 003 33 61 431 0200 003 33 61 431 0250 003 33 61 431 0300 003 33 61 431 0350 003 33 61 431 0400 003 33 61 431 0450 003 33 61 431 0500 003 33 61 431 0600 003 33 61 431 0700 003 33 61 431 0800 003 33 61 431 0900 003 33 61 431 1000 003	 X (without dust cap)  Y (without protection cap)  Loading-Plan A — fiber 1 — B B — fiber 2 — A	
FO cable, Multimode, Not assembled	10 m 20 m 100 m	33 58 751 0100 001 33 58 751 0200 001 33 58 751 1000 001		

9 / 125 µm
HARTING PushPull
SC duplex



Features

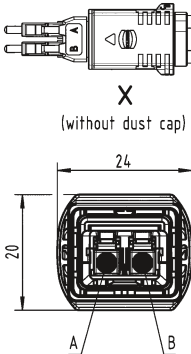
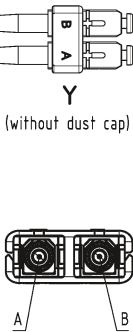
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	9 / 125 µm
Connector 1	HARTING PushPull
Connector 2	SC duplex
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Singlemode, Overmoulded, Pre-assembled on both sides  	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 431 0010 004 33 61 431 0020 004 33 61 431 0030 004 33 61 431 0040 004 33 61 431 0050 004 33 61 431 0060 004 33 61 431 0070 004 33 61 431 0080 004 33 61 431 0090 004 33 61 431 0100 004 33 61 431 0110 004 33 61 431 0120 004 33 61 431 0130 004 33 61 431 0140 004 33 61 431 0150 004 33 61 431 0200 004 33 61 431 0250 004 33 61 431 0300 004 33 61 431 0350 004 33 61 431 0400 004 33 61 431 0450 004 33 61 431 0500 004 33 61 431 0600 004 33 61 431 0700 004 33 61 431 0800 004 33 61 431 0900 004 33 61 431 1000 004	  X (without dust cap) Y (without dust cap) Loading-Plan A fiber 1 B B fiber 2 A	
FO cable, Singlemode, Not assembled	10 m 20 m 100 m	33 58 751 0100 002 33 58 751 0200 002 33 58 751 1000 002		

50 / 125 µm
HARTING PushPull
SC duplex



Features

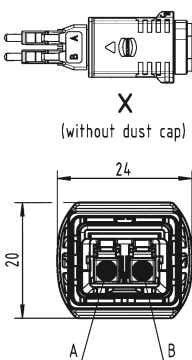
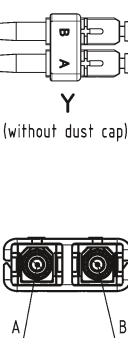
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	50 / 125 µm
Connector 1	HARTING PushPull
Connector 2	SC duplex
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Multimode, Overmoulded, Pre-assembled on both sides  	1 m 2 m 3 m 4 m 5 m 6 m 7 m 8 m 9 m 10 m 11 m 12 m 13 m 14 m 15 m 20 m 25 m 30 m 35 m 40 m 45 m 50 m 60 m 70 m 80 m 90 m 100 m	33 61 431 0010 005 33 61 431 0020 005 33 61 431 0030 005 33 61 431 0040 005 33 61 431 0050 005 33 61 431 0060 005 33 61 431 0070 005 33 61 431 0080 005 33 61 431 0090 005 33 61 431 0100 005 33 61 431 0110 005 33 61 431 0120 005 33 61 431 0130 005 33 61 431 0140 005 33 61 431 0150 005 33 61 431 0200 005 33 61 431 0250 005 33 61 431 0300 005 33 61 431 0350 005 33 61 431 0400 005 33 61 431 0450 005 33 61 431 0500 005 33 61 431 0600 005 33 61 431 0700 005 33 61 431 0800 005 33 61 431 0900 005 33 61 431 1000 005	  X (without dust cap) Y (without dust cap) Loading-Plan A fiber 1 B B fiber 2 A	
FO cable, Multimode, Not assembled	10 m 20 m 100 m	33 58 751 0100 003 33 58 751 0200 003 33 58 751 1000 003		



62,5 / 125 μ m
HARTING PushPull
SC duplex

Features

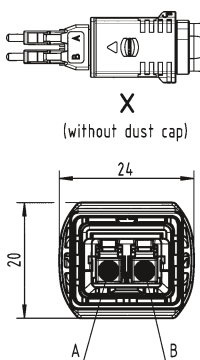
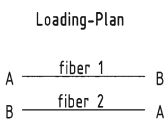
- Transmission of up to 10 Gbit/s
- Flexible, space saving
- Simple handling by HARTING PushPull
- Suitable for outdoor applications

Technical characteristics

Number of cores	62,5 / 125 μ m
Connector 1	HARTING PushPull
Connector 2	SC duplex
Limiting temperature	-40 ... +85 °C
Schutz nach IEC 60529	IP65 / IP67
Cable diameter	6,5 mm, 7 mm
Material (hood/housing)	Thermoplastic
Material (cable)	PUR (polyurethane)
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, FO cable, Multimode, Overmoulded, Pre-assembled on both sides  	1 m	33 61 431 0010 006	  	
	2 m	33 61 431 0020 006		
	3 m	33 61 431 0030 006		
	4 m	33 61 431 0040 006		
	5 m	33 61 431 0050 006		
	6 m	33 61 431 0060 006		
	7 m	33 61 431 0070 006		
	8 m	33 61 431 0080 006		
	9 m	33 61 431 0090 006		
	10 m	33 61 431 0100 006		
	11 m	33 61 431 0110 006		
	12 m	33 61 431 0120 006		
	13 m	33 61 431 0130 006		
	14 m	33 61 431 0140 006		
	15 m	33 61 431 0150 006		
	20 m	33 61 431 0200 006		
	25 m	33 61 431 0250 006		
	30 m	33 61 431 0300 006		
	35 m	33 61 431 0350 006		
	40 m	33 61 431 0400 006		
	45 m	33 61 431 0450 006		
	50 m	33 61 431 0500 006		
	60 m	33 61 431 0600 006		
	70 m	33 61 431 0700 006		
	80 m	33 61 431 0800 006		
	90 m	33 61 431 0900 006		
	100 m	33 61 431 1000 006		
FO cable, Multimode, Not assembled	10 m	33 58 751 0100 001		
	20 m	33 58 751 0200 001		
	100 m	33 58 751 1000 001		

Number of contacts

20

0.5 A / 30 V

PVB jack

Adapter



Technical characteristics

Number of contacts	20
Electrical data acc. to EN 61984	0.5 A 30 V
Rated current	0.5 A
Rated voltage	30 V
Limiting temperature	-40 °C ... +80 °C

Technical characteristics

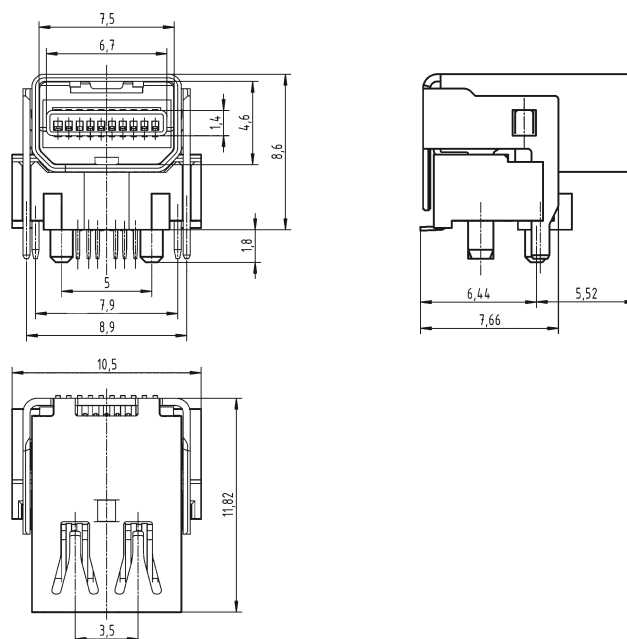
Mating cycles	≥ 100
Degree of protection acc. to IEC 60529	IP20, IP65 / IP67, when mated
Material (hood/housing)	Polyamide Polybutylene terephthalate (PBT)
Colour (hood/housing)	Black
RoHS	compliant

Identification	Part number	Drawing	Dimensions in mm
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HARTING PushPull,
PCB jack,
Solder termination,
Polyamide

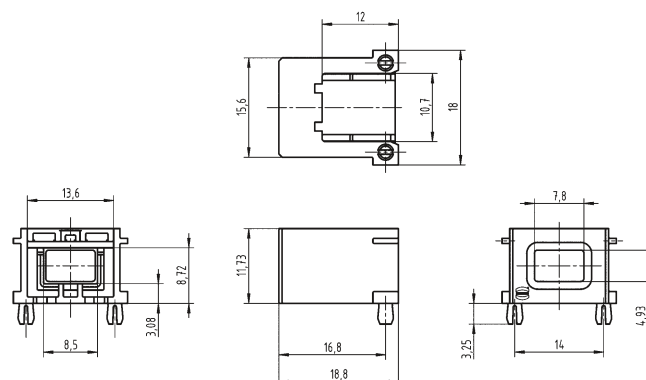
09 45 551 1000¹⁾

09 45 551 1000 333²⁾



HARTING PushPull,
Adapter,
Polybutylenterephthalat (PBT)

09 45 545 1002



All solder jacks and adapter PCB's are suitable for the HARTING PushPull bulkhead mounting housings 09 45 545 0042 / ... 0043

¹⁾ Packaging: Tape & Reel à 400 pieces

²⁾ Sample, Packaging: 1 piece



20x AWG 32
Mini DisplayPort
Mini DisplayPort

Technical characteristics

Number of cores	20
Core structure	20x AWG 32
Connector 1	Mini DisplayPort
Connector 2	Mini DisplayPort
Limiting temperature	-40 ... +80 °C
Transmission characteristics	DisplayPort 1.2, DisplayPort 1.1
Material (cable)	TPE

Technical characteristics

Colour (cable)	Black
RoHS	compliant

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
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HARTING PushPull,
Copper cable (round),
Pre-assembled on both
sides,
DisplayPort 1.2

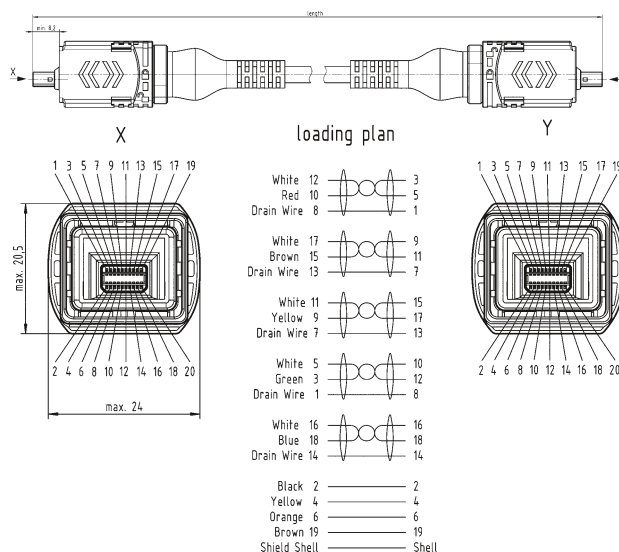


0.5 m	09 45 145 1000
1 m	09 45 145 1001
1.5 m	09 45 145 1002
2 m	09 45 145 1003

HARTING PushPull,
Copper cable (round),
Pre-assembled on both
sides,
DisplayPort 1.1



3 m	09 45 145 1004
-----	----------------





20x AWG 32
Mini DisplayPort
IP20

Technical characteristics

Number of cores	20
Core structure	20x AWG 32
Connector 1	Mini DisplayPort
Connector 2	Mini DisplayPort
Limiting temperature	-40 ... +80 °C
Transmission characteristics	DisplayPort 1.2, DisplayPort 1.1
Material (cable)	TPE

Technical characteristics

Colour (cable)	Black
RoHS	compliant

Details

Other cable lengths on request!

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

HARTING PushPull,
Copper cable (round),
Pre-assembled on both
sides,
DisplayPort 1.2

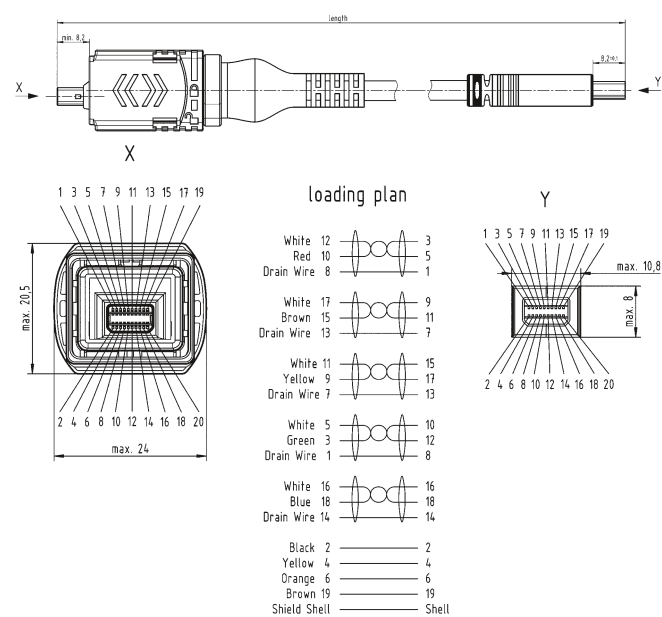


0.5 m	09 45 145 1010
1 m	09 45 145 1011
1.5 m	09 45 145 1012
2 m	09 45 145 1013

HARTING PushPull,
Copper cable (round),
Pre-assembled on both
sides,
DisplayPort 1.1



3 m	09 45 145 1014
-----	----------------





HARTING PushPull, type acc. to IEC 61 076-3-106 variant 4
10 poles 50 V / 5 A

Features

- HARTING PushPull technology
- For the transmission of analog, low voltage and bus signals
- Fully shielded
- 10 contacts
- Touch-proof
- Easy and fast cable installation

Technical characteristics

Locking	PushPull technology acc. to IEC 61076-3-106 variant 4
Degree of protection	IP65 / IP67
Mating face	acc. to IEC/PAS 61076-3-113
Number of contacts	10
Electrical data acc. to DIN EN 61984	5 A 50 V 1.5 kV 3
Contact resistance	10 mΩ
Termination	Crimp or solder
Conductor cross section	AWG 24 ... 18; 0.25 ... 0.82 mm ²
Conductor diameter	max. 2.1 mm
Outer cable diameter	4.5 ... 10 mm
Shielding	Fully shielded, 360° shielding contact
Mating cycles	min. 500
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification

Part number

Drawing

Dimensions in mm

HARTING PushPull Signal

Connector set 10 poles
incl. plastic housing
and female insert

Order D-Sub crimp female con-
tacts separately

D-Sub crimp contacts for cable side

female, turned
AWG 24-20; 0.25 - 0.52 mm²

female, turned
AWG 22-18; 0.33 - 0.82 mm²

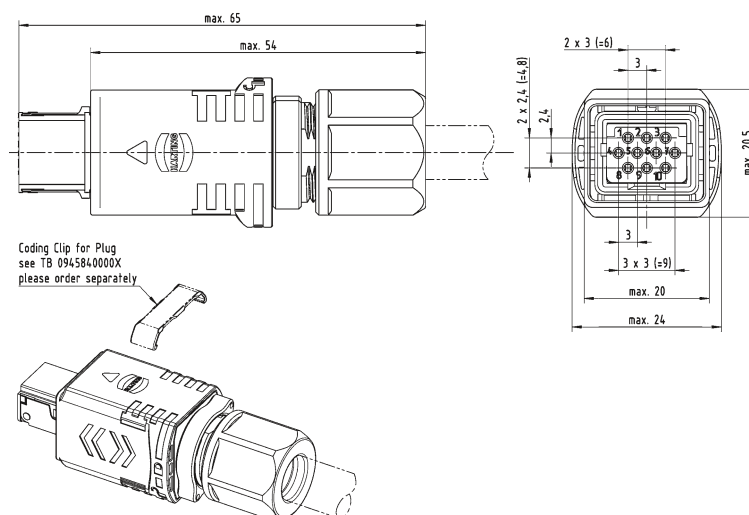
female, stamped
AWG 24-20; 0.25 - 0.56 mm²

09 45 145 9011

09 67 000 8476¹⁾

09 67 000 3476¹⁾

09 67 000 8278²⁾



¹⁾ To be used with crimp tool 09 99 000 0501. Suitable locator: 09 99 000 0531

²⁾ To be used with crimp tool 09 99 000 0175.

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2) To be used with crimp tool 09 99 000 0175.



10x AWG 20
HARTING PushPull Signal 10-pin
HARTING PushPull Signal 10-pin

Features

- Double-sided IP65/IP67 protection
- Simple handling by HARTING PushPull
- 10-pin

Technical characteristics

Number of cores	10
Core structure	10x AWG 20
Connector 1	HARTING PushPull, Signal, 10-pin
Connector 2	HARTING PushPull, Signal, 10-pin
Rated current	5 A
Rated voltage	50 V
Limiting temperature	-40 ... +80 °C
Material (cable)	PVC
Colour (cable)	Grey

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull, Copper cable (round), Wiring 1:1, Pre-assembled on both sides	0.5 m	09 48 313 18A6 005		
	1 m	09 48 313 18A6 010		
	1.5 m	09 48 313 18A6 015		
	2 m	09 48 313 18A6 020		
	3 m	09 48 313 18A6 030		
	4 m	09 48 313 18A6 040		
	5 m	09 48 313 18A6 050		
	7.5 m	09 48 313 18A6 075		
	10 m	09 48 313 18A6 100		
	15 m	09 48 313 18A6 150		
	20 m	09 48 313 18A6 200		



HARTING PushPull USB

Components device side and panel feed-throughs

Advantages

- HARTING PushPull technology
- Compact, space-saving design for the device integration of USB jacks
- USB 2.0 and 3.0 compatible

Technical characteristics

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

Identification	Part number	Drawing	Dimensions in mm
Components device side USB 2.0 type B Solder jack, angled 90°, THT	09 45 541 1900		
Adapter PCB USB 2.0 type A Jack to pin header	09 45 541 1902		
Adapter PCB USB 2.0 type B Jack to jack	Type B-B Type B-B, 90° Type A-B		09 45 541 1906 09 45 541 1907 09 45 541 1910



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 |
| Mating cycles | min. 750 |
| Temperature range | -40 °C ... +70 °C |

40



4 wires

HARTING PushPull USB 2.0 Type A

HARTING PushPull USB 2.0 Type A

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

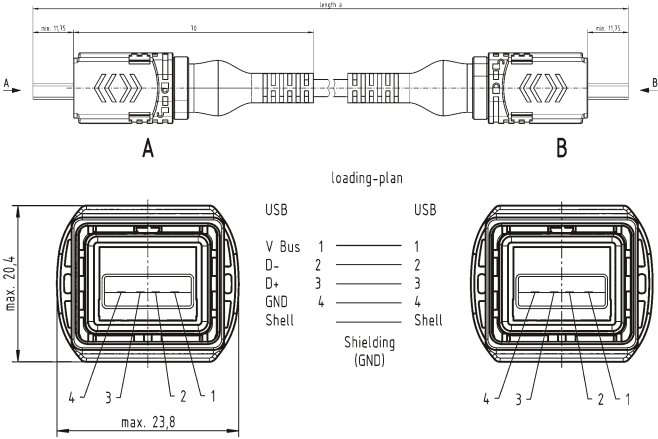
Number of cores	4
Core structure	4 wires
Connector 1	HARTING PushPull, USB 2.0, Type A
Connector 2	HARTING PushPull, USB 2.0, Type A
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides 	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 1900 09 45 445 1901 09 45 445 1902 09 45 445 1903 09 45 445 1904 09 45 445 1905		



4 wires

HARTING PushPull USB 2.0 Type A

IP20 USB 2.0 Type A

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

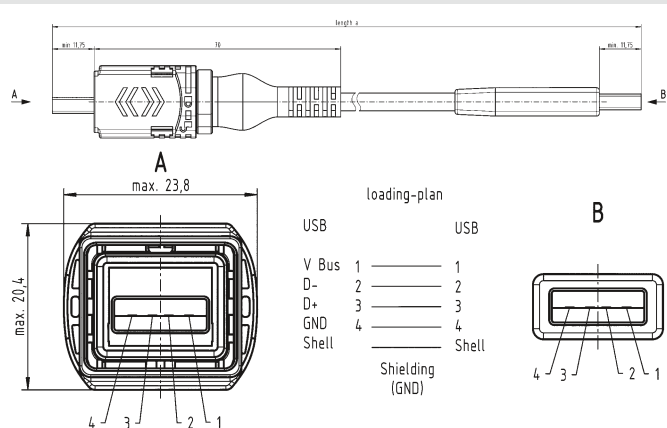
Number of cores	4
Core structure	4 wires
Connector 1	HARTING PushPull, USB 2.0, Type A
Connector 2	IP20, USB 2.0, Type A
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 1910 09 45 445 1911 09 45 445 1912 09 45 445 1913 09 45 445 1914 09 45 445 1915		



4 wires

HARTING PushPull USB 2.0 Type B

HARTING PushPull USB 2.0 Type B

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

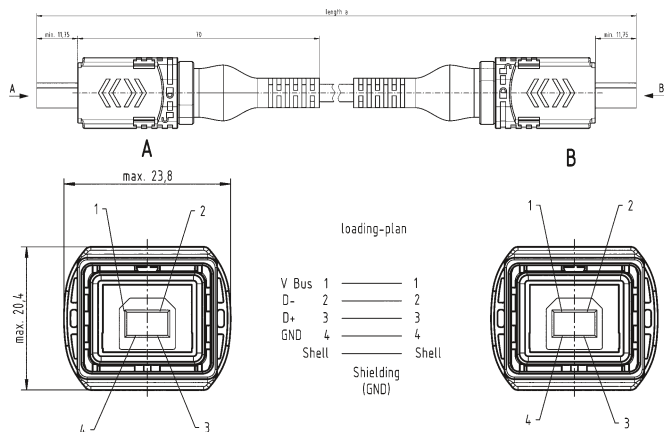
Number of cores	4
Core structure	4 wires
Connector 1	HARTING PushPull, USB 2.0, Type B
Connector 2	HARTING PushPull, USB 2.0, Type B
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides 	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 3900 09 45 445 3901 09 45 445 3902 09 45 445 3903 09 45 445 3904 09 45 445 3905		



4 wires

HARTING PushPull USB 2.0 Type B

IP20 USB 2.0 Type B

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

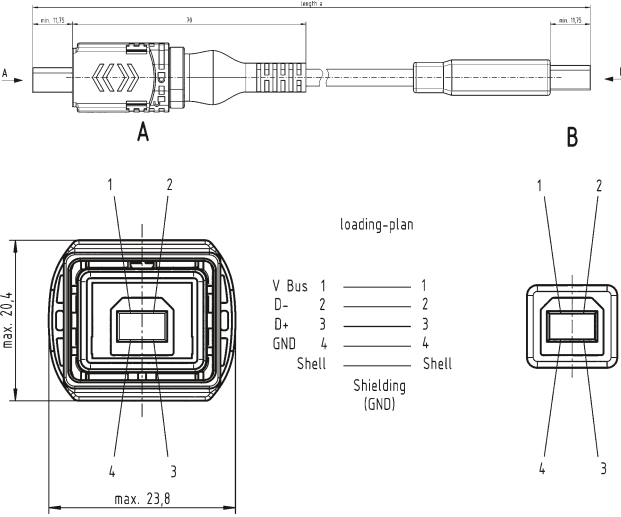
Number of cores	4
Core structure	4 wires
Connector 1	HARTING PushPull, USB 2.0, Type B
Connector 2	IP20, USB 2.0, Type B
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides 	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 3910 09 45 445 3911 09 45 445 3912 09 45 445 3913 09 45 445 3914 09 45 445 3915		



4 wires

HARTING PushPull USB 2.0 Type A

HARTING PushPull USB 2.0 Type B

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

Number of cores	4
Core structure	4 wires
Connector 1	HARTING PushPull, USB 2.0, Type A
Connector 2	HARTING PushPull, USB 2.0, Type B
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

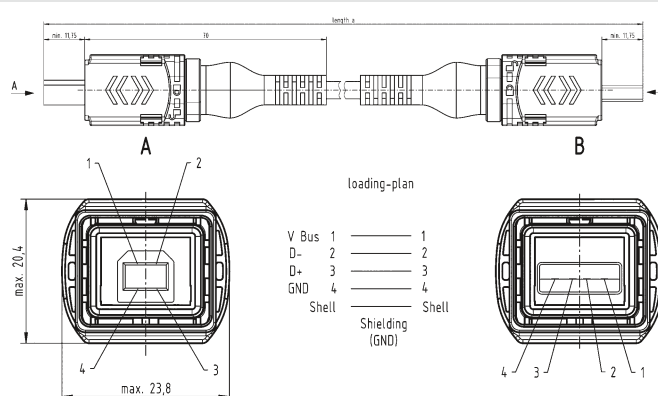
Identification	Cable length	Part number	Drawing	Dimensions in mm
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USB,
Copper cable (round),
Pre-assembled on both
sides



0.5 m
1 m
1.5 m
2 m
3 m
5 m

09 45 445 4900
09 45 445 4901
09 45 445 4902
09 45 445 4903
09 45 445 4904
09 45 445 4905





4 wires

HARTING PushPull USB 2.0 Type B
IP20 USB 2.0 Type A

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

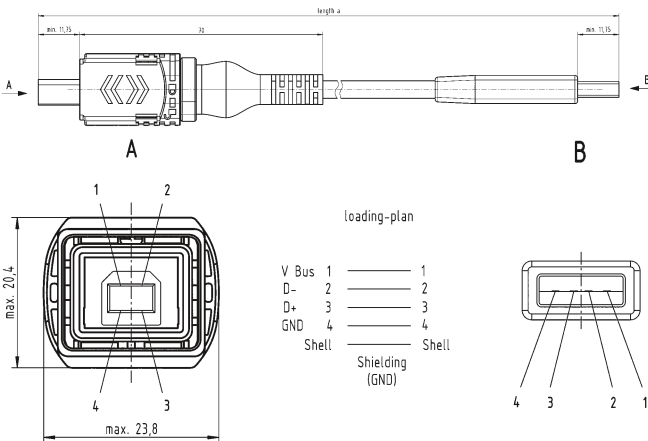
Number of cores	4
Core structure	4 wires
Connector 1	HARTING PushPull, USB 2.0, Type B
Connector 2	IP20, USB 2.0, Type A
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides 	0,5 m 1 m 1,5 m 2 m 3 m 5 m	09 45 445 4910 09 45 445 4911 09 45 445 4912 09 45 445 4913 09 45 445 4914 09 45 445 4915		

4 wires

HARTING PushPull USB 2.0 Type A
IP20 USB 2.0 Type B

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

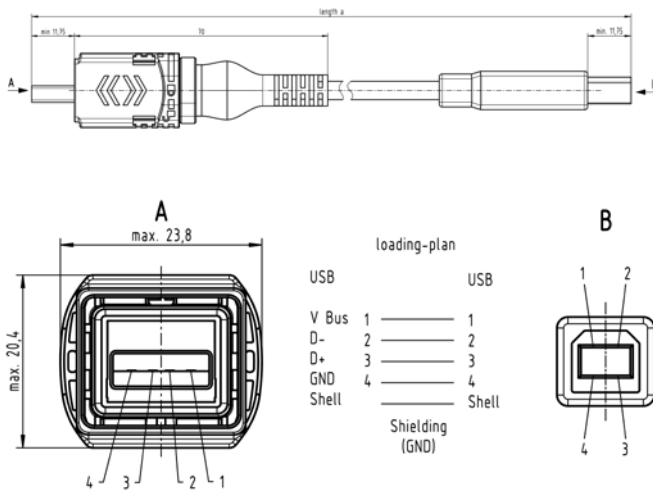
Number of cores	4
Core structure	4 wires
Connector 1	HARTING PushPull, USB 2.0, Type A
Connector 2	IP20, USB 2.0, Type B
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 2930 09 45 445 2931 09 45 445 2932 09 45 445 2933 09 45 445 2934 09 45 445 2935		



9 wires

HARTING PushPull USB 3.0 Type A

HARTING PushPull USB 3.0 Type A

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 2.0 compatible

Technical characteristics

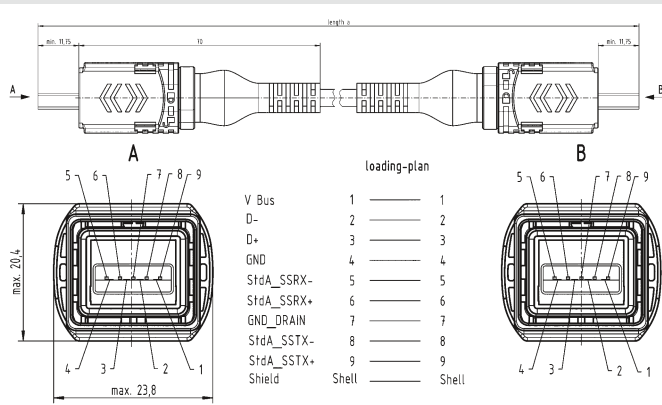
Number of cores	9
Core structure	9 wires
Connector 1	HARTING PushPull, USB 3.0, Type A
Connector 2	HARTING PushPull, USB 3.0, Type A
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 2900 09 45 445 2901 09 45 445 2902 09 45 445 2903 09 45 445 2904 09 45 445 2905		



9 wires

HARTING PushPull USB 3.0 Type A

IP20 USB 3.0 Type A

Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 3.0 compatible

Technical characteristics

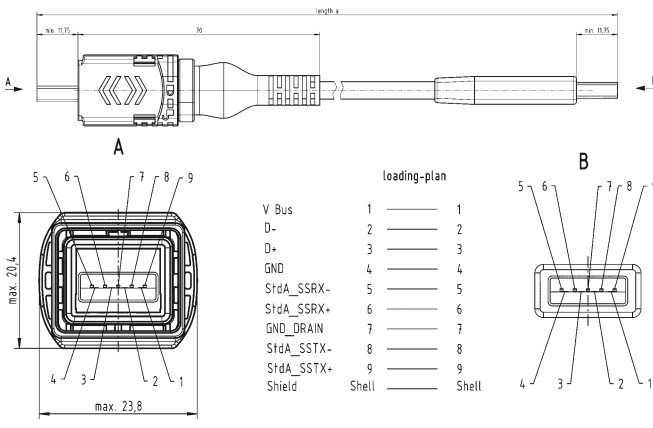
Number of cores	9
Core structure	9 wires
Connector 1	HARTING PushPull, USB 3.0, Type A
Connector 2	IP20, USB 3.0, Type A
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides 	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 2910 09 45 445 2911 09 45 445 2912 09 45 445 2913 09 45 445 2914 09 45 445 2915		

9 wires

HARTING PushPull USB 3.0 Type A

IP20 USB 3.0 Type B



Features

- HARTING PushPull technology
- 360° shielding
- Flexible, space saving
- Robust industrial design
- USB 3.0 compatible

Technical characteristics

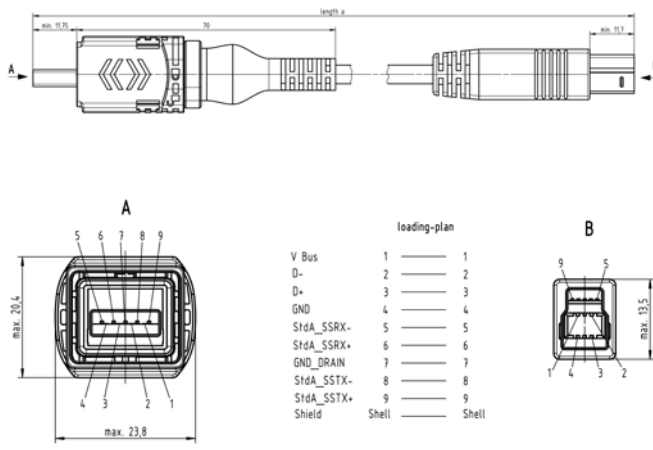
Number of cores	9
Core structure	9 wires
Connector 1	HARTING PushPull, USB 3.0, Type A
Connector 2	IP20, USB 3.0, Type B
Material (cable)	PVC
Colour (cable)	Black

Specifications and approvals

IEC 61076-3-106 variant 4 (V4), PushPull technology

Details

Other cable lengths on request!

Identification	Cable length	Part number	Drawing	Dimensions in mm
USB, Copper cable (round), Pre-assembled on both sides	0.5 m 1 m 1.5 m 2 m 3 m 5 m	09 45 445 2940 09 45 445 2941 09 45 445 2942 09 45 445 2943 09 45 445 2944 09 45 445 2945		

HARTING offers with the HARTING PushPull Power connector a universal solution for the power supply in compact and robust applications. It is in its element wherever small dimensions are combined with a high protection class.

The connector is available in a 4 pole 48 V and a 2 pole 250 V version. The power contacts can carry up to 12 resp. 16 A each (see deratings). In spite of this high current carrying capacity the connector gets by with minimal dimensions and fulfils the industrial requirements for clearances and creepage distances at the same time (pollution degree 3 and overvoltage category III).

Additionally the HARTING PushPull Power connector offers the protection class of IP67 and 65. Beside numerous industrial use cases it is thereby suited for diverse applications in the fields of transportation and telecommunication.

The cable side of the HARTING PushPull Power is terminated with crimping technology. For the receptacle several solutions with different termination technologies are offered.

Regulations

- VDE 0110
- DIN EN 61984

Advantages

- Minimum space requirements in spite of high current carrying capacity
- Very compact housing in a high protection class
- Protection against contact on plug AND receptacle side enables an easy and safe installation
- For low voltage (48 V) and for power supply (250 V) available
- Codeable without losing contacts
- Different termination technologies for individual device integration

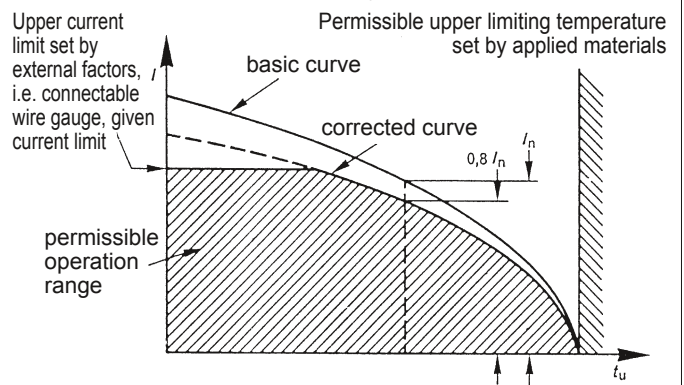
Typical application areas

- Factory and building automation
- Industrial electronics
- Telecommunication and wireless networks
- Transportation
- Industrial monitoring and camera systems
- Lighting and display technology
- Access control systems

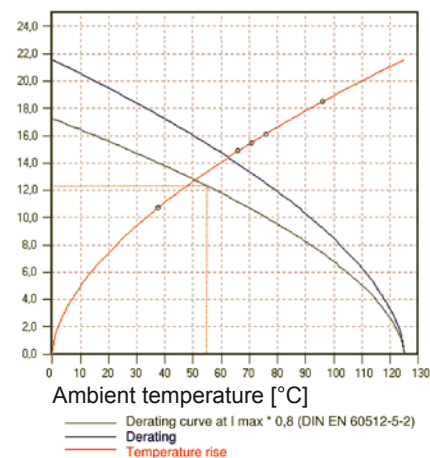
Current carrying capacity

The current carrying capacity is determined in tests which are conducted on the basis of the DIN IEC 60512-5-2. The current carrying capacity is limited by the thermal properties of materials which are used for inserts as well as by the insulating materials. These components have a limiting temperature which should not be exceeded.

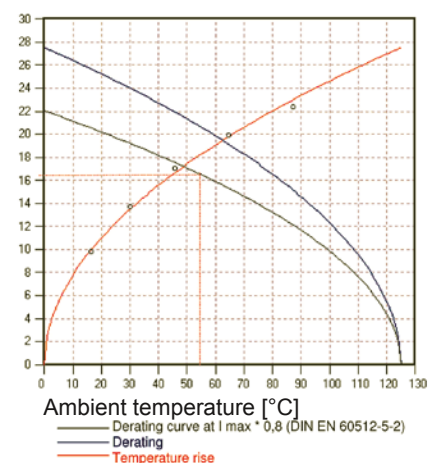
Example of a current capacity curve



Derating-Diagram for low voltage, 48 V; 4x 12 A



Derating-Diagram for power supply, 250 V; 2x 16 A





Advantages

- Power connectors for devices
- Compact panel feed-through and females for simple device integration
- Compact, space-saving design
- Touch-proof according to IEC DIN EN 60 529
- Polarisation with the aid of coding pins
- Device side: female with cable cage, crimp or solder termination
- 4 different coding variants without loss of contact

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Degree of protection	IP65 / IP67
Number of contacts	4
Electrical data acc. to EN 61984	12 A 48 V 1.5 kV 3
Termination	Crimp
Termination cross section	0.75 - 2.5 mm ² (AWG 20 - 12) stranded
Termination	Solder pins
Termination diameter	1.6 mm
Termination	Cable cage
Termination cross section	0.75 - 2.5 mm ² (AWG 20 - 12) stranded
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Panel feed-through set			
Bulkhead mounted housing – Compact			
with 4 turned female contacts and insulation body			
with crimp termination	09 46 245 4420		
with solder termination, 90° angled	09 46 245 4020		
with cage clamp terminal on pcb	09 46 245 4021		
Power-female with solder termination			
4 poles, 48 V / 12 A, 90° angled	09 46 500 4400 ¹⁾		
4 poles, 48 V / 12 A, straight	09 46 500 4402 ²⁾		
Power-female with crimp termination	09 46 500 4401		

¹⁾ Suitable housings: 09 45 545 0042 / ... 0043
²⁾ Suitable housing: 09 45 545 0040



HARTING PushPull Power 4/0,
type acc. to IEC 61076-3-106 variant 4
connector 4 poles 48 V / 12 A

Advantages

- Power connectors for devices
- Compact, space-saving design
- Touch-proof according to IEC DIN EN 60529
- Polarisation with the aid of coding pins
- Cable side: Male with crimp termination
- 4 different coding variants without loss of contact

Technical characteristics

Locking	PushPull Technology acc. to IEC 61076-3-106 variant 4
Degree of protection	IP65 / IP67
Number of contacts	4
Electrical data acc. to EN 61984	12 A 48 V 1.5 kV 3
Cable diameter	4.5 ... 10 mm
Termination	Crimp
Termination cross section	0.75 - 2.5 mm ² (AWG 20 - 12) stranded
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Connector set incl. 4 turned crimp contacts (male) for 1.5 mm ² , insulation body, housing, cable gland	09 46 145 4420		
Connector set without contacts	09 46 145 4421		
Accessories – crimp contacts male 0.75 mm ² (AWG 20 - 18) 1.0 mm ² (AWG 18) 1.5 mm ² (AWG 16 - 14) 2.5 mm ² (AWG 12)	09 46 500 0403 09 46 500 0407 09 46 500 0401 09 46 500 0405		
Accessories – crimp contacts female 0.75 mm ² (AWG 20 - 18) 1.0 mm ² (AWG 18) 1.5 mm ² (AWG 16 - 14) 2.5 mm ² (AWG 12)	09 46 500 0404 09 46 500 0408 09 46 500 0402 09 46 500 0406		
Accessories – Coding pin set to avoid accidental incorrect mating a coding system is required. This coding pins are inserted without loss of contact.	09 46 840 0000		

Number of contacts

4

4G 1,5 mm²

HARTING PushPull (V4) Power 4-polig

HARTING PushPull (V4) Power 4-polig



Technical characteristics

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

Specifications and approvals

IEC 61076-3-106 Variante 4 (V4)

Details

Other cable lengths on request!

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



Advantages

- Power connectors for devices
- Compact, space-saving design
- Touch-proof according to IEC DIN EN 60 529
- Polarisation with the aid of coding pins
- Cable side: Male with crimp termination
- Device side: female with crimp termination
- 4 different coding variants without loss of contact

Locking	PushPull Technology acc. to IEC 61 076-3-106 variant 4
Degree of protection	IP65 / IP67
Number of contacts	2 + PE
Electrical data acc. to EN 61 984	16 A 250 V 4 kV 3
Cable diameter	4.5 ... 10 mm
Termination	Crimp
Termination cross section	0.75 - 2.5 mm ² (AWG 20 - 12) stranded
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Components device side			
Panel feed-through set insulation body (black)	09 46 245 3420		
Power-female with solder termination angled	09 46 500 3400		
Power-female with crimp termination without contacts	09 46 500 3401		
Connector set incl. 3 turned crimp contacts (male) for 1.5 mm², insulation body (black), housing, cable gland	09 46 145 3420		
Connector set without contacts	09 46 145 3421		
Coding pin set to avoid accidental incorrect mating a coding system is required. This coding pins are inserted without loss of contact.	09 46 840 0000		

Number of contacts

2+

3G 1,5 mm²

HARTING PushPull (V4) Power 3-polig

HARTING PushPull (V4) Power 3-polig



Technische Kennwerte

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

Normen und Zulassungen

IEC 61076-3-106 Variante 4 (V4)

Hinweise

Weitere Kabellängen auf Anfrage!

Identification	Conductor cross-section (mm ²)	Cable length	Part number	Drawing	Dimensions in mm
HARTING PushPull (V4), Copper cable (round), Wiring 1:1, Cable assemblies, Pre-assembled on both sides, Crimp termination, Unshielded, PushPull	1,5	0,5 m	33 59 222 0050 001		
	1,5	1 m	33 59 222 0100 001		
	1,5	2 m	33 59 222 0200 001		
	1,5	3 m	33 59 222 0300 001		
	1,5	4 m	33 59 222 0400 001		
	1,5	5 m	33 59 222 0500 001		
	1,5	7,5 m	33 59 222 0750 001		
	1,5	10 m	33 59 222 1000 001		
	1,5	15 m	33 59 222 1500 001		
	1,5	20 m	33 59 222 2000 001		
	1,5	30 m	33 59 222 3000 001		



Identification

Part number

HARTING PushPull Power
8-indent crimping tool incl. positioner

09 46 800 0000

Locator HARTING PushPull Power
contacts for Buchanan crimping tool
(09 99 000 0001)

09 46 800 0010



For wire gauges
0.08 ... 4.0 mm²
(AWG 28 ... 12).

Insertion tool

09 46 800 0099

Extraction tool

09 46 800 0098



For an easy insertion and
extraction of the male and
female crimp contacts into /
out of the insulator body.

Crimp connection

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

The economic and technical advantages are:

- Constant contact resistance as a result of precisely repeated crimp connection quality
- Corrosion free connections as a result of cold weld action
- Pre-preparation of cable forms with crimp contacts fitted
- Optimum cost cable connection

Requirements for crimp connectors are laid down in DIN IEC 60352-2, Amend. 2, as illustrated in the table.

Pull out force of stranded wire

The main criterion to judge the quality of a crimp connection is the retention force achieved by the wire conductor in the terminal section of the contact. DIN IEC 60352, part 2, defines the extraction force in relation to the cross-section of the conductor. When fitted using HARTING crimping tools and subject to their utilization in an approved manner, our crimp connectors comply with the required extraction forces.

Tensile strength of crimped connections

Conductor cross-section		Tensile strength
mm ²	AWG	N
0.08	28	11
0.12	26	15
0.14		18
0.22	24	28
0.25		32
0.32	22	40
0.5	20	60
0.75		85
0.82	18	90
1.0		108
1.3	16	135
1.5		150
2.1	14	200
2.5		230
3.3	12	275
4.0		310

Extract from DIN IEC 60352-2, Amend. 2, Table IV

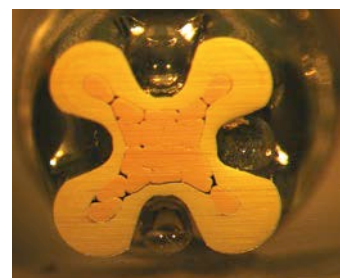
Crimping tools

Crimping tools (hand operated or automatic) are carefully designed to produce with high pressure forming parts a symmetrical connection of the crimping part of the contact and the wire being connected with the minimum increase in size at the connection point. The positioner automatically locates the crimp and wire at the correct point in the tool.

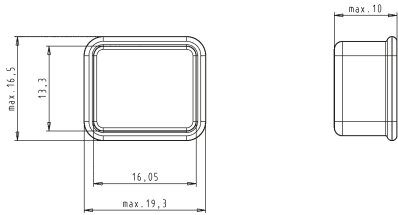
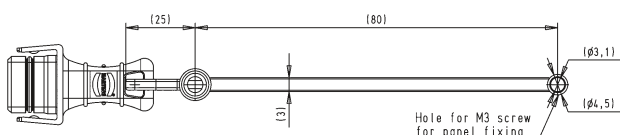
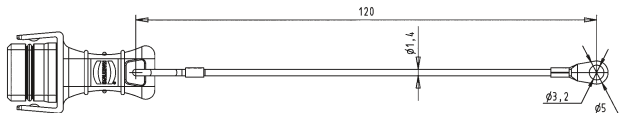
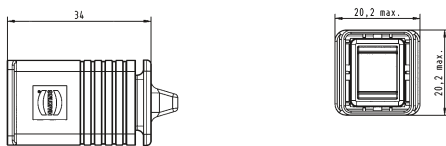
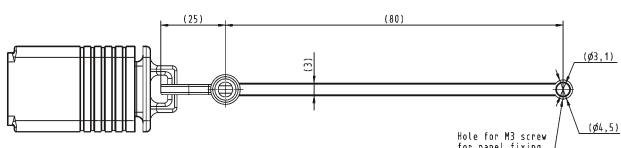
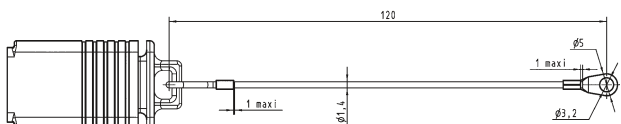
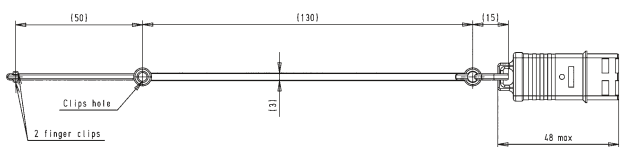
A ratchet in the tool performs 2 functions:

- ① It prevents insertion of the crimp into the tool for crimping before the jaws are fully open
- ② It prevents the tool being opened before the crimping action is completed

Identical, perfectly formed, connections can be produced using this crimping system.



Crimp-cross section
HARTING crimp profile

Identification	Part number	Drawing	Dimensions in mm
Transport protection for device side IP40	09 45 845 0003		
Protection cover for device side IP65 / IP67			
Version with passive locking without cord	09 45 845 0009 024		
Version with passive locking with plastic cord for fixing screw M3	09 45 845 0009		
Version with passive locking with nylon cord for fixing screw M2.5 / M3	09 45 845 0011 024		
Version with active locking without cord	09 45 845 0015		
Version with active locking with plastic cord for fixing screw M3	09 45 845 0014		
Version with active locking with nylon cord for fixing screw M2.5 / M3	09 45 845 0013		
Protection cover for connectors IP65 / IP67	09 45 845 0010		
Blinding plate to close PushPull Compact panel cuttings	09 45 845 0019		



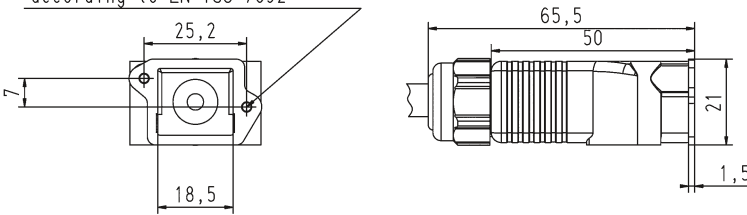
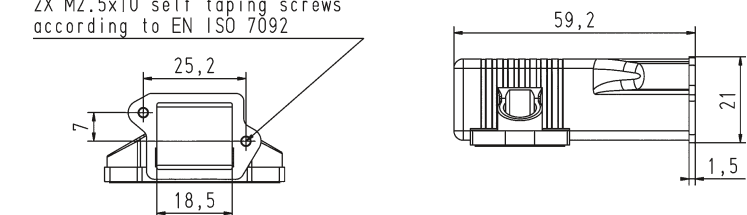
HARTING PushPull, type acc. to IEC 61 076-3-106 variant 4
cable to cable housing

Features

- HARTING PushPull technology
- Ideal for prototyping
- Can be combined with panel feed-throughs for power, data and signal

Technical characteristics

Locking	PushPull technology acc. to IEC 61076-3-106 variant 4
Degree of protection	IP65 / IP67
Outer cable diameter	6.5 ... 9.5 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
HARTING PushPull cable to cable housings, plastic (Order housing bulkhead mounting and insert separately) for outer cable diameter 6.5 ... 9.5 mm	09 45 345 0000	2X M2.5x10 self tapping screws according to EN ISO 7092 	
HARTING PushPull bulkhead housings, plastic (Order housing bulkhead mounting and insert separately)	09 45 345 0001	2X M2.5x10 self tapping screws according to EN ISO 7092 	
Suitable bulkhead housing, plastic for RJ45 / Signal	09 45 545 0028		
Inserts for RJ45 / Signal RJ 45: 8 poles, Cat. 6 / class E _A Ha-Vis preLink® set AWG 22/23 HARTING RJ Industrial® cable jack with IDC termination	20 82 001 0001		
AWG 22-24, 8 poles	09 45 545 1562		
AWG 24-28, 8 poles	09 45 545 1561		
AWG 22-24, 4 poles, Cat. 5	09 45 545 1120		
Signal: 10 poles, 50 V / 5 A*	09 45 545 9010		

* Order D-Sub crimp male contacts separately (see pages 02.19 and 02.20)



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

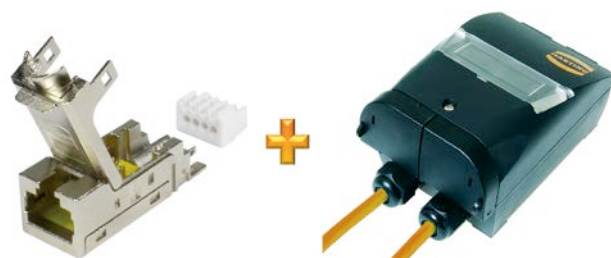
Features

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

Technical characteristics

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

Identification	Part number	Drawing	Dimensions in mm
HARTING PushPull (V4), IDC termination, Fully shielded, 360° shielding contact, Outlet, Black, Pack contents: 2-port outlet housing with protection caps, Cable management, Cable gland, Label, 2x RJ45 jack, Dummy plugs, Assembly instructions	09 45 845 1562		
HARTING PushPull (V4), IDC termination, Fully shielded, 360° shielding contact, Outlet, White, Pack contents: 2-port outlet housing with protection caps, Cable management, Cable gland, Label, 2x RJ45 jack, Dummy plugs, Assembly instructions	09 45 845 1563		



Technical characteristics

Limiting temperature	-20 ... +70 °C
Degree of protection acc. to IEC60529	IP65 / IP67
Cable diameter	6 ... 9 mm
Fixing	Wall mounting

Technical characteristics

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

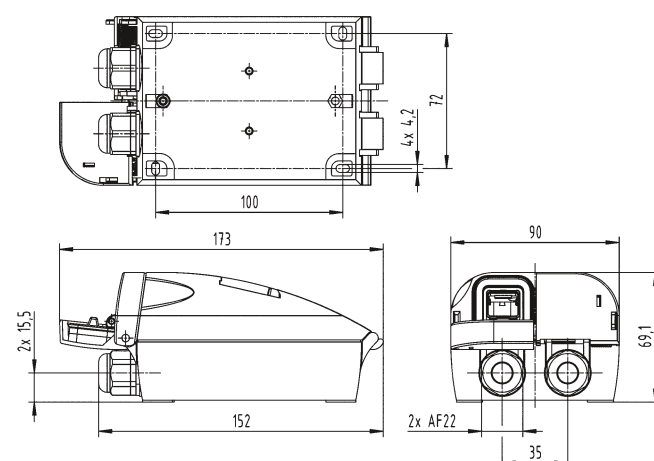
Identification	Part number	Drawing	Dimensions in mm
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HHARTING PushPull (V4),
Outlet,
Empty,
for fixture of 2x RJ45 female inserts,
Black



Please order insert separately.

09 45 845 1560



Number of contacts

4



Technical characteristics

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

Technical characteristics

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

Specifications and approvals

DNV GL



Identification

Part number

Drawing

Dimensions in mm

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



09 45 545 1120

Technical characteristics

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

Technical characteristics

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

Specifications and approvals

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



Identification	Part number	Drawing	Dimensions in mm
preLink® , Female module, With terminal block, preLink® IDC insulation displacement termination, AWG 23/22 	20 82 001 0001		
preLink® , Female module, With terminal block, preLink® IDC insulation displacement termination, AWG 27/26	20 82 001 0002		

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

preLink®,

Female module,
without terminal block,
preLink® IDC insulation displacement
termination,
AWG 23/22,
AWG 27/26



20 82 000 0002

HARTING RJ Industrial®,

Female,
RJ45,
HIFF version,
IDC termination,
Fully shielded, 360° shielding contact,
AWG 28 ... AWG 24



09 45 545 1561

HARTING RJ Industrial®,

Female,
RJ45,
HIFF version,
IDC termination,
Fully shielded, 360° shielding contact,
AWG 24 ... AWG 22



09 45 545 1562



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
Housing bulkhead mounting for device integration and RJ45 jacks

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Device integration via RJ45 PCB connectors

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60 603-7
Termination type	Jack with solder termination
Mating cycles	min. 750
Temperature range	-40 °C ... +85 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Components device side			
Housing bulkhead mounting plastic	09 35 002 0321		
replacement flat seal	09 35 002 9901		
Protection cover IP65 / IP67	09 35 002 5402		
RJ45 jack			
Solder variant, 90° angled	09 35 002 2101 ¹⁾ 09 35 002 2101 333 ³⁾		
Solder variant, 180° straight	09 35 002 2102 ²⁾ 09 35 002 2102 333 ³⁾		
Solder variant, 180° straight, Reflow	09 35 002 2106 ⁴⁾		

1) Packaging: Blister à 360 pieces
2) Packaging: Blister à 400 pieces
3) Sample Packaging: 1 piece
4) Packaging: Tape & Reel à 120 pieces



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 panel feed through

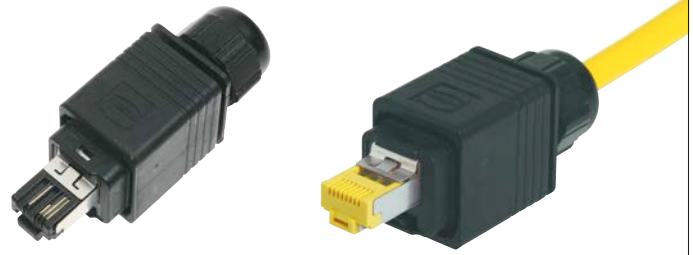
Features

- HARTING PushPull technology
- Compact design
- High packing density
- Device integration via RJ45 PCB connectors

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60 603-7
Transmission performance	acc. to ISO/IEC 11 801:2002, EN 50 173-1, category 5 / class D up to 100 MHz resp. category 6 / class E _A up to 500 MHz
Transmission rate	10 / 100 Mbit/s and 1 / 10 Gbit/s
Number of contacts	8
Shielding	Fully shielded, 360° shielding contact (Cat. 6)
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull RJ45 Panel feed through Cat. 6 including housing and HARTING RJ Industrial® 10G RJ45 bulkhead	09 35 225 0331		
Panel feed through to mount HIFF inserts, e.g. Ha-VIS preLink® RJ45-module Order inserts separately	09 35 012 0331		
Ha-VIS preLink® set RJ45 jack AWG 22/23 consists of: • 1x Ha-VIS preLink® module • 1x Ha-VIS preLink® terminal module • 1x cable tie	20 82 001 0001		
HARTING RJ Industrial® cable jack IDC AWG 22-24, 8 poles, Cat. 6 AWG 24-28, 8 poles, Cat. 6 AWG 22-24, 4 poles, Cat. 5	09 45 545 1562 09 45 545 1561 09 45 545 1120		



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 connector

Features

- HARTING PushPull technology
- Field-assembly connector with IDC contacts
- Fully shielded

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60 603-7
Shielding	Fully shielded, 360° shielding contact
Number of contacts	4 respectively 8
Transmission performance	acc. to ISO/IEC 11 801:2002, EN 50 173-1, category 5 / class D up to 100 MHz, category 6 / class E _A up to 500 MHz
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Termination for Cat. 5	with IDC contacts, no tools needed / field-assembly
Conductor cross section	AWG 24/7 - 22/7 (stranded) AWG 23/1 - 22/1 (solid)
Cable diameter	1.6 mm
Conductor cross section for Cat. 6	AWG 22/7 - 27/7 (stranded) AWG 22/1 - 27/1 (solid)
Cable diameter	1.6 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black, UL 94 V0

Identification

Part number

Drawing

Dimensions in mm

Connector set, plastic

incl. housing and male insert

Han® RJ Industrial
Category 5, 4 poles, IDC contacts
6.5 - 9.5 mm clamp range
5 - 8 mm clamp range

09 35 221 0421
09 35 222 0421

Han® RJ Industrial PN
Category 5, 4 poles, IDC contacts
6.5 - 9.5 mm clamp range
PROFINET-Identification:
PROFINET O-Plug RJ45

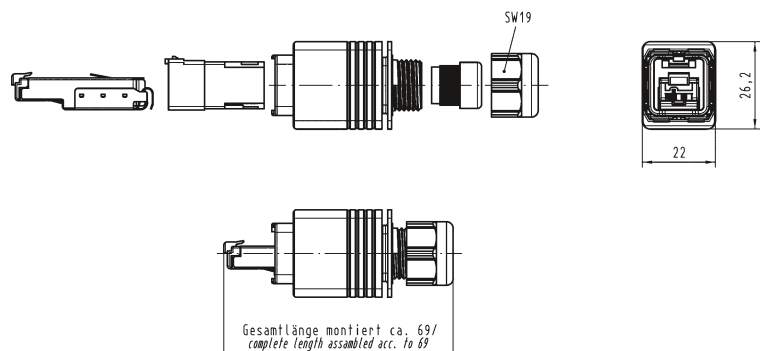
09 35 226 0421

Han® RJ Industrial 10G
Category 6, 8 poles, IDC contacts
6.5 - 9.5 mm clamp range
5 - 8 mm clamp range

09 35 225 0421
09 35 228 0421

Security Clip

09 35 002 9910





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 connector

Features

- HARTING PushPull technology
- Field-assembly connector with piercing contacts
- Fully shielded

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60 603-7
Shielding	Fully shielded, 360° shielding contact
Number of contacts	8
Transmission performance	acc. to ISO/IEC 11 801:2002, EN 50 173-1, category 6A / class EA up to 500 MHz
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Termination	with piercing contacts
Conductor cross section	AWG 24/7 - 27/7 (stranded)
Cable diameter	1.05 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black, UL 94 V0

Identification

Part number

Drawing

Dimensions in mm

Connector set, plastic

incl. housing and male insert
5 - 8 mm clamp range

Han® RJ Industrial

Category 6A, 8 poles, piercing contacts

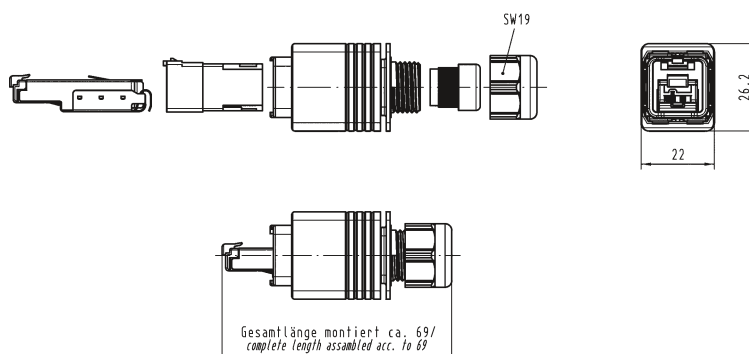
Security Clip

suitable assembly tool

09 35 227 0421

09 35 002 9910

09 45 800 0520





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
Housing bulkhead mounting for device integration and RJ45 jacks

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Device integration via RJ45 PCB connectors

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60 603-7
Termination type	Jack with solder termination
Mating cycles	min. 750
Temperature range	-40 °C ... +85 °C
Housing material	Zinc die-cast, nickel plated

Identification	Part number	Drawing	Dimensions in mm
Components device side			
Housing bulkhead mounting metal	09 35 002 0301		
Replacement flat seal	09 35 002 9901		
Protection cover IP65 / IP67	09 35 002 5402		
RJ45 jack Solder variant, 90° angled	09 35 002 2101 ¹⁾ 09 35 002 2101 333 ³⁾		
Solder variant, 180° straight	09 35 002 2102 ²⁾ 09 35 002 2102 333 ³⁾		
Solder variant, 180° straight, Reflow	09 35 002 2106 ⁴⁾		

1) Packaging: Blister à 360 pieces
2) Packaging: Blister à 400 pieces
3) Sample Packaging: 1 piece
4) Packaging: Tape & Reel à 120 pieces



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 10G panel feed through

Features

- HARTING PushPull technology
- Compact and robust design
- 360° shielding
- RJ45 mating compatible
- Transmission category 6, performance class E_A, suitable for 1/10 Gigabit Ethernet
- PROFINET conform

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117 variant 14
Mating face	RJ45 acc. to IEC 60603-7
Transmission performance	Category 6 / class E _A acc. to ISO/IEC 11801:2002, EN 50 173-1
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Shielding	Fully shielded, 360° shielding contact
Mounting	Screwable to cover plates
Degree of protection	IP65 / IP67
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel-plated

Identification

Part number

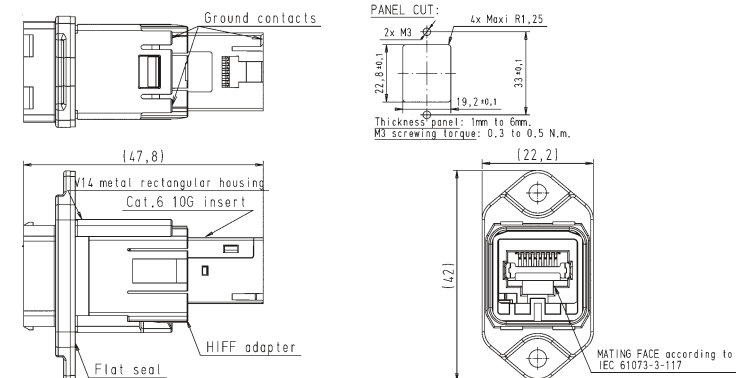
Drawing

Dimensions in mm

Han® PushPull RJ45 10G

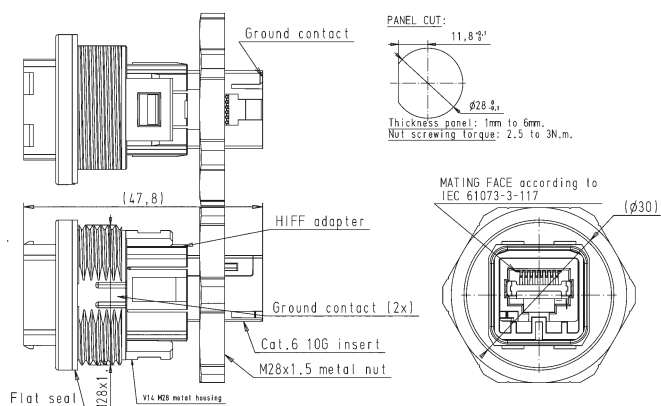
Panel feed through, Cat. 6 including bulkhead housing for rectangular panel cut out, flat seal and HARTING RJ Industrial® 10G RJ45 bulkhead, isolated bulkhead fixture

09 35 225 0311



Panel feed through, Cat. 6 including bulkhead housing for circular panel cut out, flat seal and HARTING RJ Industrial® 10G RJ45 bulkhead, isolated bulkhead fixture

09 35 225 0312



Identification	Part number	Drawing	Dimensions in mm
Han® PushPull RJ45 10G Panel feed-through to mount HIFF inserts, e.g. Ha-VIS preLink® RJ45-module, RJ Industrial cable jack Order inserts separately Bulkhead housing for rectangular panel cut out, incl. plastic adapter	09 35 012 0311		
Bulkhead housing for circular panel cut out, incl. plastic adapter and fixing nut	09 35 012 0312		
Ha-VIS preLink® set RJ45 jack AWG 22/23 consists of: • 1x Ha-VIS preLink® module RJ45 jack • 1x Ha-VIS preLink® terminal module • 1x cable tie	20 82 001 0001		
HARTING RJ Industrial® cable jack IDC AWG 22-24, 8 poles, Cat. 6 AWG 24-28, 8 poles, Cat. 6 AWG 22-24, 4 poles, Cat. 5	09 45 545 1562 09 45 545 1561 09 45 545 1120		



Han® PushPull RJ45 Genderchanger Metal Cat. 6 / class E_A

Features

- High degree of protection IP65 / IP67
- Robust metal housing
- Standard PROFINET component of the German automotive production
- Allows usage of different cable types (Type B, C) e.g. in robots application
- Extension of cords according to PROFINET guideline
- Can be count as one connection acc. to IEC 11801 Chapter 10.2.4

Technical characteristics

Transmission performance	Cat. 6 / class E _A up to 500 MHz
Connector	Han® PushPull RJ45 (PROFINET conform)
Locking	PushPull technology acc. to IEC 61076-3-117 variant 14
Mating face	RJ45 acc. to IEC 60603-7
Mating cycles	min. 750
Housing material	Aluminium anodized
Dimensions	61.2 x 62 x 25.2 mm (unmated)
Degree of protection acc. to DIN 60529	IP65 / IP67 (mated)
Mounting	Wall mountable with 4 screws (type M5)
Temperature range	-40 °C ... +70 °C
Maximum permissible humidity	30 % ... 95 % (no condensation)

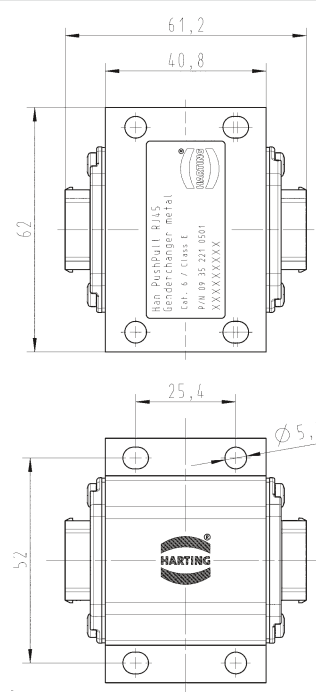
Identification

Han® PushPull RJ45
Genderchanger metal

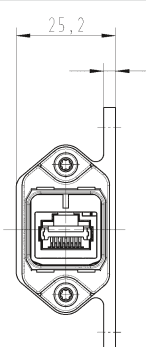
Part number

09 35 221 0501

Drawing



Dimensions in mm





Han® PushPull RJ45 Coupling Metal Category 6 / class E_A

Features

- High degree of protection IP65 / IP67
- Robust metal housing
- Standard PROFINET component of the German automotive production
- Extension of cords according to PROFINET guideline
- Can be count as one connection acc. to IEC 11801 Chapter 10.2.4
- For an easy robot termination and a fast exchange of tube packages

Technical characteristics

Transmission performance	Category 6 / class E _A up to 500 MHz
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Locking	PushPull technology acc. to IEC 61076-3-117 variant 14
Mating face	RJ45 acc. to IEC 60603-7
Number of contacts	8
Usable cables	
Termination cross section	AWG 22-24 stranded/solid
Cable diameter	5 ... 9 mm
Conductor diameter	1.3 ... 1.6 mm
Mating cycles	min. 750
Housing material	Aluminium die-cast
Degree of protection acc. to DIN 60529	IP65 / IP67
Temperature range	-40 °C ... +70 °C

Identification

Part number

Drawing

Dimensions in mm

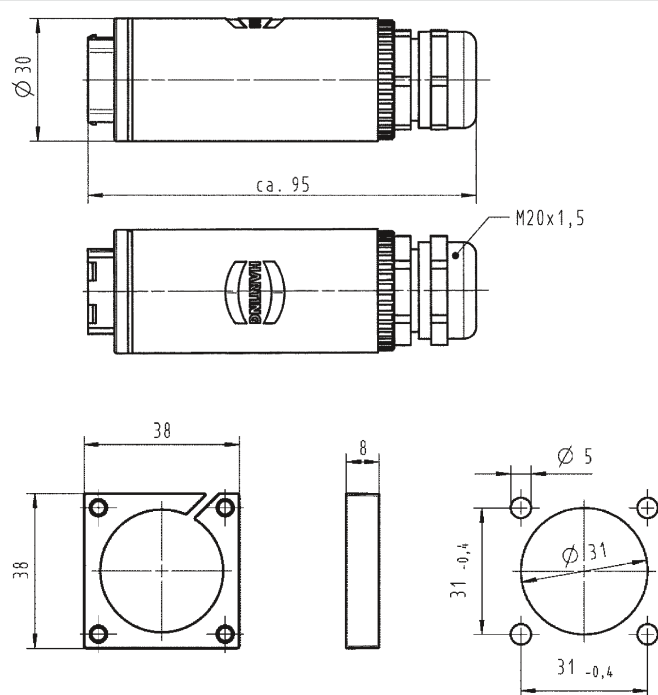
Han® PushPull RJ45 Coupling metal

including housing,
Ha-VIS preLink® RJ45 jack,
bulkhead housing
and cable gland

61 04 201 1084 01

Fixing flange

61 04 600 0182 02





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14 RJ45 connector

Features

- HARTING PushPull technology
- Field-assembly connector with IDC contacts
- Fully shielded

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60603-7
Shielding	Fully shielded, 360° shielding contact
Number of contacts	4 respectively 8
Transmission performance	acc. to ISO/IEC 11801:2002, EN 50 173-1, category 5 / class D up to 100 MHz category 6 / class E _A up to 500 MHz
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Termination	with IDC contacts, no tools needed / field-assembly
for Cat. 5	
Conductor cross section	AWG 24/7 - 22/7 (stranded) AWG 23/1 - 22/1 (solid)
Cable diameter	1.6 mm
for Cat. 6	
Conductor cross section	AWG 22/7 - 27/7 (stranded) AWG 22/1 - 27/1 (solid)
Cable diameter	1.6 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel-plated

Identification	Part number	Drawing	Dimensions in mm
Connector set, metal incl. housing and male insert Han® RJ Industrial Category 5, 4 poles, IDC contacts 6.5 - 9.5 mm clamp range Han® RJ Industrial PN Category 5, 4 poles, IDC contacts 6.5 - 9.5 mm clamp range PROFINET-Identification: PROFINET O-Plug RJ45 Han® RJ Industrial PN Category 5, 4 poles, IDC contacts 5 - 8 mm clamp range Han® RJ Industrial 10G Category 6, 8 poles, IDC contacts 4 - 11 mm clamp range	09 35 221 0401 09 35 226 0401 09 35 222 0401 09 35 225 0401		

Number of contacts

4



Features

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

Technical characteristics

Number of contacts	4
Transmission characteristics	Cat. 5, Class D up to 100 MHz
Data rate	10 Mbit/s, 100 Mbit/s
Limiting temperature	-40 ... +85 °C
Mating cycles	≥ 750
Conductor cross-section	0.12 ... 0.32 mm² Stranded 0.12 ... 0.32 mm² Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded AWG 24/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 mm ... 1.6 mm
Degree of protection acc.	IP65 / IP67
Cable diameter	6.5 ... 9.5 mm
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated

Specifications and approvals

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



Identification

Han® PushPull (V14),

Connector,
AIDA compliant,
PROFINET,
Straight,
IDC termination,
Fully shielded, 360° shielding contact

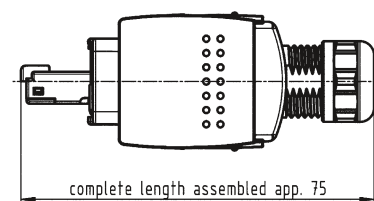


When installing a PROFINET system, observe the PROFINET installation guideline.

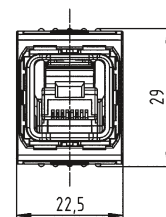
Part number

09 35 229 0401

Drawing



Dimensions in mm



Number of contacts

8



Features

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

Technical characteristics

Number of contacts	8
Transmission characteristics	Cat. 6A, Class E _A up tp 500 MHz
Data rate	10 Mbit/s, 100 Mbit/s, 1 Gbit/s 2,5 Gbit/s, 5 Gbit/s, 10 Gbit/s
Limiting temperature	-40 ... +85 °C
Mating cycles	≥ 750
Conductor cross-section	0.12 ... 0.32 mm ² Stranded 0.12 ... 0.32 mm ² Solid
Conductor cross-section	AWG 26/7 ... AWG 22/7 Stranded AWG 24/1 ... AWG 22/1 Solid
Wire outer diameter	0.8 mm ... 1.6 mm
Degree of protection acc. to IEC 60529	IP65 / IP67
Cable diameter	6.5 ... 9.5 mm
Material (hood/housing)	Zinc die-cast
Surface (hood/housing)	Nickel plated

Specifications and approvals

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



Identification

Part number

Drawing

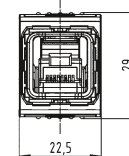
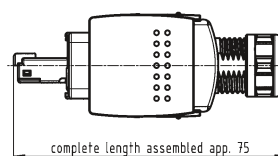
Dimensions in mm

Han® PushPull (V14),

Connector,
AIDA compliant,
PROFINET,
Straight,
IDC termination,
Fully shielded, 360° shielding contact



09 35 220 0401

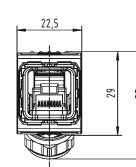
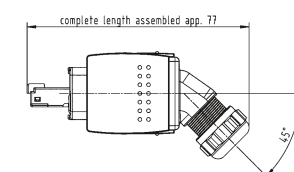


Han® PushPull (V14),

Connector,
AIDA compliant,
PROFINET,
Angled bottom,
IDC termination,
Fully shielded, 360° shielding contact



09 35 220 0402





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 connector angled

Features

- HARTING PushPull technology
- Angled cable exit 45° to the top / bottom for a space saving cabling
- Field-assembly connector with IDC contacts
- Fully shielded

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60 603-7
Shielding	Fully shielded, 360° shielding contact
Number of contacts	4 respectively 8
Transmission performance	acc. to ISO/IEC 11801:2002, EN 50 173-1, category 5 / class D up to 100 MHz category 6 / class E _A up to 500 MHz
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Termination	with IDC contacts, no tools needed / field-assembly
for Cat. 5	
Conductor cross section	AWG 24/7 - 22/7 (stranded) AWG 23/1 - 22/1 (solid)
Cable diameter	1.6 mm
for Cat. 6	
Conductor cross section	AWG 22/7 - 27/7 (stranded) AWG 22/1 - 27/1 (solid)
Cable diameter	1.6 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel-plated

Identification

Part number

Drawing

Dimensions in mm

Connector set, metal

incl. housing
and male insert

Han® RJ Industrial PN

Category 5, 4 poles, IDC contacts,
6.5 - 9.5 mm clamp range

Cable exit bottom side

09 35 226 0402

Cable exit top side

09 35 226 0403

Han® RJ Industrial 10G

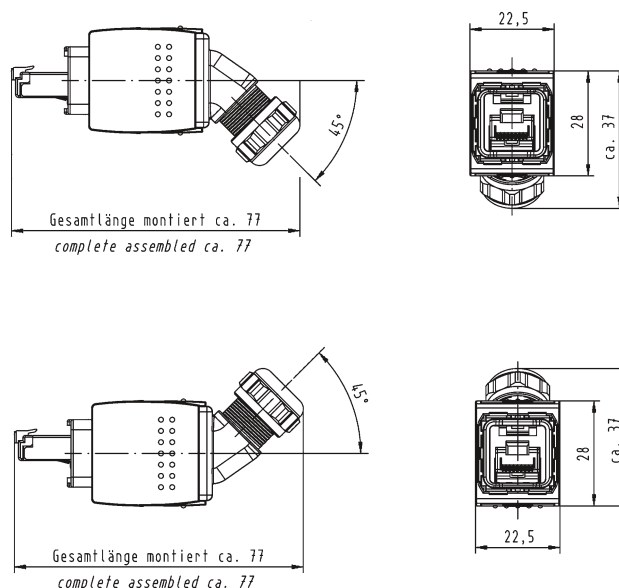
Category 6, 8 poles, IDC contacts,
6.5 - 9.5 mm clamp range

Cable exit bottom side

09 35 225 0402

Cable exit top side

09 35 225 0403





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 connector

Features

- HARTING PushPull technology
- Compact design
- For space saving fitting conditions
- Connector with piercing contacts
- 360° shielding

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60 603-7
Shielding	Fully shielded, 360° shielding contact
Number of contacts	8
Transmission performance	acc. to ISO/IEC 11 801:2002, EN 50 173-1, category 6A / class E _A up to 500 MHz
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s with piercing contacts
Termination	
Conductor cross section	AWG 24/7 - 27/7 (stranded)
Cable diameter	1.05 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel-plated

Identification

Part number

Drawing

Dimensions in mm

Connector set, metal

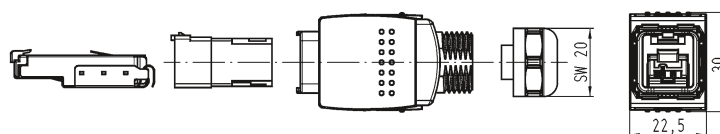
incl. housing
and male insert
4 - 11 mm clamp range

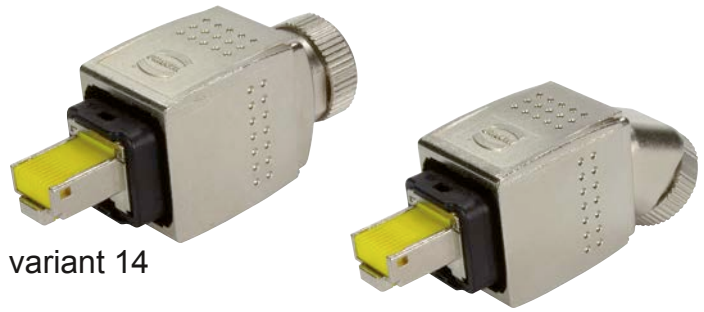
Han® RJ Industrial
Category 6, 8 poles,
piercing contacts

09 35 227 0401

suitable assembly tool

09 45 800 0520





Han® PushPull, type acc. to IEC 61076-3-117 variant 14
preLink® RJ45-connector, straight and angled

Advantages

- HARTING PushPull technology
- 45° angled cable entry, bottom side, for space saving cabling
- 360° shielding
- Category of transmission Cat. 6A
- Suitable for solid and stranded wires
- Suitable for PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at)

Technical characteristics

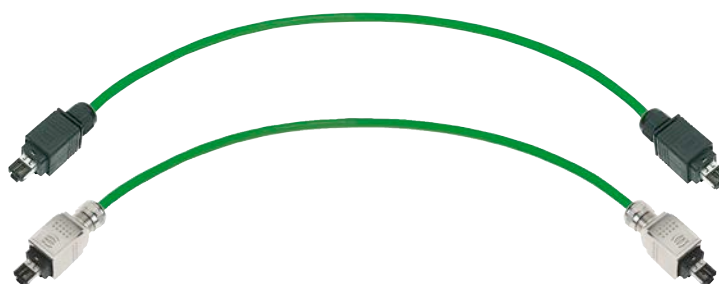
Locking	PushPull technology acc. to IEC 61076-3-117
Degree of protection	IP65 / IP67
Mating face	RJ45 acc. to IEC 60603-7
Number of contacts	8
Transmission category	Category 6A, class EA, suitable for 1/10 Gigabit Ethernet
Transmission performance	Category 6A / class EA up to 500 MHz acc. to ISO/IEC 11801:2002, EN 50173-1
Transmission rate	10/100 Mbit/s and 1/10 Gbit/s
Shielding	fully shielded, 360° shielding contact
Mounting	preLink® IDC termination
Cable termination for preLink® Connectable cables	terminal module, yellow, 20 82 000 0001
– Conductor cross section	AWG 23 ... AWG 22 (solid and stranded)
– Conductor diameter	1.3 ... 1.6 mm
Cable termination for preLink® Connectable cables	terminal module, white, 20 82 000 0003
– Conductor cross section	AWG 27 ... AWG 26 (solid and stranded)
– Conductor diameter	0.8 ... 1.1 mm
Cable diameter	6.3 ... 8.8 mm
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® PushPull preLink® RJ45 connector, straight	20 82 104 0001		
Han® PushPull preLink® RJ45 connector, angled	20 82 104 0045		
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		

¹⁾ Packaging with 10 pieces



Han® PushPull RJ45
system cable, 4-wire, Cat. 5



Features

• Connector types	Han® PushPull RJ45 (V14)
• Category	Cat. 5
• Number of wires	4
• Wiring	1:1
• Sheath material	PVC/PUR

Application

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

Benefits

- Standardised PushPull interface for IP65/IP67
- Very space-saving
- AIDA compliant
- PROFINET compliant
- Useable as trailing cable (type C)
- Easy and intuitive handling with HARTING PushPull technology

Technical characteristics

Connector types	Han® PushPull RJ45
Cable type	4 x AWG 22/7, Cat. 5, Star quad, double shielding
Sheath material	
Type B	PVC
Type C	PUR
Wiring	4 pole, contacts 1/2 and 3/6
Transmission performance	Category 5 class D up to 100 MHz acc. to ISO/IEC 11801, EN 50 173-1
Data rate	10/100 Mbit/s
Shielding	Fully shielded, 360° shielding contact
Operating temperature range	
Type B	-40 °C ... +70 °C
Type B outdoor	-45 °C ... +60 °C
Type C	-40 °C ... +70 °C
Colour	
Type B	Green
Type B outdoor	Black
Type C	Green

Identification	Plastic version	Part number Metal version	Metal, overmoulded
Han® PushPull RJ45 system cable, 4-wire Type B			
Length 1.5 m	09 47 555 5033	09 47 565 6033	09 47 565 7033
3.0 m	09 47 555 5035	09 47 565 6035	09 47 565 7035
5.0 m	09 47 555 5037	09 47 565 6037	09 47 565 7037
10.0 m	09 47 555 5042	09 47 565 6042	09 47 565 7042
20.0 m	09 47 555 5044	09 47 565 6044	09 47 565 7044
Han® PushPull RJ45 system cable, 4-wire Type C			
Length 1.5 m	09 47 555 5063	09 47 565 6063	09 47 565 7063
3.0 m	09 47 555 5065	09 47 565 6065	09 47 565 7065
5.0 m	09 47 555 5067	09 47 565 6067	09 47 565 7067
10.0 m	09 47 555 5072	09 47 565 6072	09 47 565 7072
20.0 m	09 47 555 5074	09 47 565 6074	09 47 565 7074
Han® PushPull RJ45 system cable, 4-wire Type B, outdoor			
Length 1.5 m	09 47 555 5093	09 47 565 6093	09 47 565 7093
3.0 m	09 47 555 5095	09 47 565 6095	09 47 565 7095
5.0 m	09 47 555 5097	09 47 565 6097	09 47 565 7097
10.0 m	09 47 555 5102	09 47 565 6102	09 47 565 7102
20.0 m	09 47 555 5104	09 47 565 6104	09 47 565 7104



Han® PushPull RJ45
system cable, 8-wire, Cat. 6A

Features

- Connector types Han® PushPull RJ45 (V14)
- Category Cat. 6A
- Number of wires 8
- Wiring 1:1
- Sheath material PUR

Application

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

Benefits

- Standardised PushPull interface for IP65/IP67
- Especially space-saving
- AIDA compliant
- Easy and intuitive handling with HARTING PushPull technology

Technical characteristics

- Connector types Han® PushPull RJ45
- Cable type 4 x 2, Twisted Pair, shielded
- Sheath material PUR
- Wiring 8 pole, 1:1
- Transmission performance Category 6A, Class E_A up to 500 MHz acc. to ISO/IEC 11801, EN 50 173-1
- Data rate 10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 2,5 Gbit/s, 5 Gbit/s, 10 Gbit/s
- Shielding Fully shielded, 360° shielding contact
- Operating temperature range -10 °C ... +70 °C
- Colour Green/Yellow

Identification	Plastic	Part number Metal	Metal
Han® PushPull RJ45 system cable, 8-wire	Yellow	Yellow	PROFINET Green
Length 1.5 m	09 47 575 7001	09 47 585 8001	09 48 171 7165 015
3.0 m	09 47 575 7002	09 47 585 8002	09 48 171 7165 030
5.0 m	09 47 575 7003	09 47 585 8003	09 48 171 7165 050
10.0 m	09 47 575 7004	09 47 585 8004	09 48 171 7165 100
20.0 m	09 47 575 7005	09 47 585 8005	09 48 171 7165 200



Han® PushPull, type acc. to IEC 61076-3-117 variant 14
cable to cable housing

Features

- HARTING PushPull technology
- Ideal for prototyping
- Can be combined with panel feed-throughs for power, data and signal

Technical characteristics

Locking	PushPull technology acc. to IEC 61076-3-117 variant 14
Degree of protection	IP65 / IP67
Outer cable diameter	6.5 ... 9.5 mm / 9 ... 13 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull cable to cable housings, plastic (Order housing bulkhead mounting and insert separately)		2X REMFORM Ø3x8 TORX screws 	
for outer cable diameter 6.5 ... 9.5 mm	09 35 002 0431		
for outer cable diameter 9 ... 13 mm	09 35 002 0433	2X REMFORM Ø3x8 TORX screws 	
Suitable bulkhead housing, plastic for RJ45	09 35 012 0331	Panel cut out 2x M3 4x Maxi R1,25 Thickness panel: 1mm to 6mm, M3 screwing torque: 0,3 to 0,5 N.m.	
Inserts for RJ45 RJ 45: 8 poles, Cat. 6 / class E _A Ha-Vis preLink® set AWG 22/23 HARTING RJ Industrial® cable jack with IDC termination	20 82 001 0001		
AWG 22-24, 8 poles	09 45 545 1562		
AWG 24-28, 8 poles	09 45 545 1561		
AWG 22-24, 4 poles, Cat. 5	09 45 545 1120		

Han® PushPull, type acc. to IEC 61076-3-117 variant 14 Accessories

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull protection cover IP65 / IP67 for device side without fixing cord with fixing cord with nylon fixing cord IP40	09 35 002 5403 XL ¹⁾ 09 35 002 5402 09 35 002 5402 XL ¹⁾ 09 35 002 5404 09 35 002 5404 XL ²⁾ 61 04 600 0194 00		
Han® PushPull protection cover IP65 / IP67 for cable side without fixing cord with nylon fixing cord	09 35 002 5411 09 35 002 5413		
Han® PushPull protection cover IP40 for cable side	09 35 002 5412		





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 panel feed through
for optical connector based on SCRJ

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Han® PushPull SCRJ for POF is according the requirements of AIDA (German Domestic Automobile Manufacturers)

Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67
Mating face	SCRJ acc. to IEC 61 754-24
Fiber Typen	POF ¹⁾ 1 mm HCS ²⁾ 200 µm / 230 µm MM 62.5 µm / 125 µm MM 50 µm / 125 µm SM 10 µm / 125 µm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification

Part number

Drawing

Dimensions in mm

Han® PushPull SCRJ

Panel feed through

SC contacts order separately

09 35 242 0333

SCRJ IP20

POF connector

with fast termination

with crimp termination

09 35 002 4002

09 35 002 4003

Contacts

SC POF contact, 1 mm

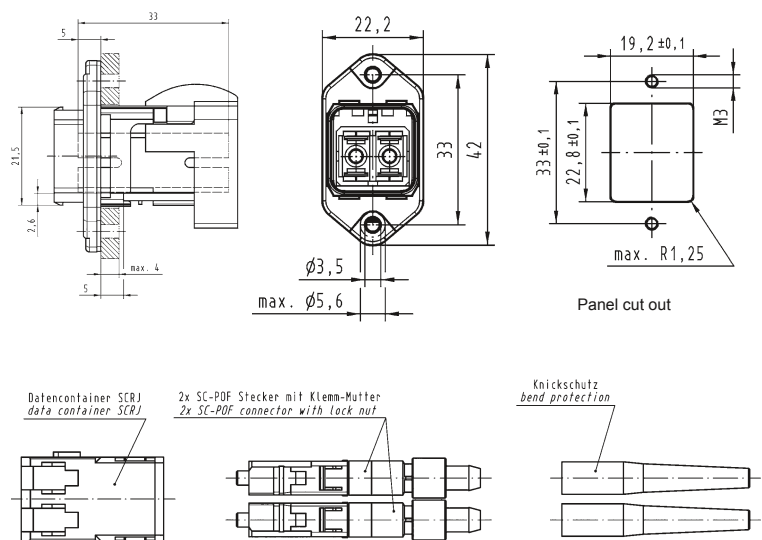
20 10 001 5217

SC 125 GI contact

20 10 125 5211

SC 230 HCS contact

20 10 230 5211





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
SCRJ connector

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Han® PushPull SCRJ for POF is according the requirements of AIDA (German Domestic Automobile Manufacturers)
- Field installable

Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67
Mating face	SCRJ acc. to IEC 61 754-24
Fiber Typen	POF ¹⁾ 1 mm HCS ²⁾ 200 µm / 230 µm MM 62.5 µm / 125 µm MM 50 µm / 125 µm SM 10 µm / 125 µm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0
Cable diameter	6.5 - 9.5 mm

Identification	Part number	Drawing	Dimensions in mm
Connector set, plastic incl. housing and SCRJ insert, POF contacts PROFINET-Identification: PROFINET O-Plug SCRJ incl. housing and SCRJ insert SC contacts order separately	09 35 241 0421 09 35 241 0422		
SCRJ IP20 POF connector	09 35 002 4002		
Protection cover IP65 / IP67	09 35 002 5411		
Contacts SC POF contact, 1 mm SC 125 GI contact SC 230 HCS contact	20 10 001 5217 20 10 125 5211 20 10 230 5211		

Tooling see page 02.57

¹⁾ POF = Polymer-Optical Fibre

²⁾ HCS® = Hard Clad Silica (registered trademark of SpecTran Corporation)



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
Housing bulkhead mounting for device integration
Optical connector based on SCRJ

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Device integration via transceiver
- Han® PushPull SCRJ for POF is according the requirements of AIDA (German Domestic Automobile Manufacturers)

Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67
Mating face	SCRJ acc. to IEC 61 754-24
Fiber Typen	POF ¹⁾ 1 mm
	HCS ²⁾ 200 µm / 230 µm
	MM 62.5 µm / 125 µm
	MM 50 µm / 125 µm
	SM 10 µm / 125 µm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel plated

Identification	Part number	Drawing	Dimensions in mm
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Components device side

Housing bulkhead mounting
Optical transceiver
not included

metal

09 35 002 0303

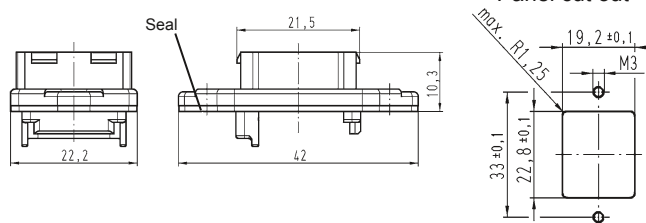
Replacement flat seal

09 35 002 9901

Protection cover IP65 / IP67

09 35 002 5402

Reference for transceiver
as well as mounting instruction
on request





Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
RJ45 panel feed through
for optical connector based on SCRJ

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Han® PushPull SCRJ for POF is according the requirements of AIDA (German Domestic Automobile Manufacturers)

Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67
Mating face	SCRJ acc. to IEC 61 754-24
Fiber Typen	POF ¹⁾ 1 mm
	HCS ²⁾ 200 µm / 230 µm
	MM 62.5 µm / 125 µm
	MM 50 µm / 125 µm
	SM 10 µm / 125 µm
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® PushPull SCRJ

Panel feed through

09 35 242 0313

SC contacts order separately

SCRJ IP20

POF connector

with fast termination

09 35 002 4002

with crimp termination

09 35 002 4003

Contacts

SC POF contact, 1 mm

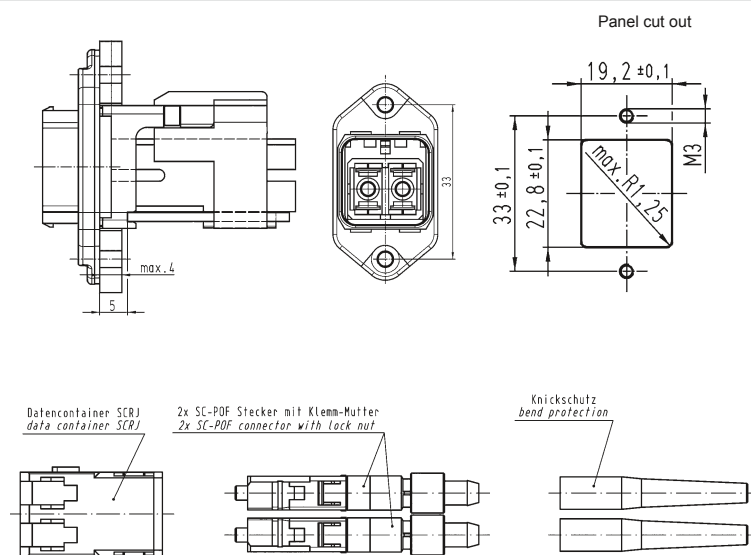
20 10 001 5217

SC 125 GI contact

20 10 125 5211

SC 230 HCS contact

20 10 230 5211



¹⁾ POF = Polymer-Optical Fibre

²⁾ HCS® = Hard Clad Silica (registered trademark of SpecTran Corporation)



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
SCRJ connector with fast termination

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Han® PushPull SCRJ for POF is according the requirements of AIDA (German Domestic Automobile Manufacturers)
- Field installable

Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67
Mating face	SCRJ acc. to IEC 61 754-24
Fiber Typen	POF ¹⁾ 1 mm
	HCS ^{®2)} 200 µm / 230 µm
	MM 62.5 µm / 125 µm
	MM 50 µm / 125 µm
	SM 10 µm / 125 µm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel plated
Flammability acc. to UL 94	V0
Cable diameter	6.5 - 9.5 mm

Identification	Part number	Drawing	Dimensions in mm
Connector set, metal incl. housing and SCRJ insert, POF contacts PROFINET-Identification: PROFINET O-Plug SCRJ incl. housing and SCRJ insert SC contacts order separately	09 35 241 0401 09 35 241 0402	 2x SC-POF Stecker mit Klemm-Mutter 2x SC-POF connector with lock nut Datencontainer SCRJ data container SCRJ 2x SC-POF Stecker mit Klemm-Mutter 2x SC-POF connector with lock nut	 Knickschutz bend protection
SCRJ IP20 POF connector	09 35 002 4002		
Protection cover IP65 / IP67	09 35 002 5411		
Contacts SC POF contact, 1 mm SC 125 GI contact SC 230 HCS contact	20 10 001 5217 20 10 125 5211 20 10 230 5211		



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
SCRJ crimp connector

Features

- HARTING PushPull technology
- Compact design
- High packing density
- Han® PushPull SCRJ for POF is according the requirements of AIDA (German Domestic Automobile Manufacturers)

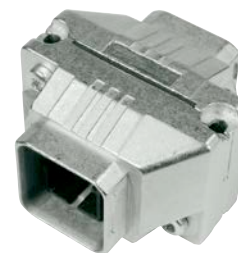
Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67
Mating face	SCRJ acc. to IEC 61 754-24
Fiber Typen	POF ¹⁾ 980 µm / 1000 µm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel plated
Flammability acc. to UL 94	V0
Cable diameter	6.5 - 9.5 mm

Identification	Part number	Drawing	Dimensions in mm
Connector set, metal incl. housing and SCRJ insert, POF crimp contacts	09 35 242 0401		
SCRJ IP20 POF crimp connector	09 35 002 4003		
Protection cover IP65 / IP67	09 35 002 5411		
Contacts SC POF crimp contact	20 10 001 5211		

Tooling see page 02.56

¹⁾ POF = Polymer-Optical Fibre



Han® PushPull SCRJ Genderchanger Metal

Features

- High degree of protection IP65 / IP67
- Robust metal housing
- Standard PROFINET component of the German automotive production
- Allows usage of different cable types (Type B, C) e.g. in robots application
- Extension of cords according to PROFINET guideline

Technical characteristics

Locking	PushPull technology
Degree of protection	IP65 / IP67 (mated)
Mating face	SCRJ acc. to IEC 61754-24
Fibre types	POF, GOF, HCS
Number of contacts	2
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel-plated
Dimensions	43.3 x 42 x 29 mm (unmated)
Mounting	Wall mountable with 2 screws (type M3)

Identification

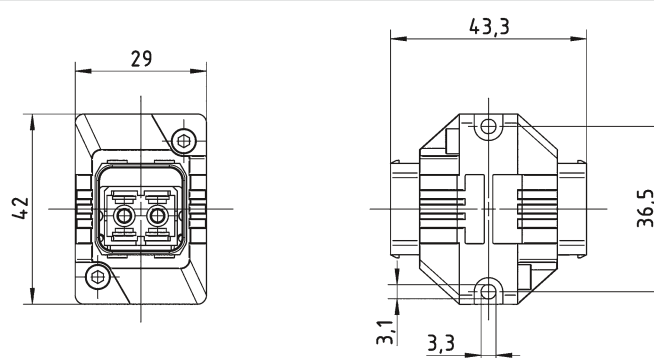
Part number

Drawing

Dimensions in mm

Han® PushPull SCRJ
Genderchanger metal

09 35 241 0501





Han® PushPull SCRJ POF crimp Assembly tools for polymer-optical fibres

Features

- Cable insulation (PUR / PVC) is stripped without damage
- The 'crimping' and 'precision cutting' operations are completed within the one tool
- Specialized cutting method with an automatically advancing round blade for an accurate cutting result requiring no final polishing
- Optical display indicating remaining operations
- Simultaneous crimping of two contacts (duplex handling)

Technical characteristics

Connector type	SCRJ crimp connector acc. to IEC 61 754-24
Locking	PushPull technology acc. to IEC 61 076-3-117 variant 14 (AIDA compliant)
Insertion loss	typically 1.5 to 2.0 dB
Termination SC contacts	Crimp termination technique
Fibre dimensions	POF 980 / 1000 µm
Fibre outer diameter	2.2 mm
Cable outer diameter	7 to 8.5 mm
No. of cutting operations	Maximum 2500

Identification

Part number

Drawing

Dimensions in mm

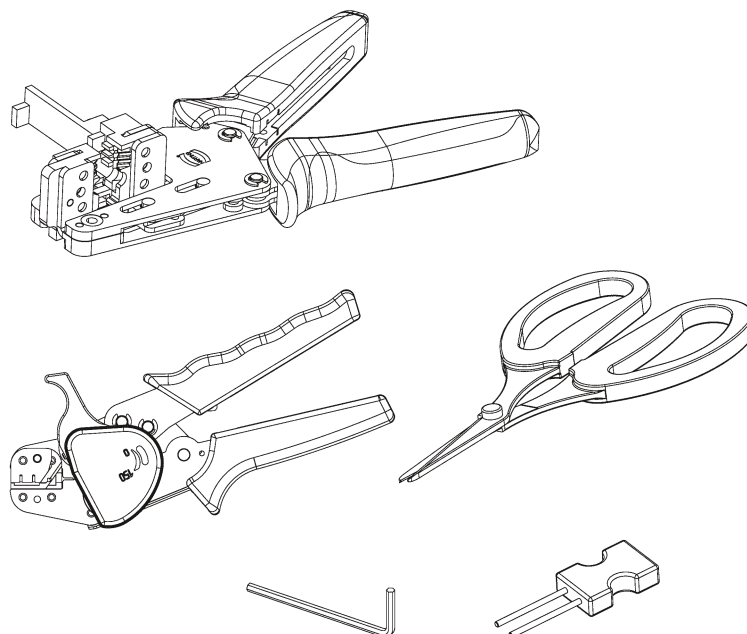
Assembly tool set for POF crimp cutting, without final polishing

The set contains

- one crimping and cutting tool for 2500 operations
- one sheath stripping tool
- one Kevlar shear
- one loading device for SC contacts

Supplied in a robust plastic case

09 35 000 9915



Replacement cutting tool

09 35 000 9914

Replacement crimp and cutting tool

09 35 000 9917



Han® PushPull SCRJ POF Assembly tools for polymer-optical fibres

Features

- Cable insulation (PUR / PVC) is stripped without damage
- The 'stripping' and 'precision cutting' operations are completed within the one tool
- Specialized cutting method with an automatically advancing round blade for an accurate cutting result requiring no final polishing
- Optical display indicating remaining operations
- Simultaneous handling of twin fibers (duplex mode)

Technical characteristics

Connector type	SCRJ connector acc. to IEC 61754-24
Locking	PushPull technology acc. to IEC 61076-3-117 variant 14 (AIDA compliant)
Insertion loss	typically 1.5 to 2.0 dB
Termination SC contacts	Fast termination technique, reusable
Fibre dimensions	POF 980 / 1000 µm
Fibre outer diameter	2.2 mm
Cable outer diameter	7 to 8.5 mm
No. of cutting operations	Maximum 2500

Identification	Part number	Drawing	Dimensions in mm
Assembly tool set for POF cutting, without final polishing The set contains - one stripping and cutting tool for 2500 operations - one sheath stripping tool - one Kevlar shear - one positioner for SCRJ contacts Supplied in a robust plastic case	09 35 000 9913		
Replacement cutting tool for 2500 operations	09 35 000 9914		
Replacement stripping and cutting tool	09 35 000 9916		
Assembly tool set for POF cutting, with final polishing Without an optical meter With an optical meter	20 99 000 3016 20 99 000 3013		
Polishing wheel (grinding wheel) for POF cables 2.2	20 99 000 1099		
Sand paper for POF, grain size 1000	20 80 001 9911		



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
10 poles 50 V / 5 A

Features

- HARTING PushPull technology
- For the transmission of analog, low voltage and bus signals
- Fully shielded
- 10 contacts
- Touch-proof
- Easy and fast cable installation

Technical characteristics

Locking	PushPull technology acc. to IEC 61076-3-117 variant 14
Degree of protection	IP65 / IP67
Mating face	acc. to IEC/PAS 61076-3-119
Number of contacts	10
Electrical data acc. to DIN EN 61984	5 A 50 V 1.5 kV 3
Contact resistance	10 mΩ
Termination	Crimp
Conductor cross section	AWG 24 ... 18; 0.25 ... 0.82 mm ²
Conductor diameter	max. 2.1 mm
Outer cable diameter	6.5 ... 9.5 mm / 4 ... 11 mm
Shielding	Fully shielded, 360° shielding contact
Mating cycles	min. 500
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black Zinc die-cast, nickel-plated
Flammability acc. to UL 94	V0

Identification

Part number

Drawing

Dimensions in mm

Han® PushPull Signal Insert

for panel feed-through HIFF,
10 poles
incl. male insert

Order D-Sub crimp male con-
tacts separately

D-Sub crimp contacts for device side³⁾

male, turned
AWG 24-20; 0.25-0.56 mm²

male, turned
AWG 22-18; 0.33-0.82 mm²

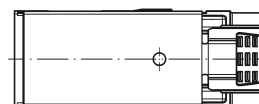
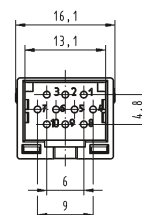
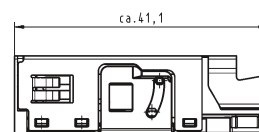
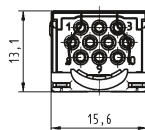
male, stamped
AWG 24-20; 0.25-0.56 mm²

09 45 545 9010

09 67 000 8576¹⁾

09 67 000 3576¹⁾

09 67 000 8178²⁾



¹⁾ To be used with crimp tool 09 99 000 0501. Suitable locator: 09 99 000 0531

²⁾ To be used with crimp tool 09 99 000 0175.

³⁾ For all useable D-Sub contacts please see chapter 05.

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull panel feed-through HIFF to hold the 10 poles insert			
Metal rectangular	09 35 012 0311		
Metal circular	09 35 012 0312		
Plastic rectangular	09 35 012 0331		
Han® PushPull Signal solder jack angled	09 35 002 6001		
Han® PushPull Signal solder jack straight suitable housings, bulkhead mounting	09 35 002 6002		
Metal	09 35 002 0303		
Plastic	09 35 002 0323		



Han® PushPull, type acc. to IEC 61076-3-117 variant 14
10 poles 50 V / 5 A

Features

- HARTING PushPull technology
- For the transmission of analog, low voltage and bus signals
- Fully shielded
- 10 contacts
- Touch-proof
- Easy and fast cable installation

Technical characteristics

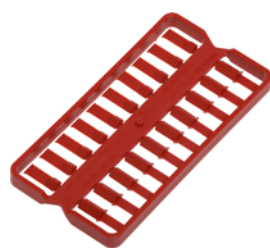
Locking	PushPull technology acc. to IEC 61076-3-117 variant 14
Degree of protection	IP65 / IP67
Mating face	acc. to IEC/PAS 61076-3-119
Number of contacts	10
Electrical data acc. to DIN EN 61984	5 A 50 V 1.5 kV 3
Contact resistance	10 mΩ
Termination	Crimp
Conductor cross section	AWG 24 ... 18; 0.25 ... 0.82 mm²
Conductor diameter	max. 2.1 mm
Outer cable diameter	6.5 ... 9.5 mm / 4 ... 11 mm
Shielding	Fully shielded, 360° shielding contact
Mating cycles	min. 500
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black Zinc die-cast, nickel-plated
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull Signal Connector set 10 poles incl. metal housing and female insert 4 ... 7 / 7 ... 11 mm clamp range 7 ... 11 mm clamp range Connector set 10 poles incl. plastic housing and female insert 4 ... 6.5 mm clamp range 6.5 ... 9.5 mm clamp range 9 ... 13 mm clamp range Order D-Sub crimp female contacts separately D-Sub crimp contacts for cable side ³⁾ female, turned AWG 24-20; 0.25 - 0.52 mm² female, turned AWG 22-18; 0.33 - 0.82 mm² female, stamped AWG 24-20; 0.25 - 0.56 mm²	 09 35 261 0401 09 35 262 0401 09 35 262 0423 09 35 261 0421 09 35 261 0423 09 67 000 8476 ¹⁾ 09 67 000 3476 ¹⁾ 09 67 000 8278 ²⁾	Gesamtlänge montiert ca. 68 total length assembled of approx. 68	

¹⁾ To be used with crimp tool 09 99 000 0501. Suitable locator: 09 99 000 0531

²⁾ To be used with crimp tool 09 99 000 0175.

³⁾ For all useable D-Sub contacts please see chapter 05.



Han® PushPull, type acc. to IEC 61 076-3-118
Housing bulkhead mounting and power females for device integration

Features

- HARTING PushPull technology
- Compact, space-saving design
- Touch-proof
- Device side: male
 - Solder variant, angled and straight
- 4 times coding without contact loss

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-118
Degree of protection	IP65 / IP67
Number of contacts	4 + PE
Electrical data acc. to DIN EN 61984	16 A 230/400 V 4 kV 3
Termination	Male insert with solder termination
Mating cycles	min. 500
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification

Part number

Drawing

Dimensions in mm

Components device side

Housing bulkhead mounting
plastic

09 35 002 0323

Replacement flat seal

09 35 002 9901

Protection cover IP65 / IP67

09 35 002 5402

Protection cover IP40

09 35 002 5401

Coding pins

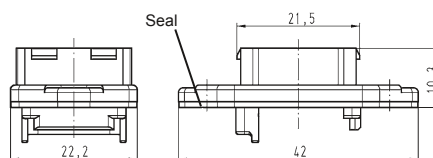
09 35 000 6190

Male insert
with solder termination
angled

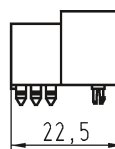
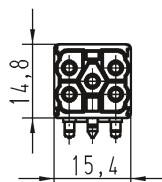
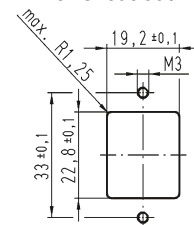
09 35 002 3003

Male insert
with solder termination
straight

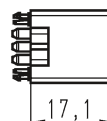
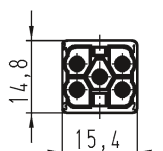
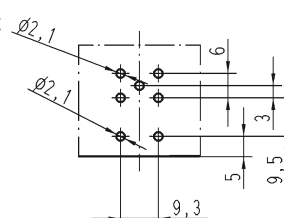
09 35 002 3004



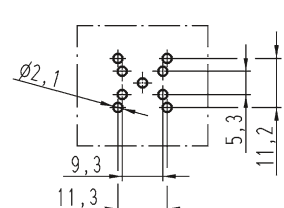
Panel cut out

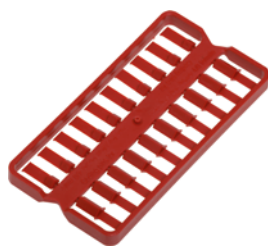


PCB layout



PCB layout





Han® PushPull, type acc. to IEC 61 076-3-118
Panel feed-through, 5 poles, 690 V, 16 A

Features

- HARTING PushPull technology
- Compact, space-saving design
- Touch-proof
- Panel feed-through: male
 - crimp termination
 - Han-Quick Lock® termination technology
- 4 times coding without contact loss
- NEW: Larger termination cross section for conductors 0.25 - 1.5 mm²

Technical characteristics

Locking

Mating face

Degree of protection

Number of contacts

Electrical data

acc. to DIN EN 61 984

Termination cross section

Mating cycles

Temperature range

Housing material

Flammability acc. to UL 94

PushPull technology

acc. to IEC 61 076-3-117 variant 14

acc. to IEC 61 076-3-118

IP65 / IP67

4 + PE

16 A 690 V 8 kV 3

0.25 - 2.5 mm²

min. 500

-40 °C ... +70 °C

Plastic, black

V0

Identification

Part number

Drawing

Dimensions in mm

Han® PushPull Power 4/0 Panel feed-through

5 poles, 690 V / 16 A
incl. bulkhead housing
and male insert

with crimp termination
(Order crimp male contacts
separately)

09 35 231 0331

with Han-Quick Lock®
termination

0.5 ... 2.5 mm²

0.25 ... 1.5 mm²

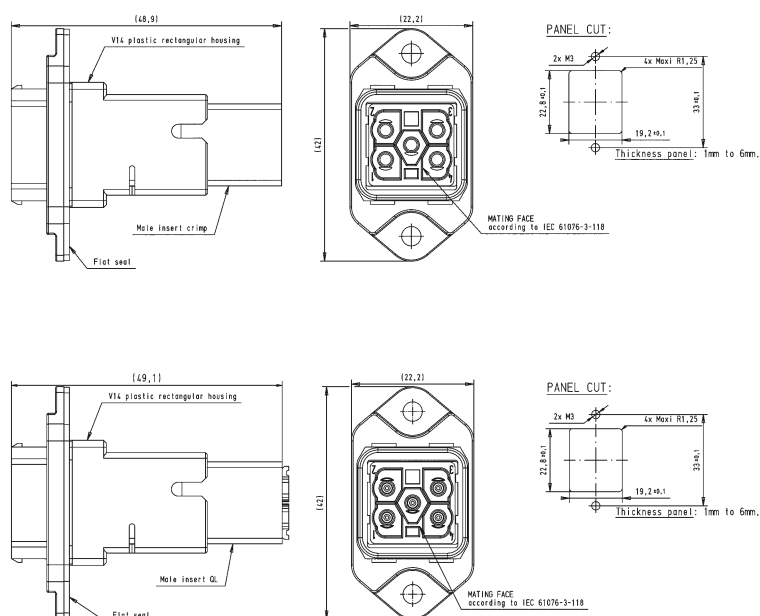
09 35 232 0331

09 35 234 0331

Coding element

10 pieces each for device and
cable side
enables 4 times coding without
contact loss

09 35 000 6190





Han® PushPull, type acc. to IEC 61 076-3-118
Panel feed-through, 5 poles, 690 V, 16 A

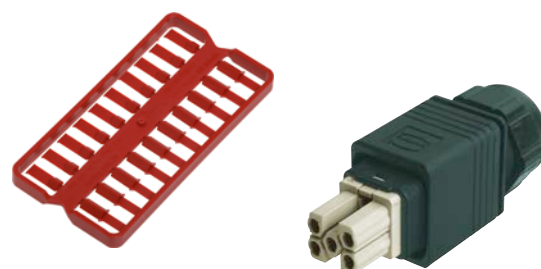
Features

- HARTING PushPull technology
- Compact, space-saving design
- Touch-proof
- Panel feed-through: male
 - crimp termination
 - Han-Quick Lock® termination technology
- 4 times coding without contact loss
- NEW: Larger termination cross section for conductors 0.25 - 1.5 mm²

Technical characteristics

Locking	PushPull technology acc. to IEC 61076-3-117 variant 14
Mating face	acc. to IEC 61076-3-118
Degree of protection	IP65 / IP67
Number of contacts	4 + PE
Electrical data	
acc. to DIN EN 61984	16 A 690 V 8 kV 3
Termination cross section	0.25 – 2.5 mm ²
Mating cycles	min. 500
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull Power 4/0 Panel feed-through M25 5 poles, 690 V / 16 A incl. bulkhead housing and male insert, circular panel cut out with crimp termination (Order crimp male contacts separately)	09 35 231 0332		
with Han-Quick Lock® termination 0.5 ... 2.5 mm² 0.25 ... 1.5 mm²	09 35 232 0332 09 35 234 0332		
Coding element 10 pieces each for device and cable side enables 4 times coding without contact loss	09 35 000 6190	possible panel cut outs - thickness max. 3 mm	



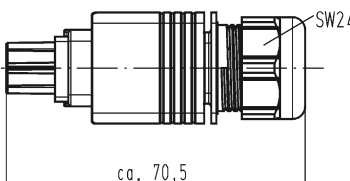
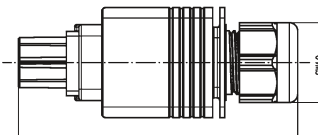
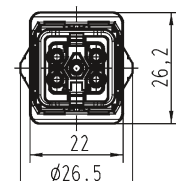
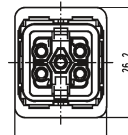
Han® PushPull, type acc. to IEC 61 076-3-118
Connector, 5 poles, 690 V, 16 A

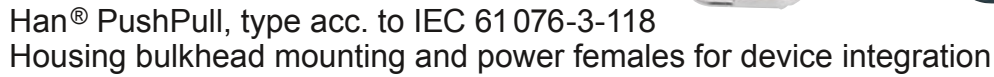
Features

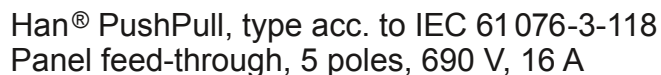
- HARTING PushPull technology
- Compact, space-saving design
- Touch-proof
- Cable side: female
 - crimp termination
 - Han-Quick Lock® termination technology
 Field-assembly without special tools
- 4 times coding without contact loss
- NEW: Larger termination cross section for conductors 0.25 - 1.5 mm²

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117 variant 14
Mating face	acc. to IEC 61 076-3-118
Degree of protection	IP65 / IP67
Number of contacts	4 + PE
Electrical data	
acc. to DIN EN 61 984	16 A 690 V 8 kV 3
Termination cross section	0.25 – 2.5 mm ²
Mating cycles	min. 500
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Connector set, plastic incl. housing and female insert with crimp termination 9 – 13 mm clamp range Han® P crimp contacts order separately with crimp termination 6.5 – 9.5 mm clamp range Han® P crimp contacts order separately with Han-Quick Lock® termination 9 – 13 mm clamp range for termination cross section 0.5 - 2.5 mm ² with Han-Quick Lock® termination 6.5 – 9.5 mm clamp range for termination cross section 0.5 - 2.5 mm ² for termination cross section 0.25 - 1.5 mm ²	09 35 231 0423 09 35 232 0423 09 35 232 0421 09 35 234 0421	 	 
Protection cover IP65 / IP67	09 35 002 5411		
Protection cover IP40	09 35 002 5412		
Coding pins	09 35 000 6190		
Security Clip	09 35 002 9910		

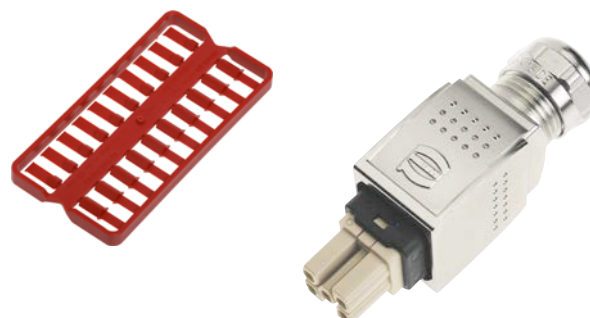




Technical characteristics

- | | |
|----------------------------|---|
| Locking | PushPull technology
acc. to IEC 61076-3-117 variant 14 |
| Mating face | acc. to IEC 61076-3-118 |
| Degree of protection | IP65 / IP67 |
| Number of contacts | 4 + PE |
| Electrical data | |
| acc. to DIN EN 61984 | 16 A 690 V 8 kV 3 |
| Termination cross section | 0.25 – 2.5 mm ² |
| Mating cycles | min. 500 |
| Temperature range | -40 °C ... +70 °C |
| Housing material | Zinc die-cast, nickel-plated |
| Flammability acc. to UL 94 | V0 |

103



Han® PushPull, type acc. to IEC 61 076-3-118
Connector, 5 poles, 690 V, 16 A

Features

- HARTING PushPull technology
- Compact, space-saving design
- Touch-proof
- Cable side: female
 - crimp termination
 - Han-Quick Lock® termination technology
 Field-assembly without special tools
- 4 times coding without contact loss
- NEW: Larger termination cross section for conductors 0.25 - 1.5 mm²

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117 variant 14
Mating face	acc. to IEC 61 076-3-118
Degree of protection	IP65 / IP67
Number of contacts	4 + PE
Electrical data	
acc. to DIN EN 61 984	16 A 690 V 8 kV 3
Termination cross section	0.25 – 2.5 mm ²
Mating cycles	min. 500
Temperature range	-40 °C ... +70 °C
Housing material	Zinc die-cast, nickel-plated
Flammability acc. to UL 94	V0

Identification

Part number

Drawing

Dimensions in mm

Connector set, metal

incl. housing
and female insert

with crimp termination
4 – 11 mm clamp range
Han® P crimp contacts
order separately

09 35 231 0401

with Han-Quick Lock® termination
4 – 11 mm clamp range
for termination cross section 0.5 - 2.5 mm²
for termination cross section 0.25 - 1.5 mm²

09 35 232 0401
09 35 234 0401

Protection cover IP65 / IP67

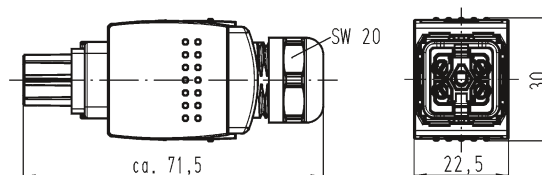
09 35 002 5411

Protection cover IP40

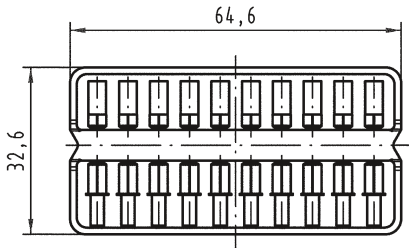
09 35 002 5412

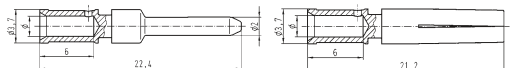
Coding pins

09 35 000 6190



Han® PushPull, type acc. to IEC 61 076-3-118 variant 14 Accessories

Identification		Part number	Drawing	Dimensions in mm								
Crimping tool		09 99 000 0888		<table><tr><th>Wire gauge</th><th>Tool setting</th></tr><tr><td>0.5 - 1.0 mm²</td><td>Ø 1.15 mm</td></tr><tr><td>1.5 mm²</td><td>Ø 1.25 mm</td></tr><tr><td>2.5 mm²</td><td>Ø 1.35 mm</td></tr></table>	Wire gauge	Tool setting	0.5 - 1.0 mm²	Ø 1.15 mm	1.5 mm²	Ø 1.25 mm	2.5 mm²	Ø 1.35 mm
Wire gauge	Tool setting											
0.5 - 1.0 mm²	Ø 1.15 mm											
1.5 mm²	Ø 1.25 mm											
2.5 mm²	Ø 1.35 mm											
Locator Han P® for crimping tool 09 99 000 0888		09 99 000 0886										
Removal tool Han P®		09 99 000 0319										
Coding pins for 4 times coding without contact loss		09 35 000 6190										

Identification		Part number		Drawing	Dimensions in mm																							
		Male contact	Female contact																									
Crimp contacts Han® P silver plated																												
	for 0.5 mm²	09 35 000 6103	09 35 000 6203	<table><tr><th colspan="2">Wire gauge</th><th>Ø</th><th>Stripping length</th></tr><tr><td>for 0.5 mm²</td><td>AWG 20</td><td>1.15 mm</td><td>6 mm</td></tr><tr><td>for 0.75 mm²</td><td>AWG 18</td><td>1.30 mm</td><td>6 mm</td></tr><tr><td>for 1.0 mm²</td><td>AWG 18</td><td>1.45 mm</td><td>6 mm</td></tr><tr><td>for 1.5 mm²</td><td>AWG 16</td><td>1.75 mm</td><td>6 mm</td></tr><tr><td>for 2.5 mm²</td><td>AWG 14</td><td>2.25 mm</td><td>6 mm</td></tr></table>	Wire gauge		Ø	Stripping length	for 0.5 mm²	AWG 20	1.15 mm	6 mm	for 0.75 mm²	AWG 18	1.30 mm	6 mm	for 1.0 mm²	AWG 18	1.45 mm	6 mm	for 1.5 mm²	AWG 16	1.75 mm	6 mm	for 2.5 mm²	AWG 14	2.25 mm	6 mm
Wire gauge		Ø	Stripping length																									
for 0.5 mm²	AWG 20	1.15 mm	6 mm																									
for 0.75 mm²	AWG 18	1.30 mm	6 mm																									
for 1.0 mm²	AWG 18	1.45 mm	6 mm																									
for 1.5 mm²	AWG 16	1.75 mm	6 mm																									
for 2.5 mm²	AWG 14	2.25 mm	6 mm																									
	for 0.75 mm²	09 35 000 6104	09 35 000 6204																									
	for 1.0 mm²	09 35 000 6105	09 35 000 6205																									
	for 1.5 mm²	09 35 000 6106	09 35 000 6206																									
	for 2.5 mm²	09 35 000 6107	09 35 000 6207																									



Han® PushPull, type acc. to IEC 61 076-3-117 variant 14
cable to cable housing

Features

- HARTING PushPull technology
- Ideal for prototyping
- Can be combined with panel feed-throughs for power, data and signal

Technical characteristics

Locking	PushPull technology acc. to IEC 61 076-3-117 variant 14
Degree of protection	IP65 / IP67
Outer cable diameter	6.5 ... 9.5 mm / 9 ... 13 mm
Mating cycles	min. 750
Temperature range	-40 °C ... +70 °C
Housing material	Plastic, black
Flammability acc. to UL 94	V0

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull cable to cable housings, plastic (Order housing bulkhead mounting and insert separately)		2X REMFORM $\phi 3 \times 8$ TORX screws 	
for outer cable diameter 6.5 ... 9.5 mm	09 35 002 0431		
for outer cable diameter 9 ... 13 mm	09 35 002 0433	2X REMFORM $\phi 3 \times 8$ TORX screws 	
Suitable bulkhead housing, plastic			
for power, 5 poles, 690 V / 16 A, incl. housing bulkhead mounting and insert			
with crimp termination (Order Han® P crimp male contacts separately)	09 35 231 0331		
with Han-Quick Lock® termination			
0.5 ... 2.5 mm ²	09 35 232 0331		
0.25 ... 1.5 mm ²	09 35 234 0331		
Coding element power 10 pieces each for device and cable side	09 35 000 6190		



Han® PushPull L Power 4/0 Genderchanger Metal

Features	Technical characteristics	
• High degree of protection IP65 / IP67 • Robust metal housing • Standard PROFINET component of the German automotive production • Allows usage of different cable types (Type B,C) e.g. in robots application • Extension of cords according to PROFINET guideline	Connector	Han® PushPull L Power 4/0
	Locking	PushPull technology according to IEC PAS 61076-3-126
	Electrical transmission	16 A / 24 V
	Number of contacts	5
	Mating cycles	min. 500
	Housing material	Aluminium anodized
	Dimensions	83.4 x 62 x 40.7 mm (unmated)
	Degree of protection acc. to DIN 60529	IP65 / IP67 (mated)
	Mounting	Wall mountable with 4 screws (type M5)
	Temperature range	-20 °C ... +50 °C
	Maximum permissible humidity	30 % ... 95 % (no condensation)

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull L Power 4/0 Genderchanger metal including housing and printed board with 2 x male insert with solder termination	09 35 431 0501		



Han® PushPull L Power 4/0 Coupling Metal

Features

- High degree of protection IP65 / IP67
- Robust metal housing
- Standard PROFINET component of the German automotive production
- Extension of cords according to PROFINET guideline
- For an easy robot termination and a fast exchange of tube packages

Technical characteristics

Locking	PushPull technology according to IEC PAS 61076-3-126
Electrical transmission	16 A / 24 V
Number of contacts	5
Mating cycles	min. 500
Housing material	Aluminium die-cast
Degree of protection acc. to DIN 60529	IP65 / IP67
Temperature range	-40 °C ... +70 °C

Identification

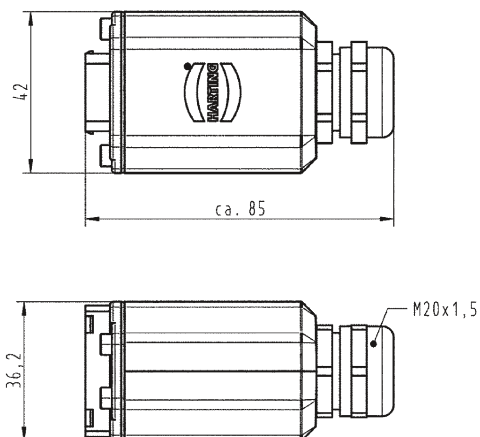
Part number

Drawing

Dimensions in mm

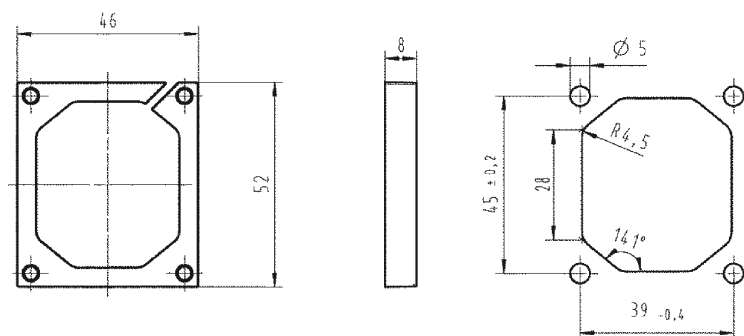
Han® PushPull L
Power 4/0
Coupling metal
including housing,
contact insert Power L,
bulkhead housing
and cable gland

61 04 201 1085 01



Fixing flange

61 04 600 0183 02



Number of contacts

5

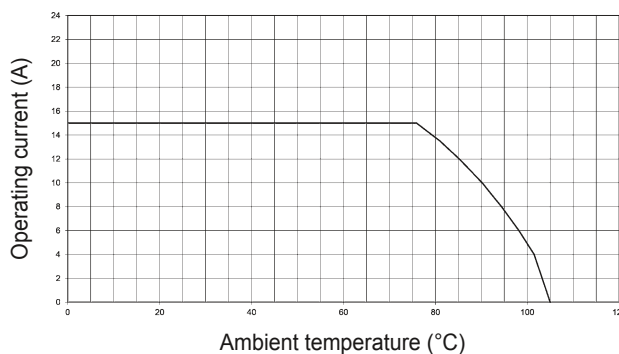
15 A 24 V 4 kV 3



Technical characteristics

Number of contacts	5
Rated current	15 A
Rated voltage	24 V
Rated impulse voltage	4 kV
Pollution degree	3
Limiting temperature	0 ... +55 °C
Storage temperature	-40 ... +70 °C
Mating cycles	≥ 500
Conductor cross-section	0.75 ... 2.5 mm ²
Conductor cross-section	AWG 18 ... AWG 13
Locking type	PushPull
Degree of protection acc. to IEC 60529	IP65 / IP67
Tightening torque	3 Nm
Material (insert)	Polyamide (PA)
Material (hood/housing)	Zinc die-cast
Material (contacts)	Copper alloy
Surface (contacts)	Sn over Ni, Termination side Au over Ni, Mating side

Derating



Specifications and approvals

DNV GL

Identification	Part number	Drawing	Dimensions in mm
Han® PushPull (V14), AIDA H-distributor, Connector, Distributor, AIDA compliant, Han® PushPull (V14), Pack contents: Distributor, 2 fixing screws, 4 Transport protection covers, 2 distance sleeves	61 12 204 0001 02		

PushPull XS SFP Device integration and system cable



Identification	Part number	Drawing	Dimensions in mm
Fibre optic cable PUR jacket, multi mode 50/125 OM3 overmoulded bend relief suitable for housings, long and also usable in the same port as PushPull XS SFP RJ45 double side assembly with PushPull XS SFP	33 26 231 xxx0 012 ¹⁾		
Fibre optic cable PUR jacket, multi mode 50/125 OM3 overmoulded bend relief suitable for housings, short double side assembly with PushPull XS SFP	33 26 231 xxx0 014 ²⁾		
Fibre optic cable PUR jacket, multi mode 50/125 OM3 overmoulded bend relief suitable for housings, long and also usable in the same port as PushPull XS SFP RJ45 Page 1: PushPull XS SFP Page 2: LC duplex	33 26 231 xxx0 013 ¹⁾		
Fibre optic cable PUR jacket, multi mode 50/125 OM3 overmoulded bend relief suitable for housings, short Page 1: PushPull XS SFP Page 2: LC duplex	33 26 231 xxx0 018 ²⁾		

PushPull XS SFP Device integration and system cable



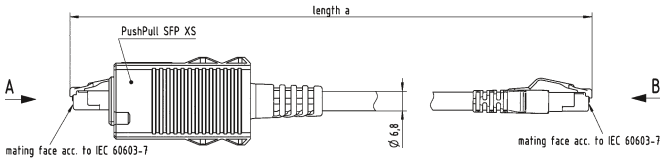
Identification	Part number	Drawing	Dimensions in mm
Fibre optic cable PUR jacket, single mode 9/125 G657.A1 overmoulded bend relief suitable for housings, long and also usable in the same port as PushPull XS SFP RJ45 double side assembly with PushPull XS SFP	33 26 231 xxx0 011 ¹⁾		
Fibre optic cable PUR jacket, single mode 9/125 G657.A1 overmoulded bend relief suitable for housings, short double side assembly with PushPull XS SFP	33 26 231 xxx0 015 ²⁾		
Fibre optic cable PUR jacket, single mode 9/125 G657.A1 overmoulded bend relief suitable for housings, long and also usable in the same port as PushPull XS SFP RJ45 Page 1: PushPull XS SFP Page 2: LC duplex	33 26 231 xxx0 016 ¹⁾		
Fibre optic cable PUR jacket, single mode 9/125 G657.A1 overmoulded bend relief suitable for housings, short Page 1: PushPull XS SFP Page 2: LC duplex	33 26 231 xxx0 017 ²⁾		

¹⁾ For housing 09 57 411 0501 201
²⁾ For housing 09 57 411 0501 200

³⁾ xxx refer Technical characteristics



PushPull XS SFP
Device integration and system cables

Identification	Part number	Drawing	Dimensions in mm
Cat. 6_A cable PVC jacket, 4x2xAWG26/7 single mode 9/125 G657.A1 overmoulded bend relief (PushPull XS SFP) suitable for housings, long and also usable in the same port as PushPull XS SFP LC duplex - 3326231xxx0011 - 3326231xxx0012 - 3326231xxx0013 - 3326231xxx0016	33 25 231 xxx0 001		

1) xxx refer Technical characteristics

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09 35 000 6104	105	09 35 002 4003	89	09 35 222 0421	67	09 35 261 0421	97
09 35 000 6105	105	09 35 002 4003	91			09 35 261 0423	97
09 35 000 6106	105			09 35 225 0311	70		
09 35 000 6107	105	09 35 002 5401	98	09 35 225 0312	70	09 35 262 0401	97
09 35 000 6190	98	09 35 002 5401	102	09 35 225 0331	66	09 35 262 0423	97
09 35 000 6190	99	09 35 002 5402	65				
09 35 000 6190	100	09 35 002 5402	69	09 35 225 0401	74	09 35 431 0501	108
09 35 000 6190	101	09 35 002 5402	84	09 35 225 0402	77		
09 35 000 6190	102	09 35 002 5402	85	09 35 225 0403	77	09 35 433 0311	107
09 35 000 6190	103	09 35 002 5402	88	09 35 225 0421	67		
09 35 000 6190	104	09 35 002 5402	98			09 35 434 0311	107
09 35 000 6190	105	09 35 002 5402	102	09 35 226 0401	74		
09 35 000 6190	106	09 35 002 5402 XL	84	09 35 226 0402	77	09 45 145 1000	34
		09 35 002 5403 XL	84	09 35 226 0403	77	09 45 145 1001	34
09 35 000 6203	105	09 35 002 5404	84	09 35 226 0421	67	09 45 145 1002	34
09 35 000 6204	105	09 35 002 5404 XL	84			09 45 145 1003	34
09 35 000 6205	105	09 35 002 5411	84	09 35 227 0401	78	09 45 145 1004	34
09 35 000 6206	105	09 35 002 5411	87	09 35 227 0421	68	09 45 145 1010	35
09 35 000 6207	105	09 35 002 5411	90			09 45 145 1011	35
		09 35 002 5411	91	09 35 228 0421	67	09 45 145 1012	35
09 35 000 9913	94	09 35 002 5411	101			09 45 145 1013	35
09 35 000 9914	93	09 35 002 5411	104	09 35 229 0401	75	09 45 145 1014	35
09 35 000 9914	94	09 35 002 5412	84				
09 35 000 9915	93	09 35 002 5412	101	09 35 231 0311	103	09 45 145 1106	13
09 35 000 9916	94	09 35 002 5412	104	09 35 231 0312	103		
09 35 000 9917	93	09 35 002 5413	84	09 35 231 0331	99	09 45 145 1521	13
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09 35 002 0301	69	09 35 002 6001	96	09 35 231 0332	100	09 45 145 1561	16
09 35 002 0303	88	09 35 002 6002	96				
09 35 002 0303	96			09 35 231 0401	104	09 45 145 9011	36
09 35 002 0303	102	09 35 002 9901	65	09 35 231 0421	101		
09 35 002 0321	65	09 35 002 9901	69	09 35 231 0423	101	09 45 195 1100	14
09 35 002 0323	85	09 35 002 9901	85				
09 35 002 0323	96	09 35 002 9901	88	09 35 232 0311	103	09 45 195 1520	14
09 35 002 0323	98	09 35 002 9901	98	09 35 232 0312	103	09 45 195 1560	17
		09 35 002 9901	102	09 35 232 0331	99	09 45 245 1561	11
09 35 002 0431	83	09 35 002 9910	67	09 35 232 0331	106	09 45 245 1920	40
09 35 002 0431	106	09 35 002 9910	68	09 35 232 0332	100	09 45 245 1930	40
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09 35 002 2101 333	65	09 35 004 9907	109	09 35 234 0311	103		
09 35 002 2101 333	69	09 35 004 9908	109	09 35 234 0312	103	09 45 345 1560	15
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09 35 002 2102 333	65	09 35 012 0311	96	09 35 234 0332	100	09 45 445 1901	41
09 35 002 2102 333	69	09 35 012 0312	71			09 45 445 1902	41
09 35 002 2106	65	09 35 012 0312	96	09 35 234 0401	104	09 45 445 1903	41
09 35 002 2106	69	09 35 012 0331	66	09 35 234 0421	101	09 45 445 1904	41
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09 35 002 3003	102			09 35 241 0402	90	09 45 445 1911	42
09 35 002 3004	98	09 35 014 0301	107	09 35 241 0421	87	09 45 445 1912	42
09 35 002 3004	102			09 35 241 0422	87	09 45 445 1913	42
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09 35 002 4002	87						
09 35 002 4002	89	09 35 221 0401	74	09 35 242 0313	89	09 45 445 2900	48
09 35 002 4002	90	09 35 221 0421	67	09 35 242 0333	86	09 45 445 2901	48
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				09 35 242 0401	91	09 45 445 2903	48

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09 45 445 2910	49	09 45 545 1120	59	09 45 845 1563	60	09 47 555 5097	81
09 45 445 2911	49	09 45 545 1120	62				
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09 45 445 2913	49	09 45 545 1120	71	09 46 145 1001	34	09 47 555 5104	81
09 45 445 2914	49	09 45 545 1120	83	09 46 145 1002	34		
09 45 445 2915	49			09 46 145 1003	34	09 47 565 6033	81
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09 45 445 2931	47	09 45 545 1561	64	09 46 145 1010	35	09 47 565 6037	81
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09 45 445 2933	47	09 45 545 1561	71	09 46 145 1012	35	09 47 565 6044	81
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09 45 445 2935	47	09 45 545 1562	59	09 46 145 1014	35	09 47 565 6063	81
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09 45 445 2941	50	09 45 545 1562	66	09 46 145 3420	55	09 47 565 6067	81
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09 45 445 2943	50	09 45 545 1562	83			09 47 565 6074	81
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09 45 445 3903	43	09 45 545 9010	95				
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09 45 445 3913	44			09 46 500 0404	53		
09 45 445 3914	44	09 45 551 1100	9	09 46 500 0405	53	09 47 565 7063	81
09 45 445 3915	44	09 45 551 1102	9	09 46 500 0406	53	09 47 565 7065	81
		09 45 551 1103	9	09 46 500 0407	53	09 47 565 7067	81
09 45 445 4900	45	09 45 551 1110	9	09 46 500 0408	53	09 47 565 7072	81
09 45 445 4901	45	09 45 551 1110 333	9			09 47 565 7074	81
09 45 445 4902	45	09 45 551 1150	10	09 46 500 3400	55		
09 45 445 4903	45	09 45 551 1151	10	09 46 500 3401	55	09 47 565 7093	81
09 45 445 4904	45					09 47 565 7095	81
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09 45 445 4912	46	09 45 800 0520	13			09 47 565 7104	81
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09 45 445 4914	46	09 45 800 0520	68	09 46 800 0010	57	09 47 575 7001	82
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09 45 541 1906	39	09 45 840 0006	16	09 46 840 0000	55		
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